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Spawning Areas of British Columbia Herring: A Review, Geographical Analysis and Classification Volume VI: West Coast Vancouver Island

D. E. Hay, P. B. McCarter, R. Kronlund and C. Roy

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May 1989

SPAWNING AREAS OF BRITISH COLUMBIA HERRING

A review, geographical analysis and classification

Volume VI

West Coast Vancouver Island

by

D. E. Hay, P. B. McCarter, R. Kronlund and C. Roy

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Biological Sciences Branch

Pacific Biological Station

Nanaimo, British Columbia V9R 5K6

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ABSTRACT

Hay, D. E., P. B. McCarter, R. Kronlund and C. Roy. 1989. Spawning areas of British Columbia herring: a review, geographical analysis and classification. Volume VI. West Coast Vancouver Island. Can. MS Rep. Fish. Aquat. Sci. 2019: 213 p.

The geographical distribution of herring spawning in British Columbia, was analysed for 50 years, from 1937 to 1986. The analyses was based on approximately 20,000 records of spawning made annually for different regions of the British Columbia coast by Fishery Officers. For each of about 90 geographical subdivisions of the coast, tables are presented to show the annual frequency of spawns in one kilometer segments of the coast. The intensity of spawning in specific areas is shown by histograms. Separate tables present a statistical summary of spawn records, including mean spawning dates. Tables summarizing roe fishery activity (1972-86) are shown for each location. A descriptive summary including a classification of the ecological importance of herring spawning habitat, is presented for each area.

Key words: herring, spawning, British Columbia

RÉSUMÉ

Hay, D. E., P. B. McCarter, R. Kronlund and C. Roy. 1989. Spawning areas of British Columbia herring: a review, geographical analysis and classification. Volume VI. West Coast Vancouver Island. Can. MS Rep. Fish. Aquat. Sci. 2019: 213 p.

Pendant 50 ans, plus précisément de 1937 à 1986, on a étudié la répartition géographique du frai de hareng en Colombie-Britannique. L'analyse se fonde sur des données extraites d'environ 20 000 rapports annuels sur le frai produits par les agents des pecheries à l'égard de diverses régions côtières de la Colombie-Britannique. Pour chacune des quelque 90 subdivisions géographiques de la côte, on a dressé des tableaux qui montrent la fréquence annuelle de frai dans des segments d'un kilomètre. Des histogrammes montrent l'intensité du frai dans les secteurs particuliers. Des tableaux distincts donnent un résumé statistique des données de frai, y compris les dates moyennes de frai. Il y a également des tableaux illustrant la pêche de rogue (1972-1986) à chaque endroit. Chaque secteur fait également l'objet d'un résumé descriptif donnant une classification de l'importance écologique du milieu de frai du hareng.

Mots clés: hareng, frai, Colombie-Britannique

INTRODUCTION

In recent years there has been increased awareness and concern by industry, government and the public about the environmental protection of Pacific herring spawning grounds. A number of nearshore developments, such as oil exploratory activities and mariculture establishments could affect some inter- and subtidal spawning areas used by herring. Much of the British Columbia coast, perhaps 12% or more, has been used as a spawning site at least once during the last 50 years (Hay 1985). However, a much smaller proportion of the coast has been used for repetitive spawning over a number of years. The locations that support repetitive spawning deserve the most attention and consideration from possible environmental impacts. This report provides the basis for identifying significant herring spawning areas and locations which support major herring fisheries.

HERRING SPAWNING RECORDS

Detailed records of herring spawns in British Columbia are collected annually by Fishery Officers (Hay and Kronlund 1987). From 1928 to 1986 a total of nearly 20,000 records from over 1100 locations were recorded. The geographical size of a 'location' can vary from an island or cove measuring only 100 m in length or breadth, to bays or inlets more than 50 km in length. Also, geographical spawning locations frequently are 'clustered' so that sometimes many geographical names are used to describe the same general vicinity. Therefore, the continuity of spawnings cannot be examined by considering only single locations, rather, the adjacent locations should also be considered.

About 70% of all Fishery Officer spawn records have an accompanying map or chart showing the geographical position of each spawning. Records without charts consist of narratives or tables describing the position of each spawn relative to a fixed reference point, such as a Bay, Inlet, Island, etc. For spawn records with accompanying charts, we estimated the geographical positions of each spawn according to 0.1 km intervals along shorelines. This was done in all areas where herring were known to have spawned. Sub-divisions or 'sections' of the Statistical Areas (Hourston and Hamer 1979) were used as the smallest geographical unit. Most sections have a 'zero' position which increases, as high as necessary, to include all of the spawning locations. In several cases, spawning overlaps adjacent sections. In these instances, the spawn positions were made to be continuous between sections. Within most sections, herring spawning was not continuous along the shoreline throughout the whole section. Rather, spawning occurred in several different regions of the section, separated by distances without spawnings. This geographical discontinuity of spawning was reflected in the intervals. The 0.1 km intervals were not defined for the entire coastline but rather only for the

general vicinity of herring spawnings. Therefore, there are geographical gaps in the position numbers. Positions of spawning were defined for each of the 110 sections on the coast that had a sufficient number of records for analysis.

Positions were estimated for records that did not have accompanying charts (about 30%). Using the 70% of the records which did have accompanying charts, an average spawn position was calculated for each (approximately 1100) location. These 'estimated' spawning positions are distinguished from the measured positions in the analysis. A few locations had no charted spawn positions or an insufficient number to make a reasonable estimate. In these relatively few instances we assigned an 'estimated position' to some location names. This assigned position is distinguished from the measured and estimated positions in the analysis.

The accuracy of the estimated spawn positions varied with the quality of the record. Some positions were provided on fine-scaled, detailed maps, which allowed an estimated spawn position in our analysis to within 0.1 km or finer. Sometimes, however, only coarse-scaled charts were available so the estimated spawn position was accurate only to 1.0 km or more. In practice, the least precise estimated position involved records with very long spawns, longer than 5 km.

THE FORMAT OF THIS REPORT

This report is organized into about 106 sections corresponding approximately to sections of the major Statistical Areas defined by the Department of Fisheries and Oceans (Hourston and Hamer 1979). Since the work was completed, however, there have been some minor changes in the Statistical Area boundaries. Also, there have been minor changes in the boundaries and names used for sections (Haist and Rosenfeld 1988). These changes, however, do not interfere with the geographical analysis presented in this report but for some future analyses, these new geographical modifications will have to be made.

For each section, geographical location figures and as many as five tables are presented in the following order:

- (1) The first figure shows an overview chart of the location of the section (highlighted) relative to the whole north, or south coast of British Columbia.
- (2) The second figure shows a more detailed chart (or charts) in 1-km sections. For most of the figures, only every second km is labelled.
- (3) Spawn positions, in km segments, by year are summarized in the first table. The symbols on the charts are explained below.
- (4) The second table shows a histogram of the cumulative frequency of spawning per km segment for spawning data pooled over all years from 1937 to 1986. The symbols are explained below.
- (5) The third table is a statistical summary of spawning, by year from 1937 to 1986. Details of each of the columns in the table are explained below.
- (6) The fourth table is a summary narrative which briefly

summarizes and comments on highlights of the preceding data. (7) The last table shows the history of roe fishery catches summarized by location, date, time and hauled roe fishery catch, by gillnet and seines, in each area.

DERIVATION OF SPAWN POSITIONS USED IN THE TABLES

Analysis of spawn position by year (first table in each section)

For any single position on the coast, there are three types of spawn records:

- (i) Type 1: records with a geographical name (for example, Departure Bay near Nanaimo) and a documented geographical position, supported by Fishery Officer chart or map;
- (ii) Type 2: records with no charted position but with a geographical name that was used to describe locations of spawns. From Type 1 records, an 'average' position, in terms of average km segment, of each geographical name was calculated. For each geographical name, the position of all Type 2 records is shown relative to the 'average' position of the Type 1 records. All spawn data taken prior to 1951 and subsequent to 1983 fall into this category because we have not had the resources to measure the spawn positions.
- (iii) Type 3: records with no charted position and a geographical name that was not ever used with 'type 1' spawns. Therefore, the only spawn position that can be used must be roughly estimated by comparing the approximate geographical position relative to the kilometer intervals extended from adjacent spawn records.

The three types of spawn records are shown with different symbols on the tables 'spawn position by year'. In general, most spawn records have the geographic location indicated on charts. Such a spawn record, for a given year and a specific km interval, is indicated by a digit from 1 to 9, representing from one to nine spawn records within that km interval. The digit '1' is the most common record (i.e., a single record) and it could represent a spawn record that occupied (a) the full length interval (i.e., a full km of spawn, perhaps as part of a longer spawning that extended on both sides of the interval) or (b) only part of the interval. For instance, a spawn record of 100 m length would be represented as '1', a single spawning record within that length interval. A spawn record of 500 or 900 m length also would be indicated as '1', or a single record. However, two short adjacent spawn records, say of 100 m length each and occurring within the same km interval, would be indicated by a '2'. Two records occurring at exactly the same place but at different periods would be indicated by a '2'. Similarly, three or more adjacent records within the km interval, or three spawns occurring at different times within the same years but within the km interval would be indicated by the respective digit from '3' to '9'. There are some instances of numerous records of short spawn records, more than nine

per km, and when this occurs the collective records are indicated by the asterisk symbol '*'.

For 'type 2' spawn records (where the geographical position of each record is estimated on the basis of the 'type 1' records with known positions) a single spawn record per km segment is indicated by the small case letter 'a'. Two records are indicated as 'b', three as 'c' and so on until a maximum of 26, shown as 'z'. Instances with more than 26 records per km are indicated with the symbol '#'. There are only a few instances of these symbols in the tables and when they occur, the represented positions are probably too tightly packed relative to the real positions of the spawns. For instance, sometimes when only a geographical name is used as the basis of the spawn position, then that name could apply either to a precise section of the coast (for example, Point Grey, which represents a relatively exact coastal position) or to a broad area (for example, Burrard Inlet which is many km in length). Therefore, type 2 records with geographical names that apply to broad areas will probably appear to be too condensed in the tables of spawn position by year.

Type 3 records are indicated by the hat symbol '^'. There is no attempt to indicated the number of such records per km interval. Therefore a single hat could indicate one or more type 3 spawn records per km segment.

Sometimes, there is more than one type of spawn record per single km interval. This sometimes happens in recent years when precise geographical names are used at one time as well as a new geographical name that has not been used before. Sometimes 'new' or additional names are used to describe some small, late spawns that occur 2-3 weeks after the main spawning activity.

The combination of different types of records, within a single km is as follows:

Record Combination	Symbol
type 1 records only.....1 to 9, then '*' for 10 or more records	
type 2 records only.....a to z, then '#' for 27 or more records	
type 3 records only.....'^' for 1 or more records	
type 1 plus type 2'\$' for 2 or more records	
type 1 plus type 3'^' for 2 or more records	
type 2 plus type 3'^' for 2 or more records	
type 1 plus type 2 plus type 3'% for 3 or more records	

Analysis of the cumulative spawn frequency by location (second table in each section)

The explanation of this table is similar to that of the first table. The total number of spawn records recorded for a single km interval is shown for each section. As discussed in the explanation for the first table, there are three types of records of spawn. In this histogram, the cumulative frequency of type 1, 2 and 3 records is indicated by the symbols '*', '0' and 'I' respectively and in the far right column, the total numbers of records per each km interval are indicated. For instance, a single record of a spawn with a known position, would appear as a '1' or '2' adjacent the '*' symbols. The number of intervals affected would depend on whether a single spawn overlapped the interval boundaries. Another example could be a 5 km spawn record, with a calculated spawn position (type 2) record, would be indicated by a '5' or '6' adjacent the '0' symbols.

Statistical summary of spawning by location (third table in each section)

This table contains a number of columns that provide a year-by-year quantitative history of spawning, summarized for each section. The explanation for each column is described below:

Column	Heading	Explanation
1	Year	The documented year, between 1937 and 1986.
2	Total records	The total number of spawn records (spawn occurrences) per year.
3	Spawn index	An estimate of the area of spawn (m^2) based on conversion factors that correct for the time trends in estimates of spawn intensity and spawn width (see Hay and Kronlund 1987).
4	Sum length	The total length of spawn in metres, for each year.
5	Av wid	The average width of spawn in metres, for each year.
6	Av int	The average intensity of spawn on a scale of 1 (very light) to 9 (very heavy) (For further explanation, see Hay and Kronlund 1987).
7	Av date	The average spawning date presented by the Day of the year (DOY) where Jan. 1 = DOY 1, Jan. 2 = DOY 2, Feb. 1 = 32 DOY, and so on.
8	SE date	The standard error of the mean weighted spawn date.

9	Wt date	The average <u>weighted</u> spawning date. The date (DOY) of each record is 'weighted' by the length of each record. In most instances, the weighted and unweighted are nearly identical.
10	Min day	The earliest spawn date recorded each year, by DOY
11	Max day	The latest spawn date recorded each year, by DOY
12	Ind day	The number of different days over which spawnings occurred. A single spawn record on a single day would be 1. One single record extending over 5 days would be 5, etc.
13	Ind loc	The number of different spawning locations used. For the total coast, there are a total of about 1100 locations. If there were 10 separate small spawns within the same location, the number would be 1.

Herring spawn summary by location (fourth table in each section)

This table is a narrative based on the following criteria. The 'SPAWNING CONSISTENCY OVER TIME' is described as: (i) 'INFREQUENT' if the spawns were recorded in less than 50 percent of documented years, (ii) 'FREQUENT' if the spawns were recorded in 50 to 79 percent of documented years and (iii) 'CONSTANT' if the spawns were recorded in 80 to 100 percent of documented years. The 'MAGNITUDE OF SPAWNINGS' assessed from 1937 to 1986 for each section is described as: (i) 'VERY SMALL' if there was less than 50 hectares of cumulative spawn area, (ii) 'SMALL' if there was 50-200 hectares of cumulative spawn area, (iii) 'MEDIUM' if there was 201-500 hectares of cumulative spawn area, (iv) 'LARGE' if there was 501-1500 hectares of cumulative spawn area and (v) 'VERY LARGE' if there was greater than 1500 hectares of cumulative spawn area.

History of roe fishery catches by gear type and by location (fifth table in each section)

This table is based on the hauled catches, as reported in annual information bulletins or industry reports (Chalmers et al. 1981, 1982, 1985, 1986 and Humphreys et al. 1972, 1973 and Webb et al 1974, 1975, 1979 and 1980). Catches, in short tons, hauled on the grounds were cited here as they are the most accurate representation of the LOCATION of catches. They may differ from tables reported in the annual catch summaries or stock assessments and forecast reports (Haist et al. 1988) because these documents are usually based on sales slip records. These other reports should be consulted if more accurate total catch figures by major area are required. Furthermore, the first year of the roe fishery (1971) was not included in this compilation due to incomplete or inconsistent records. Also, it should be noted that hauled catches in parenthesis in table 5 indicates herring catch was from two or more sections.

LIMITATIONS AND APPLICATIONS OF THESE ANALYSES

The precise geographical limits of herring spawning probably are accurate to within a kilometer, more in some specific sites and less in others. The original Fishery Officer records were made with varying degrees of precision and the degree of precision often depends on the area of the spawning or survey; areas which have a lot of relatively fine-scale geographical detail, such as the Gulf Islands in southern Georgia Strait, probably are more accurate than areas with fewer geographical details, such as the relatively straight shoreline between Parksville and Deep Bay. In general however, the summaries presented here should be reasonable indicators of spawning activity to the nearest kilometer.

This geographical compilation and historical synopsis of herring spawns represents the culmination of several earlier but briefer versions. One of the earlier analyses, presented at the Annual Herring Stock Assessment Meetings as PSARC WORKING PAPER 86-5, had widespread distribution and was used for examination and evaluation of ecologically sensitive areas relative to potential impacts from oil exploration activities and mariculture developments.

During the several years of preparatory work that has gone into this project, we often have heard the criticism that the herring spawning data base has limited value because of alleged errors and omissions in the records. The most frequently cited error attributed to the records is that the data collected on the spawn dimensions were made in a sloppy way and "often by the cook on a patrol vessel"; alternately, we have heard that some Fishery Officers could not be bothered to go out and look for herring spawn rather, they simply noted the presence or absence of seabirds and assumed that herring spawn occurred wherever birds occurred. Undoubtably, some of these stories are correct, but probably for not more than a few of the nearly 20,000 records used in these analysis. Based on detailed examination of the original records, it is clear that the overwhelming majority of the Fishery Officers who report on herring spawns, do it in a dedicated, professional and competent manner, often with detailed comments and charts accompanying the records.

There are, nevertheless, two kinds of systematic error in these records which should be mentioned. The first appears to be a time-dependent trend for Fishery Officers to underestimate spawn width. This occurred mainly in the earlier years, when it was generally believed that most of the spawn was confined to the inter-tidal zone. It has not been until relatively recent times that the significance of the subtidal fraction has been appreciated (Haeghele et al. 1983). Also, there has been systematic changes in the spawn intensity measurements, in part reflecting changes in the measurement or rating criteria used over the years (see Hay and Kronlund 1987 for more detail). However, neither of these systematic errors have any effect on the analysis in the present study, which does not involve any presentation of the 'spawn index' which is fully described in Hay and Kronlund (1988). The only other kind of error in the records which can severely affect conclusions presented in these analyses, is that of incompleteness. It is clear that for some locations, records were not collected systematically each year. As much as possible we have attempted to comment on this in the narrative summary tables.

others, with no history of herring spawns, are shown to be not important. There are many locations or km segments, however, which are in between. They have a record of spawning which varies in time. These 'intermediate' spawning locations are the most difficult to evaluate in terms of their importance in maintaining the well being of the herring resource.

In general, we suggest that it is essential to conserve the spawning areas that have a history of repetitive spawning over time. Also, areas immediately adjacent to spawning areas must be protected. Ultimately however, each instance of a nearshore development that might impact herring spawning areas must be decided on its own merits and it should be kept in mind that we still do not understand why some areas are used as spawning areas and others are not. Some locations which are not known as spawning areas appear to have the appropriate vegetative substrate and local oceanographic regimes that are found in documented spawning areas (Hay et al. 1984). Further, herring 'enhancement' does not appear to be possible at the present time (Hay and Marliave 1988). Therefore, if herring spawning habitat is lost, we cannot necessarily expect the impacted stocks to spawn in other locations nor can we realistically expect that new spawning habitat can be created. Finally, throughout this report we have commonly used the word "stock" or "resident stock" that refer to herring that inhabit an area. This usage is for convenience only, and cannot be used as an indicator of any particular uniqueness (genetic or otherwise) of herring from one place to the other.

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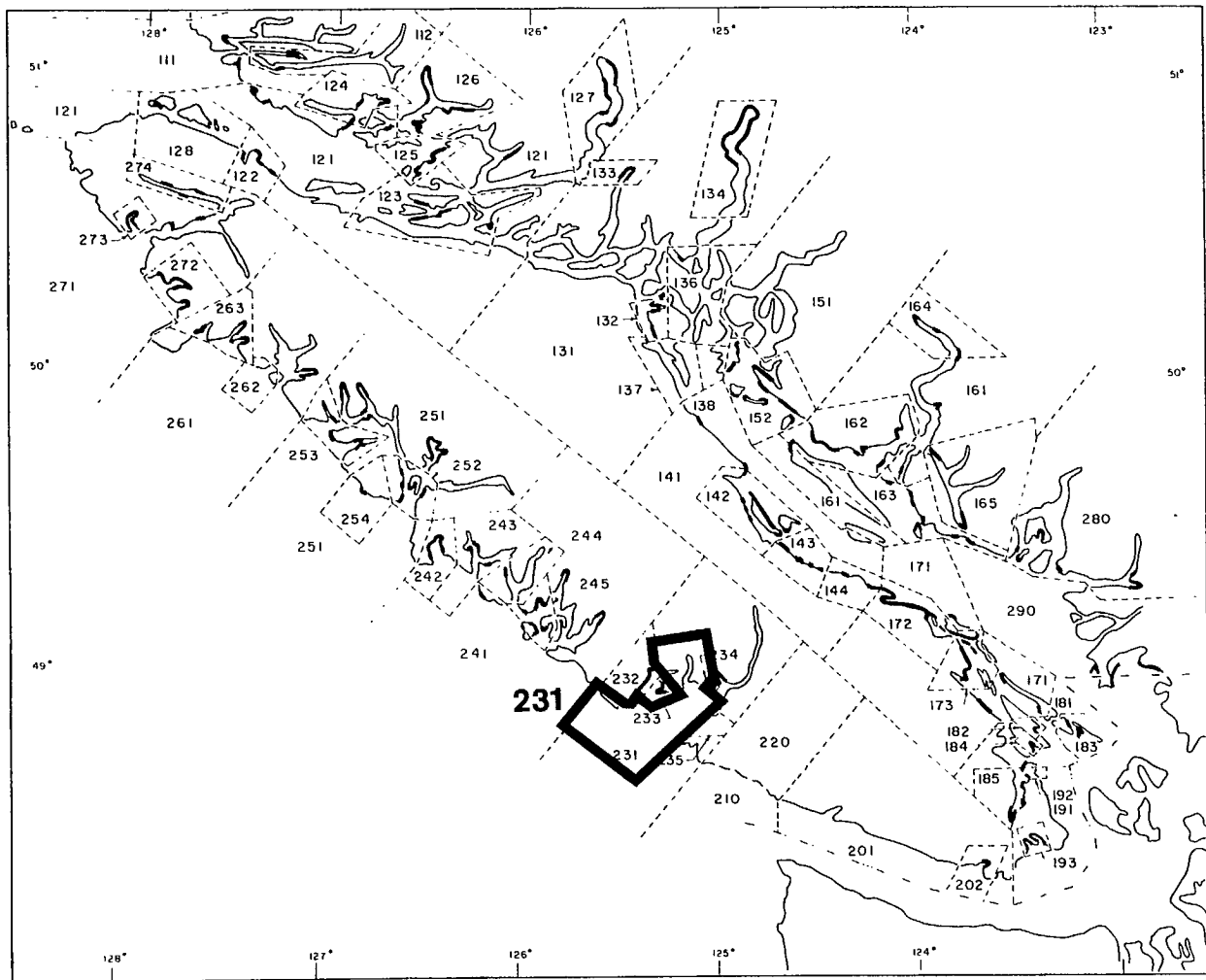


Fig. 231-1. Overview map showing location of section 231, Other Area 23.

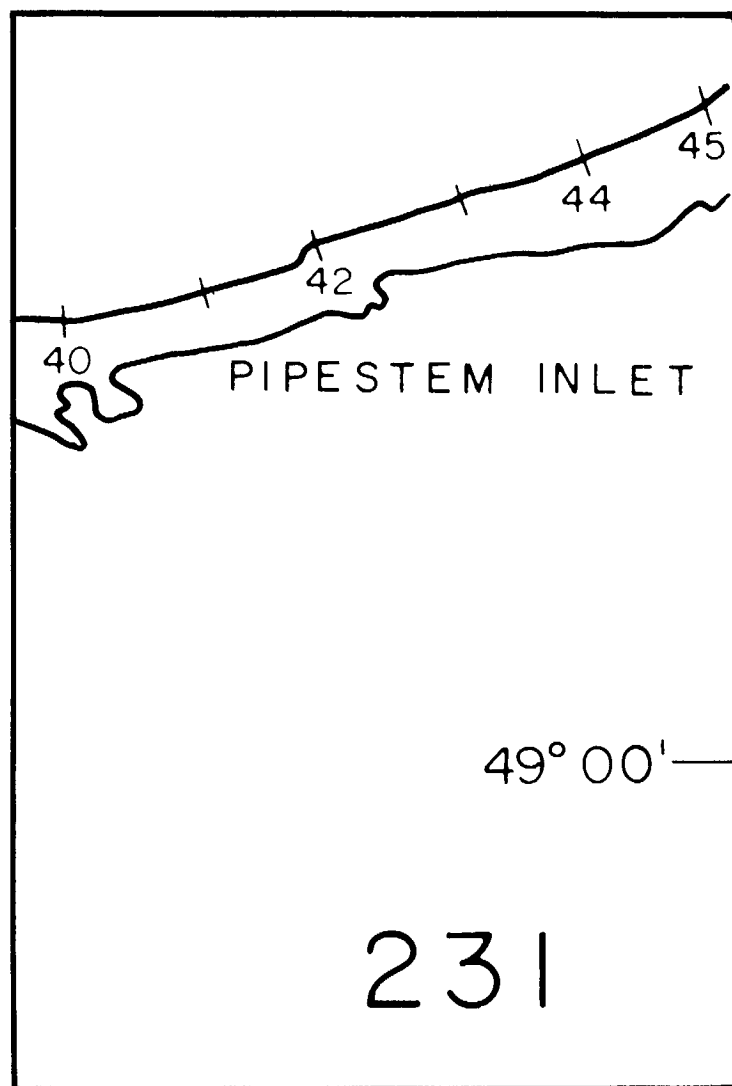


Fig. 231-2. Detailed map of section 231, Other Area 23.

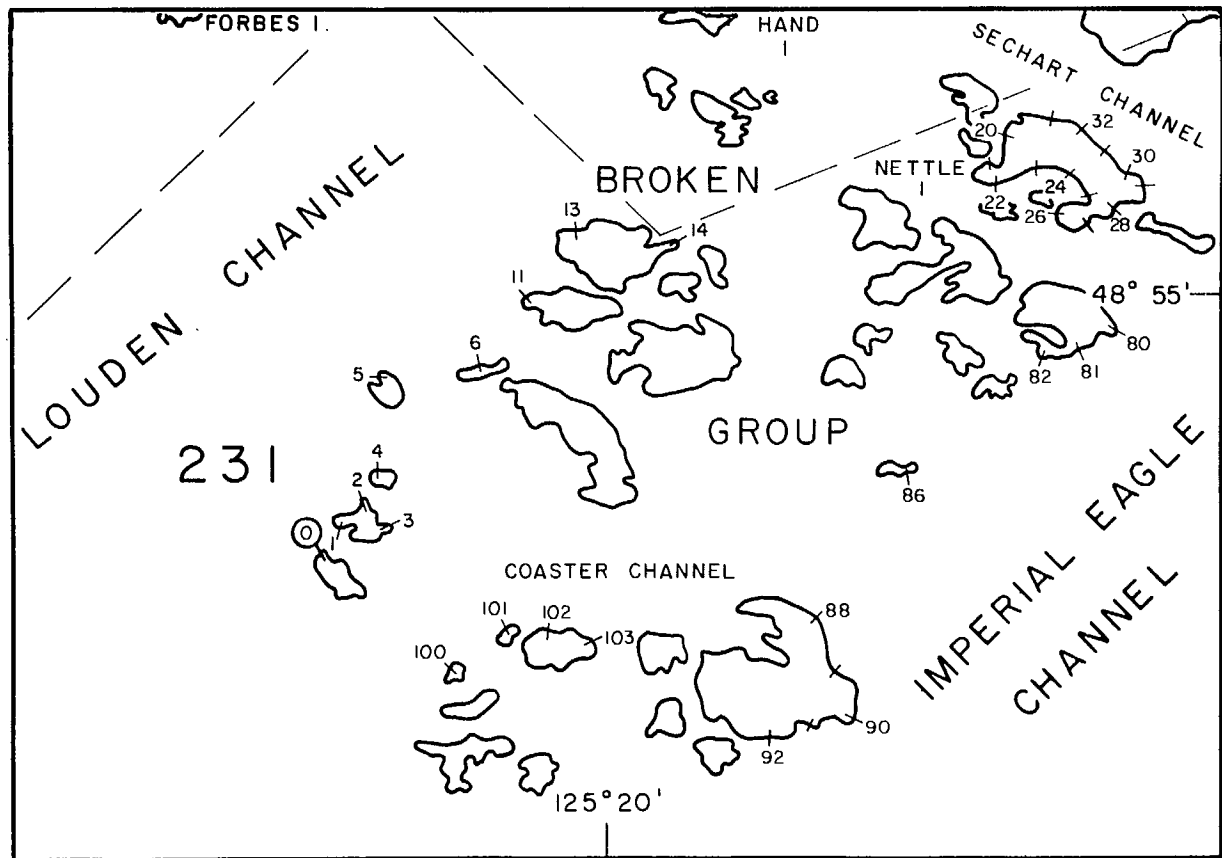


Fig. 231-2. Detailed map of section 231, Other Area 23.

Table 231-1. Section 231 - Spawn position by year.

29.00
+—
1937 +
1938 +
1939 +
1940 +
1941 +
1942 +
1943 +
1944 +
1945 +
1946 +
1947 +
1948 +
1949 +
1950 +
1951 +
1952 +
1953 +
1954 +
1955 +
1956 +
1957 +
1958 +
1959 +
1960 +
1961 +
1962 +
1963 +
1964 +
1965 +
1966 +
1967 +
1968 +
1969 + 11
1970 +
1971 +
1972 +
1973 +
1974 +
1975 +
1976 +
1977 +
1978 +
1979 +
1980 +
1981 +
1982 +
1983 +
1984 +
1985 +
1986 +

+—
29.00
S
E
C
H
A
R
T

C
H
A
N
N
E
L

Table 231-2. Section 231 - histogram of cumulative spawn frequency over distance

position(km)		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
WESTERN (LOUDOUN) CHAN.	0.00 +I																	0	0	1	1
	1.00 +I																	0	0	1	1
	2.00 +I																	0	0	1	1
	3.00 +I																	0	0	1	1
	4.00 +II																	0	0	2	2
	5.00 +II																	0	0	2	2
	6.00 +I																	0	0	1	1
	7.00 +I																	0	0	1	1
	8.00 +I																	0	0	1	1
	9.00 +I																	0	0	1	1
	10.00 +																	0	0	0	0
	11.00 +																	0	0	0	0
	12.00 +																	0	0	0	0
	13.00 +																	0	0	0	0
	14.00 +																	0	0	0	0
	15.00 +																	0	0	0	0
	16.00 +																	0	0	0	0
	17.00 +																	0	0	0	0
	18.00 +																	0	0	0	0
	19.00 +																	0	0	0	0
	20.00 +																	0	0	0	0
NETTLE ISLAND	21.00 +																	0	0	0	0
	22.00 +																	0	0	0	0
	23.00 +																	0	0	0	0
	24.00 +II																	0	0	2	2
	25.00 +IIII																	0	0	5	5
	26.00 +IIII																	0	0	5	5
	27.00 +III																	0	0	3	3
	28.00 +																	0	0	0	0
SECHART CHANNEL	29.00 +																	0	0	0	0
	30.00 +*																	1	0	0	1
	31.00 +*																	1	0	0	1
	32.00 +																	0	0	0	0
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 231-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
PIPESTEM INLET	33.00 +																	0	0	0	0
	34.00 +																	0	0	0	0
	35.00 +																	0	0	0	0
	36.00 +																	0	0	0	0
	37.00 +																	0	0	0	0
	38.00 +																	0	0	0	0
	39.00 +																	0	0	0	0
	40.00 +																	0	0	0	0
	41.00 +l																	0	0	1	1
	42.00 +l																	0	0	1	1
	43.00 +l																	0	0	1	1
	44.00 +l																	0	0	1	1
	45.00 +																	0	0	0	0
	46.00 +																	0	0	0	0
	47.00 +																	0	0	0	0
	48.00 +																	0	0	0	0
EFFINGHAM INLET	49.00 +																	0	0	0	0
	50.00 +																	0	0	0	0
	51.00 +																	0	0	0	0
	52.00 +																	0	0	0	0
	53.00 +lll																	0	0	3	3
	54.00 +lll																	0	0	3	3
UCHUCKLESIT INLET	55.00 +																	0	0	0	0
	56.00 +																	0	0	0	0
	57.00 +																	0	0	0	0
	58.00 +																	0	0	0	0
	59.00 +lllllll																	0	0	7	7
	60.00 +lllllll																	0	0	7	7
VERNON BAY	61.00 +																	0	0	0	0
	62.00 +																	0	0	0	0
	63.00 +																	0	0	0	0
	64.00 +																	0	0	0	0
	65.00 +																	0	0	0	0
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 231-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
SAN MATEO BAY	66.00 +																	0	0	0	0
	67.00 +																	0	0	0	0
	68.00 +																	0	0	0	0
	69.00 +I																	0	0	1	1
	70.00 +I																	0	0	1	1
	71.00 +																	0	0	0	0
	72.00 +																	0	0	0	0
	73.00 +																	0	0	0	0
	74.00 +																	0	0	0	0
	75.00 +																	0	0	0	0
	76.00 +																	0	0	0	0
	77.00 +																	0	0	0	0
	78.00 +																	0	0	0	0
	79.00 +																	0	0	0	0
	80.00 +																	0	0	0	0
	81.00 +																	0	0	0	0
	82.00 +																	0	0	0	0
	83.00 +																	0	0	0	0
MIDDLE (IMPERIAL EAGLE)	84.00 +																	0	0	0	0
	85.00 +																	0	0	0	0
	86.00 +																	0	0	0	0
	87.00 +																	0	0	0	0
	88.00 +																	0	0	0	0
	89.00 +																	0	0	0	0
	90.00 +																	0	0	0	0
	91.00 +																	0	0	0	0
	92.00 +																	0	0	0	0
	93.00 +																	0	0	0	0
	94.00 +																	0	0	0	0
	95.00 +																	0	0	0	0
	96.00 +																	0	0	0	0
	97.00 +																	0	0	0	0
	98.00 +																	0	0	0	0
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 231-2 (cont'd.)

	position(km)																vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
99.00 +																	0	0	0	0
100.00 +																	0	0	3	3
101.00 +																	0	0	3	3
102.00 +																	0	0	0	0
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

COASTER CHANNEL

Table 231-3. Herring statistical spawn summary for section 231.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	4	51118	8409	0	4.0	67.5	8.86	62.2	45	86	4	3
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	2	24444	4021	0	4.0	65.5	1.50	64.6	64	67	2	2
1940	1	2225	366	0	3.0	56.0	0.00	56.0	56	56	1	1
1941	5	8055	1325	0	4.6	71.6	6.65	75.2	56	95	5	4
1942	1	1112	183	23	3.0	61.0	0.00	61.0	61	61	1	1
1943	2	6280	1033	16	2.0	68.0	1.00	67.4	67	69	2	2
1944	5	2948	485	3	2.2	66.4	8.63	59.9	51	98	4	2
1945	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	4	5550	913	4	4.5	48.3	6.21	42.7	35	62	4	2
1948	1	109	18	3	3.0	57.0	0.00	57.0	57	57	1	1
1949	1	11666	1919	5	9.0	80.0	0.00	80.0	80	80	1	1
1950	2	10778	1773	6	7.0	92.5	2.50	90.4	90	95	2	2
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1954	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1955	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1956	2	559	92	10	3.0	99.0	6.00	96.0	93	105	2	2
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	1	2778	457	5	5.0	93.0	0.00	93.0	93	93	1	1
1960	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	1	4444	731	27	5.0	76.0	0.00	76.0	76	76	1	1
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	5	63830	10500	21	0.0	73.0	0.00	73.0	73	73	1	2
1985	5	21428	3525	25	0.0	90.0	0.00	90.0	90	90	1	1
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	42	217324	35750	13	4.0	72.4	2.59	71.5	35	105	24	13

Table 231-4. Spawn summary for section 231 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this section of Barkley Sound:

- (i) Pipestem Inlet
- (ii) Coaster Channel and
- (iii) Vernon Bay

B. COMPLETENESS OF RECORDS:

The completeness of records is uncertain. Probably small spawns on the outer islands could easily be unreported.

C. SPAWNING CONSISTENCY OVER TIME: INFREQUENT

There have been intermittent spawnings since 1937 with most recorded spawnings between 1937 and 1950.

D. MAGNITUDE OF SPAWNINGS: VERY SMALL

1. NUMBER OF SPAWN YEARS/50 YEARS	= 16/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 16/50 (1937-86)
3. CUMULATIVE SPAWN LENGTH	= 35.8 Km.
4. CUMULATIVE SPAWN AREA	= 21.7 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 13 (72.4)
2. MEAN WEIGHTED DATE (DOY)	= March 13 (71.5)

F. COMMENTS:

Section 231 appears to have a scattered record of spawnings. Herring spawning here are of the same biological stock that spawns elsewhere in Barkley Sound (see comments for 232).

G. ROE FISHERIES:

1. NUMBER OF SEINE FISHERY YEARS/15 YEARS	= 8/15 (1972-86)
2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS	= 7/15 (1972-86)
3. MEAN SEINE CATCH/YEAR	= 6554 tons (area 23)
4. MEAN GILLNET CATCH/YEAR	= 3448 tons (area 23)

Table 231-5. History of roe fishery catches by gear type in Other Area 23.

SECT. 231	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	01/03- 17/03	384	(700)	NW Barkley Sound
1974	06/03- 19/03	312	(5300)	NW Barkley Sound	06/03- 22/03	408	(1000)	NW Barkley Sound
1975	09/03- 19/03	236	(6077)	NW Barkley Sound	16/02- 21/03	792	(3161)	NW Barkley Sound
1976	07/03	6.0	(8886)	NW Barkley Sound	29/02- 05/03	120	(9789)	NW Barkley Sound
1977	10/03	2.5	(14850)	NW Barkley Sound	07/03- 09/03	54	(3246)	NW Barkley Sound
1978	10/03	< 4	(3100)	NW Barkley Sound	08/03- 10/03	48	(6067)	NW Barkley Sound
1979	08/03	1.4	(7000)	Macoah Pass & Loudoun Ch.	09/03- 10/03	17	(3000)	NW Barkley Sound
1980	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-
1982	17/03- 18/03	1.5	(3385)	Loudoun & David Ch.	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	08/03	1.8	(5744)	NW Barkley Sound	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

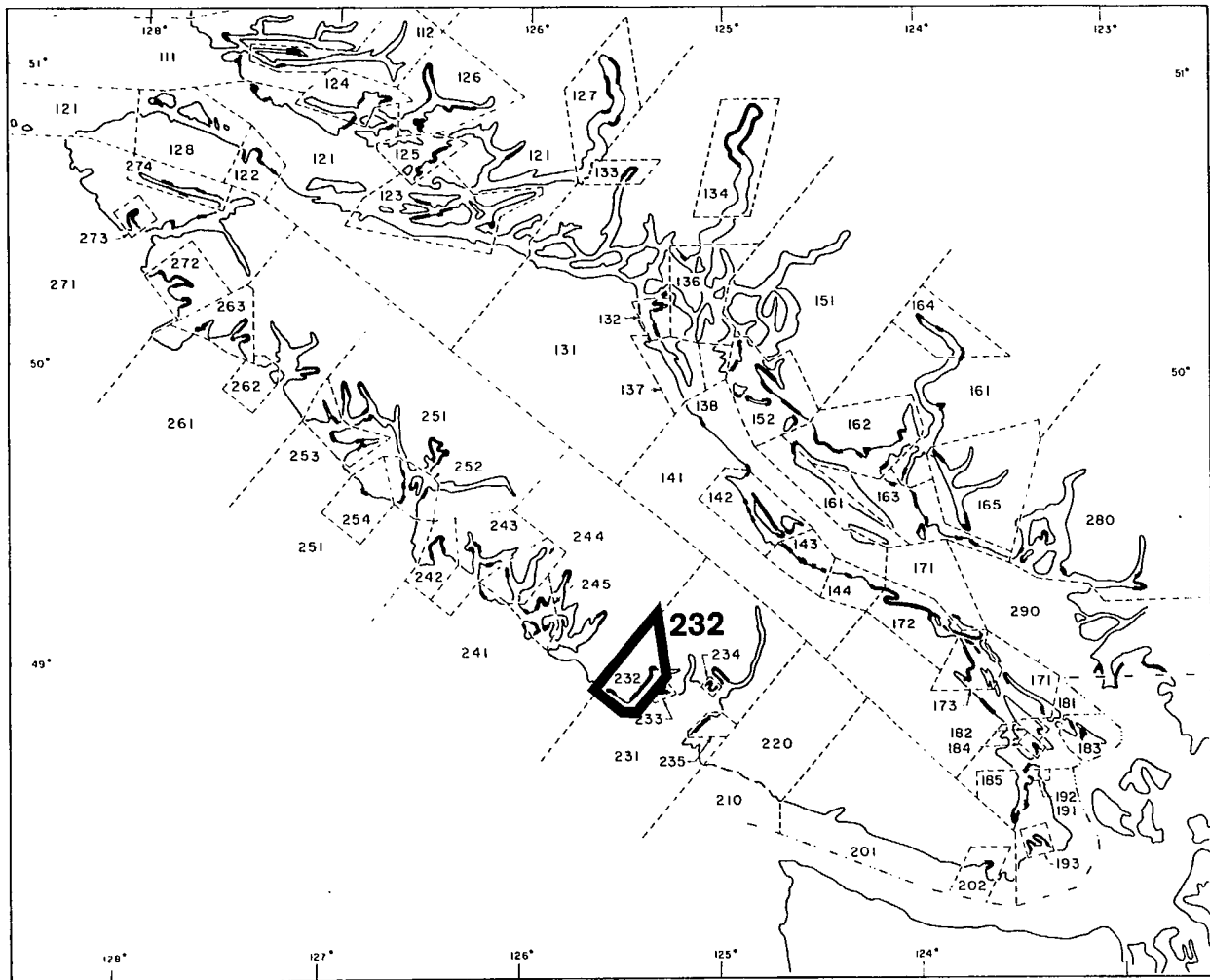


Fig. 232-1. Overview map showing location of section 232, Macoah Pass.

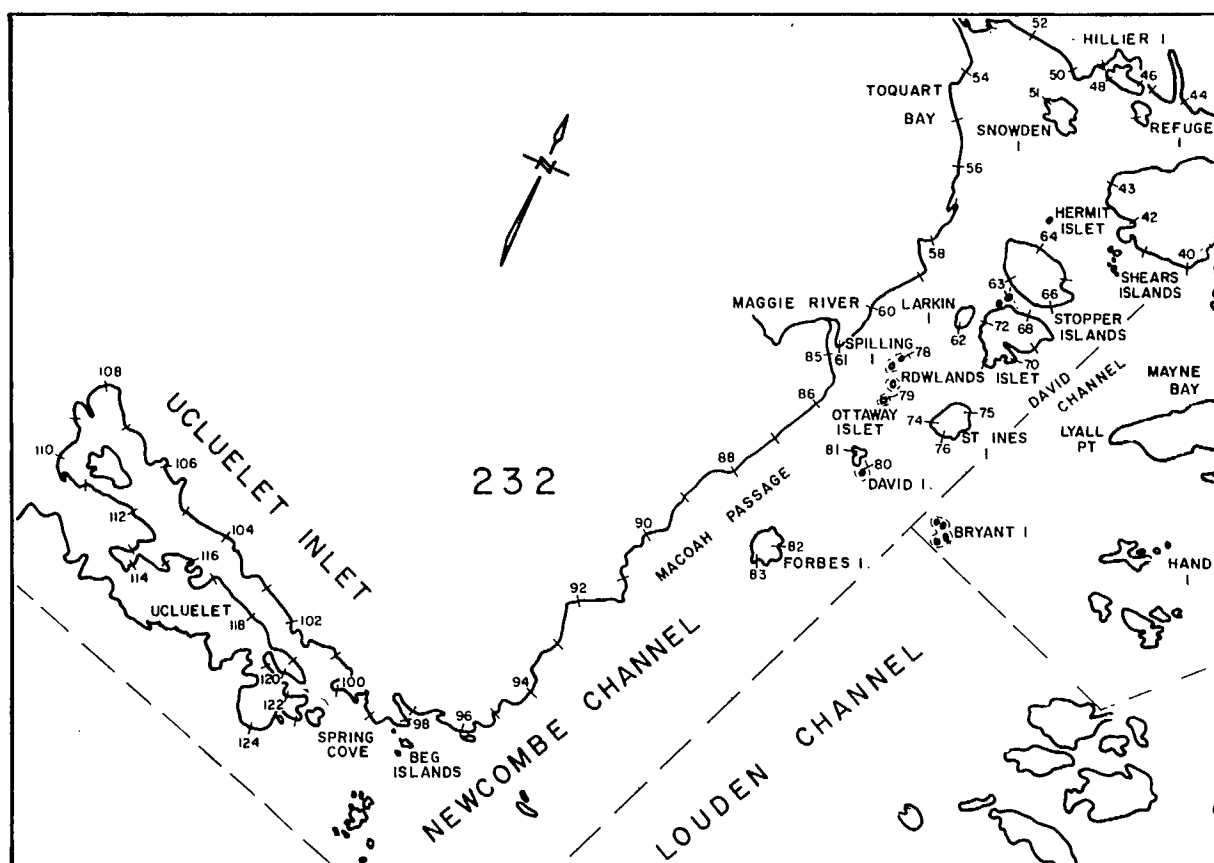


Fig. 232-2. Detailed map of section 232, Macoah Pass.

Table 232-1. Section 232 - Spawn position by year.

	41.00	51.00	61.00	71.00	81.00	91.00	101.00	111.00	121.00
1937 +		a	aaaaaa		aaaaaa			a	
1938 +				aabbdbba					
1938 +		bcccb							
1940 +		aba	abb		aa				
1941 +		abcba	abba		aaa				
1942 +		c	c		a				
1943 +		e	a a	b	aba				
1944 +		a	a	a					
1945 +		bc b	bbba	bccbb	aa				aa
1946 +	a	ada	bba		aa				
1947 +		aca	abab						
1948 +		cec	ca						
1949 +		bbb	bc b		aa				
1950 +		bbb	caeb						
1951 +		c		bbb					
1952 +	1	11111			12 111				
1953 +	11^@21	2311111	1		111 11				
1954 +	22 \$11	1			111111				
1955 +	1 2211b	1 11		aa	121 12				
1956 +	aa a	d	bbbfcb						
1957 +	1	1 2232 2341			1221				
1958 +		2233 221441		11	222221				
1959 +		1111121 11			2				
1960 +		@2321111111			11				
1961 +		1			1				
1962 +		31111122211311			11122				
1963 +		111 22 1			1111				
1964 +	1 242 a	233221			21211				
1965 +		32211			1112				
1966 +	11	111			1111				
1967 +					1				
1968 +	1 22 a	111			1111				
1969 +		111 111			1111				
1970 +	1111111	1211111		11 11	1112				
1971 +		1211 11	111 11	11\$c \$ 3	323411111				
1972 +		1 111 211 12	11 a	1121	121111111			1111	
1973 +	11	1 111 11	11	\$1	111 1				
1974 +		11		23 1	12124 111				
1975 +		1231 1121 31 1	2 3	2 12 2 1111 2					
1976 +	11 32	22412 32		11 22 112112322 11112		11			
1977 +		11111221111 121	1111 121	1 122111211					
1978 +		1111a11221 \$@@ 2b13 1	122 2321	12312			11aa	1111	
1979 +		1122211 \$21421 133 33	8322 2 33422231						241
1980 +		1221 24232311 1 411	b\$3313131321122						
1981 +		22221322221 5521231 121 21	3112 3 222121111						
1982 +	22 11	12111	11 11111 112211111		1				1
1983 +			gd		bj			ra	c
1984 +				aba	aa				
1985 +				b#a	ab f	b		h	
1986 +			caaaaa	dgabbbe	bg bbbba				d

	41.00	51.00	61.00	71.00	81.00	91.00	101.00	111.00	121.00
S	R H	T	L M S	S MOD	F T		B	U	S
S	E I S O		A H A T	T ATA	O W		E	C	P
H	F L N Q		R E G O	. CTV	R O		G	L	R
E	U L O U		K R G P	OAI	B			U	I
A	G I W A		I M I P	I AWD	E R	I		E	N
R	E E D R		N I E E	N HA	S I	S		L	G
S	R E T		T R	E YI	V			E	
	I	N	I R	S / S	I E			A	C
I	S I B		S II I	SIL	S R			N	O
S	L S I A		L SV S	I PSA	L S			D	V
L	A L S Y		A L E L	S ILN	A			S	E
A	N A L		N E R A	L LED	N +				
N	D N A		D T N	A LT	D				
D	D N		D	N I					
S	D		S	D N					

Table 232-2. Section 232 - histogram of cumulative spawn frequency over distance

[illegible]

Table 232-2 (cont'd.)

[illegible]

Table 232-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
UCLUELET	105.00	+	*															1	0	0	1
	106.00	+	*															1	0	0	1
	107.00	+																0	0	0	0
	108.00	+																0	0	0	0
	109.00	+	*	*	*													2	0	0	2
	110.00	+	*	*	*													2	0	0	2
	111.00	+	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	28	0	29
	112.00	+	*	0	0													1	2	0	3
	113.00	+																0	0	0	0
	114.00	+																0	0	0	0
	115.00	+																0	0	0	0
	116.00	+																0	0	0	0
	117.00	+																0	0	0	0
	118.00	+																0	0	0	0
SPRING COVE	119.00	+	*															1	0	0	1
	120.00	+	*	*	*	0												3	1	0	4
	121.00	+	*	*	*	*	*	0	0	0	0	0	0	0	0	0	0	5	8	0	13
	122.00	+	*	*	*	*												3	0	0	3
	123.00	+																0	0	0	0
	124.00	+																0	0	0	0
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 232-3. Herring statistical spawn summary for section 232.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	4	266149	10511	0	5.5	61.3	4.73	61.8	49	72	4	4
1938	4	295521	11671	106	2.5	50.5	6.85	62.4	34	66	4	1
1939	3	244398	9652	0	7.0	64.7	3.71	64.3	60	72	3	1
1940	5	136075	5374	0	3.8	61.4	7.48	67.1	50	87	3	3
1941	6	274935	10858	0	6.3	64.0	1.79	64.9	56	68	3	3
1942	7	31044	1226	20	3.6	64.3	4.56	59.2	49	80	5	3
1943	11	103943	4105	8	3.0	63.4	5.01	61.3	49	102	9	5
1944	3	26638	1052	3	2.3	46.3	4.98	49.3	37	54	3	3
1945	10	523258	20665	49	7.0	64.3	3.80	61.0	51	85	7	5
1946	9	139468	5508	5	5.7	60.3	4.36	64.1	45	79	7	5
1947	6	150913	5960	3	5.0	74.7	4.89	64.6	52	84	4	3
1948	8	196035	7742	11	3.5	55.5	6.82	57.8	16	76	8	2
1949	7	180513	7129	5	5.3	55.9	4.34	53.9	44	71	4	4
1950	10	324033	12797	7	4.0	59.5	6.91	56.1	21	86	8	5
1951	6	153192	6050	12	4.3	75.5	8.05	67.1	42	94	6	3
1952	8	208670	8241	22	4.5	76.9	7.80	70.8	39	100	7	5
1953	12	290888	11488	14	4.5	73.5	3.98	65.7	53	89	7	7
1954	9	203758	8047	5	3.4	80.7	3.50	76.4	73	104	6	2
1955	14	219305	8661	18	3.3	57.6	4.04	54.0	32	94	11	3
1956	15	462387	18261	14	4.3	73.7	7.38	61.8	27	107	12	7
1957	16	286963	11333	15	4.6	57.4	3.71	53.5	27	73	9	3
1958	16	557720	22026	15	2.6	76.3	3.14	79.0	51	93	7	4
1959	7	137949	5448	25	2.4	57.9	6.11	61.5	40	84	6	3
1960	9	194389	7677	10	2.4	68.7	5.76	60.5	38	93	6	4
1961	2	3469	137	9	1.0	57.0	0.00	57.0	57	57	1	1
1962	11	460589	18190	9	3.4	68.7	5.09	72.2	34	100	6	3
1963	7	152230	6012	35	4.9	60.6	3.03	63.5	49	67	3	4
1964	15	431647	17047	25	3.3	58.3	2.23	56.9	48	76	6	5
1965	6	223812	8839	28	1.3	63.3	4.21	65.0	51	77	3	1
1966	3	115717	4570	24	2.3	78.3	6.33	75.8	72	91	2	3
1967	1	6938	274	18	1.0	57.0	0.00	57.0	57	57	1	1
1968	6	214773	8482	19	3.0	68.0	0.63	67.3	66	69	2	4
1969	3	150432	5941	27	4.3	56.7	0.33	56.7	56	57	2	3
1970	12	374928	14807	40	4.2	56.1	0.95	56.0	51	60	6	5
1971	22	491987	19430	36	3.4	86.5	2.27	90.0	64	96	7	7
1972	20	363407	14352	34	3.4	82.3	2.04	87.4	72	97	10	6
1973	11	125010	4937	18	4.3	82.1	2.85	83.1	65	92	7	6
1974	16	145900	5762	67	4.3	71.3	2.82	68.7	66	94	2	1
1975	27	192136	7588	38	4.9	75.3	2.13	78.1	54	87	7	10
1976	32	563873	22269	59	5.0	65.0	0.40	64.9	61	75	7	10
1977	22	624644	24669	48	5.0	74.5	1.12	75.5	69	95	9	10
1978	34	502900	19861	32	3.1	69.1	0.15	69.1	69	74	2	10
1979	63	580636	22931	39	4.8	69.0	0.00	69.0	69	69	1	10
1980	45	483758	19105	21	3.5	85.0	0.00	85.0	85	85	1	12
1981	47	615933	24325	22	0.0	77.9	0.13	77.7	76	79	4	12
1982	17	424481	16764	11	0.0	71.6	1.78	70.3	67	83	3	7
1983	38	371839	14685	71	0.0	74.2	1.19	72.4	65	82	5	4
1984	3	101917	4025	130	0.0	84.0	8.02	80.3	75	100	3	2
1985	56	416277	16440	159	0.0	60.6	1.10	64.2	58	90	3	7
1986	40	615807	24320	89	0.0	77.3	0.18	76.5	76	80	5	12
All	764	14363187	567244	44	4.1	70.4	0.47	68.9	16	107	72	24

Table 232-4. Spawn summary for section 232 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this section of Barkley Sound:

- (i) Toquart Bay
- (ii) Macoah Passage and
- (iii) Ucluelet Inlet

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete in view of the attention this area receives in relation to commercial fisheries.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a constant annual record of spawnings since 1937.

D. MAGNITUDE OF SPAWNINGS: LARGE

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 50/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 50/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 567.2 Km. |
| 4. CUMULATIVE SPAWN AREA | = 1436.3 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 11 (70.4) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 11 (68.9) |

F. COMMENTS:

Section 232 represents the main herring spawning area in Barkley Sound with a continuous record of 764 spawn records between 1937 and 1986, mostly occurring in Macoah Pass and Toquart Bay on the northwest side of Barkley Sound. Adjacent, Broken Group Island sections 231 and 233 have 42 and 204 records, respectively with mean spawn times of March 13 and 18 which are close to Macoah-Toquart mean spawn time of March 11. Sections 234 and 235 on the southeast side of Barkley Sound have 59 and 83 records, respectively with mean spawn times of March 1 and 9. It is likely that all Area 23 spawnings belong to the same Barkley Sound stock although sections 234 and 235 may belong to 'transitory stocks' because of early spawn dates and intermittent records.

G. ROE FISHERIES:

- | | |
|---|-----------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 12/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 8/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 6554 tons (area 23) |
| 4. MEAN GILLNET CATCH/YEAR | = 3448 tons (area 23) |

Table 232-5. History of roe fishery catches by gear type in Macoah Pass.

SECT. 232	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	27/02- 01/04	816	(8010)	Mayne Bay & sect. 243	-	-	-	-
1973	01/03- 07/03	168	(7800)	NW Barkley Sound	01/03 17/03	384	(700)	NW Barkley Sound
1974	06/03- 19/03	312	(5300)	NW Barkley Sound	06/03- 22/03	408	(1000)	NW Barkley Sound
1975	09/03- 19/03	236	(6077)	NW Barkley Sound	16/02- 21/03	792	(3161)	NW Barkley Sound
1976	07/03	6.0	(8886)	NW Barkley Sound	29/02- 05/03	120	(9789)	NW Barkley Sound
1977	10/03	2.5	(14850)	NW Barkley Sound	07/03- 09/03	54	(3246)	NW Barkley Sound
1978	10/03	< 4	(3100)	NW Barkley Sound	08/03- 10/03	48	(6067)	NW Barkley Sound
1979	08/03	1.4	(7000)	Macoah Pass & Loudoun Ch.	09/03- 10/03	17	(3000)	NW Barkley Sound
1980	-	-	-	-	-	-	-	-
1981	11/03	0.8	3400	Newcombe Ch	15/03- 16/03	30	620	Macoah Pass
1982	17/03- 18/03	1.5	(3385)	Loudoun & David Ch.	-	-	-	-
1983	01/03	3.4	5100	Macoah Pass & Toquart Bay	-	-	-	-
1984	08/03	1.8	(5744)	NW Barkley Sound	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

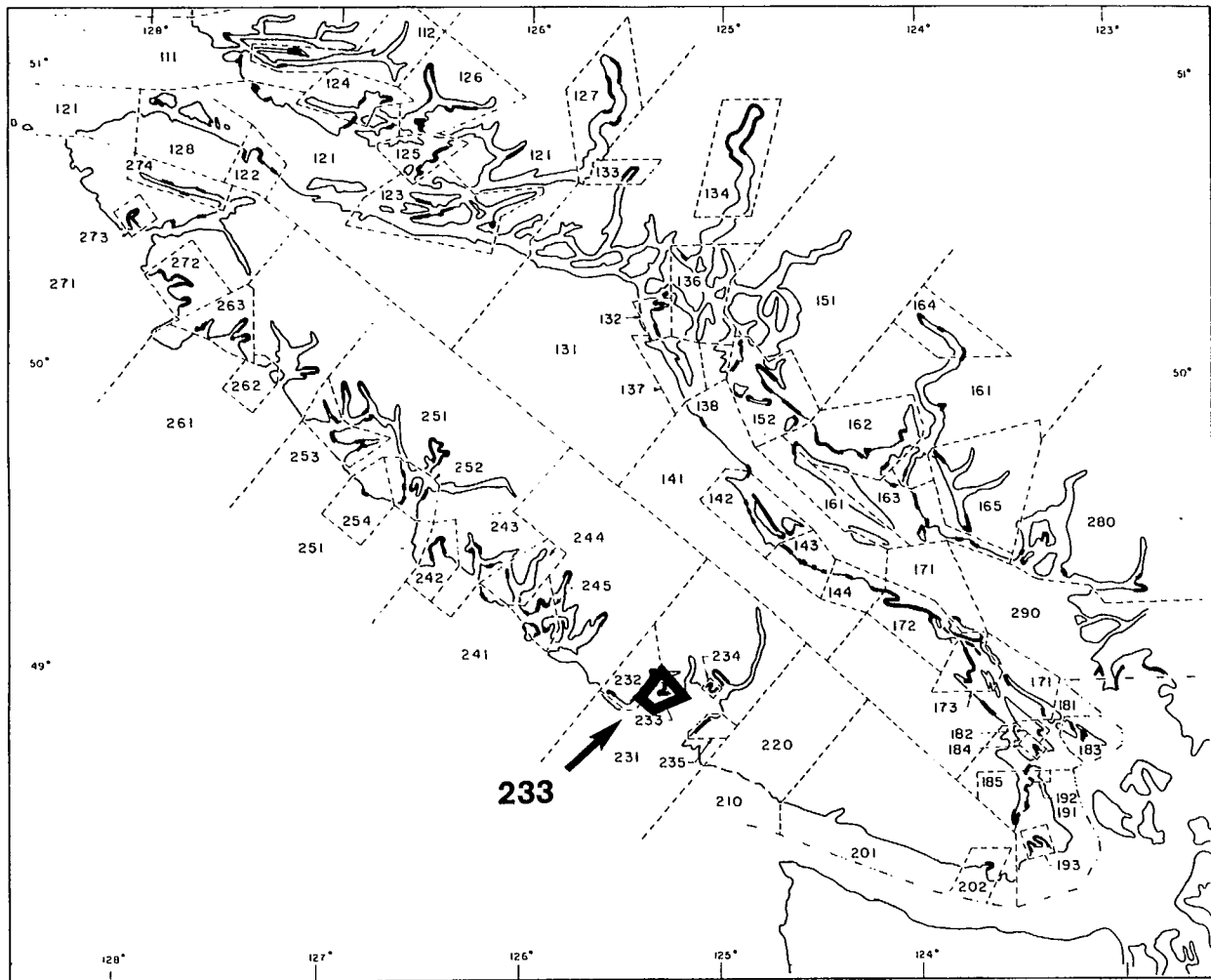


Fig. 233-1. Overview map showing location of section 233, Mayne Bay.

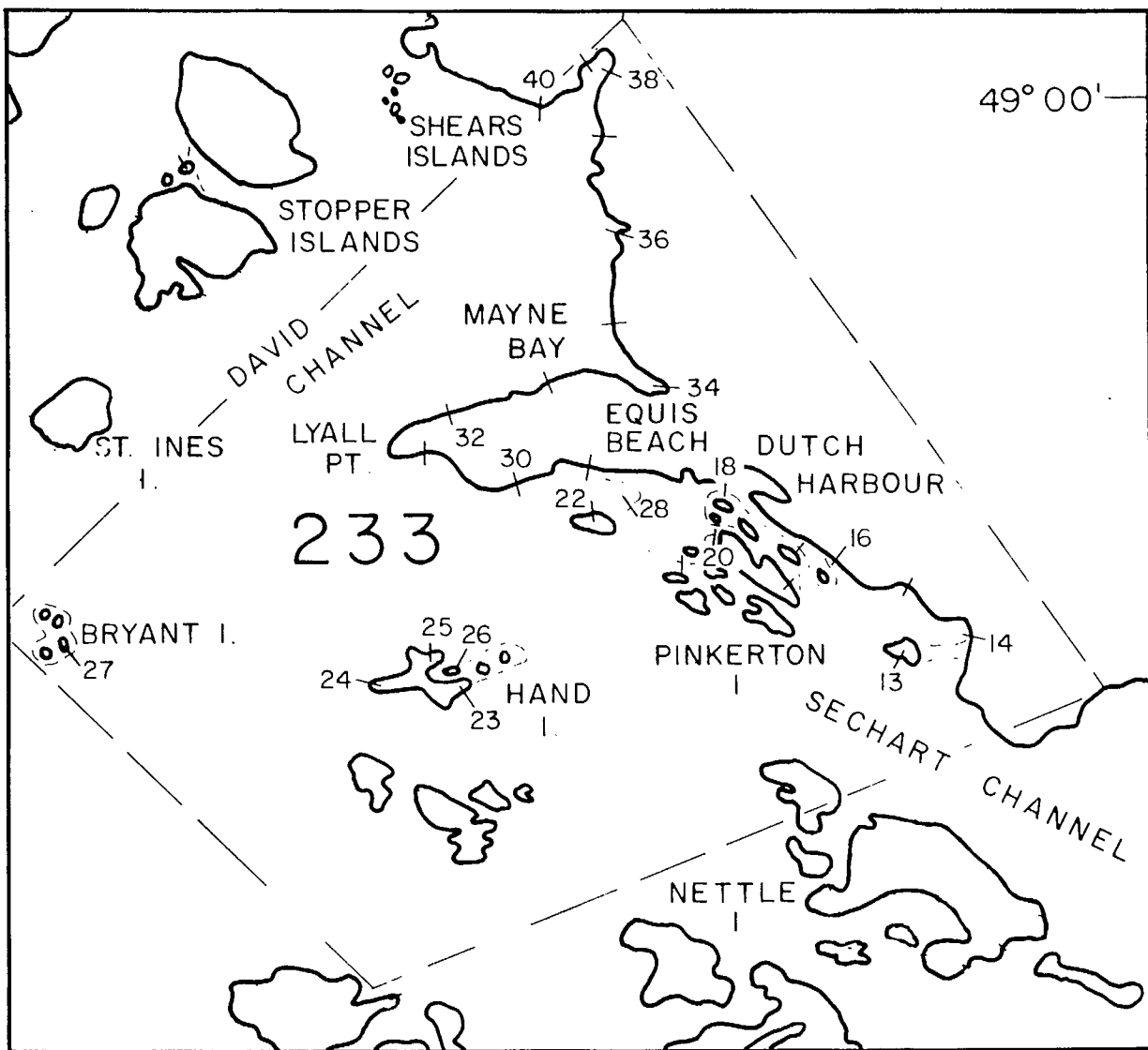


Fig. 233-2. Detailed map of section 233, Mayne Bay.

Table 233-1. Section 233 - spawn position by year.

	12.00	22.00	32.00
1937 +			aaaaa
1938 +			
1939 +		aaa	abbba
1940 +			bbbb
1941 +			cc a
1942 +			
1943 +			a
1944 +			
1945 +		abb	abbcca
1946 +			a a
1947 +			aaa
1948 +			aaa
1949 +			bbb
1950 +			a
1951 +			
1952 +			
1953 +			1
1954 +			
1955 +			1
1956 +			a a
1957 +		1	111
1958 +			1 1
1959 +			
1960 +			11
1961 +	111 1	1211	11 11
1962 +			11111
1963 +			
1964 +			
1965 +			
1966 +			
1967 +			1
1968 +			1
1969 +		12	21
1970 +	11 111		11 1111
1971 +	1 4322	22	23222321
1972 +			212 \$2
1973 +	1 1 411 2	11221	1
1974 +		ba	1313211
1975 +	2 2 \$3	133354321	
1976 +	111	4212	1
1977 +	1121\$22111122111		
1978 +	11	1	
1979 +		222	
1980 +	11 123	221112222	
1981 +		12	
1982 +	11 1111	121	
1983 +			
1984 +			
1985 +			
1986 +		c	
	12.00	22.00	32.00
	P D	BE	L M
	I U	RQ	YDA
	N T	YU	AAV
	K C	AI	LVN
	E H	NS	LIE
	R	T	D
	T H	B	P B
	O A	IE	OCA
	N R	SA	IHY
	B	LC	NA
	I O	AH	TN
	S U	N	N
	L /	D	E
	A		L
	N		
	D		

Table 233-2. Section 233 - histogram of cumulative spawn frequency over distance

	position(km)																vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
	11.00	+															0	0	0	0
	12.00	+															0	0	0	0
	13.00	+	*														1	0	0	1
	14.00	+	*														1	0	0	1
	15.00	+	*														1	0	0	1
	16.00	+	**														2	0	0	2
	17.00	+	***														3	0	0	3
	18.00	+	*****														11	0	0	11
	19.00	+	*****														8	0	0	8
	20.00	+	*****														9	0	0	9
	21.00	+	*****														7	0	0	7
PINKERTON ISLAND	22.00	+	*****														14	0	0	14
	23.00	+	**00														2	2	0	4
DUTCH HARBOU/HAND ISLAND	24.00	+	*****00000000														7	8	0	15
	25.00	+	*****000000														9	6	0	15
	26.00	+	*****														9	0	0	9
BRYANT ISLAND	27.00	+	*****000														6	3	0	9
EQUIS BEACH	28.00	+	*****0														22	1	0	23
	29.00	+	*****0000														17	4	0	21
	30.00	+	*****000000														17	7	0	24
LYALL POINT	31.00	+	*****0000000000														26	11	0	37
DAVID CHANNEL	32.00	+	*****0000000000														23	12	0	35
MAYNE BAY	33.00	+	*****000000000000														19	16	0	35
	34.00	+	*****00000000														12	8	0	20
	35.00	+	***00														3	2	0	5
	36.00	+	***														3	0	0	3
	37.00	+	**														2	0	0	2
	38.00	+	**														2	0	0	2
	39.00	+															0	0	0	0
	40.00	+															0	0	0	0
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 233-3. Herring statistical spawn summary for section 233.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	1	110330	3217	0	3.0	77.0	0.00	77.0	77	77	1	1
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	3	248269	7239	0	8.3	71.3	2.67	72.2	66	74	2	2
1940	2	165513	4826	0	5.0	76.0	4.00	76.0	72	80	2	1
1941	4	69587	2029	0	4.5	63.0	3.49	61.5	55	71	4	2
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	1	6276	183	18	3.0	66.0	0.00	66.0	66	66	1	1
1944	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1945	6	457131	13329	65	6.7	62.2	1.60	62.8	58	67	4	3
1946	2	28226	823	6	6.0	62.0	0.00	62.0	62	62	1	2
1947	1	40744	1188	2	7.0	75.0	0.00	75.0	75	75	1	1
1948	1	63996	1866	7	7.0	94.0	0.00	94.0	94	94	1	1
1949	2	100316	2925	5	4.0	85.5	14.50	89.1	71	100	2	1
1950	1	12552	366	4	3.0	86.0	0.00	86.0	86	86	1	1
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	1	1578	46	46	1.0	55.0	0.00	55.0	55	55	1	1
1954	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1955	1	9397	274	5	1.0	86.0	0.00	86.0	86	86	1	1
1956	2	31347	914	23	6.0	78.5	0.50	78.8	78	79	2	2
1957	3	51753	1509	27	7.0	78.3	8.84	73.2	69	96	3	2
1958	2	12552	366	9	2.0	70.0	1.00	70.0	69	71	2	2
1959	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1960	1	47020	1371	9	3.0	74.0	0.00	74.0	74	74	1	1
1961	9	166884	4866	42	4.3	92.9	2.15	87.6	83	99	4	2
1962	2	106558	3107	18	3.5	71.0	2.00	72.9	69	73	2	1
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	1	12552	366	27	3.0	57.0	0.00	57.0	57	57	1	1
1968	1	926	27	9	1.0	43.0	0.00	43.0	43	43	1	1
1969	4	131662	3839	51	4.5	76.5	0.50	76.1	76	78	2	1
1970	6	225702	6581	50	4.3	70.2	3.71	70.4	57	76	3	2
1971	24	314700	9176	31	3.3	83.9	2.23	85.5	62	101	15	5
1972	8	141094	4114	67	3.3	70.9	0.40	70.5	69	72	4	2
1973	15	159888	4662	58	4.8	70.1	0.89	69.3	66	76	6	3
1974	11	86392	2519	47	5.2	62.5	0.55	62.4	61	66	3	3
1975	33	246897	7199	27	5.5	81.2	0.48	81.3	78	85	4	5
1976	12	70581	2058	20	4.8	65.0	0.00	65.0	65	65	1	1
1977	14	388711	11334	28	5.1	75.6	0.83	74.9	72	82	7	5
1978	2	12518	365	96	3.0	78.0	0.00	78.0	78	78	1	2
1979	4	70581	2058	40	3.0	99.0	0.00	99.0	99	99	1	1
1980	15	267680	7805	75	2.9	86.7	0.13	86.6	86	87	2	4
1981	2	44928	1310	5	0.0	78.0	0.00	78.0	78	78	1	1
1982	4	147404	4298	18	0.0	86.8	1.25	87.2	83	88	2	4
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	3	14061	410	44	0.0	78.0	0.00	78.0	78	78	1	1
All	204	4066306	118565	39	4.5	76.8	0.76	76.1	43	101	40	7

Table 233-4. Spawn summary for section 233 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this section of Barkley Sound:

- (i) Mayne Bay
- (ii) Hand Island and
- (iii) Dutch Harbour

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete.

C. SPAWNING CONSISTENCY OVER TIME: FREQUENT

There have been three main spawning episodes, 1937-50, 1955-62 and 1967-82.

D. MAGNITUDE OF SPAWNINGS: MEDIUM

1. NUMBER OF SPAWN YEARS/50 YEARS	= 36/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 36/50 (1937-86)
3. CUMULATIVE SPAWN LENGTH	= 118.6 Km.
4. CUMULATIVE SPAWN AREA	= 406.3 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 18 (76.8)
2. MEAN WEIGHTED DATE (DOY)	= March 17 (76.1)

F. COMMENTS:

Section 233 is an extension of spawnings occurring in section 232. See comments made for that section.

G. ROE FISHERIES:

1. NUMBER OF SEINE FISHERY YEARS/15 YEARS	= 10/15 (1972-86)
2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS	= 7/15 (1972-86)
3. MEAN SEINE CATCH/YEAR	= 6554 tons (area 23)
4. MEAN GILLNET CATCH/YEAR	= 3448 tons (area 23)

Table 233-5. History of roe fishery catches by gear type in Mayne Bay.

SECT. 233	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	27/02- 01/04	816	(8010)	Mayne Bay & sect. 243	-	-	-	-
1973	01/03- 07/03	168	(7800)	NW Barkley Sound	01/03 17/03	384	(700)	NW Barkley Sound
1974	06/03- 19/03	312	(5300)	NW Barkley Sound	06/03- 22/03	408	(1000)	NW Barkley Sound
1975	09/03- 19/03	236	(6077)	NW Barkley Sound	16/02- 21/03	792	(3161)	NW Barkley Sound
1976	07/03	6.0	(8886)	NW Barkley Sound	29/02- 05/03	120	(9789)	NW Barkley Sound
1977	10/03	2.5	(14850)	NW Barkley Sound	07/03- 09/03	54	(3246)	NW Barkley Sound
1978	10/03	< 4	(3100)	NW Barkley Sound	08/03- 10/03	48	(6067)	NW Barkley Sound
1979	08/03	1.4	(7000)	Macoah Pass & Loudoun Ch.	09/03- 10/03	17	(3000)	NW Barkley Sound
1980	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-
1982	17/03- 18/03	1.5	(3385)	Loudoun & David Ch.	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	08/03	1.8	(5744)	NW Barkley Sound	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

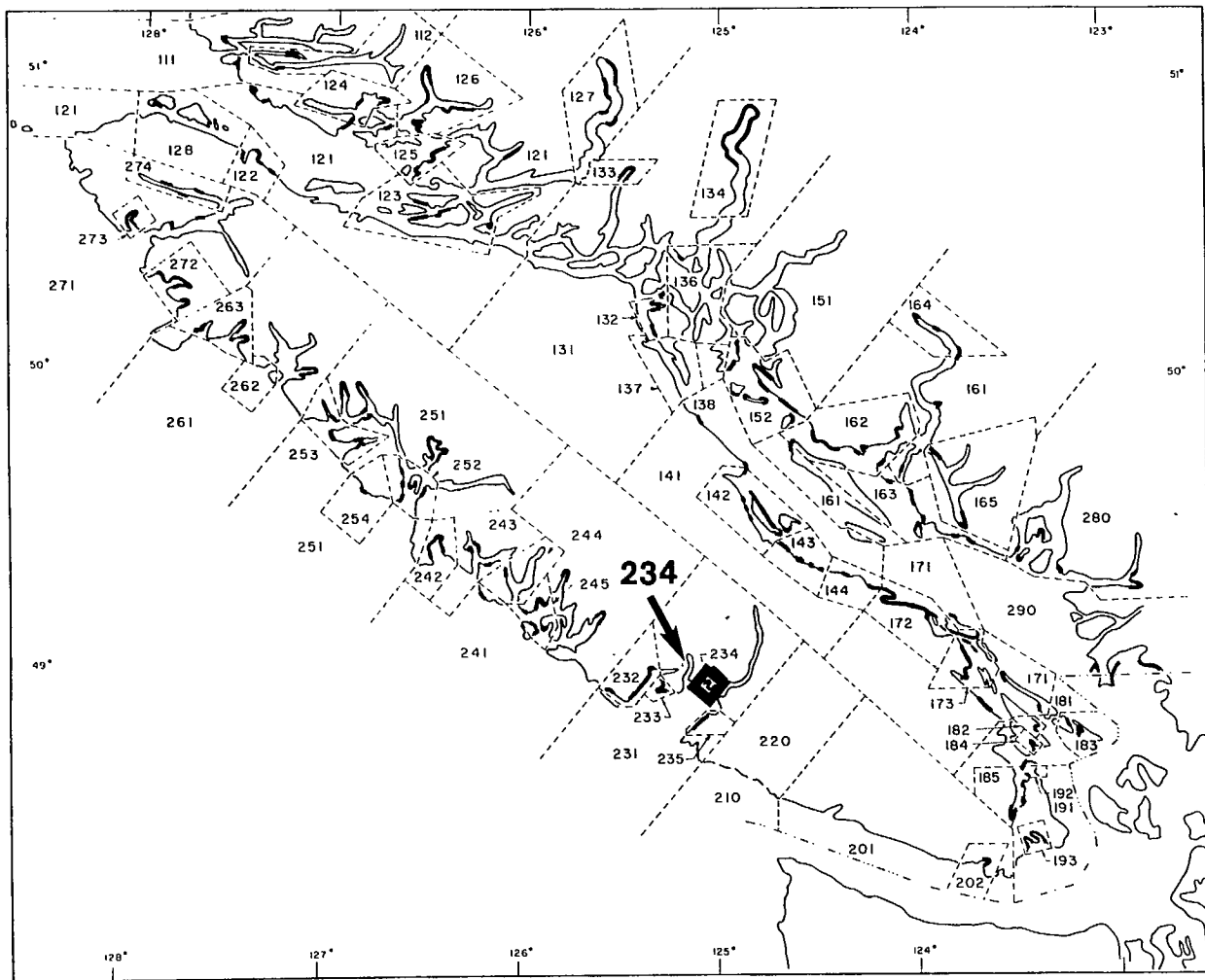


Fig. 234-1. Overview map showing location of section 234, Useless Inlet.

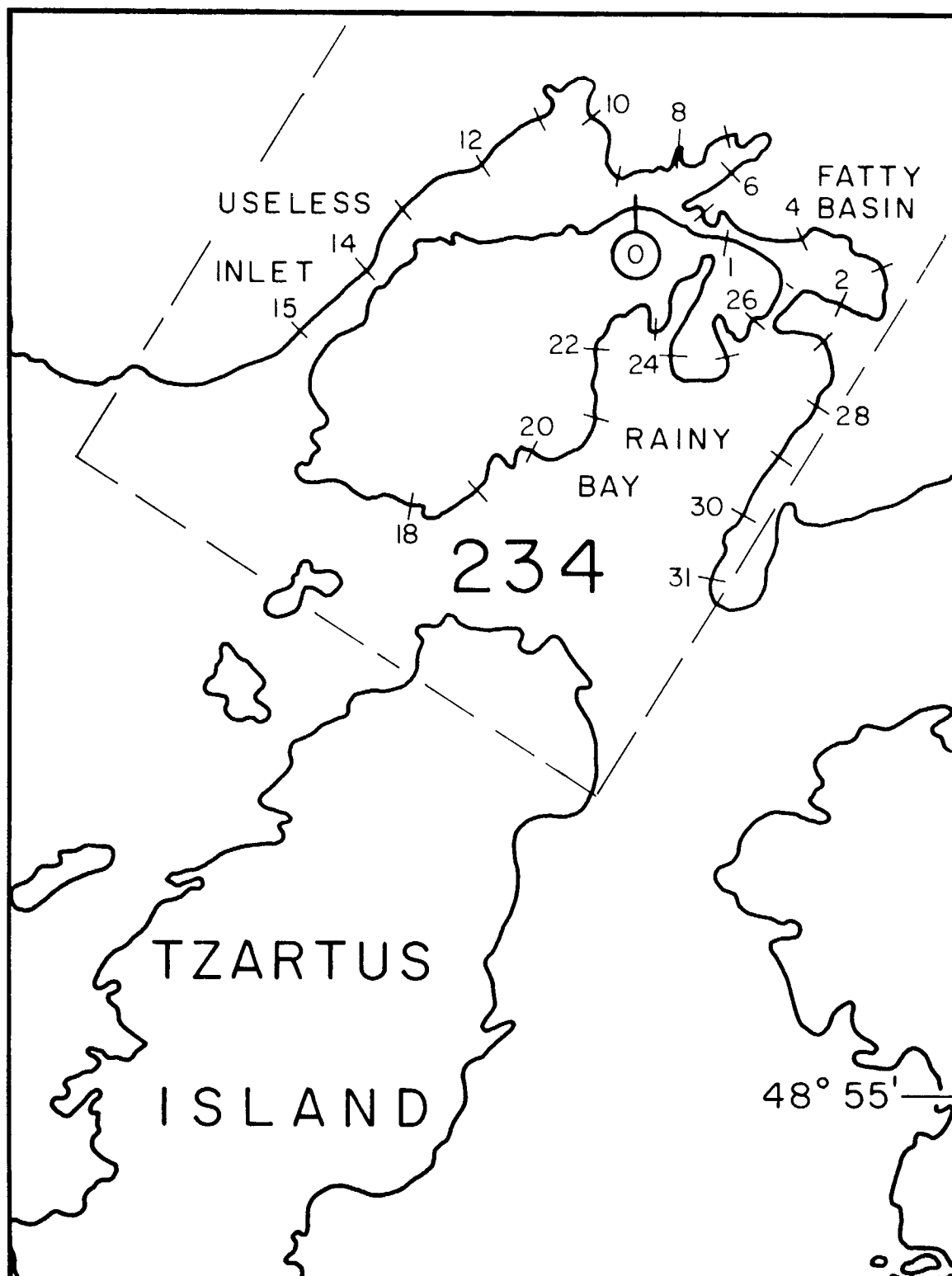


Fig. 234-2. Detailed map of section 234, Useless Inlet.

Table 234-1. Section 234 - Spawn position by year.

2.00	
+---+---	
1937 +	agfa
1938 +	b
1939 +	aa
1940 +	aa
1941 +	aa
1942 +	aa
1943 +	db
1944 +	b
1945 +	aa
1946 +	aa
1947 +	bb
1948 +	ba
1949 +	aa
1950 +	aa
1951 +	bb
1952 +	11
1953 +	1 2 1
1954 +	1 11
1955 +	a\$a21 1
1956 +	b
1957 +	
1958 +	
1959 +	
1960 +	11
1961 +	1 1
1962 +	1
1963 +	
1964 +	
1965 +	
1966 +	
1967 +	
1968 +	
1969 +	
1970 +	
1971 +	11 1
1972 +	
1973 +	11
1974 +	
1975 +	
1976 +	
1977 +	1
1978 +	11 1
1979 +	
1980 +	
1981 +	
1982 +	
1983 +	
1984 +	
1985 +	
1986 +	
+---+---	
2.00	
F U	
A S	
T E	
T L	
Y E	
S	
B S	
A	
S I	
I N	
N L	
E	
T	

Table 234-2. Section 234 - histogram of cumulative spawn frequency over distance

	position(km)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
FATTY BASIN	1.00 +																	0	0	0	0
	2.00 +																	0	0	0	0
	3.00 +***0																	3	1	0	4
	4.00 +*****0																	5	1	0	6
	5.00 +**00																	2	2	0	4
USELESS INLET	6.00 +*****000000000000000000000000000000																	10	31	0	41
	7.00 +****000000000000000000000000000000																	4	21	0	25
	8.00 +**0																	2	1	0	3
	9.00 +**																	2	0	0	2
	10.00 +																	0	0	0	0
	11.00 +																	0	0	0	0
	12.00 +																	0	0	0	0
	13.00 +																	0	0	0	0
	14.00 +																	0	0	0	0
	15.00 +																	0	0	0	0
	16.00 +																	0	0	0	0
	17.00 +																	0	0	0	0
	18.00 +																	0	0	0	0
	19.00 +																	0	0	0	0
	20.00 +																	0	0	3	3
RAINY BAY	21.00 +																	0	0	3	3
	22.00 +																	0	0	0	0

Table 234-3. Herring statistical spawn summary for section 234.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	7	108223	6049	0	4.7	52.7	8.46	51.3	7	76	7	1
1938	2	6548	366	0	2.0	57.5	0.50	57.5	57	58	2	1
1939	1	8176	457	0	3.0	32.0	0.00	32.0	32	32	1	1
1940	1	6548	366	0	3.0	45.0	0.00	45.0	45	45	1	1
1941	3	17998	1006	0	5.7	68.7	17.13	66.8	41	100	3	2
1942	1	8176	457	2	3.0	46.0	0.00	46.0	46	46	1	1
1943	4	16352	914	3	2.0	47.0	8.04	47.6	33	67	4	1
1944	2	4491	251	2	2.0	44.5	6.50	43.9	38	51	2	1
1945	1	8176	457	137	5.0	37.0	0.00	37.0	37	37	1	1
1946	1	9804	548	5	5.0	26.0	0.00	26.0	26	26	1	1
1947	3	45783	2559	4	5.7	45.0	7.21	39.3	35	59	3	2
1948	2	4509	252	48	1.0	62.0	10.00	70.2	52	72	2	1
1949	1	27803	1554	27	5.0	45.0	0.00	45.0	45	45	1	1
1950	1	27803	1554	27	3.0	63.0	0.00	63.0	63	63	1	1
1951	2	43350	2423	17	3.0	60.5	14.50	65.1	46	75	2	1
1952	2	8176	457	69	1.0	56.0	0.00	56.0	56	56	1	1
1953	4	14653	819	16	2.0	69.8	7.15	59.4	55	82	3	2
1954	3	8176	457	34	3.0	77.3	8.45	70.2	64	93	3	2
1955	5	40076	2240	56	3.0	71.8	5.62	82.9	58	85	4	2
1956	2	5725	320	94	2.0	45.5	7.50	44.4	38	53	2	1
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1960	2	1789	100	18	1.0	91.0	2.00	91.9	89	93	2	2
1961	2	2451	137	46	1.0	72.0	0.00	72.0	72	72	1	2
1962	1	2040	114	9	1.0	41.0	0.00	41.0	41	41	1	1
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	2	12273	686	55	5.0	86.0	0.00	86.0	86	86	1	2
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	1	4097	229	69	1.0	74.0	0.00	74.0	74	74	1	1
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	1	8176	457	183	5.0	83.0	0.00	83.0	83	83	1	1
1978	2	10949	612	138	3.0	77.0	0.00	77.0	77	77	1	1
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	59	462321	25841	42	3.1	60.4	2.51	56.9	7	100	39	3

Table 234-4. Spawn summary for section 234 from 1937 to 1986.

A. GENERAL:

There is one main spawning area in this section of Barkley Sound centered in Rainy Bay and Fatty Basin.

B. COMPLETENESS OF RECORDS:

Spawning records are probably complete only from 1937 to 1956 which coincides closely with the operation of a fish reduction plant at Ecoole. The completeness subsequent to then is uncertain, but it is certain that the early Fatty Basin spawnings have stopped.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a constant annual record of spawnings from 1937 to 1956 with intermittent spawning from 1956 to 1986.

D. MAGNITUDE OF SPAWNINGS: SMALL

1. NUMBER OF SPAWN YEARS/50 YEARS	= 27/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 20/20 (1937-56)
3. CUMULATIVE SPAWN LENGTH	= 25.8 Km.
4. CUMULATIVE SPAWN AREA	= 46.2 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 1 (60.4)
2. MEAN WEIGHTED DATE (DOY)	= February 26 (56.9)

F. COMMENTS:

There was a continuous record of early spawnings in Fatty Basin until 1956. Since then there have been only occasional records. For unknown reasons, it appears that herring have stopped spawning in Fatty Basin and there are no records of early spawns (often early February) elsewhere in Barkley Sound (also, see comments for section 232).

G. ROE FISHERIES:

No major roe fisheries are documented.

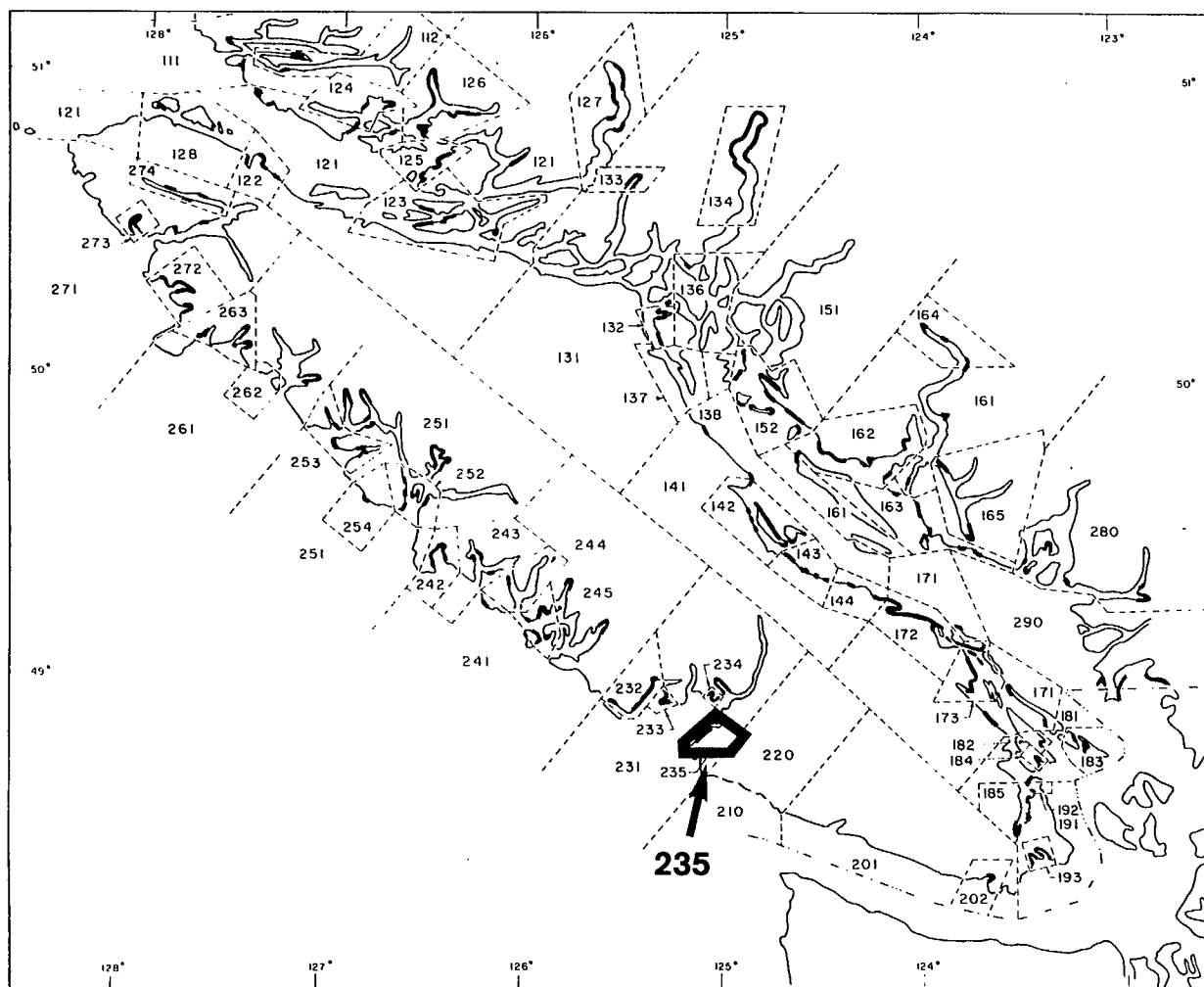


Fig. 235-1. Overview map showing location of section 235, Bamfield Inlet.

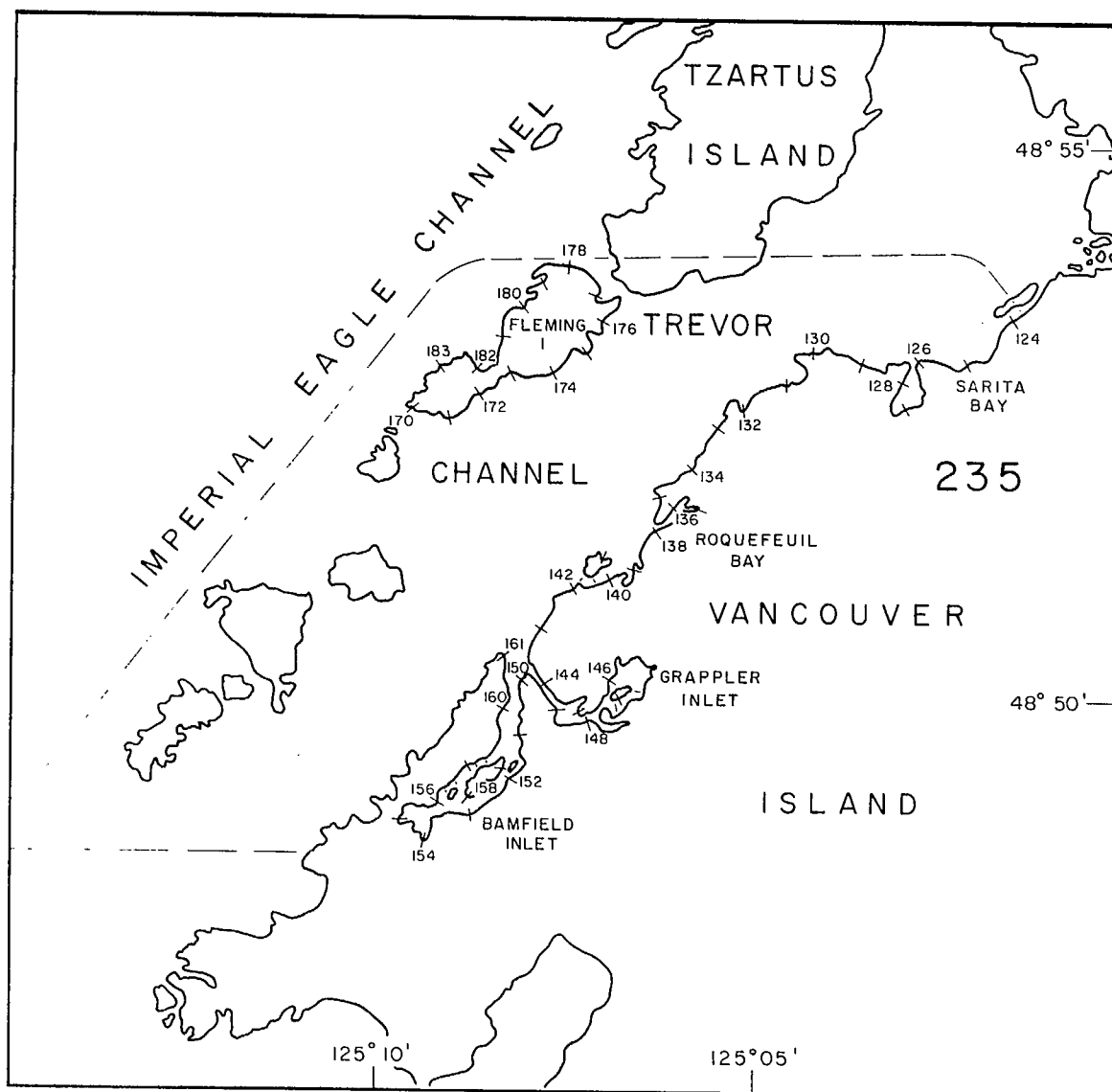


Fig. 235-2. Detailed map of section 235, Bamfield Inlet.

Table 235-1. Section 235 - Spawn position by year.

	126.00	136.00	146.00	156.00
1937 +	a		aaa	
1938 +				a
1939 +				
1940 +				
1941 +				
1942 +				
1943 +				aa
1944 +				a
1945 +				abbaa
1946 +				b
1947 +				aa
1948 +				a
1949 +				a
1950 +			aa	aa
1951 +				b
1952 +		1		1
1953 +	1			12 1
1954 +		11		11
1955 +		a		2 1
1956 +				bb
1957 +				1 1
1958 +		1111		2
1959 +	1			1 1
1960 +				aa
1961 +				11 1 11
1962 +				1
1963 +				
1964 +				
1965 +				1
1966 +				1
1967 +				1
1968 +				11
1969 +				
1970 +				11
1971 +				
1972 +				1
1973 +				1 1
1974 +				
1975 +		111 1		
1976 +		1\$\$\$\$1	1 1	111
1977 +				
1978 +			111 1	1111
1979 +			1 22	12341
1980 +				
1981 +				
1982 +				
1983 +				
1984 +				
1985 +				
1986 +				

	126.00	136.00	146.00	156.00
S		R	G	B
A		T	R	A
R		R	A	M
I		E	P	F
T		V	P	I
A		O	L	E
		R	E	L
B		U	R	D
A		(		
Y		E	I	I
		A	N	N
		S	L	L
		T	E	E
		)	T	T
		C		
		H		
		)		

Table 235-2. Section 235 - histogram of cumulative spawn frequency over distance

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
SARITA BAY	125.00	+																0	0	0	0
	126.00	+																0	0	0	0
	127.00	++0																1	1	0	2
	128.00	+																0	0	0	0
	129.00	+																0	0	0	0
	130.00	+																0	0	0	0
TREVOR (EASTERN) CHAN.	131.00	+																0	0	0	0
	132.00	+																0	0	0	0
	133.00	+																0	0	0	0
	134.00	+++																2	0	0	2
	135.00	++++0																4	1	0	5
	136.00	++++0																4	1	0	5
ROQUEFEUIL (KELP) BAY	137.00	++++00																3	2	0	5
	138.00	++++0																4	1	0	5
	139.00	+++0																2	1	0	3
	140.00	+++																2	0	0	2
	141.00	+																0	0	0	0
	142.00	+																0	0	0	0
GRAPPLER INLET	143.00	+																0	0	0	0
	144.00	++																1	0	0	1
	145.00	+++00																2	2	0	4
	146.00	++00																1	2	0	3
	147.00	++0																1	1	0	2
	148.00	+																0	0	0	0
BAMFIELD INLET	149.00	+																0	0	0	0
	150.00	+++																2	0	0	2
	151.00	++																1	0	0	1
	152.00	+++++++																8	0	0	8
	153.00	+++++++0																11	1	0	12
	154.00	++++00000000																4	8	0	12
BAMFIELD INLET	155.00	++++0000000000000000																7	16	0	23
	156.00	+++++0																7	1	0	8
	157.00	+++++0																5	1	0	6
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 235-2 (cont'd.)

	position(km)																vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
158.00	*****																7	0	0	7
159.00	***																3	0	0	3
160.00	+																1	0	0	1
161.00	+																0	0	0	0
162.00	+																0	0	0	0
163.00	+																0	0	0	0
164.00	+																0	0	0	0
165.00	+																0	0	0	0
166.00	+																0	0	0	0
167.00	+																0	0	0	0
168.00	+																0	0	0	0
169.00	+																0	0	0	0
170.00	+																0	0	0	0
171.00	+																0	0	0	0
172.00	+I																0	0	1	1
173.00	+I																0	0	1	1
174.00	+I																0	0	1	1
175.00	+I																0	0	1	1
176.00	+																0	0	0	0

FLEMING ISLAND

Table 235-3. Herring statistical spawn summary for section 235.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	2	39501	2194	0	5.0	54.0	16.00	67.3	38	70	2	2
1938	1	1638	91	0	3.0	58.0	0.00	58.0	58	58	1	1
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1941	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	1	8228	457	6	3.0	47.0	0.00	47.0	47	47	1	1
1944	1	4933	274	4	3.0	34.0	0.00	34.0	34	34	1	1
1945	2	76103	4227	51	6.0	49.5	12.50	58.6	37	62	2	1
1946	2	3619	201	9	4.0	47.0	11.00	51.0	36	58	2	1
1947	1	16456	914	4	7.0	45.0	0.00	45.0	45	45	1	1
1948	1	6589	366	14	1.0	57.0	0.00	57.0	57	57	1	1
1949	1	828	46	46	3.0	44.0	0.00	44.0	44	44	1	1
1950	2	14799	822	16	1.0	54.0	6.00	52.0	48	60	2	2
1951	2	2557	142	35	1.0	57.5	11.50	57.2	46	69	2	1
1952	2	8228	457	30	3.0	51.0	10.00	49.0	41	61	2	2
1953	4	22559	1253	26	4.5	75.0	7.07	81.1	55	85	3	2
1954	2	29617	1645	28	5.0	74.0	13.00	82.7	61	87	2	2
1955	4	22217	1234	9	3.0	56.3	12.19	46.6	37	91	4	2
1956	2	37844	2102	18	1.0	54.0	17.00	56.2	37	71	2	1
1957	2	9470	526	18	2.0	62.0	14.00	51.7	48	76	2	1
1958	3	55956	3108	17	2.3	74.0	5.51	69.9	68	85	3	2
1959	3	8714	484	69	3.0	77.7	6.33	82.9	65	84	2	2
1960	1	8228	457	46	1.0	62.0	0.00	62.0	62	62	1	1
1961	4	26322	1462	44	2.0	72.5	10.81	80.2	50	91	3	1
1962	1	828	46	9	1.0	44.0	0.00	44.0	44	44	1	1
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	1	7400	411	5	1.0	50.0	0.00	50.0	50	50	1	1
1966	1	828	46	5	1.0	36.0	0.00	36.0	36	36	1	1
1967	1	9866	548	46	5.0	74.0	0.00	74.0	74	74	1	1
1968	2	1656	92	9	2.0	51.0	13.00	53.5	38	64	2	1
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	1	16456	914	46	1.0	58.0	0.00	58.0	58	58	1	1
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	1	1638	91	14	1.0	88.0	0.00	88.0	88	88	1	1
1973	2	2467	137	46	1.0	82.0	0.00	82.0	82	82	1	1
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	2	31255	1736	58	3.0	97.0	0.00	97.0	97	97	1	1
1976	11	158399	8798	78	4.5	91.0	3.10	95.9	75	97	2	3
1977	1	43444	2413	5	4.0	94.0	0.00	94.0	94	94	1	1
1978	3	105341	5851	5	3.3	85.0	0.00	85.0	85	85	1	2
1979	13	72250	4013	13	1.9	69.0	0.00	69.0	69	69	1	1
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	83	856234	47558	31	2.9	68.4	2.06	75.2	34	97	35	5

Table 235-4. Spawn summary for section 235 from 1937 to 1986.

A. GENERAL:

- There are two main spawning areas in this section of Barkley Sound:
- (i) Bamfield Inlet and
 - (ii) Roquefeuil Bay

B. COMPLETENESS OF RECORDS:

Uncertain. Some years are known to be incomplete.

C. SPAWNING CONSISTENCY OVER TIME: FREQUENT

There have been two main spawning episodes, 1943-62 and 1975-79 with intermittent spawnings in other years.

D. MAGNITUDE OF SPAWNINGS: SMALL

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 34/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 34/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 47.6 Km. |
| 4. CUMULATIVE SPAWN AREA | = 85.6 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 9 (68.4) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 16 (75.2) |

F. COMMENTS:

It seems unlikely that Bamfield Inlet and the adjacent areas could support a separate stock in view of the close proximity to the major spawning sites in Macoah Pass and Toquart Bay (also, see comments for section 232).

G. ROE FISHERIES:

No major roe fisheries are documented.

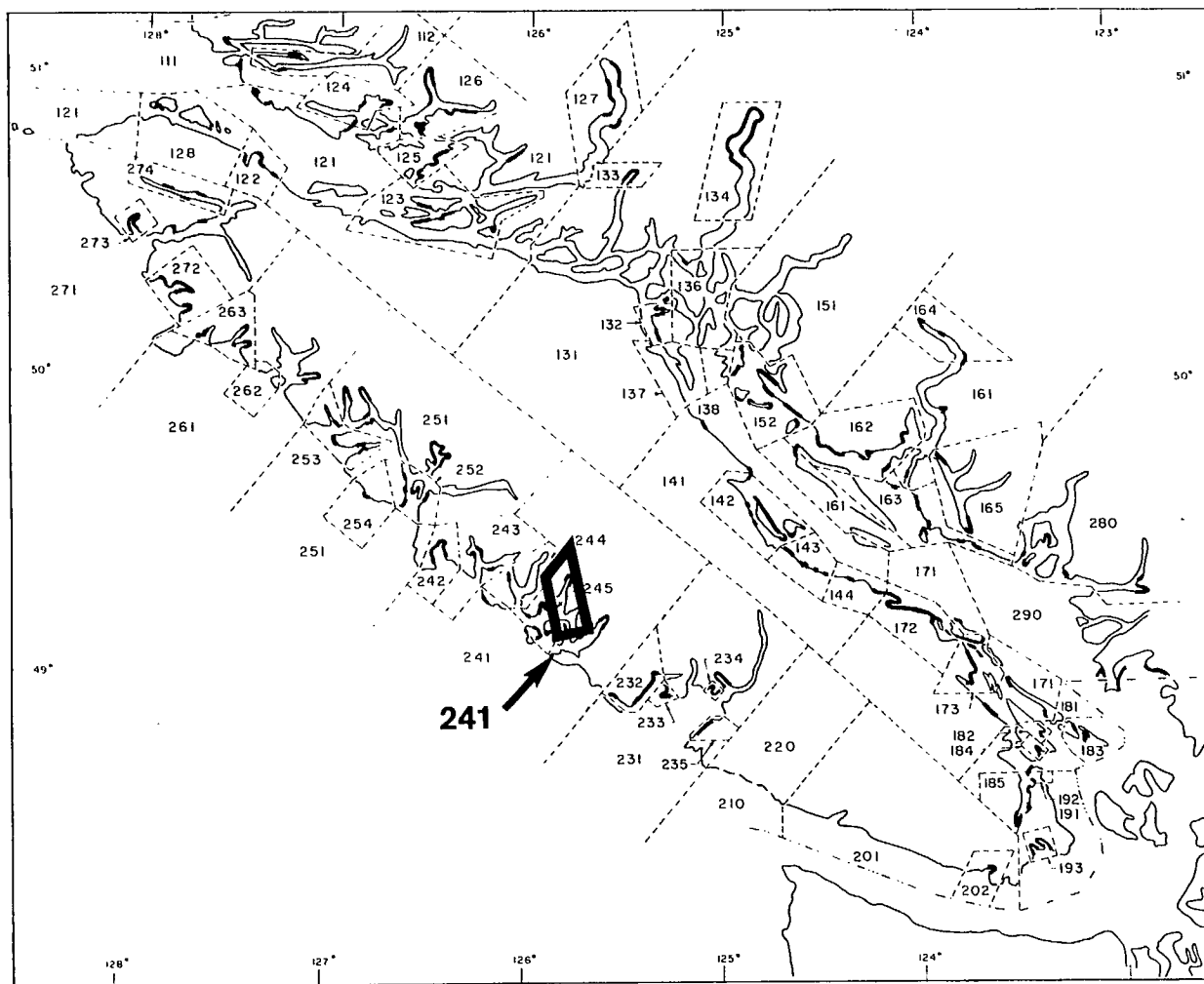


Fig. 241-1. Overview map showing location of section 241, Other Area 24.

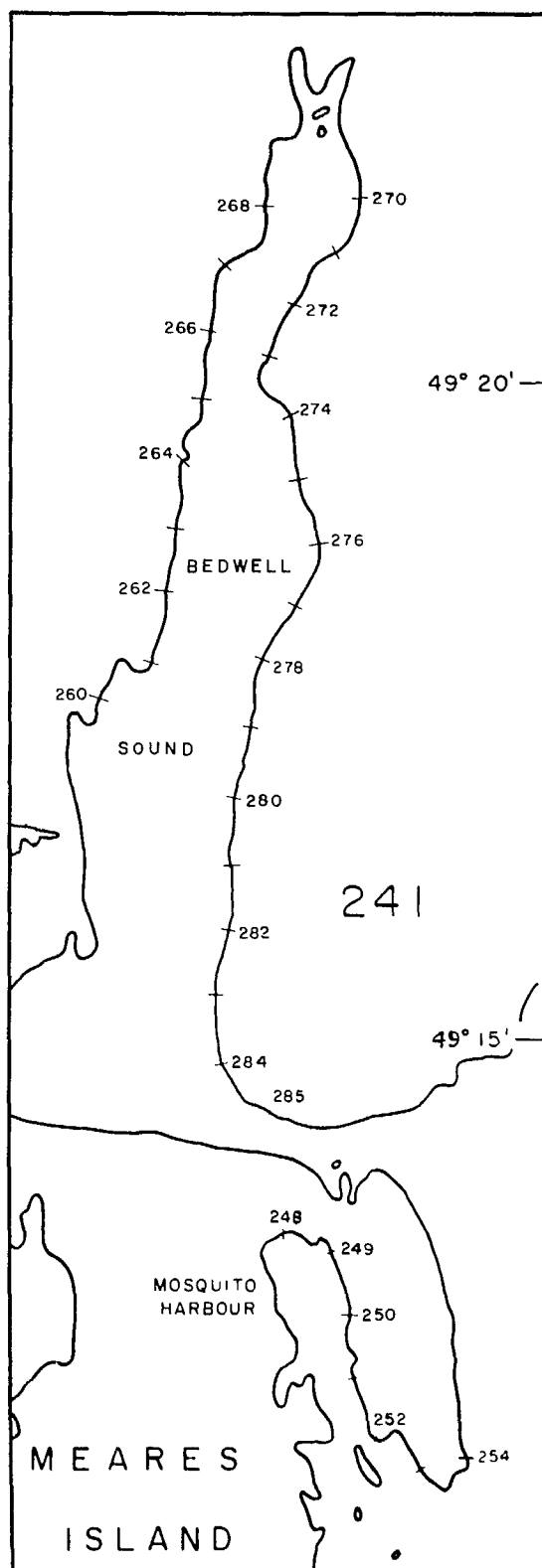


Fig. 241-2. Detailed map of section 241, Other Area 24.

Table 241-1. Section 241 - Spawn position by year.

247.00	
1937 +	
1938 +	
1939 +	
1940 + aa	
1941 + aa	
1942 + aa	
1943 +	
1944 +	
1945 +	
1946 +	
1947 +	
1948 +	
1949 + aa	
1950 +	
1951 + 111111	
1952 + 1111	
1953 + 1\$\$	
1954 + 1a\$	
1955 + 2	
1956 + 12	
1957 + 11	
1958 + 321311	
1959 +	
1960 + 12	
1961 + 11	
1962 + 1	
1963 + 111	
1964 + 11	
1965 + 1	
1966 + 1	
1967 + 111	
1968 + 11	
1969 + 1	
1970 +	
1971 +	
1972 +	
1973 +	
1974 +	
1975 +	
1976 +	
1977 +	
1978 +	
1979 +	
1980 +	
1981 + 13 2	
1982 +	
1983 +	
1984 +	
1985 +	
1986 +	
247.00	
M	
O	
S	
Q	
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I	
T	
O	
H	
A	
R	
B	
O	
U	
R	

Table 241-2. Section 241 - histogram of cumulative spawn frequency over distance

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
MOSQUITO HARBOUR	246.00	+																0	0	0	0
	247.00	+																0	0	0	0
	248.00	+	*****															19	0	0	19
	249.00	+	*****00000000000															16	11	0	27
	250.00	+	*****00000000000															8	11	0	19
	251.00	+	*****															6	0	0	6
	252.00	+	*****															5	0	0	5
	253.00	+	**															2	0	0	2
	254.00	+	**															2	0	0	2
	255.00	+																0	0	0	0
	256.00	+																0	0	0	0
	257.00	+																0	0	0	0
	258.00	+																0	0	0	0
	259.00	+																0	0	0	0
	260.00	+																0	0	0	0
	261.00	+																0	0	0	0
	262.00	+																0	0	0	0
	263.00	+																0	0	0	0
	264.00	+																0	0	0	0
	265.00	+																0	0	0	0
	266.00	+																0	0	0	0
	267.00	+																0	0	0	0
	268.00	+																0	0	0	0
	269.00	+																0	0	0	0
	270.00	+																0	0	0	0
	271.00	+																0	0	0	0
	272.00	+																0	0	0	0
273.00	+																0	0	5	5	
BEDWELL SOUND	274.00	+																0	0	5	5
	275.00	+																0	0	0	0
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 241-3. Herring statistical spawn summary for section 241.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	1	759	366	0	3.0	66.0	0.00	66.0	66	66	1	1
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	3	2367	1142	0	3.0	76.0	23.00	88.0	53	99	2	2
1941	2	947	457	0	4.0	85.0	16.00	91.4	69	101	2	2
1942	1	947	457	0	3.0	33.0	0.00	33.0	33	33	1	1
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1945	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	1	1895	914	9	1.0	46.0	0.00	46.0	46	46	1	1
1950	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1951	1	11530	5562	4	1.0	45.0	0.00	45.0	45	45	1	1
1952	1	5116	2468	5	1.0	59.0	0.00	59.0	59	59	1	1
1953	8	4811	2321	19	1.5	66.9	8.49	49.0	41	121	4	2
1954	3	1992	961	9	1.0	60.0	0.00	60.0	60	60	1	1
1955	2	568	274	9	1.0	32.0	0.00	32.0	32	32	1	1
1956	2	2083	1005	9	1.0	51.0	0.00	51.0	51	51	1	1
1957	2	568	274	14	1.0	61.0	0.00	61.0	61	61	1	1
1958	9	4646	2241	9	1.0	65.0	0.00	65.0	65	65	1	1
1959	1	1515	731	11	1.0	92.0	0.00	92.0	92	92	1	1
1960	3	1281	618	18	1.7	61.0	0.00	61.0	61	61	1	1
1961	1	1895	914	14	1.0	60.0	0.00	60.0	60	60	1	1
1962	1	189	91	9	1.0	43.0	0.00	43.0	43	43	1	1
1963	1	4925	2376	2	1.0	60.0	0.00	60.0	60	60	1	1
1964	1	759	366	5	1.0	53.0	0.00	53.0	53	53	1	1
1965	1	475	229	3	1.0	60.0	0.00	60.0	60	60	1	1
1966	1	1136	548	2	1.0	46.0	0.00	46.0	46	46	1	1
1967	1	2842	1371	10	1.0	73.0	0.00	73.0	73	73	1	1
1968	1	1895	914	5	1.0	62.0	0.00	62.0	62	62	1	1
1969	1	379	183	5	1.0	67.0	0.00	67.0	67	67	1	1
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	5	2767	1335	7	5.6	73.0	0.00	73.0	73	73	1	1
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	54	58289	28118	11	1.8	62.7	2.18	58.5	32	121	22	3

Table 241-4. Spawn summary for section 241 from 1937 to 1986.

A. GENERAL:

There are two main spawning areas in this section:

- (i) Mosquito Harbour and
- (ii) Bedwell Sound

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Tofino.

C. SPAWNING CONSISTENCY OVER TIME: FREQUENT

There have been two main spawning episodes, 1938-42 and 1949-69.

D. MAGNITUDE OF SPAWNINGS: VERY SMALL

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 25/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 25/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 28.1 Km. |
| 4. CUMULATIVE SPAWN AREA | = 5.8 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|----------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 4 (62.7) |
| 2. MEAN WEIGHTED DATE (DOY) | = February 28 (58.5) |

F. COMMENTS:

Spawning in section 241 is mainly in Mosquito Harbour. It is very likely that herring spawning here are part of the larger biological stock spawning elsewhere in Clayoquot Sound (also, see comments for section 245).

G. ROE FISHERIES:

- | | |
|---|-----------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 2/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 4/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 5220 tons (area 24) |
| 4. MEAN GILLNET CATCH/YEAR | = 3197 tons (area 24) |

Table 241-5. History of roe fishery catches by gear type in Other Area 24.

SECT. 241	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	01/03- 20/03	345	(800)	all area 24
1974	-	-	-	-	-	-	-	-
1975	-	-	-	-	16/03- 25/03	216	(4200)	all area 24
1976	-	-	-	-	-	-	-	-
1977	10/03- 14/03	36	(7000)	all area 24	-	-	-	-
1978	-	-	-	-	05/03- 10/03	120	(5100)	Sect. 244, 245 & Tofino Inlet
1979	-	-	-	-	-	-	-	-
1980	07/03- 08/03	19	(2403)	Clayoquot Snd.	08/03	3.8	(900)	Clayoquot Snd.
1981	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

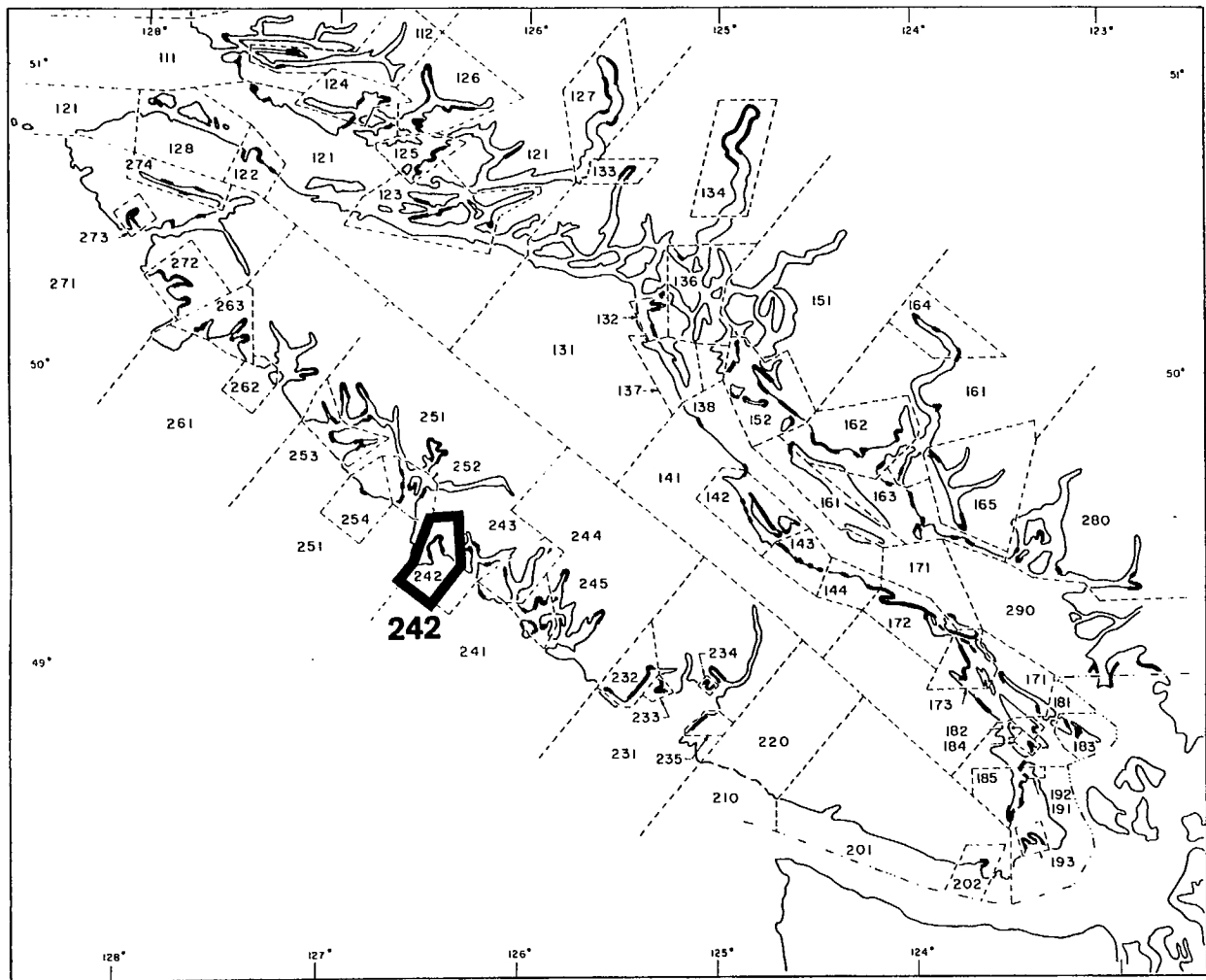


Fig. 242-1. Overview map showing location of section 242, Hesquiat Harbour.

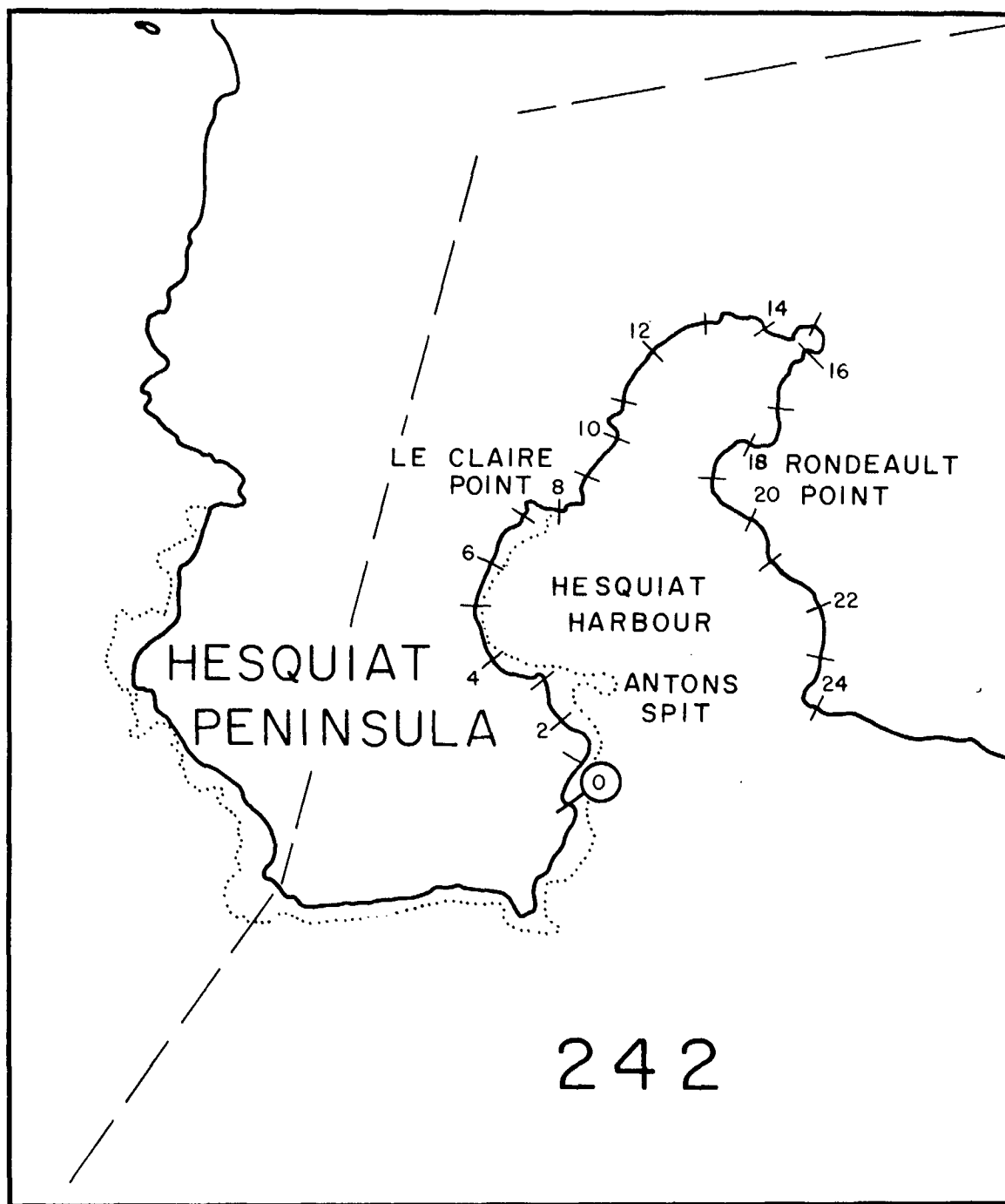


Fig. 242-2. Detailed map of section 242, Hesquiatic Harbour.

Table 242-1. Section 242 - Spawn position by year.

[illegible]

Table 242-2. Section 242 - histogram of cumulative spawn frequency over distance

[illegible]

Table 242-3. Herring statistical spawn summary for section 242.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	1	3415	183	0	3.0	100.0	0.00	100.0	100	100	1	1
1939	1	30029	1609	0	3.0	56.0	0.00	56.0	56	56	1	1
1940	2	97570	5228	0	4.0	45.5	12.50	56.1	33	58	2	1
1941	1	5972	320	0	3.0	42.0	0.00	42.0	42	42	1	1
1942	2	8716	467	49	5.0	29.5	2.50	27.1	27	32	2	1
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	1	44959	2409	9	5.0	16.0	0.00	16.0	16	16	1	1
1945	1	34601	1854	23	5.0	20.0	0.00	20.0	20	20	1	1
1946	1	24206	1297	6	7.0	77.0	0.00	77.0	77	77	1	1
1947	1	6905	370	5	1.0	38.0	0.00	38.0	38	38	1	1
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1950	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1954	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1955	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1956	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	1	34116	1828	9	5.0	46.0	0.00	46.0	46	46	1	1
1960	1	17058	914	9	3.0	48.0	0.00	48.0	48	48	1	1
1961	1	11944	640	9	3.0	56.0	0.00	56.0	56	56	1	1
1962	1	8529	457	9	3.0	50.0	0.00	50.0	50	50	1	1
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	1	51174	2742	5	5.0	78.0	0.00	78.0	78	78	1	1
1965	1	8529	457	3	1.0	102.0	0.00	102.0	102	102	1	1
1966	1	4274	229	3	3.0	59.0	0.00	59.0	59	59	1	1
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	1	3415	183	5	1.0	76.0	0.00	76.0	76	76	1	1
1969	1	3415	183	5	3.0	89.0	0.00	89.0	89	89	1	1
1970	1	95517	5118	30	5.0	56.0	0.00	56.0	56	56	1	1
1971	1	5972	320	9	7.0	77.0	0.00	77.0	77	77	1	1
1972	1	3415	183	91	3.0	87.0	0.00	87.0	87	87	1	1
1973	1	6831	366	2	1.0	82.0	0.00	82.0	82	82	1	1
1974	2	38707	2074	21	5.0	76.5	0.50	76.6	76	77	2	1
1975	19	95443	5114	31	4.5	83.0	0.00	83.0	83	83	1	1
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	6	28125	1507	33	3.0	61.0	0.00	61.0	61	61	1	1
1978	24	103318	5536	35	4.9	69.0	0.00	69.0	69	69	1	1
1979	5	29002	1554	66	3.0	65.0	0.00	65.0	65	65	1	1
1980	15	67205	3601	36	2.3	68.0	0.00	68.0	68	68	1	4
1981	10	77451	4150	3	0.0	57.0	0.00	57.0	57	57	1	1
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	11	36318	1946	70	0.0	67.0	0.00	67.0	67	67	1	2
1986	19	129316	6929	45	0.0	75.0	0.00	75.0	75	75	1	1
All	135	1115450	59768	35	3.9	68.4	1.13	62.8	16	102	29	4

Table 242-4. Spawn summary for section 242 from 1937 to 1986.

A. GENERAL:

There is one main spawning area in this section centered in the Hesquiat Harbour vicinity.

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Hesquiat and Boat Basin.

C. SPAWNING CONSISTENCY OVER TIME: FREQUENT

There have been three main spawning episodes, 1938-47 and 1959-81 with intermittent spawnings in other years.

D. MAGNITUDE OF SPAWNINGS: SMALL

1. NUMBER OF SPAWN YEARS/50 YEARS	= 31/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 31/50 (1937-86)
3. CUMULATIVE SPAWN LENGTH	= 59.8 Km.
4. CUMULATIVE SPAWN AREA	= 111.6 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 9 (68.4)
2. MEAN WEIGHTED DATE (DOY)	= March 4 (62.8)

F. COMMENTS:

Hesquiat Harbour often has earlier average spawning times than those in adjacent areas but the differences are not sufficient to indicate that a separate stock exists. Herring spawning in Hesquiat Harbour probably are part of the same large biological stock spawning elsewhere in Clayoquot Sound (also, see comments for section 245).

G. ROE FISHERIES:

1. NUMBER OF SEINE FISHERY YEARS/15 YEARS	= 1/15 (1972-86)
2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS	= 5/15 (1972-86)
3. MEAN SEINE CATCH/YEAR	= 5220 tons (area 24)
4. MEAN GILLNET CATCH/YEAR	= 3197 tons (area 24)

Table 242-5. History of roe fishery catches by gear type in Hesquiat Harbour.

SECT. 242	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	01/03- 20/03	345	(800)	all area 24
1974	-	-	-	-	06/03- 22/03	408	500	Hesquiat Hbr.
1975	-	-	-	-	16/03- 25/03	216	(4200)	all area 24
1976	-	-	-	-	29/02- 05/03	120	1788	Hesquiat Hbr.
1977	10/03- 14/03	36	(7000)	all area 24	01/03- 16/03	264	(7522)	all area 24
1978	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

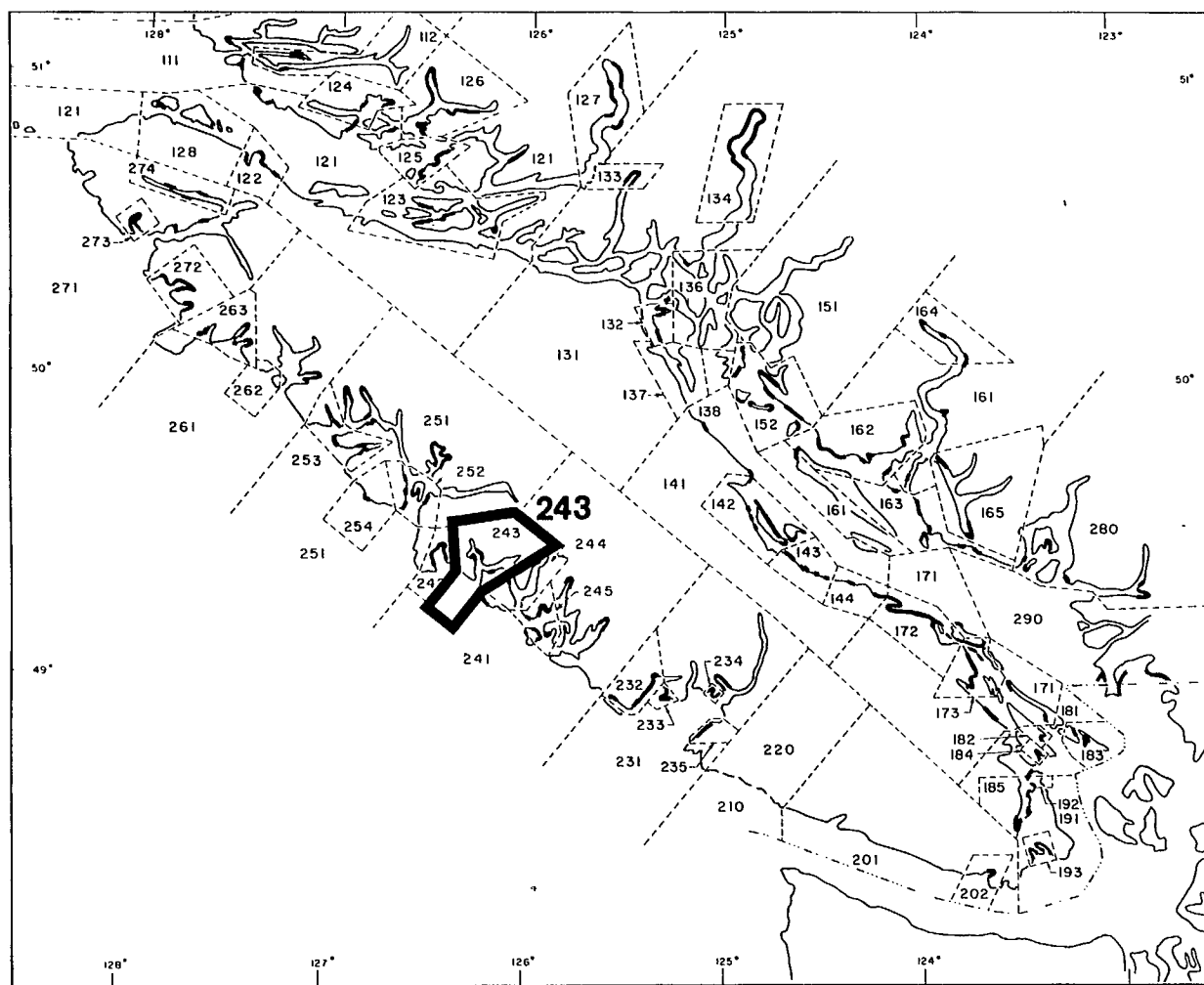


Fig. 243-1. Overview map showing location of section 243, Sydney Inlet.

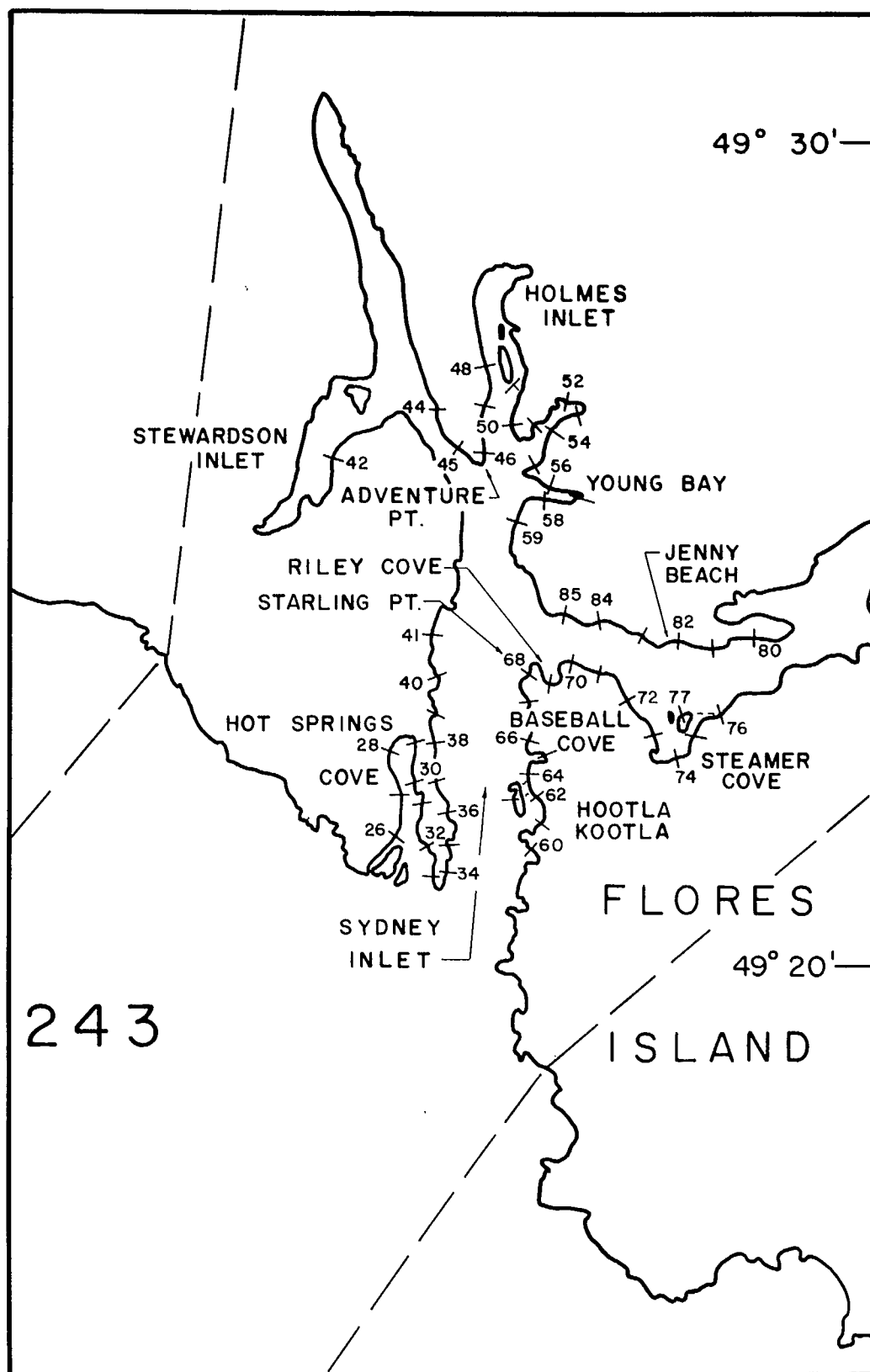


Fig. 243-2. Detailed map of section 243, Sydney Inlet.

Table 243-1. Section 243 - Spawn position by year.

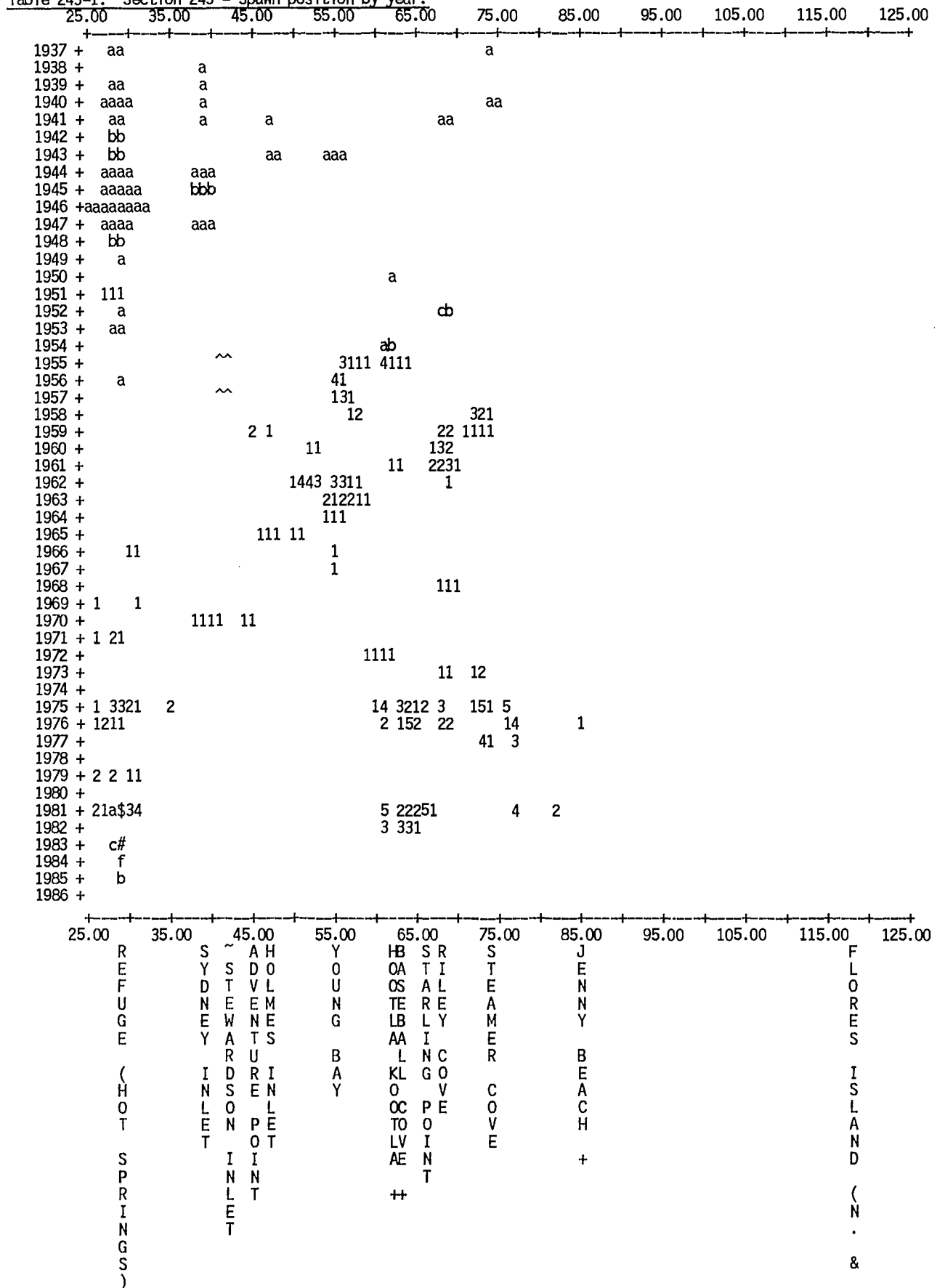


Table 243-1 (cont'd). Section 243 - Spawn position by year.

	125.00	135.00	145.00	155.00
1937 +				
1938 +				
1939 +				
1940 +				
1941 +				
1942 +				
1943 +				
1944 +				
1945 +				
1946 +				
1947 +				
1948 +				
1949 +				
1950 +				
1951 +				
1952 +				
1953 +				
1954 +				
1955 +				
1956 +				
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1965 +				
1966 +				
1967 +				
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1969 +				
1970 +				
1971 +				
1972 +			1 11	
1973 +				
1974 +				
1975 +				
1976 +				
1977 +				
1978 +				
1979 +				
1980 +				
1981 +				
1982 +				
1983 +				
1984 +				
1985 +				
1986 +				

Table 243-2. Section 243 - histogram of cumulative spawn frequency over distance

[illegible]

Table 243-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
	57.00	*****																6	0	0	6
	58.00	*****																5	0	0	5
	59.00	***																3	0	0	3
	60.00	**																2	0	0	2
	61.00	*****0																19	1	0	20
HOOTLA KOOTLA +	62.00	***000																3	3	0	6
BASEBALL COVE +	63.00	*****																11	0	0	11
	64.00	*****																13	0	0	13
	65.00	*****																6	0	0	6
STARLING POINT	66.00	*****																7	0	0	7
	67.00	****																4	0	0	4
RILEY COVE	68.00	*****0000																14	4	0	18
	69.00	*****000																12	3	0	15
	70.00	**																2	0	0	2
	71.00	+																1	0	0	1
	72.00	*****																6	0	0	6
	73.00	*****																14	0	0	14
STEAMER COVE	74.00	****00																4	2	0	6
	75.00	+0																0	1	0	1
	76.00	*****																6	0	0	6
	77.00	*****																11	0	0	11
	78.00	+																0	0	0	0
	79.00	+																0	0	0	0
	80.00	+																0	0	0	0
	81.00	+																0	0	0	0
	82.00	**																2	0	0	2
	83.00	+																0	0	0	0
	84.00	+																0	0	0	0
JENNY BEACH +	85.00	+																1	0	0	1
	86.00	+																0	0	0	0
	87.00	+																0	0	0	0
	88.00	+																0	0	0	0
	89.00	+																0	0	0	0
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 243-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
	90.00 +																	0	0	0	0
	91.00 +																	0	0	0	0
	92.00 +																	0	0	0	0
	93.00 +																	0	0	0	0
	94.00 +																	0	0	0	0
	95.00 +																	0	0	0	0
	96.00 +																	0	0	0	0
	97.00 +																	0	0	0	0
	98.00 +																	0	0	0	0
	99.00 +																	0	0	0	0
	100.00 +																	0	0	0	0
	101.00 +																	0	0	0	0
	102.00 +																	0	0	0	0
	103.00 +																	0	0	0	0
	104.00 +																	0	0	0	0
	105.00 +																	0	0	0	0
	106.00 +																	0	0	0	0
	107.00 +																	0	0	0	0
	108.00 +																	0	0	0	0
	109.00 +																	0	0	0	0
	110.00 +																	0	0	0	0
	111.00 +																	0	0	0	0
	112.00 +																	0	0	0	0
	113.00 +																	0	0	0	0
	114.00 +																	0	0	0	0
	115.00 +																	0	0	0	0
	116.00 +																	0	0	0	0
	117.00 +																	0	0	0	0
FLORES ISLAND (N. & W.)	118.00 +																	0	0	0	0
	119.00 +																	0	0	0	0
	120.00 +																	0	0	0	0
	121.00 +																	0	0	0	0
	122.00 +																	0	0	0	0
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 243-2 (cont'd.)

position(km)															
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+															
0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
vara	varb	varc	all												
123.00	+	0	0	0	0										
124.00	+	0	0	0	0										
125.00	+	0	0	0	0										
126.00	+	0	0	0	0										
127.00	+	0	0	0	0										
128.00	+	0	0	0	0										
129.00	+	0	0	0	0										
130.00	+	0	0	0	0										
131.00	+	0	0	0	0										
132.00	+	0	0	0	0										
133.00	+	0	0	0	0										
134.00	+	0	0	0	0										
135.00	+	0	0	0	0										
136.00	+	0	0	0	0										
137.00	+	0	0	0	0										
138.00	+	0	0	0	0										
139.00	+	0	0	0	0										
140.00	+	0	0	0	0										
141.00	+	0	0	0	0										
142.00	+	0	0	0	0										
143.00	+	0	0	0	0										
144.00	+	0	0	0	0										
145.00	+	0	0	0	0										
146.00	+	0	0	0	0										
147.00	+	0	0	0	0										
148.00	+	0	0	0	0										
149.00	+	0	0	0	0										
150.00	+	0	0	0	0										
151.00	+	0	0	0	0										
152.00	+	1	0	0	1										
153.00	+	0	0	0	0										
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+															
0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
vara	varb	varc	all												

Table 243-2 (cont'd.)

position(km)																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
154.00	+	*															1	0	0	1
155.00	+	*															1	0	0	1
156.00	+	*															1	0	0	1
157.00	+																0	0	0	0
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 243-3. Herring statistical spawn summary for section 243.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	2	6415	457	0	1.0	56.0	1.00	56.2	55	57	2	2
1938	1	6415	457	0	3.0	95.0	0.00	95.0	95	95	1	1
1939	2	11552	823	0	3.0	74.0	16.00	72.2	58	90	2	2
1940	3	61187	4359	0	4.3	73.7	8.25	75.8	58	86	3	3
1941	4	34770	2477	0	3.5	73.5	2.50	72.1	71	81	2	4
1942	2	11538	822	69	5.0	43.5	11.50	39.7	32	55	2	1
1943	4	79814	5686	4	7.0	56.8	5.81	56.0	49	74	4	3
1944	2	58520	4169	8	7.0	59.0	4.00	57.8	55	63	2	2
1945	3	101473	7229	13	7.7	75.0	9.17	68.7	57	87	3	2
1946	1	89809	6398	9	9.0	77.0	0.00	77.0	77	77	1	1
1947	2	54337	3871	9	7.0	66.0	4.00	67.0	62	70	2	2
1948	2	36693	2614	25	4.0	71.5	6.50	71.0	65	78	2	1
1949	1	1151	82	27	3.0	78.0	0.00	78.0	78	78	1	1
1950	1	5138	366	2	5.0	71.0	0.00	71.0	71	71	1	1
1951	1	28481	2029	14	5.0	77.0	0.00	77.0	77	77	1	1
1952	4	20466	1458	33	8.0	83.3	1.25	82.4	82	87	2	2
1953	1	5138	366	27	4.0	85.0	0.00	85.0	85	85	1	1
1954	2	8970	639	37	7.0	64.0	0.00	64.0	64	64	1	1
1955	15	28874	2057	11	2.6	67.2	0.11	67.2	67	68	2	3
1956	5	9615	685	7	2.6	72.0	2.00	71.3	70	80	2	2
1957	6	28228	2011	9	4.3	81.0	1.26	80.0	77	83	2	2
1958	7	30797	2194	23	3.6	78.0	0.00	78.0	78	78	1	2
1959	9	66718	4753	25	4.6	73.3	0.44	73.4	72	75	3	3
1960	7	24045	1713	15	5.0	75.3	3.29	83.7	72	95	2	2
1961	8	25014	1782	16	4.3	76.8	0.16	76.6	76	77	2	2
1962	17	72501	5165	9	3.1	69.0	1.03	68.3	66	81	3	2
1963	5	64795	4616	7	4.2	62.0	0.00	62.0	62	62	1	1
1964	1	19245	1371	5	5.0	86.0	0.00	86.0	86	86	1	1
1965	3	61903	4410	4	5.3	87.0	13.00	86.1	74	113	2	3
1966	3	14767	1052	4	3.0	65.7	5.46	71.5	55	73	3	2
1967	1	7692	548	2	1.0	89.0	0.00	89.0	89	89	1	1
1968	1	30797	2194	4	5.0	90.0	0.00	90.0	90	90	1	1
1969	2	7692	548	7	5.0	98.5	3.50	96.2	95	102	2	1
1970	2	55165	3930	5	5.0	80.5	1.50	81.5	79	82	2	2
1971	3	17953	1279	6	5.0	95.0	6.66	93.9	83	106	3	1
1972	4	67307	4795	6	6.0	87.0	1.15	86.9	85	89	2	2
1973	5	3664	261	5	4.2	86.0	0.00	86.0	86	86	1	2
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	37	55544	3957	15	5.5	81.1	0.17	81.2	80	82	2	5
1976	22	43894	3127	14	5.4	76.8	2.49	73.7	71	101	3	5
1977	8	2372	169	9	3.8	75.0	0.00	75.0	75	75	1	1
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	6	4562	325	6	3.3	69.0	0.00	69.0	69	69	1	1
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	38	43641	3109	9	0.0	75.8	1.25	76.8	68	96	5	4
1982	10	9531	679	7	0.0	64.7	0.70	64.2	64	71	2	2
1983	27	32257	2298	8	0.0	69.0	0.00	69.0	69	69	1	1
1984	6	9433	672	6	0.0	85.0	0.00	85.0	85	85	1	1
1985	2	2232	159	41	0.0	69.0	0.00	69.0	69	69	1	1
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	298	1462108	104161	12	4.6	74.6	0.56	73.7	32	113	40	14

Table 243-4. Spawn summary for section 243 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this Sydney Inlet section:

- (i) Hot Springs Cove
- (ii) Hootla Kootla-Steamer Cove and
- (iii) Young Bay

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Hot Springs Cove and Tofino.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings since 1937 except for the years, 1974, 1978, 1980 and 1986.

D. MAGNITUDE OF SPAWNINGS: SMALL

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 46/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 46/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 104.2 Km. |
| 4. CUMULATIVE SPAWN AREA | = 146.2 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 16 (74.6) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 15 (73.7) |

F. COMMENTS:

Section 243 is geographically intermediate between the early spawning area of Hesquiat and the large, later spawning areas on Meares and Vargas Islands. The record of spawns is nearly continuous, but the close geographical proximity of section 245, as well as the similarity in spawning times indicates that this section represents part of the same biological stock of herring that spawn elsewhere in Clayoquot Sound (also, see comments for section 245).

G. ROE FISHERIES:

- | | |
|---|-----------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 5/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 3/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 5220 tons (area 24) |
| 4. MEAN GILLNET CATCH/YEAR | = 3197 tons (area 24) |

Table 243-5. History of roe fishery catches by gear type in Sydney Inlet.

SECT. 243	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	27/02- 01/04	816	(8010)	Sydney Inlet & sect. 232, 233	-	-	-	-
1973	01/03- 13/03	177	10150	Shelter & Sydney Inlets	01/03- 20/03	345	(800)	all area 24
1974	-	-	-	-	-	-	-	-
1975	09/03- 19/03	240	6800	Sydney Inlet	16/03- 25/03	216	(4200)	all area 24
1976	07/03- 11/03	96	2000	Sydney Inlet	29/02- 05/03	120	675	Sydney Inlet
1977	10/03- 14/03	36	(7000)	all area 24	-	-	-	-
1978	-	-	-	-	-	-	-	-
1979	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

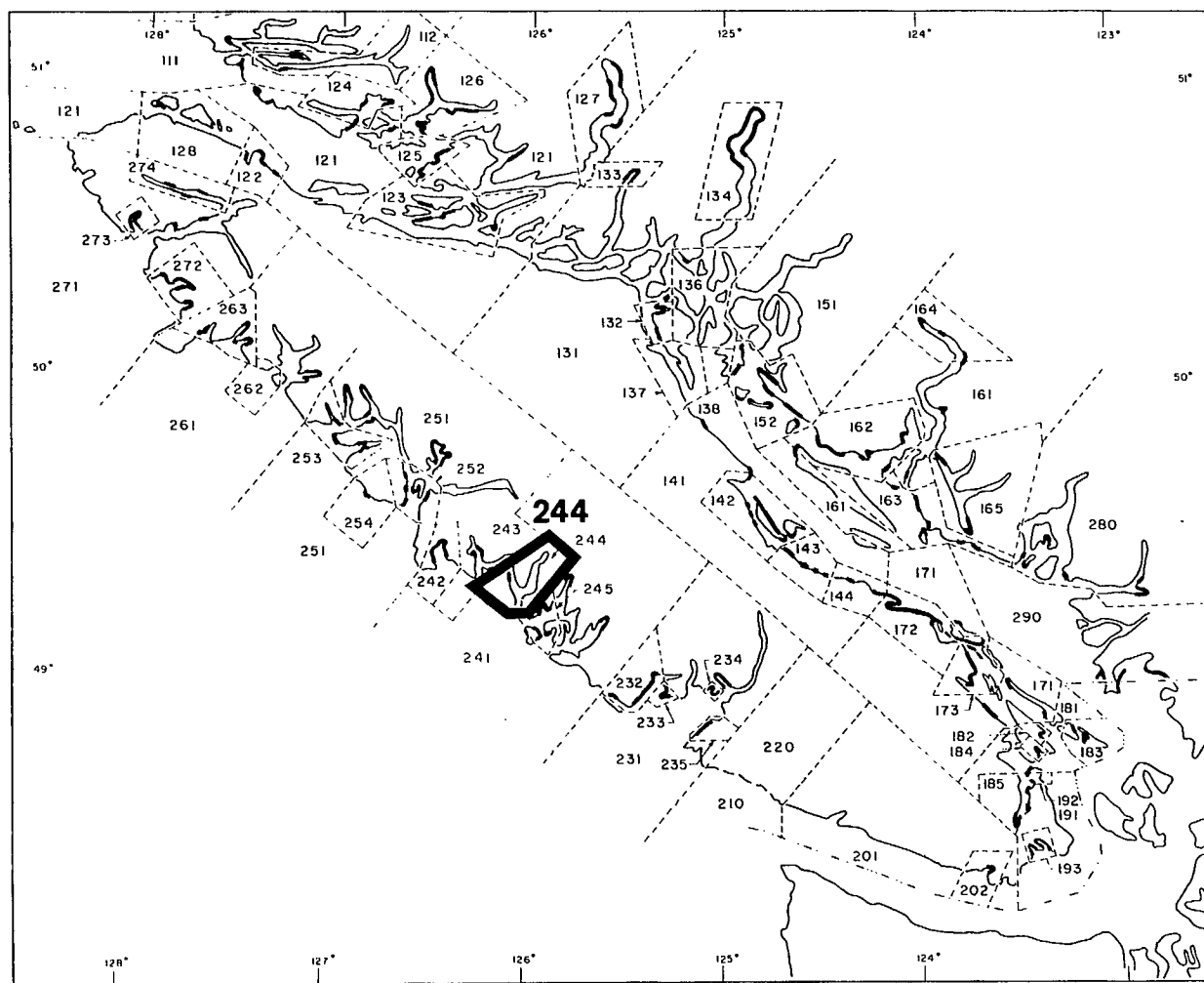


Fig. 244-1. Overview map showing location of section 244, Whitepine Cove.

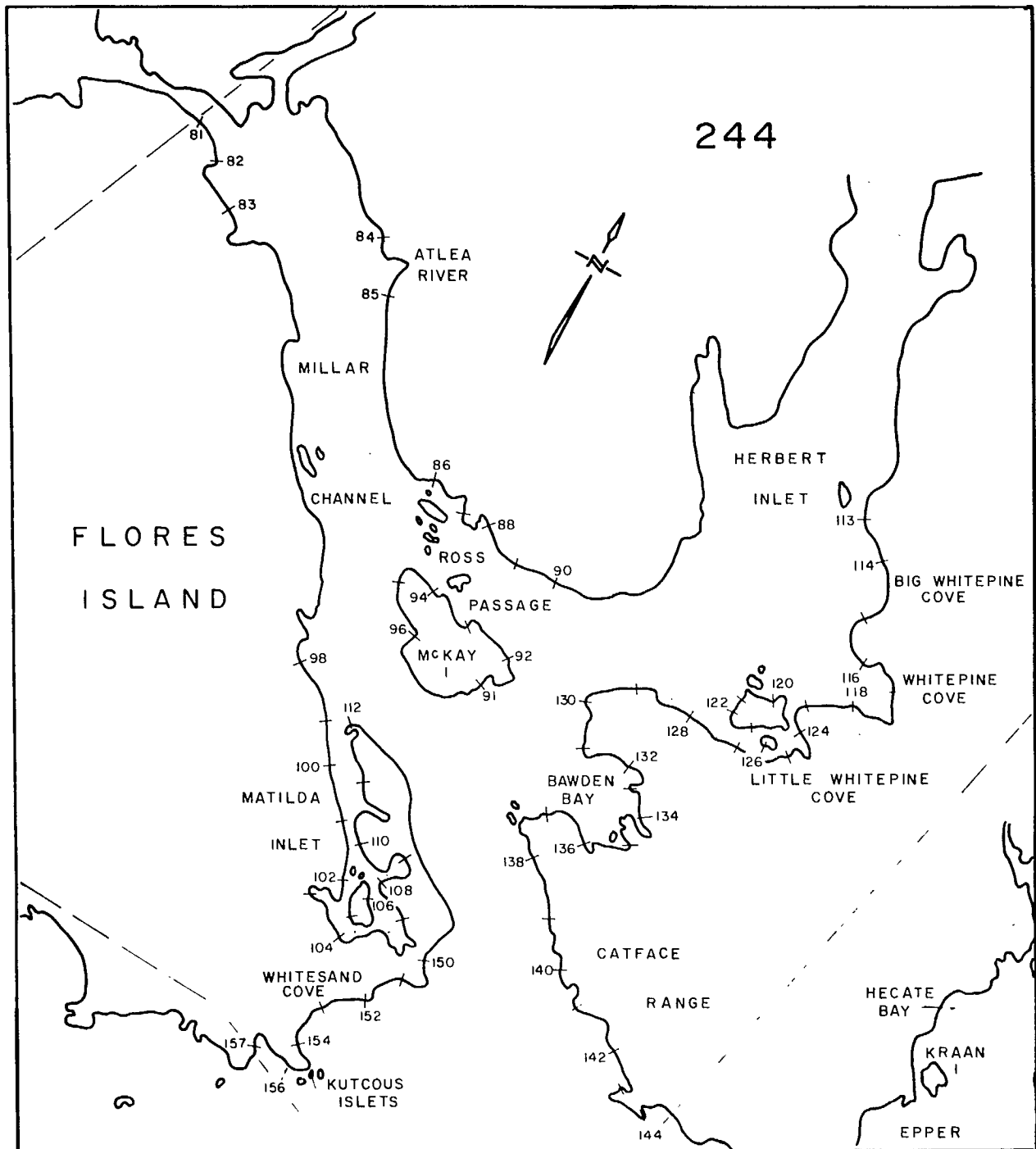


Fig. 244-2. Detailed map of section 244, Whitepine Cove.

Table 244-1. Section 244 - spawn position by year.

	80.00	90.00	100.00	110.00	120.00	130.00	
1937 +							
1938 +							
1939 +							
1940 +					aa		
1941 +							
1942 +							
1943 +		aa					
1944 +			aa				
1945 +						aaaa	
1946 +					aaaa	a	
1947 +					aaa		
1948 +					aa		
1949 +					aa	a	
1950 +	aaaaaa					a	
1951 +					111	11	
1952 +	aa	aa			111		
1953 +			bf		acba	a	
1954 +			a		\$aa	b	
1955 +			1	1	2311	122 21	
1956 +					121	11	
1957 +			1		2	11	
1958 +	341				25422		
1959 +					1	1122	
1960 +			11	1111121	2211		
1961 +	abca11				221	212111	
1962 +				2	1	1	
1963 +			111	122	13123	11	
1964 +	11111		a		1111111	111122221	
1965 +			1			11	
1966 +			111		12	111	
1967 +			111		111		
1968 +			1				
1969 +			1	1	11		
1970 +	11	1111	111111	1		11	
1971 +			11111				
1972 +	11			1	1	11	
1973 +			1			11 1	
1974 +							
1975 +			1		2 22	21 15 1	
1976 +		1	a1	1		1121	
1977 +					1621 2	23111	
1978 +				1		31121	
1979 +						1	
1980 +		21			424		
1981 +	2		1311	1			
1982 +							
1983 +			b			a	
1984 +							
1985 +							
1986 +							
	80.00	90.00	100.00	110.00	120.00	130.00	
	M	R	M	M	BW	L	B
	I	O	C	A	IH	I	A
	L	S	K	T	GI	T	W
	L	S	A	I	T	T	D
	A		Y	L	WE	L	E
	R	P		D	HP	E	N
		A	(	A	II		
	C	S	C		TN	W	B
	H	S	O	I	EE	H	A
	A	A	N	N	P	I	Y
	N	G	E	L	IC	T	
	N	E	)	E	NO	E	
	E		I	T	EV	P	
	L		S		E	I	
						N	
						E	

Table 244-2. Section 244 - histogram of cumulative spawn frequency over distance

		position(km)																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
MILLAR CHANN/ATLEA RIVER	79.00	+																0	0	0	0
	80.00	+																0	0	0	0
	81.00	++																1	0	0	1
	82.00	++																1	0	0	1
	83.00	****																3	0	0	3
	84.00	*****0																6	1	0	7
	85.00	++0																1	1	0	2
	86.00	***0																2	1	0	3
ROSS PASSAGE	87.00	***00																2	2	0	4
	88.00	***0000																1	4	0	5
	89.00	***00000																1	5	0	6
	90.00	***00																1	2	0	3
	91.00	***0																2	1	0	3
MCKAY (CONE) ISLAND	92.00	***																2	0	0	2
	93.00	***																2	0	0	2
	94.00	***0																1	1	0	2
	95.00	***0																2	1	0	3
	96.00	***																1	0	0	1
	97.00	+																0	0	0	0
	98.00	***																1	0	0	1
	99.00	***																2	0	0	2
MATILDA INLET	100.00	****																3	0	0	3
	101.00	*****																6	0	0	6
	102.00	*****																9	0	0	9
	103.00	*****																8	0	0	8
	104.00	****																4	0	0	4
	105.00	***000																3	3	0	6
	106.00	***000000000000																3	12	0	15
	107.00	****																4	0	0	4
	108.00	***																1	0	0	1
	109.00	***																2	0	0	2
	110.00	*****																9	0	0	9
	111.00	*****																5	0	0	5
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 244-2 (cont'd.)

				position(km)																vara	varb	varc	all
				0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
BIG WHITEPINE COVE	112.00	+	*																	1	0	0	1
	113.00	+	*																	1	0	0	1
	114.00	+	*****																	5	0	0	5
	115.00	+	*****																	22	0	0	22
	116.00	+	*****0000																	19	4	0	23
	117.00	+	*****00000000																	13	9	0	22
	118.00	+	*****00000000																	9	8	0	17
	119.00	+	*****00																	10	2	0	12
	120.00	+	*****																	7	0	0	7
	121.00	+	*****																	8	0	0	8
LITTLE WHITEPINE COVE	122.00	+	*****																	14	0	0	14
	123.00	+	*****000000																	9	6	0	15
	124.00	+	*****																	7	0	0	7
	125.00	+	*****																	4	0	0	4
	126.00	+	*****																	4	0	0	4
	127.00	+	*****																	4	0	0	4
	128.00	+	****																	3	0	0	3
	129.00	+	*																	1	0	0	1
	130.00	+	*																	1	0	0	1
	131.00	+	*****																	4	0	0	4
BAWDEN BAY	132.00	+	*****0																	10	1	0	11
	133.00	+	*****0																	7	1	0	8
	134.00	+	*****000																	9	3	0	12
	135.00	+	*****0																	9	1	0	10
	136.00	+	*****																	4	0	0	4
	137.00	+	****																	3	0	0	3
	138.00	+																		0	0	0	0
	139.00	+																		0	0	0	0
	140.00	+																		0	0	0	0
	141.00	+																		0	0	0	0
	142.00	+																		0	0	0	0
	143.00	+																		0	0	0	0
	144.00	+																		0	0	0	0

Table 244-2 (cont'd.)

position(km)		+-----+																					
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75			vara	varb	varc	all
	145.00 +																			0	0	0	0
	146.00 +																			0	0	0	0
	147.00 +																			0	0	0	0
	148.00 +																			0	0	0	0
	149.00 +																			0	0	0	0
	150.00 +																			0	0	0	0
	151.00 +II																			0	0	2	2
WHITESAND COVE	152.00 +II																			0	0	2	2
	153.00 +																			0	0	0	0
	154.00 +I																			0	0	1	1
KUTCOS ISLETS	155.00 +I																			0	0	1	1
	156.00 +																			0	0	0	0
		+-----+																					
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75			vara	varb	varc	all

Table 244-3. Herring statistical spawn summary for section 244.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	2	58675	2961	0	5.0	94.0	7.00	89.6	87	101	2	2
1941	1	71714	3619	0	7.0	81.0	0.00	81.0	81	81	1	1
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	1	18746	946	5	9.0	67.0	0.00	67.0	67	67	1	1
1944	1	23858	1204	5	3.0	79.0	0.00	79.0	79	79	1	1
1945	1	62440	3151	46	9.0	81.0	0.00	81.0	81	81	1	1
1946	2	62381	3148	195	8.0	81.5	4.50	77.5	77	86	2	2
1947	1	36739	1854	6	7.0	75.0	0.00	75.0	75	75	1	1
1948	1	23898	1206	27	3.0	77.0	0.00	77.0	77	77	1	1
1949	2	27168	1371	11	2.0	83.0	3.00	81.2	80	86	2	2
1950	2	110474	5575	4	4.0	72.5	1.50	74.0	71	74	2	2
1951	2	55108	2781	15	4.5	75.0	0.00	75.0	75	75	1	2
1952	3	57050	2879	23	3.7	77.0	5.00	72.7	67	82	2	3
1953	11	107304	5415	39	4.1	70.9	2.87	66.4	60	81	6	4
1954	12	59032	2979	19	4.8	68.7	2.51	65.4	49	81	5	4
1955	7	36224	1828	22	1.6	59.3	4.15	57.0	53	79	3	2
1956	5	22670	1144	42	1.0	74.8	0.49	74.6	74	76	2	2
1957	5	21758	1098	46	3.0	89.4	0.40	89.5	89	91	2	2
1958	16	131321	6627	31	5.6	68.9	0.26	68.9	68	70	2	2
1959	6	40742	2056	29	3.7	77.0	0.00	77.0	77	77	1	1
1960	13	95553	4822	12	4.7	78.4	1.21	78.9	71	86	4	2
1961	14	209217	10558	11	5.9	83.0	0.00	83.0	83	83	1	4
1962	5	35768	1805	18	2.2	81.6	2.09	82.3	77	88	3	3
1963	12	155793	7862	5	4.5	70.5	0.45	70.6	69	72	2	2
1964	5	398460	20108	13	6.0	72.4	4.86	77.2	53	78	4	5
1965	2	30794	1554	5	4.5	79.0	1.00	78.6	78	80	2	2
1966	4	108671	5484	4	4.3	83.8	2.21	84.3	79	88	4	3
1967	2	92362	4661	32	3.0	83.5	6.50	84.6	77	90	2	2
1968	1	2715	137	14	1.0	90.0	0.00	90.0	90	90	1	1
1969	3	24453	1234	8	1.7	93.3	2.40	92.4	90	98	3	1
1970	6	167822	8469	21	5.0	72.2	5.10	77.5	51	83	5	4
1971	1	69733	3519	9	6.0	94.0	0.00	94.0	94	94	1	1
1972	4	54335	2742	10	4.5	88.0	1.00	88.7	85	89	2	3
1973	4	10146	512	17	2.0	78.0	1.00	78.4	77	81	2	2
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	17	15615	788	8	3.5	82.1	0.30	81.6	79	83	3	3
1976	10	11236	567	16	4.4	100.6	1.49	99.4	94	107	4	4
1977	28	19638	991	12	4.1	73.0	0.00	73.0	73	73	1	3
1978	2	2279	115	19	5.0	83.5	4.50	84.4	79	88	2	2
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	12	26296	1327	11	3.5	82.0	0.00	82.0	82	82	1	2
1981	8	21203	1070	30	0.0	79.0	0.65	78.9	78	82	2	2
1982	2	8164	412	14	0.0	69.0	0.00	69.0	69	69	1	1
1983	3	3071	155	18	0.0	82.3	3.33	82.0	79	89	2	2
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	239	2590625	130734	19	4.2	77.6	0.62	77.8	49	107	38	12

Table 244-4. Spawn summary for section 244 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this section:

- (i) Matilda Inlet
- (ii) Whitepine Cove and
- (iii) Bawden Bay

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Ahousat and Tofino.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings since 1940 except for the years, 1942, 1974, 1979 and 1984-86.

D. MAGNITUDE OF SPAWNINGS: MEDIUM

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 41/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 41/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 130.7 Km. |
| 4. CUMULATIVE SPAWN AREA | = 259.1 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 19 (77.6) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 19 (77.8) |

F. COMMENTS:

Spawning in section 244 is less consistent in recent years. Probably, herring spawning here are part of the same biological stock of herring spawning elsewhere in Clayoquot Sound (also, see comments for section 245).

G. ROE FISHERIES:

- | | |
|---|-----------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 3/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 5/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 5220 tons (area 24) |
| 4. MEAN GILLNET CATCH/YEAR | = 3197 tons (area 24) |

Table 244-5. History of roe fishery catches by gear type in Whitepine Cove.

SECT. 244	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	01/03- 20/03	345	(800)	all area 24
1974	-	-	-	-	-	-	-	-
1975	-	-	-	-	16/03- 25/03	216	(4200)	all area 24
1976	07/03- 11/03	96	(10528)	sect. 244 & 245	-	-	-	-
1977	10/03- 14/03	36	(7000)	all area 24	06/03- 16/03	192	(7522)	all area 24
1978	-	-	-	-	05/03- 10/03	120	(5100)	sect. 244, 245 & Tofino Inlet
1979	-	-	-	-	-	-	-	-
1980	07/03- 08/03	19	(2403)	Clayoquot Snd.	08/03	4	(900)	Clayoquot Snd.
1981	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

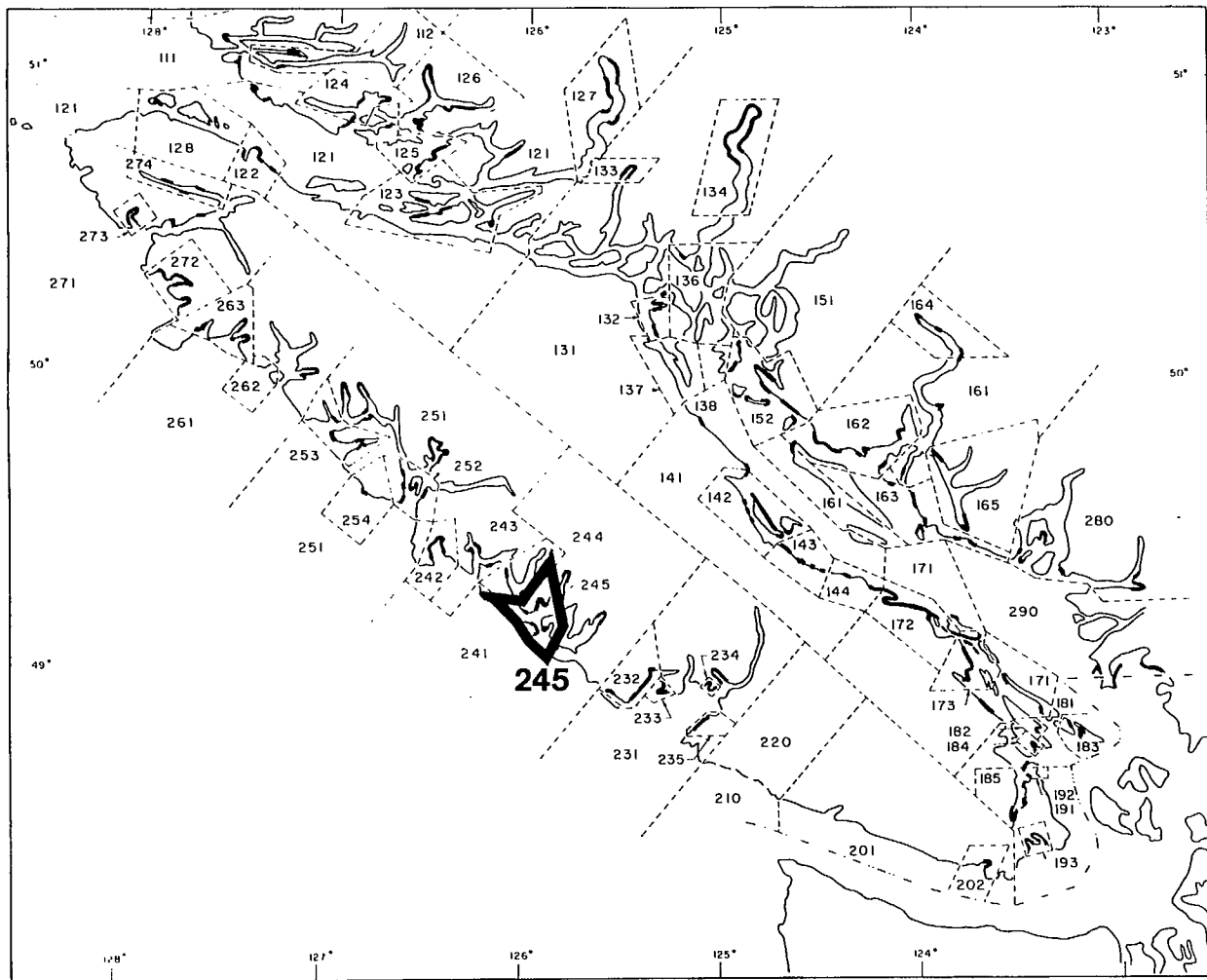


Fig. 245-1. Overview map showing location of section 245, Meares Island.

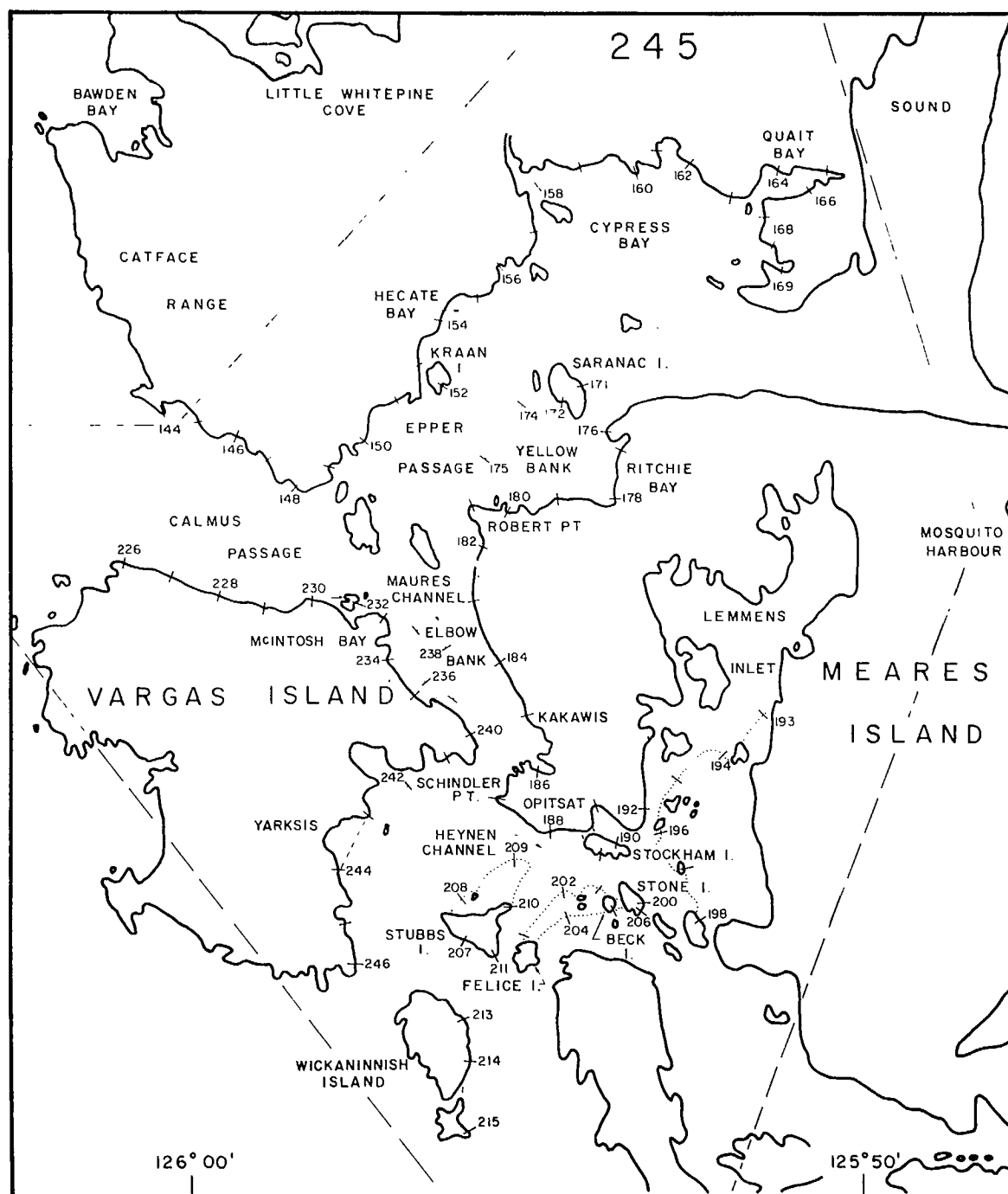


Fig. 245-2. Detailed map of section 245, Meares Island.

Table 245-5. History of roe fishery catches by gear type in Meares Island.

SECT. 245	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE YEAR	TIME OPEN (D/Mo) (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	01/03- 20/03	345	(800)	Clayoquot Snd.
1974	-	-	-	-	06/03- 22/03	408	1500	Hecate Bay
1975	-	-	-	-	16/03- 25/03	216	(4200)	all area 24
1976	07/03- 11/03	96	(10528)	sect. 244 & 245	29/02- 05/03	120	4300	sect. 245
1977	10/03- 14/03	36	(7000)	all area 24	01/03- 16/03	192	(7522)	all area 24
1978	08/03- 09/03	-	(2180)	sect. 245 & Tofino Inlet	05/03- 10/03	120	(5100)	sect. 244, 245 & Tofino Inlet
1979	-	-	-	-	08/03- 09/03	24	2500	sect. 245
1980	07/03- 08/03	19	(2403)	Clayoquot Snd.	08/03	4	(900)	Clayoquot Snd.
1981	-	-	-	-	15/03- 16/03	18	1796	Father Charles & Maurus Ch.
1982	08/03	1.0	700	Father Charles Channel	08/03- 09/03	24	885	Father Charles Channel
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

Table 245-1. Section 245 - Spawn position by year.

Year	136.00	146.00	156.00	166.00	176.00	186.00	196.00	206.00	216.00	226.00	236.00
1937 +											
1938 +											
1939 +											
1940 +				aa							
1941 +											
1942 +											
1943 +											
1944 +											
1945 +		aa		aaaa							
1946 +				aaaaa							
1947 +				aaaaa							
1948 +				aaaaaa							
1949 +				aa							
1950 +				aaaabb							
1951 +				11111 11							
1952 +				11 11							
1953 +				aaabi							
1954 +				21\$cba							
1955 +				112312 111							
1956 +				222							
1957 +				3 3							
1958 +			1 211 1								
1959 +			211 11								
1960 +			11 241								
1961 +			2 2								
1962 +			1								
1963 +			11								
1964 +			111								
1965 +	1111111		11								
1966 +			11								
1967 +				1							
1968 +		111		1							
1969 +		1 1 111									
1970 +		1111									
1971 +		11	1		1 11 1111 1			11			111
1972 +	1 1121				11 2221						1 1
1973 +		1			2 1 12 13 111			1			11
1974 +		242212			21 11 12 gl	dfh	11	121			1 1
1975 +		131311			411 28\$52234\$*2122 2 323 231333 122 21						232
1976 +	21 1 12 1				1 4 132		4313	4 2			21435221
1977 +		222			12 333211123223 21						1232 32111
1978 +		223221123 14			21 1 221 223221112		13313	11			1114122123
1979 +	2	12321			21 1 1 1211433243		11	2531 1			111211112
1980 +		12131			1 1 1 1 15113121\$1		11	1 13 1			111 1 111 1
1981 +		1422			12 11 1 4 3 2421 1		5213	12 3 1			2 2 2
1982 +					34 21 2 2322		42 3	24 13			11 1
1983 +		j			a b bbb			a			a a
1984 +					c aa b1 d			c			fbec
1985 +		f			d b						aga
1986 +					aa						fa

Table 245-1 (cont'd). Section 245 - Spawn position by year.

	236.00	246.00
	+-----+	
1937 +		
1938 +		
1939 +		
1940 +	aa	
1941 +		
1942 +		
1943 +		
1944 +		
1945 +		
1946 +		
1947 +		
1948 +		
1949 +		
1950 +		
1951 +		
1952 +		
1953 +		
1954 +		
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1958 +		
1959 +		
1960 +		
1961 +		
1962 +		
1963 +		
1964 +		
1965 +		
1966 +		
1967 +		
1968 +		
1969 +		
1970 +		
1971 +	11	
1972 +	112121	
1973 +	2211	
1974 +	12332	
1975 +	11 113213	
1976 +	21 22321	
1977 +	13 123221	
1978 +	31 122113	
1979 +	113242	
1980 +	11 133121	
1981 +	1112332	
1982 +	1 222	
1983 +		
1984 +	bg	
1985 +	ce	
1986 +	ad	

	236.00	246.00
	+-----+	
V		Y
A		A
R		R
G		K
A		S
S		I
		S
I		
S		R
L		E
A		S
N		E
D		R
		V
		E

Table 245-2. Section 245 - histogram of cumulative spawn frequency over distance

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
CATFACE RANGE	135.00	+																0	0	0	0
	136.00	+																0	0	0	0
	137.00	+	*															1	0	0	1
	138.00	+	*															1	0	0	1
	139.00	+	*															1	0	0	1
	140.00	+	*															1	0	0	1
	141.00	+	*															1	0	0	1
	142.00	+	*															1	0	0	1
	143.00	+	*****															6	0	0	6
	144.00	+	*															1	0	0	1
	145.00	+	*															1	0	0	1
	146.00	+	*															1	0	0	1
	147.00	+	***															3	0	0	3
	148.00	+	*****0															12	1	0	13
EPPER PASS /KRAAN ISLAND	149.00	+	*****0000000000															21	11	0	32
HECATE BAY	150.00	+	*****															20	0	0	20
	151.00	+	*****000000															20	6	0	26
	152.00	+	*****															7	0	0	7
	153.00	+	*****															5	0	0	5
	154.00	+	****															4	0	0	4
	155.00	+	***															3	0	0	3
	156.00	+	***															3	0	0	3
	157.00	+	*															1	0	0	1
	158.00	+	*															1	0	0	1
	159.00	+	*****															9	0	0	9
CYPRESS BAY	160.00	+	*****0000															10	4	0	14
	161.00	+	*****0000000															19	7	0	26
	162.00	+	*****0000000000															6	11	0	17
	163.00	+	*****0000000000															12	10	0	22
	164.00	+	***000000000															3	9	0	12
QUAIT BAY	165.00	+	000000000000															0	12	0	12
	166.00	+	***															3	0	0	3
	167.00	+	*****															11	0	0	11
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 245-2 (cont'd.)

[illegible]

Table 245-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
BECK ISLAND	201.00	*****																18	0	0	18
	202.00	*****																12	0	0	12
	203.00	*****																8	0	0	8
	204.00	*****																15	0	0	15
	205.00	***																3	0	0	3
STUBBS ISLAND	206.00	+																0	0	0	0
	207.00	*****																6	0	0	6
	208.00	*****0000																18	4	0	22
	209.00	*****																13	0	0	13
	210.00	*****																11	0	0	11
WICKANINNISH ISLAND	211.00	+																0	0	0	0
	212.00	+																0	0	0	0
	213.00	*****																6	0	0	6
	214.00	****																4	0	0	4
	215.00	+																0	0	0	0
	216.00	+																0	0	0	0
	217.00	+																0	0	0	0
	218.00	+																0	0	0	0
	219.00	+																0	0	0	0
	220.00	+																0	0	0	0
	221.00	+																0	0	0	0
	222.00	+																0	0	0	0
	223.00	+																0	0	0	0
CALMUS PASS	224.00	+																0	0	0	0
	225.00	+																0	0	0	0
	226.00	**																2	0	0	2
	227.00	****																4	0	0	4
	228.00	*****																8	0	0	8
MCINTOSH BAY	229.00	*****																7	0	0	7
	230.00	*****																16	0	0	16
	231.00	*****																5	0	0	5
MCINTOSH BAY	232.00	*****0000000																19	7	0	26
	233.00	*****000																14	3	0	17

Table 245-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
ELBOW BANK	234.00	*****000000000000000000																9	19	0	28
	235.00	*****00000																9	5	0	14
	236.00	*****																5	0	0	5
	237.00	*****																9	0	0	9
	238.00	***0000000																3	7	0	10
VARGAS ISLAND	239.00	*****000000000000000000																4	17	0	21
	240.00	*****																11	0	0	11
	241.00	*****																24	0	0	24
	242.00	*****																27	0	0	27
YARKSIS RESERVE	243.00	*****																23	0	0	23
	244.00	*****																17	0	0	17
	245.00	*****																5	0	0	5
	246.00	+																0	0	0	0
	247.00	+																0	0	0	0
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 245-3. Herring statistical spawn summary for section 245.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	2	53814	1261	0	4.0	71.0	18.00	76.0	53	89	2	2
1941	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1945	2	205656	4819	7	7.0	62.0	0.00	62.0	62	62	1	2
1946	1	178002	4171	5	9.0	65.0	0.00	65.0	65	65	1	1
1947	1	174033	4078	5	7.0	62.0	0.00	62.0	62	62	1	1
1948	1	188799	4424	18	5.0	59.0	0.00	59.0	59	59	1	1
1949	1	35122	823	73	7.0	61.0	0.00	61.0	61	61	1	1
1950	2	273041	6398	3	4.0	67.0	0.00	67.0	67	67	1	2
1951	2	197803	4635	6	3.0	58.0	12.00	65.2	46	70	2	2
1952	2	89705	2102	4	7.0	59.0	0.00	59.0	59	59	1	2
1953	10	230109	5392	23	4.8	59.0	4.69	46.8	41	76	3	2
1954	6	154103	3611	16	2.3	56.0	5.69	64.8	47	74	2	1
1955	8	259427	6079	7	4.0	58.1	5.31	58.1	40	69	2	1
1956	6	33159	777	7	5.0	72.0	0.00	72.0	72	72	1	1
1957	6	38067	892	9	2.0	64.0	0.00	64.0	64	64	1	1
1958	5	90729	2126	12	1.4	65.0	1.45	65.5	61	70	4	2
1959	4	101441	2377	16	2.0	69.5	4.33	71.8	62	77	2	1
1960	7	87785	2057	12	5.0	72.9	1.82	72.0	69	78	2	1
1961	4	35080	822	11	4.0	84.0	0.00	84.0	84	84	1	1
1962	1	9773	229	9	1.0	78.0	0.00	78.0	78	78	1	1
1963	1	23386	548	4	3.0	60.0	0.00	60.0	60	60	1	1
1964	1	78012	1828	9	6.0	84.0	0.00	84.0	84	84	1	1
1965	2	323740	7586	4	4.5	88.5	14.50	98.5	74	103	2	2
1966	1	11693	274	2	3.0	67.0	0.00	67.0	67	67	1	1
1967	1	7810	183	2	1.0	72.0	0.00	72.0	72	72	1	1
1968	2	105324	2468	9	3.0	76.5	1.50	77.8	75	78	2	2
1969	3	124827	2925	23	3.0	77.3	10.35	69.7	66	98	3	1
1970	1	109208	2559	18	6.0	54.0	0.00	54.0	54	54	1	1
1971	9	421810	9884	90	3.8	81.9	1.45	80.7	77	91	6	7
1972	14	513691	12037	78	4.7	84.6	0.45	84.2	83	89	5	5
1973	20	197462	4627	46	3.5	79.0	0.49	78.7	75	83	7	9
1974	51	424242	9941	70	5.6	81.9	0.43	81.5	73	89	7	8
1975	111	660070	15467	27	4.7	84.6	0.40	83.9	78	95	10	18
1976	59	609371	14279	58	4.8	75.3	1.25	72.0	69	97	5	12
1977	57	533493	12501	43	4.9	73.4	0.15	73.2	71	75	4	8
1978	80	631093	14788	40	3.8	66.7	0.18	65.9	64	71	4	16
1979	70	549880	12885	61	5.2	69.7	0.27	69.6	68	80	5	11
1980	59	477246	11183	52	4.6	68.9	0.30	68.0	64	72	6	14
1981	61	469180	10994	67	0.0	74.9	0.25	74.5	71	79	7	15
1982	47	247009	5788	31	0.0	70.9	1.18	70.2	67	90	3	10
1983	20	119322	2796	43	0.0	78.1	0.37	78.0	75	79	3	9
1984	35	411525	9643	88	0.0	73.5	1.16	72.9	68	84	5	7
1985	27	327794	7681	84	0.0	69.4	1.04	68.1	66	82	4	6
1986	11	176465	4135	119	0.0	80.0	0.00	80.0	80	80	1	3
All	814	9989300	234073	49	4.6	74.1	0.30	72.4	40	103	43	27

Table 245-4. Spawn summary for section 245 from 1937 to 1986.

A. GENERAL:

There are five main spawning areas in this section:

- (i) Hecate Bay
- (ii) Cypress Bay
- (iii) Ritchie Bay
- (iv) Maurus Channel and
- (v) McIntosh Bay

B. COMPLETENESS OF RECORDS:

Probably all spawning records prior to 1945 are incomplete.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a constant annual record of spawnings since 1945.

D. MAGNITUDE OF SPAWNINGS: LARGE

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 43/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 43/43 (1945-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 234.1 Km. |
| 4. CUMULATIVE SPAWN AREA | = 998.9 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 15 (74.1) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 13 (72.4) |

F. COMMENTS:

The main spawning location in the combined sections of 241, 242, 243, 244 and 245 is centered in section 245, Vargas and Meares Island with a continuous record of 814 spawn records between 1937 and 1986 and a mean spawn time of March 15. Adjacent sections 243 and 244 to the north have 298 and 239 records, respectively with mean spawn times of March 16 and 19. Section 242, Hesquiat Harbour and section 241, Mosquito Harbour have 135 and 54 records, respectively with mean spawn times of March 9 and 4. It is likely that all area 24 spawnings belong to the same stock.

G. ROE FISHERIES:

- | | |
|---|-----------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 5/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 10/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 5220 tons (area 24) |
| 4. MEAN GILLNET CATCH/YEAR | = 3197 tons (area 24) |

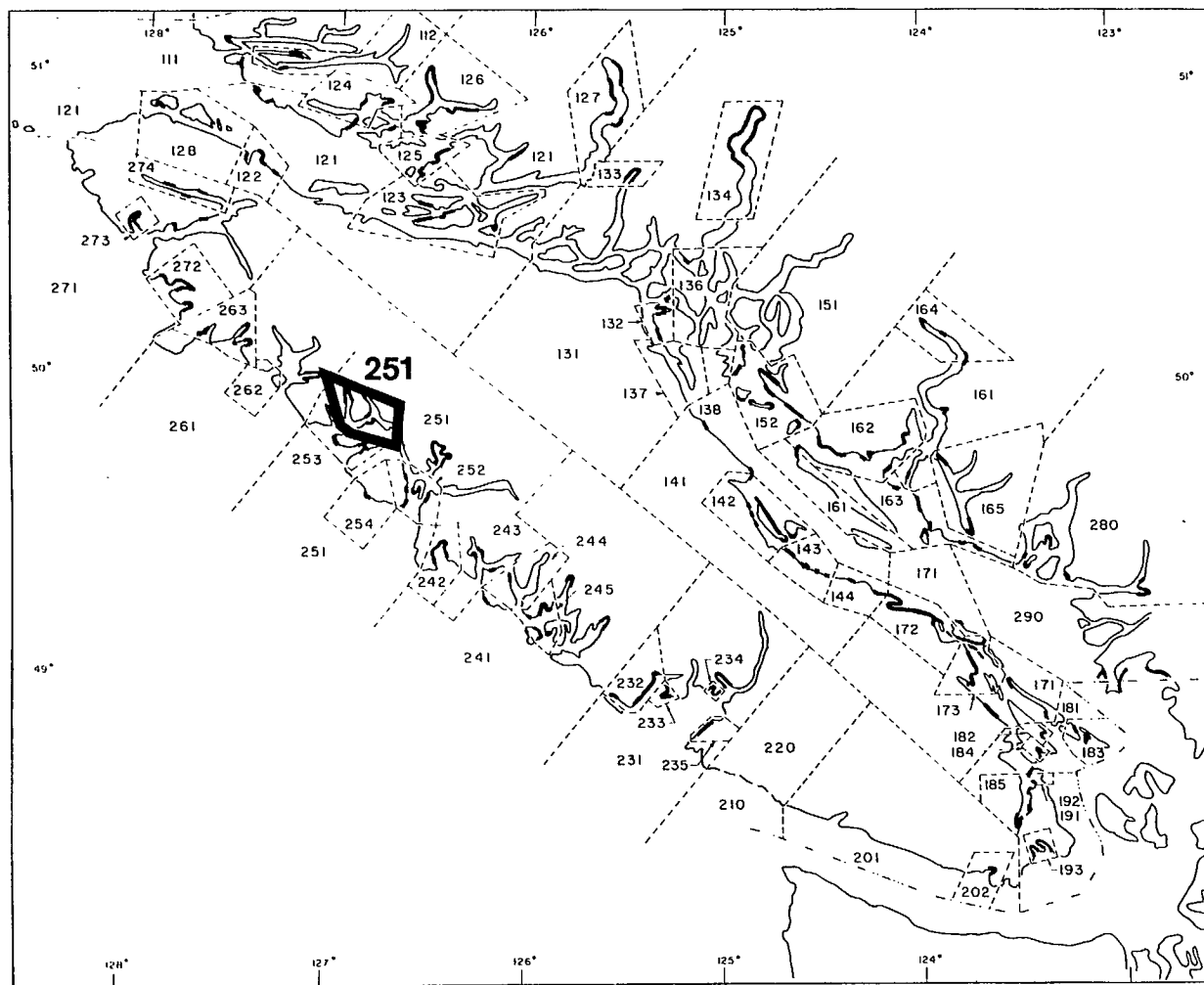


Fig. 251-1. Overview map showing location of section 251, Other Area 25.

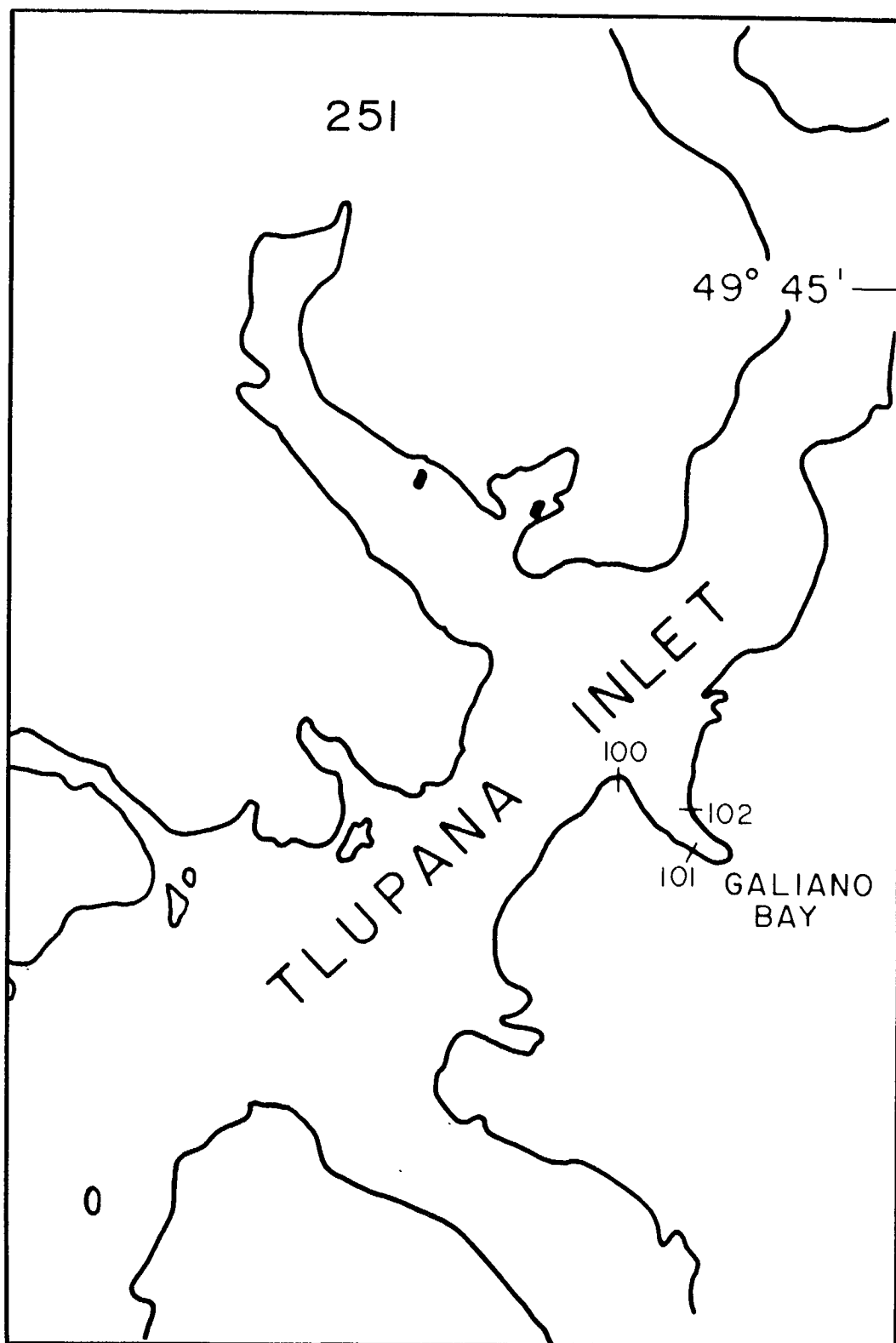


Fig. 251-2. Detailed map of section 251, Other Area 25.

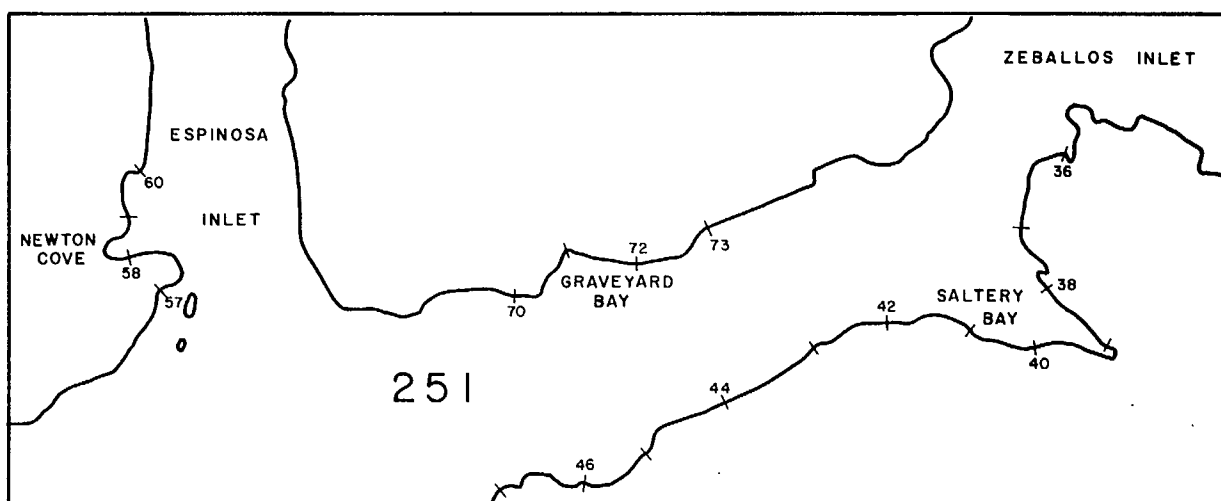


Fig. 251-2. Detailed map of section 251, Other Area 25.

Table 251-1. Section 251 - Spawn position by year.

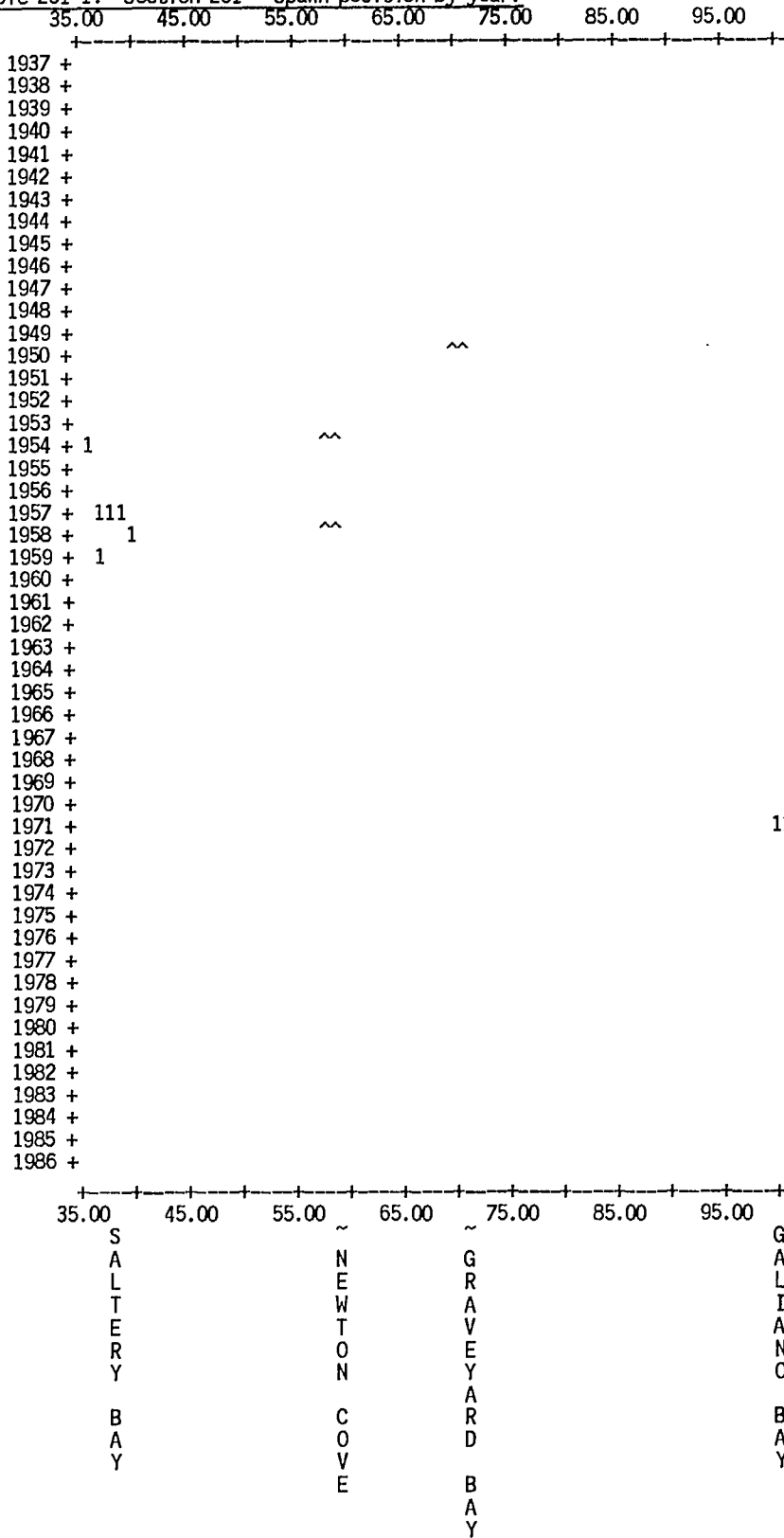


Table 251-2. Section 251 - histogram of cumulative spawn frequency over distance

		position(km)																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
SALTERTY BAY	34.00	+																0	0	0	0
	35.00	+																0	0	0	0
	36.00	+	*															1	0	0	1
	37.00	+	**															2	0	0	2
	38.00	+	*															1	0	0	1
	39.00	+	*															1	0	0	1
	40.00	+	*															1	0	0	1
	41.00	+																0	0	0	0
	42.00	+																0	0	0	0
	43.00	+																0	0	0	0
	44.00	+																0	0	0	0
	45.00	+																0	0	0	0
	46.00	+																0	0	0	0
	47.00	+																0	0	0	0
	48.00	+																0	0	0	0
	49.00	+																0	0	0	0
	50.00	+																0	0	0	0
	51.00	+																0	0	0	0
	52.00	+																0	0	0	0
	53.00	+																0	0	0	0
	54.00	+																0	0	0	0
	55.00	+																0	0	0	0
	56.00	+																0	0	0	0
	57.00	+																0	0	0	0
58.00	+																0	0	2	2	
59.00	+																0	0	2	2	
60.00	+																0	0	0	0	
61.00	+																0	0	0	0	
62.00	+																0	0	0	0	
63.00	+																0	0	0	0	
64.00	+																0	0	0	0	
65.00	+																0	0	0	0	
66.00	+																0	0	0	0	
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 251-2 (cont'd.)

	position(km)																vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
GRAVEYARD BAY	67.00 +																0	0	0	0
	68.00 +																0	0	0	0
	69.00 +																0	0	0	0
	70.00 +I																0	0	1	1
	71.00 +I																0	0	1	1
	72.00 +																0	0	0	0
	73.00 +																0	0	0	0
	74.00 +																0	0	0	0
	75.00 +																0	0	0	0
	76.00 +																0	0	0	0
	77.00 +																0	0	0	0
	78.00 +																0	0	0	0
	79.00 +																0	0	0	0
	80.00 +																0	0	0	0
	81.00 +																0	0	0	0
	82.00 +																0	0	0	0
	83.00 +																0	0	0	0
	84.00 +																0	0	0	0
	85.00 +																0	0	0	0
	86.00 +																0	0	0	0
	87.00 +																0	0	0	0
	88.00 +																0	0	0	0
	89.00 +																0	0	0	0
	90.00 +																0	0	0	0
	91.00 +																0	0	0	0
	92.00 +																0	0	0	0
	93.00 +																0	0	0	0
	94.00 +																0	0	0	0
	95.00 +																0	0	0	0
	96.00 +																0	0	0	0
	97.00 +																0	0	0	0
	98.00 +																0	0	0	0
	99.00 +																0	0	0	0
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 251-2 (cont'd.)

position (km)																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
100.00	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	0	0	1
101.00	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	1	0	0	1
102.00	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	0	0	0	0
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 251-3. Herring statistical spawn summary for section 251.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1941	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1942	1	26480	1206	5	3.0	67.0	0.00	67.0	67	67	1	1
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	1	1515	69	46	9.0	66.0	0.00	66.0	66	66	1	1
1945	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1948	1	40708	1854	18	7.0	83.0	0.00	83.0	83	83	1	1
1949	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1950	1	12208	556	11	3.0	76.0	0.00	76.0	76	76	1	1
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	1	17653	804	69	5.0	64.0	0.00	64.0	64	64	1	1
1954	2	11945	544	7	6.0	106.0	4.00	103.3	102	110	2	2
1955	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1956	1	34121	1554	9	7.0	77.0	0.00	77.0	77	77	1	1
1957	1	43146	1965	5	7.0	70.0	0.00	70.0	70	70	1	1
1958	5	20574	937	4	5.8	87.4	1.60	88.2	83	90	3	3
1959	1	1515	69	9	7.0	100.0	0.00	100.0	100	100	1	1
1960	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	1	12032	548	2	5.0	110.0	0.00	110.0	110	110	1	1
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	16	221897	10106	13	5.9	85.1	3.73	78.8	64	110	12	9

Table 251-4. Spawn summary for section 251 from 1937 to 1986.

A. GENERAL:

There are two main spawning areas in this section:

- (i) Saltery Bay and
- (ii) Galiano Bay

B. COMPLETENESS OF RECORDS:

Some areas are remote and the fifty year record may not be complete. However, if spawnings were large and frequent they should have been observed considering the proximity of Esperanza, Ceepeecee, Hecate, Zebellos and Tahsis.

C. SPAWNING CONSISTENCY OVER TIME: INFREQUENT

There have been intermittent spawnings from 1942 to 1971 and no recorded spawns in other years.

D. MAGNITUDE OF SPAWNINGS: VERY SMALL

1. NUMBER OF SPAWN YEARS/50 YEARS	= 11/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 11/50 (1937-86)
3. CUMULATIVE SPAWN LENGTH	= 10.1 Km.
4. CUMULATIVE SPAWN AREA	= 22.2 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 26 (85.1)
2. MEAN WEIGHTED DATE (DOY)	= March 20 (78.8)

F. COMMENTS:

Section 251 is not a significant spawning area, receiving only intermittent spawnings from adjacent sections (also, see comments for section 253).

G. ROE FISHERIES:

No major roe fisheries are documented.

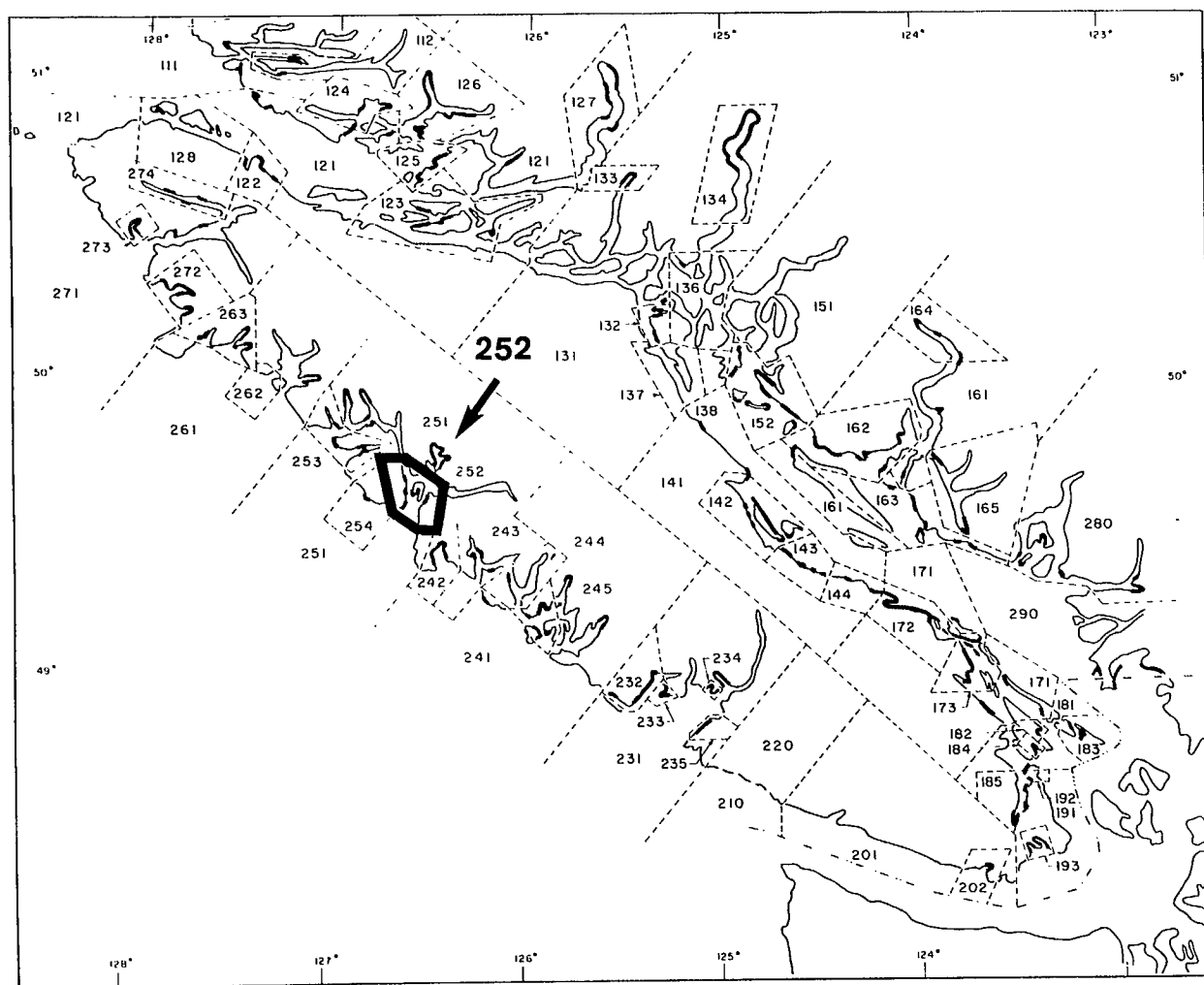


Fig. 252-1. Overview map showing location of section 252, West Nootka.

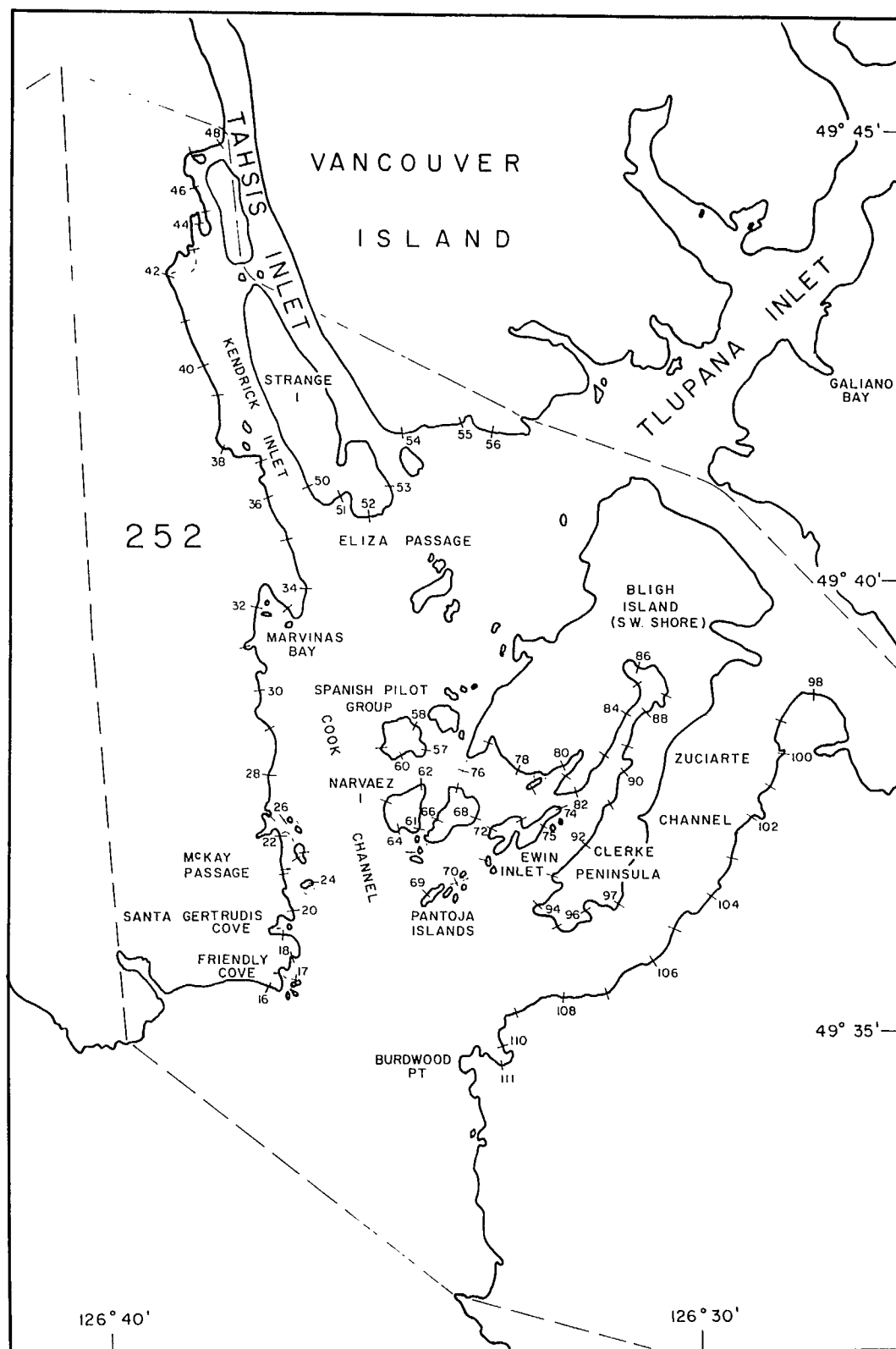


Fig. 252-2. Detailed map of section 252, West Nootka.

Table 252-1. Section 252 - Spawn position by year.

[illegible]

Table 252-2. Section 252 - histogram of cumulative spawn frequency over distance

	position(km)																vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
	14.00	+															0	0	0	0
	15.00	+															0	0	0	0
	16.00	*****															16	0	0	16
FRIENDLY COVE	17.00	*****0000															23	4	0	27
SANTA GERTRUDIS COVE	18.00	*****															12	0	0	12
	19.00	*****															9	0	0	9
	20.00	*****															15	0	0	15
	21.00	*****															7	0	0	7
MCKAY PASSAGE	22.00	*****															6	0	0	6
	23.00	*****															5	0	0	5
	24.00	***															3	0	0	3
	25.00	+															1	0	0	1
	26.00	****															4	0	0	4
	27.00	*****															6	0	0	6
	28.00	***															3	0	0	3
COOK CHANNEL	29.00	*****0															5	1	0	6
	30.00	*****00															6	2	0	8
MARVINAS BAY/ISLAND	31.00	*****0000000000															10	10	0	20
	32.00	*****00															5	2	0	7
	33.00	***0															3	1	0	4
	34.00	+															0	0	0	0
	35.00	+															0	0	0	0
	36.00	+															0	0	0	0
	37.00	+															0	0	0	0
	38.00	+															1	0	0	1
	39.00	+															0	0	0	0
	40.00	+															0	0	0	0
	41.00	+															0	0	0	0
	42.00	+															0	0	0	0
	43.00	+															0	0	0	0
	44.00	***00															1	2	0	3
	45.00	***00000															1	5	0	6
KENDRICK INLET	46.00	***0000000000000000															2	15	0	17
	47.00	***00															3	2	0	5
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			

Table 252-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
STRANGE ISLAND	48.00	++0																1	1	0	2
	49.00	+																0	0	0	0
	50.00	*****0000																7	4	0	11
	51.00	*****000																6	3	0	9
ELIZA PASSAGE	52.00	++																1	0	0	1
	53.00	+																0	0	0	0
	54.00	++																1	0	0	1
	55.00	+																0	0	0	0
	56.00	+																0	0	0	0
	57.00	++																1	0	0	1
	58.00	+++																2	0	0	2
	59.00	+++																2	0	0	2
NARVAEZ ISLA/SPANISH PILO	60.00	++																1	0	0	1
	61.00	+++																3	0	0	3
	62.00	+++																2	0	0	2
	63.00	+++																2	0	0	2
	64.00	+++																2	0	0	2
	65.00	+++																2	0	0	2
	66.00	++																1	0	0	1
	67.00	++																1	0	0	1
PANTOJA ISLANDS	68.00	+																0	0	0	0
	69.00	*****0																6	1	0	7
	70.00	*****0																6	1	0	7
	71.00	++																1	0	0	1
	72.00	+++																2	0	0	2
	73.00	+++																3	0	0	3
	74.00	+++																3	0	0	3
	75.00	+++																2	0	0	2
BLIGH ISLAND SW SHORE	76.00	+++																2	0	0	2
	77.00	****00																3	2	0	5
	78.00	*****000																4	3	0	7
	79.00	*****00																5	2	0	7
	80.00	+++																3	0	0	3

Table 252-2 (cont'd.)

		position(km)																			
		+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
EWIN INLET	81.00	+++																2	0	0	2
	82.00	++																1	0	0	1
	83.00	+++																2	0	0	2
	84.00	+++++++																7	0	0	7
	85.00	+++++++																8	0	0	8
	86.00	++++0000000000000																4	13	0	17
	87.00	+++00000																2	5	0	7
	88.00	+++																2	0	0	2
	89.00	+++																2	0	0	2
	90.00	+++																2	0	0	2
CLERKE PENINSULA	91.00	+++																2	0	0	2
	92.00	++																1	0	0	1
	93.00	++																1	0	0	1
	94.00	++																1	0	0	1
	95.00	++																1	0	0	1
	96.00	+++																2	0	0	2
	97.00	+++																2	0	0	2
	98.00	++																1	0	0	1
	99.00	++																1	0	0	1
	100.00	+++00																2	2	0	4
ZUCIARTE CHANNEL	101.00	+++00																2	2	0	4
	102.00	++																1	0	0	1
	103.00	++																1	0	0	1
	104.00	+++																2	0	0	2
	105.00	+																0	0	0	0
	106.00	+																0	0	0	0
	107.00	+																0	0	0	0
	108.00	+																0	0	0	0
	109.00	+																0	0	0	0
	110.00	++0																1	1	0	2
BURDWOOD POINT	111.00	++0																1	1	0	2
	112.00	++																1	0	0	1
	113.00	+																0	0	0	0
		+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 252-3. Herring statistical spawn summary for section 252.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	3	5542	260	0	3.7	81.0	1.00	80.9	80	83	2	3
1938	1	25706	1206	5	3.0	72.0	0.00	72.0	72	72	1	1
1939	5	14622	686	34	3.4	80.0	5.74	76.9	66	91	4	3
1940	2	111435	5228	0	4.0	86.0	7.00	82.2	79	93	2	2
1941	3	72471	3400	0	4.3	70.7	8.01	67.7	59	86	3	3
1942	2	7013	329	7	4.0	64.5	4.50	68.8	60	69	2	2
1943	2	4370	205	10	4.0	64.5	1.50	64.3	63	66	2	2
1944	4	12853	603	36	7.0	59.8	0.48	59.8	59	61	3	3
1945	5	23873	1120	5	4.6	77.2	5.23	75.1	63	92	5	4
1946	3	15560	730	3	5.7	80.7	1.86	78.4	77	83	3	1
1947	2	5712	268	25	7.0	75.0	1.00	74.7	74	76	2	2
1948	1	2920	137	0	3.0	84.0	0.00	84.0	84	84	1	1
1949	2	40520	1901	8	6.0	71.0	0.00	71.0	71	71	1	2
1950	5	128998	6052	24	6.2	80.2	3.73	75.8	72	91	5	5
1951	5	79036	3708	19	6.2	77.2	0.58	77.5	76	79	4	5
1952	1	17542	823	18	5.0	98.0	0.00	98.0	98	98	1	1
1953	2	60002	2815	103	5.0	67.5	6.50	68.4	61	74	2	1
1954	3	33699	1581	3	4.3	82.0	1.53	82.2	79	84	3	3
1955	2	39177	1838	6	7.0	77.0	0.00	77.0	77	77	1	2
1956	1	980	46	5	6.0	73.0	0.00	73.0	73	73	1	1
1957	5	168133	7888	5	5.8	79.2	0.58	79.5	78	81	4	5
1958	8	129574	6079	9	5.5	80.1	1.83	78.3	76	87	4	7
1959	2	6331	297	10	5.0	84.0	0.00	84.0	84	84	1	1
1960	2	38964	1828	9	5.5	78.5	0.50	78.2	78	79	2	2
1961	4	174357	8180	13	5.0	89.3	1.31	87.7	87	92	3	3
1962	3	448084	21022	9	8.3	81.3	1.33	80.5	80	84	2	3
1963	9	86518	4059	9	4.4	99.2	9.93	91.8	78	166	6	7
1964	7	420801	19742	7	5.3	78.0	1.25	77.0	73	82	4	5
1965	10	296151	13894	4	4.9	75.8	2.26	74.0	71	91	6	8
1966	5	116891	5484	9	3.0	87.8	0.37	88.2	87	89	3	4
1967	5	105190	4935	6	4.6	89.2	1.43	89.1	85	94	3	3
1968	6	50154	2353	11	4.3	94.0	2.59	91.4	88	102	5	2
1969	4	26793	1257	6	2.5	97.3	1.84	96.9	93	102	3	4
1970	10	153937	7222	7	5.3	81.7	1.22	82.1	76	86	5	6
1971	9	214322	10055	16	5.7	102.6	1.48	103.3	96	106	4	7
1972	3	87669	4113	8	5.7	90.0	0.00	90.0	90	90	1	3
1973	6	173376	8134	20	5.3	77.8	3.27	77.0	71	91	4	6
1974	6	112970	5300	61	6.3	82.2	3.82	85.0	64	88	4	4
1975	6	157795	7403	42	5.2	98.2	6.12	96.5	86	121	5	4
1976	6	18096	849	15	3.7	112.0	0.00	112.0	112	112	1	2
1977	3	5862	275	54	3.0	104.0	0.00	104.0	104	104	1	1
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	14	76585	3593	57	0.0	74.8	2.03	74.3	68	91	3	4
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	2	13855	650	25	0.0	85.0	0.00	85.0	85	85	1	1
1985	1	7801	366	46	0.0	79.0	0.00	79.0	79	79	1	1
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	190	3792238	177914	20	5.0	83.8	1.01	82.2	59	166	46	16

Table 252-4. Spawn summary for section 252 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this section:

- (i) McKay Passage-Marvinas Bay
- (ii) Kendrick Inlet and
- (iii) Ewin Inlet

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Nootka, Yuquot, Gold River and Tahsis.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings since 1937 except for the years, 1978-80, 1982-83 and 1986, with no gaps of more than three years.

D. MAGNITUDE OF SPAWNINGS: MEDIUM

1. NUMBER OF SPAWN YEARS/50 YEARS	= 44/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 44/50 (1937-86)
3. CUMULATIVE SPAWN LENGTH	= 177.9 Km.
4. CUMULATIVE SPAWN AREA	= 379.2 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 25 (83.8)
2. MEAN WEIGHTED DATE (DOY)	= March 23 (82.2)

F. COMMENTS:

Section 252 has had a nearly continuous record of spawnings until the 1980's. Also, there has been very little spawning in the vicinity of Bligh Island since the early 1970's. There is no explanation for these recent changes but it is unlikely that this section supports a unique herring stock. The area is adjacent to several other spawning areas with similar spawning times (also, see comments for section 253).

G. ROE FISHERIES:

1. NUMBER OF SEINE FISHERY YEARS/15 YEARS	= 8/15 (1972-86)
2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS	= 1/15 (1972-86)
3. MEAN SEINE CATCH/YEAR	= 3706 tons
4. MEAN GILLNET CATCH/YEAR	= 1600 tons

Table 252-5. History of roe fishery catches by gear type in West Nootka.

SECT. 252	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	27/02- 01/04	816	3185	Nootka Snd. (head)	-	-	-	-
1973	-	-	-	-	-	-	-	-
1974	17/03- 19/03	24	9700	Nootka Snd. (head)	17/03- 22/03	120	1600	Nootka Snd. (head)
1975	19/03- 24/03	120	2680	Nootka Snd. (head)	-	-	-	-
1976	14/03- 15/03	10	3277	Nootka Snd. (head)	-	-	-	-
1977	15/03	17	885	Nootka Snd. (head)	-	-	-	-
1978	13/03- 14/03	14	920	Nootka Snd. (head)	-	-	-	-
1979	05/03- 06/03 & 13/03	16	6000	Nootka Snd. (head)	-	-	-	-
1980	-	-	-	-	-	-	-	-
1981	08/03- & 10/03	2.3	3000	Nootka Snd. (head)	-	-	-	-
1982	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

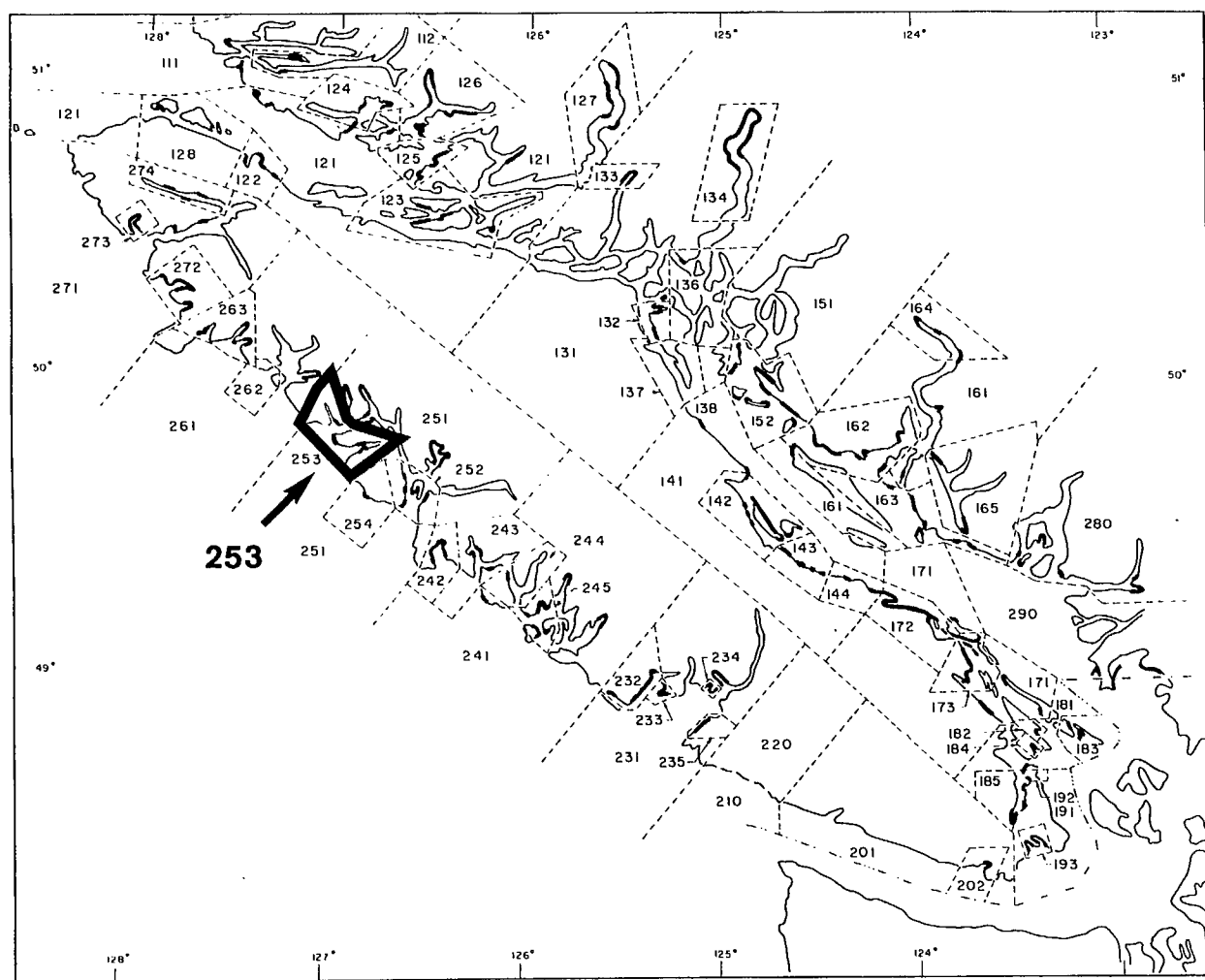


Fig. 253-1. Overview map showing location of section 253, Nuchatlitz Inlet.

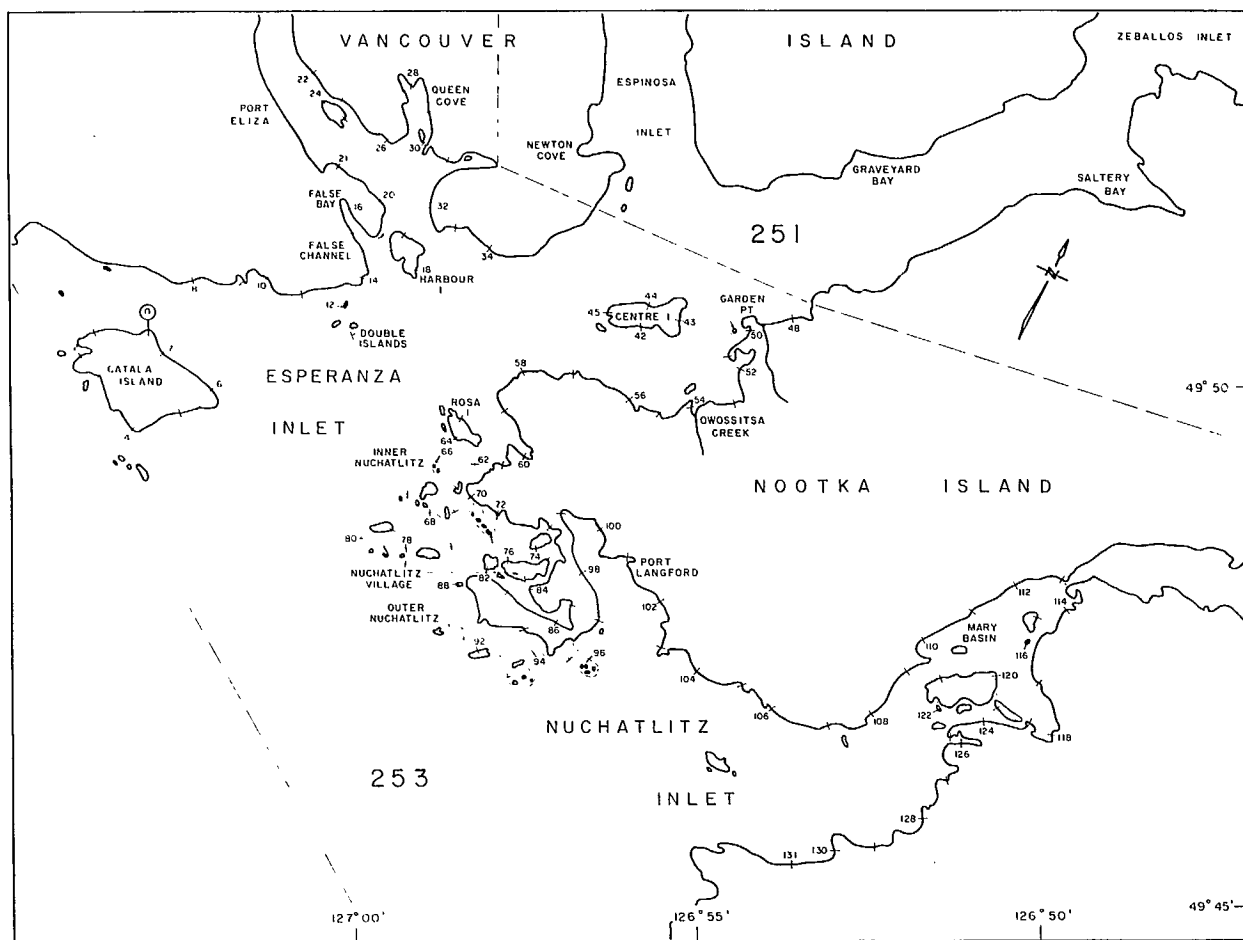


Fig. 253-2. Detailed map of section 253, Nuchatlitz Inlet.

Table 253-1. Section 253 - Spawn position by year.

	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00
1937 +			aa	a							
1938 +				a							
1939 +				a							a
1940 +				aabaa							
1941 +			aa					aa			a
1942 +		aa									a
1943 +	aaa	a									
1944 +								aaaa			
1945 +		a		aa			a	aa			
1946 +						aa	a	aaaa			b
1947 +							a	aaaa			a
1948 +				aaa		a	aa	aabcbaa			a
1949 +			aaaaaa	aa		a	a	a			a
1950 +		a aa				aaa	aa	aa			b
1951 +	11111	al					11 2211	aa	111		1 1
1952 +								aa			11111
1953 +			aa				21 111111				111 1
1954 +		1			11	1 1		1 11		11211	2211 1
1955 +						aa	aaaaa				aaa
1956 +						aabba		xv			aaaaa
1957 +	1111	1111	111			111111	1111		11111		1111
1958 +			111			11111 11	111		1 11 1		11
1959 +		1 11				efja	1	11 11 gf		1	
1960 +						1	11				
1961 +											1
1962 +			111	11							11
1963 +			1	1							11
1964 +							11			11	1
1965 +		11111		1							
1966 +							11 11 1 1	1	a		a
1967 +							11111	1	12		111
1968 +							1 11 1	1	21	12	1
1969 +		111					11 11	22		11	
1970 +		ab		111			111	1 13		1	11
1971 +							1111	1 12		111	
1972 +	11	11aa 1					111 \$1 1 121212	21	121	121	1 1111
1973 +							111 11 11111				
1974 +							111 1 1		1		
1975 +							111 1 1	11		12 11	2
1976 +								112		2 1	21122
1977 +							11 14111 11311	2		1211121	122
1978 +							1 1 11 111		1	1 22	11232
1979 +						112	11 32 11123 11 2	1 1		5312 32	67341
1980 +							21 1121	221121		\$355323131231	
1981 +							21 1 11 11	132		1 631172	31 1
1982 +							31 1133111	122 22		13121	14232
1983 +								oo		i	aea
1984 +								fc		gb	aca
1985 +							a	ie		fa	
1986 +								icee		n	aha
	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00
	C	D	F F	H	P	Q	GE O	R	NN	O	P
	A	O	A A	A	O	U	AS W	O	UU	U	O
	T	U	L L	R	R	E	RP O	S	CC	T	R
	A	B	S S	B	T	E	DE S	A	HH	E	T
	L	E	E E	O		N	ER S		AA	R	
	A			U	E	C	NA I	I	TT		L
			CB	R	L	O	NT	S	LL	N	A
	I	I	HA	I	I	V	PZ S	L	II	U	N
	S	S	AY	I	Z		QA A	A	TT	C	G
	L	L	N	S	A	E	I	N	ZZ	H	F

Table 253-1 (cont'd). Section 253 - spawn position by year.

	100.00	110.00
	+-----+	
1937 +		
1938 +		
1939 +		a
1940 +		a
1941 +		a
1942 +		a
1943 +		b
1944 +		
1945 +		a
1946 +		
1947 +		
1948 +		
1949 +		
1950 +		
1951 +1		
1952 +1		
1953 +11		
1954 +		
1955 +		
1956 +		
1957 +11	11	
1958 +1		
1959 +		
1960 +		
1961 +		
1962 +		
1963 +		
1964 +		
1965 +		
1966 +		
1967 +		
1968 +		
1969 +		
1970 +		
1971 +		
1972 +		
1973 +		
1974 +		
1975 + 1		
1976 +211		
1977 +		
1978 +221		
1979 +111		
1980 +1		
1981 +1 1		
1982 +221		
1983 +		
1984 +		
1985 +		
1986 +		
	+-----+	
	100.00	110.00
		M
		A
		R
		Y
		B
		A
		S
		I
		N

Table 253-2. Section 253 - histogram of cumulative spawn frequency over distance

	position(km)																vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
	0.00	+															0	0	0	0
	1.00	+	*														1	0	0	1
	2.00	+	*														1	0	0	1
	3.00	+	**														2	0	0	2
	4.00	+	**														2	0	0	2
	5.00	+	0														0	1	0	1
CATALA ISLAND	6.00	+	*00														1	2	0	3
	7.00	+	*0														1	1	0	2
	8.00	+	*														1	0	0	1
	9.00	+	*														1	0	0	1
	10.00	+	***0														3	1	0	4
DOUBLE ISLAND	11.00	+	***0000														3	4	0	7
	12.00	+	****														4	0	0	4
	13.00	+	**000														2	3	0	5
FALSE CHANNEL	14.00	+	*****00000														4	5	0	9
	15.00	+	****														4	0	0	4
FALSE BAY	16.00	+	****														4	0	0	4
	17.00	+															0	0	0	0
	18.00	+															0	0	0	0
HARBOUR ISLAND	19.00	+	*														1	0	0	1
	20.00	+															0	0	0	0
	21.00	+															0	0	0	0
	22.00	+	0														0	1	0	1
	23.00	+	00														0	2	0	2
PORT ELIZA	24.00	+	*000000														1	6	0	7
	25.00	+	**000000														2	6	0	8
	26.00	+	**00														2	2	0	4
	27.00	+	*00														1	2	0	3
	28.00	+	00														0	2	0	2
QUEEN COVE	29.00	+	*000000000														1	9	0	10
	30.00	+	*00000														1	5	0	6
	31.00	+	*****0														4	1	0	5
	32.00	+	*														1	0	0	1
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			

Table 253-2 (cont'd.)

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
CENTRE ISLAND	33.00	+																0	0	0	0
	34.00	+																0	0	0	0
	35.00	+																0	0	0	0
	36.00	+																0	0	0	0
	37.00	+	*															1	0	0	1
	38.00	+	*															1	0	0	1
	39.00	+																0	0	0	0
	40.00	+																0	0	0	0
	41.00	+																0	0	0	0
	42.00	+																0	0	0	0
	43.00	+	l															0	0	1	1
	44.00	+	l															0	0	1	1
	45.00	+																0	0	0	0
	46.00	+																0	0	0	0
	47.00	+	*															1	0	0	1
	48.00	+	***															3	0	0	3
GARDEN POINT ESPERANZA INLET	49.00	+	***															3	0	0	3
	50.00	+	****0															4	1	0	5
	51.00	+	****00000000															4	8	0	12
OWOSSITSA CREEK	52.00	+	****0000000000															2	11	0	13
	53.00	+	0000000000000000															0	15	0	15
	54.00	+	*000															1	3	0	4
	55.00	+	*															1	0	0	1
	56.00	+	*															1	0	0	1
ROSA ISLAND /ROSA HARBOUR	57.00	+																0	0	0	0
	58.00	+	****															4	0	0	4
	59.00	+	*****															12	0	0	12
	60.00	+	*****0															11	1	0	12
	61.00	+	*****0															5	1	0	6
	62.00	+	*****0000000000															17	9	0	26
	63.00	+	*****000															13	3	0	16
	64.00	+	*****0															8	1	0	9
	65.00	+	*****															12	0	0	12

Table 253-2 (cont'd.)

[illegible]

Table 253-2 (cont'd.)

position(km)																				
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																	vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
99.00	+*****Q																24	1	0	25
100.00	+*****																14	0	0	14
101.00	+*****																8	0	0	8
102.00	+*****																6	0	0	6
103.00	+																0	0	0	0
104.00	+																0	0	0	0
105.00	+																0	0	0	0
106.00	+																0	0	0	0
107.00	+																0	0	0	0
108.00	+																0	0	0	0
109.00	+*																1	0	0	1
MARY BASIN	+*0000000																1	7	0	8
111.00	+*																1	0	0	1
112.00	+																0	0	0	0
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																	vara	varb	varc	all
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				

MARY BASIN

Table 253-3. Herring statistical spawn summary for section 253.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	2	3594	73	0	3.0	61.0	1.00	60.5	60	62	2	2
1938	1	2265	46	4	1.0	70.0	0.00	70.0	70	70	1	1
1939	4	4480	91	5	1.5	40.3	0.75	40.5	39	42	3	3
1940	3	206984	4204	0	2.3	56.0	13.00	76.6	33	78	3	2
1941	4	46527	945	0	4.0	57.8	6.51	67.1	46	70	4	4
1942	3	60805	1235	6	2.3	47.7	7.67	62.5	40	63	2	3
1943	4	102360	2079	8	3.5	48.0	8.50	63.2	29	66	4	3
1944	1	158389	3217	18	9.0	64.0	0.00	64.0	64	64	1	1
1945	7	73212	1487	6	4.1	61.6	8.92	74.3	19	85	6	7
1946	5	207870	4222	5	5.4	61.4	5.58	66.9	42	74	5	4
1947	4	120577	2449	40	8.0	62.3	7.81	54.3	52	85	3	4
1948	7	567630	11529	144	6.4	59.2	4.06	57.2	51	77	4	6
1949	6	303386	6162	9	4.0	70.8	0.70	72.9	69	74	4	6
1950	7	277784	5642	12	5.3	73.6	8.95	76.9	36	99	6	6
1951	12	488264	9917	65	5.2	66.5	4.97	70.1	21	85	7	7
1952	2	225004	4570	23	5.0	53.0	15.00	44.3	38	68	2	2
1953	6	541782	11004	82	6.3	67.5	7.00	61.2	46	85	6	4
1954	12	445134	9041	21	5.3	63.3	4.14	63.4	37	81	7	5
1955	3	325394	6609	7	7.3	66.0	7.64	69.6	51	76	3	3
1956	27	1101633	22375	77	4.3	67.1	1.46	65.8	38	91	4	4
1957	11	1423384	28910	8	6.5	59.5	3.66	60.4	40	70	8	10
1958	12	408749	8302	29	4.8	61.6	1.94	62.7	48	71	7	6
1959	29	509435	10347	20	5.2	69.7	1.28	70.0	59	85	10	7
1960	2	40520	823	7	4.5	76.5	1.50	76.7	75	78	2	2
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	3	99012	2011	37	3.0	76.0	6.11	79.3	64	84	3	2
1963	4	21368	434	6	3.0	55.5	9.31	57.7	28	67	3	3
1964	3	98962	2010	6	4.3	63.0	5.00	63.5	58	73	2	3
1965	5	233965	4752	6	3.2	63.4	3.98	66.0	57	77	4	5
1966	7	121463	2467	12	3.6	70.6	4.03	72.2	56	83	6	5
1967	8	229435	4660	34	4.0	69.0	1.97	71.1	59	72	3	4
1968	10	196940	4000	45	5.4	67.5	3.24	68.5	39	74	6	4
1969	8	245240	4981	191	4.5	77.0	0.38	77.4	76	78	2	4
1970	11	321800	6536	31	5.1	67.4	3.84	72.8	56	87	6	6
1971	6	206984	4204	63	5.3	79.2	0.17	79.1	79	80	2	3
1972	25	769642	15632	63	5.5	77.0	0.94	75.8	68	84	6	6
1973	4	272270	5530	57	6.3	90.8	3.25	89.1	81	94	2	4
1974	4	128208	2604	48	6.0	81.3	4.75	85.0	67	86	2	2
1975	10	282117	5730	82	6.0	76.2	2.60	77.5	64	86	6	4
1976	12	308260	6261	43	5.2	66.3	0.86	64.7	63	69	3	2
1977	25	461283	9369	93	2.8	69.7	1.21	68.4	54	74	3	4
1978	18	506284	10283	43	5.6	64.6	1.80	65.8	59	75	3	3
1979	49	740642	15043	101	2.5	68.6	0.29	69.0	66	74	6	5
1980	43	619721	12587	122	1.8	62.3	0.40	62.0	56	65	4	4
1981	34	450943	9159	86	0.0	64.9	1.31	67.3	58	74	4	2
1982	34	574228	11663	103	0.0	66.1	0.40	65.7	64	72	3	4
1983	29	425883	8650	114	0.0	61.7	0.11	61.6	60	62	3	3
1984	16	291471	5920	95	0.0	64.9	0.13	64.3	63	65	2	3
1985	16	189456	3848	79	0.0	81.6	1.06	81.3	78	87	3	3
1986	36	514013	10440	105	0.0	74.9	0.74	74.3	64	81	6	4
All	594	15954752	324053	72	4.2	67.4	0.42	67.5	19	99	55	19

Table 253-4. Spawn summary for section 253 from 1937 to 1986.

A. GENERAL:

There are five main spawning areas in this section:

- (i) False Channel-Queen Cove
- (ii) Uwossitsa Creek
- (iii) Rosa Harbour
- (iv) Inner-Outer Nuchatlitz
- (v) Port Langford and
- (vi) Mary Basin

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Nuchatlitz, Esperanza, Ceepeecee, Hecate, Zebellos and Tahsis.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings since 1937 except for the year, 1961.

D. MAGNITUDE OF SPAWNINGS: VERY LARGE

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 49/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 49/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 324.1 Km. |
| 4. CUMULATIVE SPAWN AREA | = 1595.5 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 8 (67.4) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 9 (67.5) |

F. COMMENTS:

The main spawning location in the combined sections of 251, 252, 253 and 254 is centered in section 253, the Nuchatlitz area, with a continuous record of 594 spawn records between 1937 and 1986 and a mean spawn time of March 8. Adjacent sections 252, 251 and 254 to the southeast have 190, 16 and 5 records, respectively with mean spawn times of March 25, 26 and 16. It is likely that all area 25 spawnings belong to the same stock and perhaps include those of area 26 to the northwest. Within section 253, there has been an unexplained cessation of spawning in the vicinity of Harbour Island since the early 1970's.

G. ROE FISHERIES:

- | | |
|---|-------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 3/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 11/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 4787 tons |
| 4. MEAN GILLNET CATCH/YEAR | = 2162 tons |

Table 253-5. History of roe fishery catches by gear type in Nuchatlitz Inlet.

SECT. 253	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	04/03- 13/03	216	8140	Esperanza & Nuchatlitz	04/03- 01/04	672	560	Esperanza & Nuchatlitz
1974	-	-	-	-	-	-	-	-
1975	19/03- 24/03	120	4470	Esperanza & Nuchatlitz	19/03- 24/03	120	1600	Esperanza & Nuchatlitz
1976	14/03- 15/03	10	1750	Esperanza & Nuchatlitz	29/02- 10/03	192	2210	Esperanza & Nuchatlitz
1977	-	-	-	-	06/03- 16/03	192	3300	Esperanza & Nuchatlitz
1978	-	-	-	-	05/03- 15/03	240	3423	Esperanza & Nuchatlitz
1979	-	-	-	-	04/03- 12/03	192	4050	Esperanza & Nuchatlitz
1980	-	-	-	-	02/03- 05/03	72	2000	Esperanza & Nuchatlitz
1981	-	-	-	-	08/03- 10/03	52	1128	Esperanza & Nuchatlitz
1982	-	-	-	-	07/03- 12/03	114	2100	Esperanza & Nuchatlitz
1983	-	-	-	-	03/03	11	2450	Esperanza & Nuchatlitz
1984	-	-	-	-	05/03	9	960	Esperanza & Nuchatlitz
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

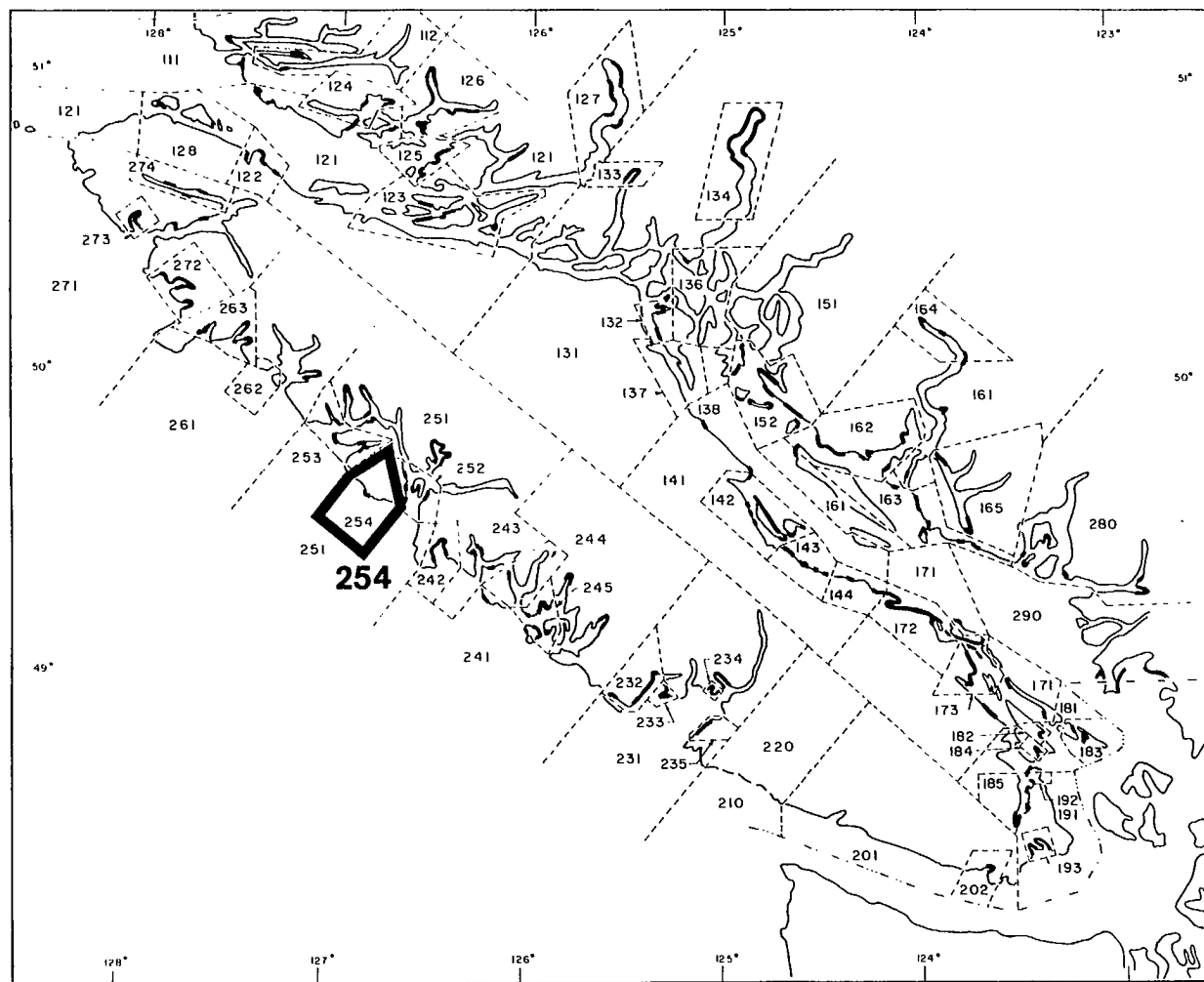


Fig. 254-1. Overview map showing location of section 254, Bajo Point.

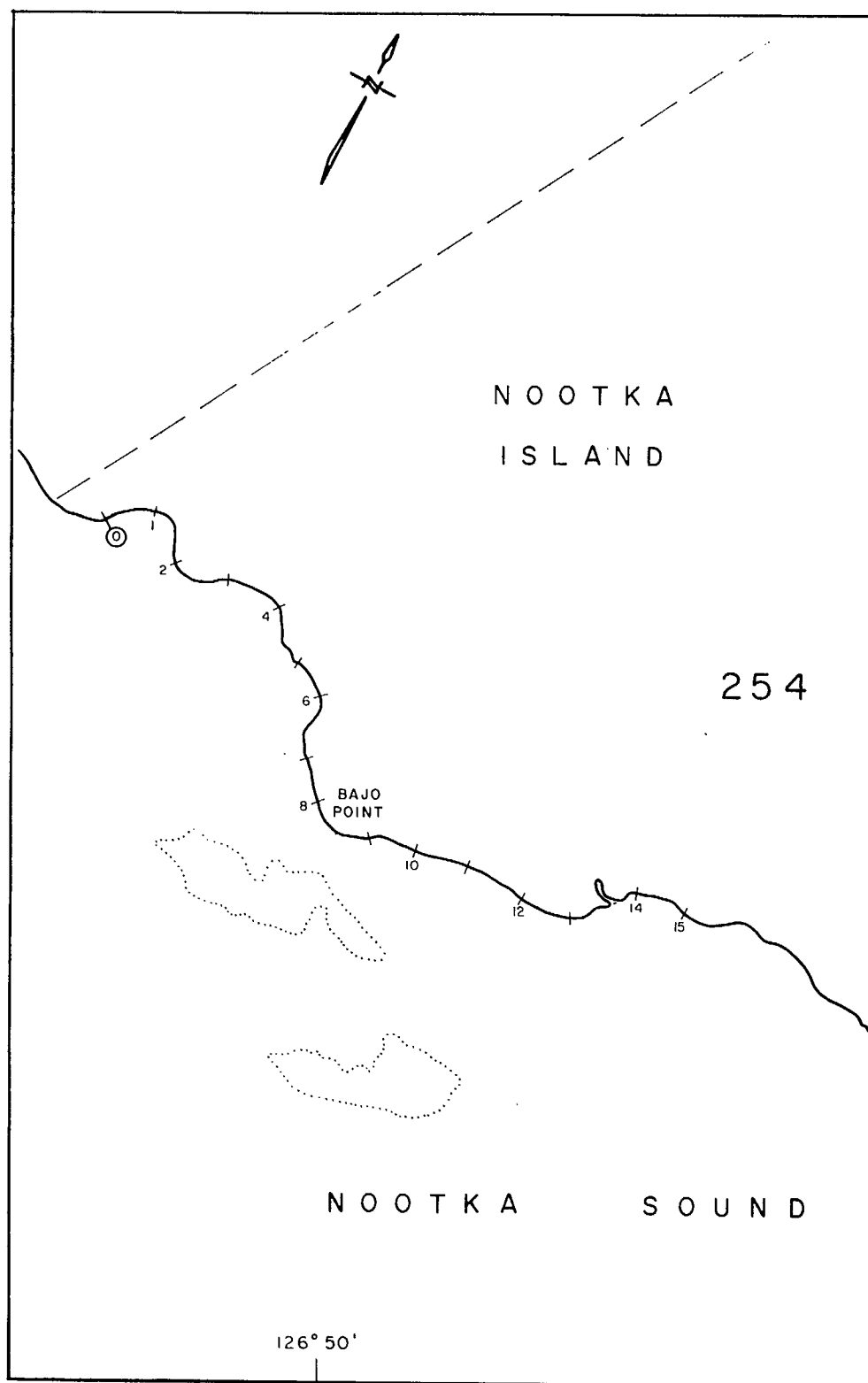


Fig. 254-2. Detailed map of section 254, Bajo Point.

Table 254-2. Section 254 - histogram of cumulative spawn frequency over distance

	position(km)																vara	varb	varc	all	
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75					
	+-----+																				
5.00	+																	0	0	0	0
6.00	+++																	0	0	3	3
7.00	+++																	0	0	3	3
8.00	+++																	0	0	3	3
9.00	+++																	0	0	3	3
10.00	+																	0	0	0	0
	+-----+																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all	

BAJO POINT

Table 254-3. Herring statistical spawn summary for section 254.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1941	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1945	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1950	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1954	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1955	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1956	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1960	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	1	982075	3656	27	5.0	63.0	0.00	63.0	63	63	1	1
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	4	1473918	5487	777	3.5	77.8	3.09	83.0	71	83	3	1
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	5	2455993	9143	527	4.0	74.8	3.80	75.0	63	83	4	1

Table 254-4. Spawn summary for section 254 from 1937 to 1986.

A. GENERAL:

There is one main spawning area at Bajo Point.

B. COMPLETENESS OF RECORDS:

Much of this area is remote. There could have been many unreported spawnings in this area.

C. SPAWNING CONSISTENCY OVER TIME: INFREQUENT

There has been only two recorded spawnings, 1976 and 1979.

D. MAGNITUDE OF SPAWNINGS: MEDIUM

1. NUMBER OF SPAWN YEARS/50 YEARS	= 2/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 2/50 (1937-86)
3. CUMULATIVE SPAWN LENGTH	= 9.1 Km.
4. CUMULATIVE SPAWN AREA	= 245.6 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 16 (74.8)
2. MEAN WEIGHTED DATE (DOY)	= March 16 (75.0)

F. COMMENTS:

Some spawnings have been documented to occur on the reefs off of Bajo Point. This is one of the few areas in B.C. where herring have been known to spawn in the open coast. Probably, the reef itself affords protection from the open surf. Also, it is likely that spawns on the reef are not regular occurrences.

G. ROE FISHERIES:

No major roe fisheries are documented.

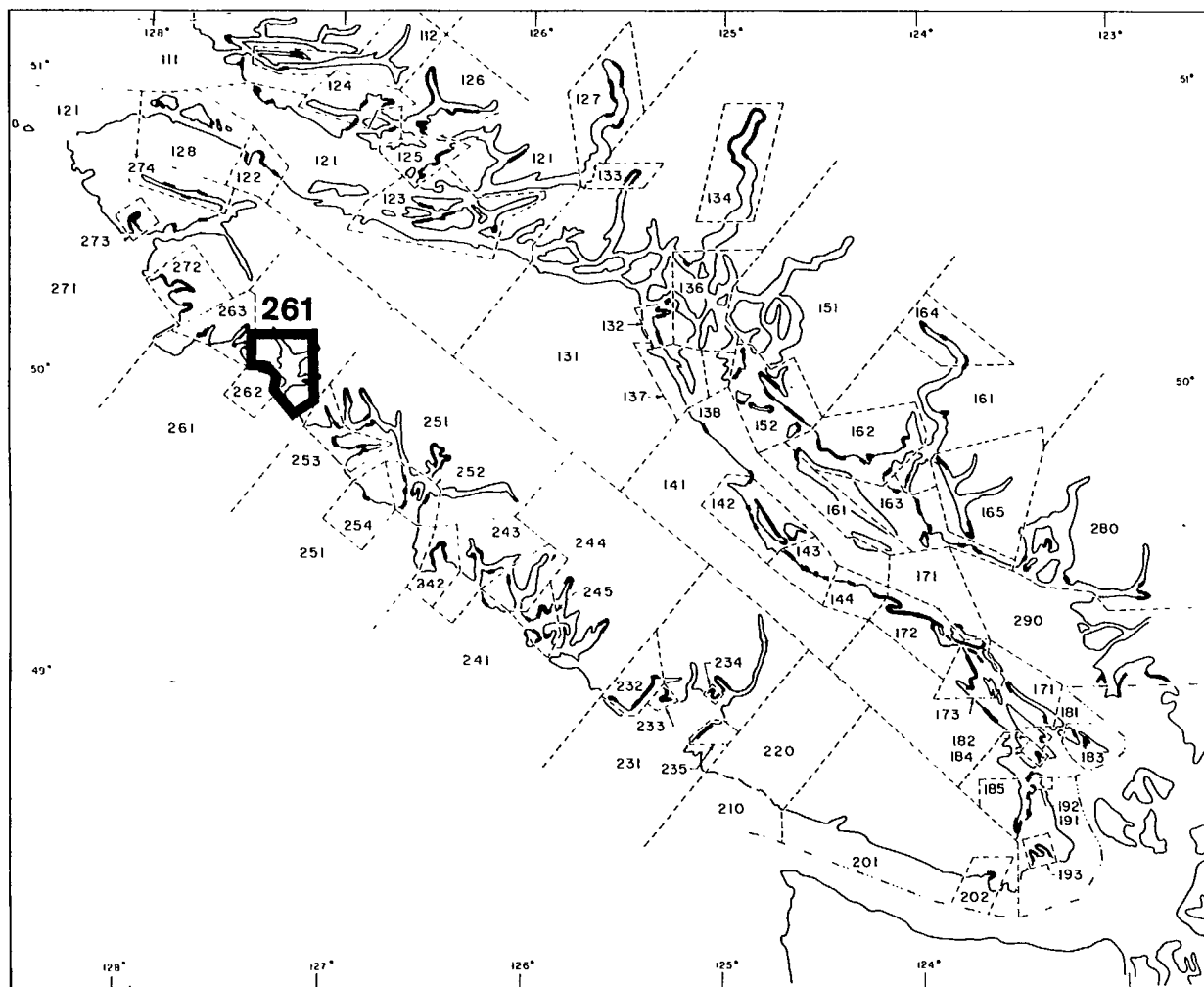


Fig. 261-1. Overview map showing location of section 261, Other Area 26.

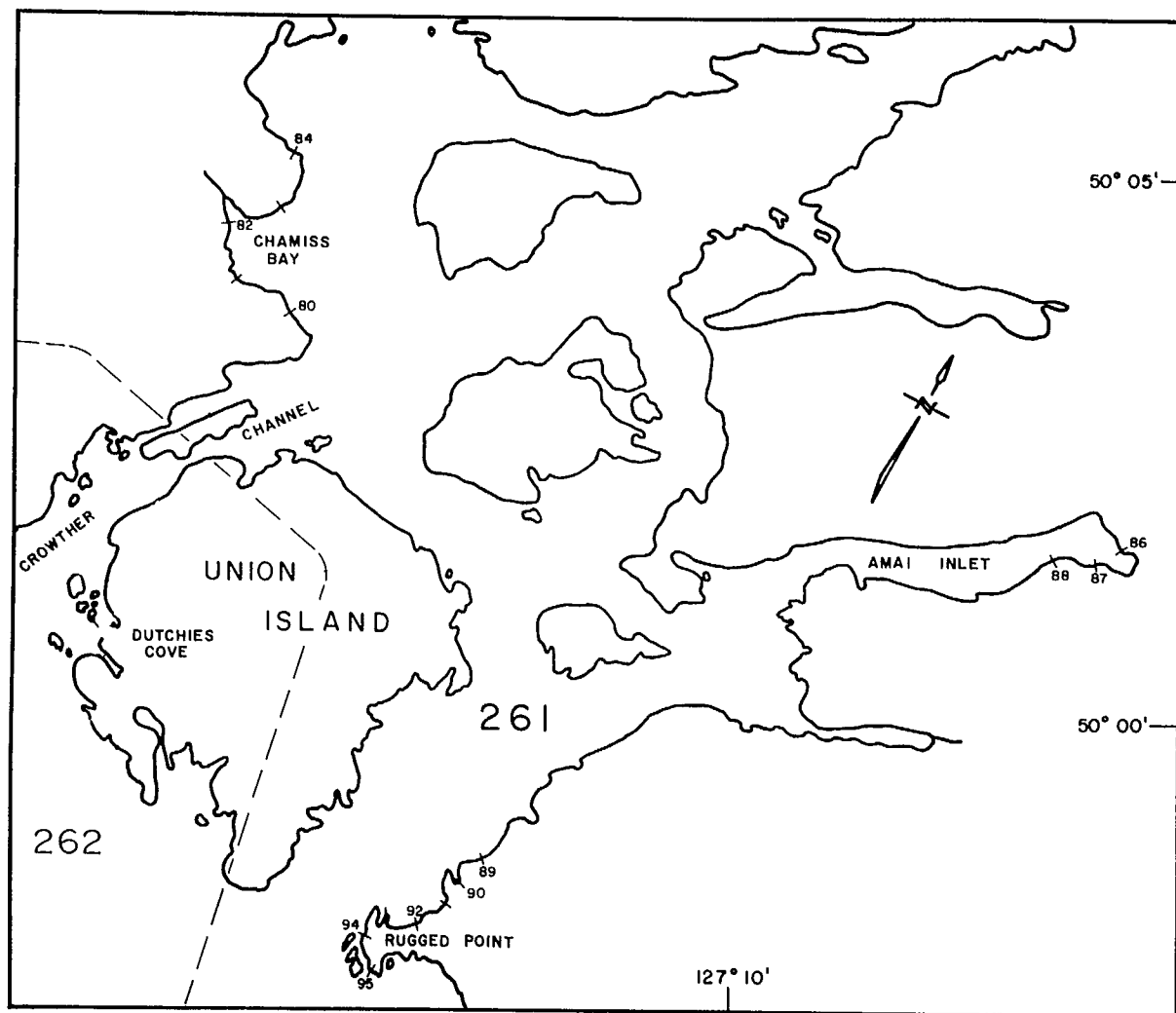


Fig. 261-2. Detailed map of section 261, Other Area 26.

Table 261-1. Section 261 - Spawn position by year.

85.00
 +---+
 1937 +abaa
 1938 + aa
 1939 + ca
 1940 + aa
 1941 + a
 1942 + cb
 1943 + a
 1944 + a
 1945 + aa
 1946 +
 1947 + a
 1948 +
 1949 + e
 1950 + b c
 1951 + a
 1952 + 1
 1953 + 1
 1954 + 1
 1955 + 1 a
 1956 + 3
 1957 + 1
 1958 + ba
 1959 + 1
 1960 + aa 1
 1961 +
 1962 +
 1963 +
 1964 +
 1965 +
 1966 +
 1967 +
 1968 +
 1969 +
 1970 +
 1971 +
 1972 +
 1973 +
 1974 +
 1975 +
 1976 +
 1977 +
 1978 +
 1979 +
 1980 +
 1981 +
 1982 +
 1983 +
 1984 +
 1985 +
 1986 +
 +---+
 85.00
 D R
 E U
 E G
 P G
 E
 (D
 A
 M P
 A O
 I I
) N
 T
 I
 N

Table 261-2. Section 261 - histogram of cumulative spawn frequency over distance

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
CHAMISS BAY	81.00 +																	0	0	0	0
	82.00 +1																	0	0	1	1
	83.00 +1																	0	0	1	1
	84.00 +																	0	0	0	0
	85.00 +0																	0	1	0	1
DEEP (4MAI) INLET	86.00 +****000000000000000000000000																	4	25	0	29
	87.00 +*****0000000000																	5	9	0	14
RUGGED POINT	88.00 +0																	0	1	0	1
	89.00 +*00000																	1	5	0	6
	90.00 +																	0	0	0	0
	91.00 +																	0	0	0	0
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 261-3. Herring statistical spawn summary for section 261.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	3	86263	3272	0	6.3	79.0	4.36	82.0	71	86	3	2
1938	1	7224	274	0	7.0	82.0	0.00	82.0	82	82	1	1
1939	3	16372	621	0	4.3	87.0	1.00	85.8	85	88	2	1
1940	1	7224	274	0	5.0	89.0	0.00	89.0	89	89	1	1
1941	1	606	23	0	5.0	108.0	0.00	108.0	108	108	1	1
1942	3	31320	1188	17	3.7	86.0	0.00	86.0	86	86	1	1
1943	1	2900	110	9	1.0	70.0	0.00	70.0	70	70	1	1
1944	1	4825	183	14	1.0	81.0	0.00	81.0	81	81	1	1
1945	1	24097	914	27	9.0	90.0	0.00	90.0	90	90	1	1
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	1	2399	91	27	5.0	99.0	0.00	99.0	99	99	1	1
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	5	4719	179	11	6.2	78.0	0.00	78.0	78	78	1	1
1950	5	4719	179	20	4.2	77.8	1.71	76.6	75	82	2	2
1951	1	712	27	46	3.0	77.0	0.00	77.0	77	77	1	1
1952	1	13736	521	69	7.0	83.0	0.00	83.0	83	83	1	1
1953	1	18560	704	105	7.0	80.0	0.00	80.0	80	80	1	1
1954	1	19747	749	110	7.0	67.0	0.00	67.0	67	67	1	1
1955	2	13920	528	30	4.0	74.5	13.50	76.3	61	88	2	2
1956	3	10256	389	12	3.7	77.7	2.85	78.7	72	81	3	1
1957	1	4825	183	5	3.0	86.0	0.00	86.0	86	86	1	1
1958	2	10836	411	14	6.0	67.5	0.50	67.2	67	68	2	1
1959	1	5536	210	32	5.0	68.0	0.00	68.0	68	68	1	1
1960	2	36145	1371	5	4.0	80.0	2.00	81.7	78	82	2	2
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	1	24097	914	9	7.0	81.0	0.00	81.0	81	81	1	1
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	42	351037	13315	24	4.9	80.3	1.34	81.2	61	108	20	4

Table 261-4. Spawn summary for section 261 from 1937 to 1986.

A. GENERAL:

There is one main spawning area in this section at Deep (Amai) Inlet.

B. COMPLETENESS OF RECORDS:

The 50 year record appears to be reasonably complete until 1962. Some spawns may have been unreported from 1963 to 1986.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings from 1937 to 1962 except for the years, 1946, 1948 and 1961. No spawns have been recorded from 1963 to 1986.

D. MAGNITUDE OF SPAWNINGS: SMALL

1. NUMBER OF SPAWN YEARS/50 YEARS	= 23/50 (1937-86)
2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS	= 23/26 (1937-62)
3. CUMULATIVE SPAWN LENGTH	= 13.3 Km.
4. CUMULATIVE SPAWN AREA	= 35.1 ha.

E. SPAWNING TIME:

1. MEAN UNWEIGHTED DATE (DOY)	= March 19 (80.3)
2. MEAN WEIGHTED DATE (DOY)	= March 20 (81.2)

F. COMMENTS:

Spawning ceased in about 1960 with no record of subsequent spawns. A similar pattern is observed in the adjacent sections (262 and 263) but the explanation is unknown. Probably, some recent (post 1960) spawns have occurred and have not been reported, but it is clear that herring spawning patterns have changed.

G. ROE FISHERIES:

No major roe fisheries are documented.

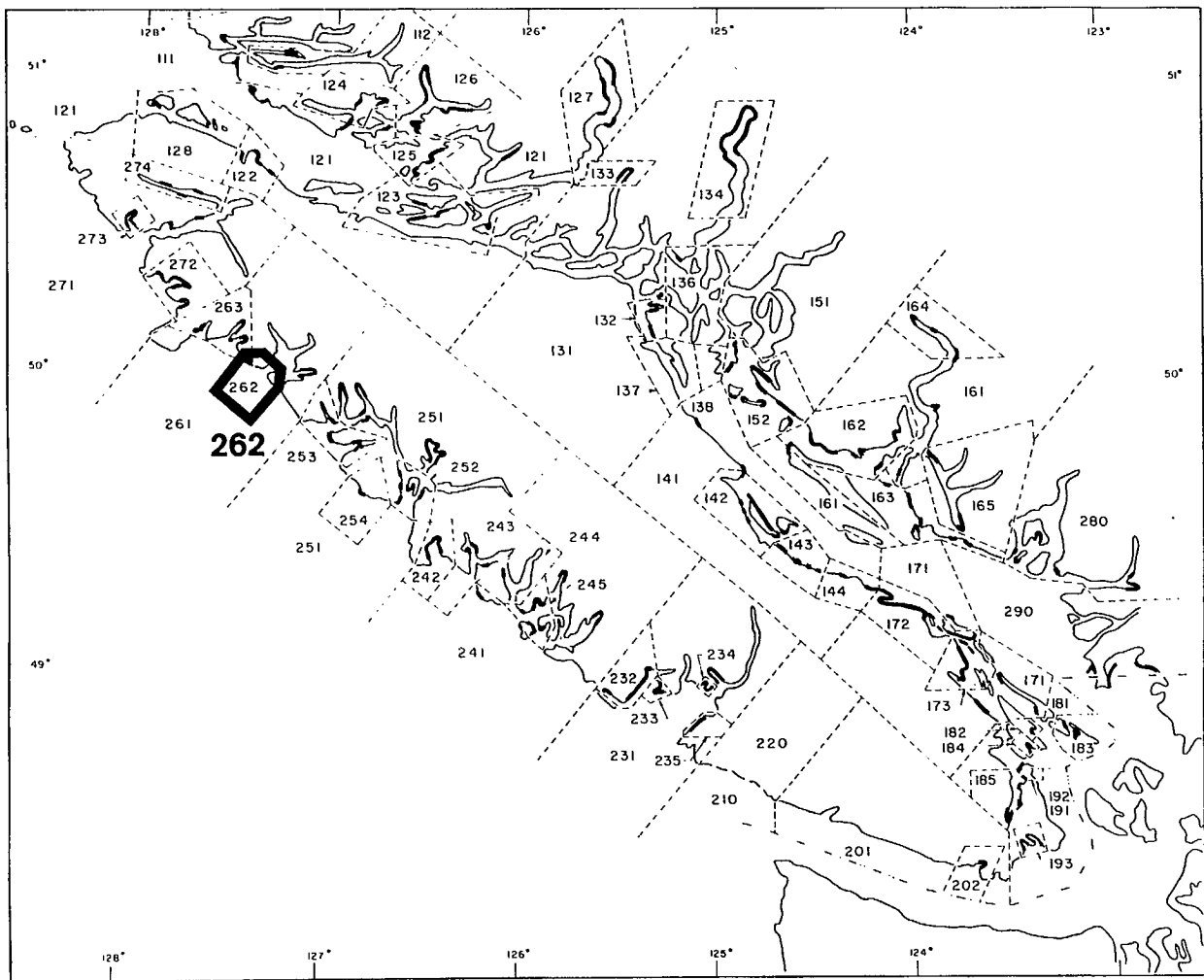


Fig. 262-1. Overview map showing location of section 262, Clanninick Cove.

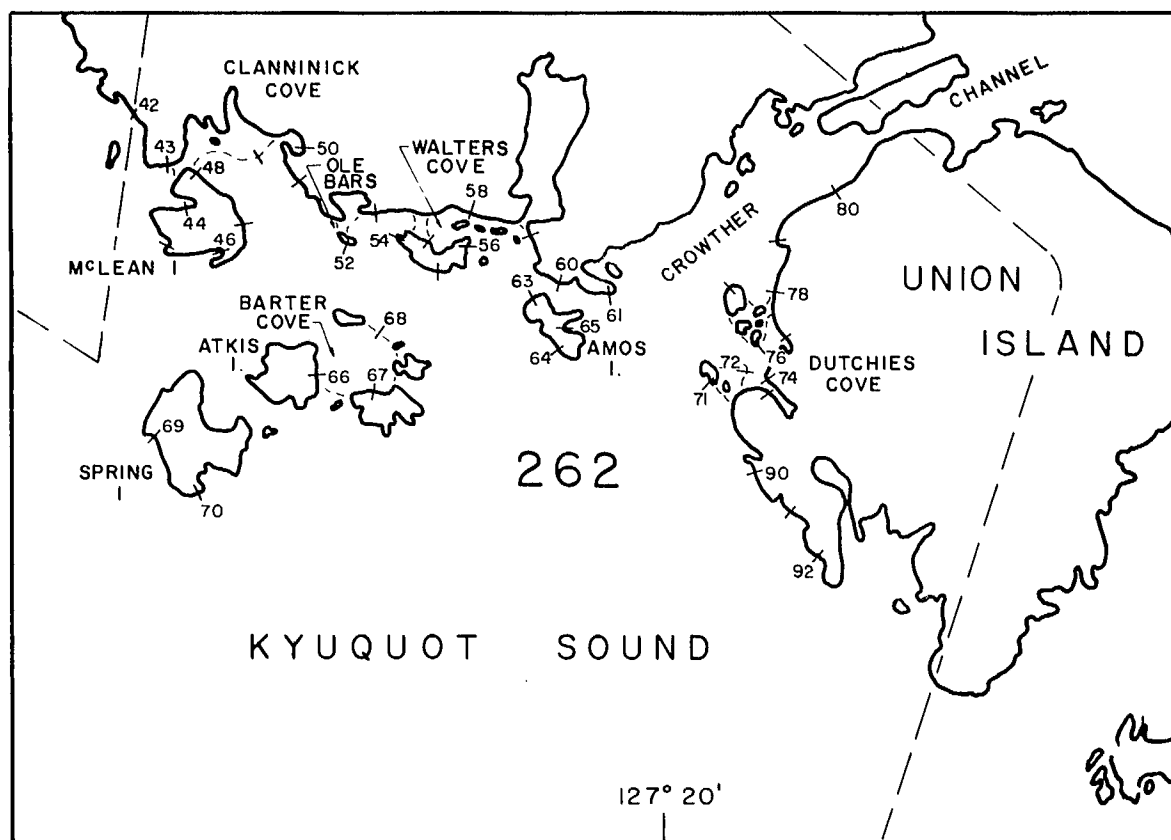


Fig. 262-2. Detailed map of section 262, Clanninick Cove.

Table 262-1. Section 262 - Spawn position by year.

	41.00	51.00	61.00	71.00
1937 +			a	
1938 +		a	c	
1939 +			b	
1940 +	a	cc		
1941 +		bb		
1942 +		aa	aa	
1943 +		cc		
1944 +	a	aa	a	
1945 +	aa	aa		
1946 +	a	aa		
1947 +	a	cc	a	
1948 +		aa		
1949 +				
1950 +		cc		99
1951 +	cc	aa		
1952 +		11		1 21
1953 +		11	a\$1	1211 1
1954 +		12		11 1 1
1955 +			122211	1211
1956 +		21 21		111
1957 +	1 11		1	21 1
1958 +	12 1			31 1
1959 +				11
1960 +			111	1111
1961 +			1	22111
1962 +				111
1963 +	1 121		1	
1964 +	11		1 a\$211	21
1965 +			1	
1966 +				11
1967 +				12 11
1968 +				aa
1969 +		11		11
1970 +		111		
1971 +		211		1
1972 +		22 122		
1973 +		11 22		11
1974 +		111 1211		
1975 +	12 11			
1976 +		1 1		
1977 +	b 11			
1978 +				
1979 +				
1980 +				
1981 +				
1982 +				
1983 +				
1984 +				
1985 +				
1986 +				

Table 262-2. Section 262 - histogram of cumulative spawn frequency over distance

		position(km)																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
MCLEAN ISLAND	40.00	+																0	0	0	0
	41.00	+																0	0	0	0
	42.00	++																1	0	0	1
	43.00	++++0000																3	4	0	7
	44.00	+0000000000																0	10	0	10
	45.00	+++																3	0	0	3
	46.00	+++++*****																13	0	0	13
CLANNINICK COVE	47.00	+++++*****																17	0	0	17
	48.00	+++++*****00000000000000000000																10	20	0	30
	49.00	+++00000000000000000000																2	20	0	22
	50.00	+++																2	0	0	2
	51.00	++++																4	0	0	4
WALTERS COVE/OLE BARS +	52.00	+++++*00																7	2	0	9
	53.00	+++++0																5	1	0	6
	54.00	++																1	0	0	1
	55.00	+																0	0	0	0
	56.00	+																0	0	0	0
CROWTHER CHANNEL	57.00	+																0	0	0	0
	58.00	+																0	0	0	0
	59.00	+																0	0	0	0
	60.00	++																2	0	0	2
	61.00	++0																1	1	0	2
AMOS ISLAND	62.00	+																0	0	0	0
	63.00	+00																0	2	0	2
	64.00	++++000000000																4	9	0	13
	65.00	+++++																6	0	0	6
ATKIS ISLAND/BARTER COVE	66.00	+++++*																0	0	0	0
	67.00	++++																4	0	0	4
	68.00	++																2	0	0	2
	69.00	++																1	0	0	1
	70.00	++																2	0	0	2
DUTCHIES COVE +	71.00	+++++*****																18	0	0	18
	72.00	+++++*****00000000																17	8	0	25
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 262-2 (cont'd.)

position(km)																	
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
	vara	varb	varc	all													
73.00	*****00000000	9	8	0	17												
74.00	*****	8	0	0	8												
75.00	***	2	0	0	2												
76.00	***	3	0	0	3												
77.00	+	0	0	0	0												
78.00	+	0	0	0	0												
79.00	+	0	0	0	0												
80.00	+	0	0	0	0												
81.00	+	0	0	0	0												
82.00	+	0	0	0	0												
83.00	+	0	0	0	0												
84.00	+	0	0	0	0												
85.00	+	0	0	0	0												
86.00	+	0	0	0	0												
87.00	+	0	0	0	0												
88.00	+	0	0	0	0												
89.00	+	0	0	0	0												
90.00	+	0	0	14	14												
91.00	+	0	0	14	14												
92.00	+	0	0	0	0												
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
	vara	varb	varc	all													

UNION ISLAND

Table 262-3. Herring statistical spawn summary for section 262.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	1	6440	274	0	3.0	57.0	0.00	57.0	57	57	1	1
1938	4	10083	429	0	3.5	61.3	5.66	67.0	45	69	3	2
1939	2	1363	58	0	4.0	76.0	12.00	86.8	64	88	2	1
1940	4	10976	467	0	4.5	80.3	1.18	78.9	77	82	3	2
1941	2	6769	288	0	6.0	66.5	2.50	64.2	64	69	2	1
1942	3	30931	1316	11	4.3	76.3	11.20	86.3	54	89	3	3
1943	3	14408	613	20	4.3	67.3	0.88	67.1	66	69	3	1
1944	3	4301	183	24	3.0	64.0	3.00	63.3	61	70	2	3
1945	2	27946	1189	46	7.0	86.5	2.50	87.5	84	89	2	2
1946	2	10741	457	30	4.0	71.5	0.50	71.2	71	72	2	2
1947	5	26842	1142	25	3.0	64.4	5.80	70.0	47	83	4	3
1948	3	48818	2077	67	4.3	67.7	5.17	63.4	62	78	3	2
1949	5	12481	531	27	5.4	67.4	4.53	69.1	51	79	3	1
1950	15	27523	1171	16	4.5	75.5	1.40	71.9	66	80	3	3
1951	5	56057	2385	16	4.6	70.0	2.24	70.8	65	75	3	3
1952	5	21812	928	21	5.4	65.6	3.60	73.0	62	80	2	2
1953	8	104193	4433	50	5.0	63.9	4.61	72.0	53	84	5	3
1954	6	29192	1242	35	5.0	65.7	0.84	64.0	63	67	2	2
1955	4	218705	9305	11	5.5	61.8	3.64	62.8	52	69	4	3
1956	8	29121	1239	14	3.5	65.6	4.13	64.0	48	77	7	2
1957	6	48442	2061	25	4.3	69.8	3.03	71.3	62	81	6	4
1958	8	45551	1938	19	4.3	68.0	1.76	65.0	60	73	6	2
1959	1	10318	439	35	5.0	73.0	0.00	73.0	73	73	1	1
1960	2	115992	4935	11	5.0	74.5	4.50	74.3	70	79	2	2
1961	4	103535	4405	13	4.5	71.0	4.78	67.9	60	82	4	2
1962	2	16100	685	30	6.0	72.0	3.00	72.6	69	75	2	1
1963	4	80572	3428	3	3.5	69.8	4.59	69.1	62	83	4	2
1964	8	84849	3610	4	3.1	74.4	4.40	72.3	60	96	7	3
1965	1	5382	229	5	1.0	75.0	0.00	75.0	75	75	1	1
1966	1	25784	1097	23	9.0	71.0	0.00	71.0	71	71	1	1
1967	3	31683	1348	3	5.0	73.0	10.69	67.7	52	87	3	1
1968	1	5382	229	2	4.0	88.0	0.00	88.0	88	88	1	1
1969	2	36525	1554	1	1.0	72.0	6.00	70.9	66	78	2	2
1970	1	42965	1828	37	5.0	55.0	0.00	55.0	55	55	1	1
1971	3	40826	1737	40	4.3	73.0	2.08	70.6	69	76	3	2
1972	4	96648	4112	44	6.0	76.0	9.48	77.9	56	99	4	2
1973	4	98834	4205	40	4.5	69.3	2.43	69.1	62	72	3	3
1974	3	74132	3154	20	4.3	68.0	4.04	67.6	61	75	3	3
1975	3	44046	1874	24	5.0	78.3	11.39	69.4	65	101	3	2
1976	2	30062	1279	14	6.0	66.5	3.50	66.0	63	70	2	1
1977	3	36079	1535	43	2.3	66.7	10.33	49.3	46	77	2	2
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	1	0	0	0	0.0	69.0	0.00	0.0	69	69	1	1
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	157	1772413	75409	23	4.4	69.9	0.81	69.1	45	101	43	10

Table 262-4. Spawn summary for section 262 from 1937 to 1986.

A. GENERAL:

There are three main spawning areas in this section:

- (i) Amos Island
- (ii) Clanninick Cove and
- (iii) Union Island (Dutchies Cove)

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Kyuquot. Some small spawns may have been unreported from 1978 to 1986.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings from 1937 to 1977. No spawns have been recorded from 1978 to 1986.

D. MAGNITUDE OF SPAWNINGS: SMALL

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 42/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 41/41 (1937-77) |
| 3. CUMULATIVE SPAWN LENGTH | = 75.4 Km. |
| 4. CUMULATIVE SPAWN AREA | = 177.2 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 11 (69.9) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 10 (69.1) |

F. COMMENTS:

Spawning ceased in about 1977 with no record of subsequent spawns. A similar pattern is observed in the adjacent sections (261 and 263) but the explanation is unknown. Probably, some recent (post 1977) spawns have occurred and have not been reported, but it is clear that herring spawning patterns have changed.

G. ROE FISHERIES:

- | | |
|---|------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 1/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 4/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 110 tons |
| 4. MEAN GILLNET CATCH/YEAR | = 47 tons |

Table 262-5. History of roe fishery catches by gear type in Clanninick Cove.

SECT. 262	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	-	-	-	-
1974	-	-	-	-	-	-	-	-
1975	19/03- 24/03	120	110	Amai Inlet	19/03- 24/03	120	5	Kyuquot Snd.
1976	-	-	-	-	10/03- 12/03	48	63	Kyuquot Snd.
1977	-	-	-	-	08/03- 15/03	-	120	Kyuquot Snd.
1978	-	-	-	-	05/03- 15/03	240	0	Kyuquot Snd.
1979	-	-	-	-	-	-	-	-
1980	-	-	-	-	-	-	-	-
1981	-	-	-	-	-	-	-	-
1982	-	-	-	-	-	-	-	-
1983	-	-	-	-	-	-	-	-
1984	-	-	-	-	-	-	-	-
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

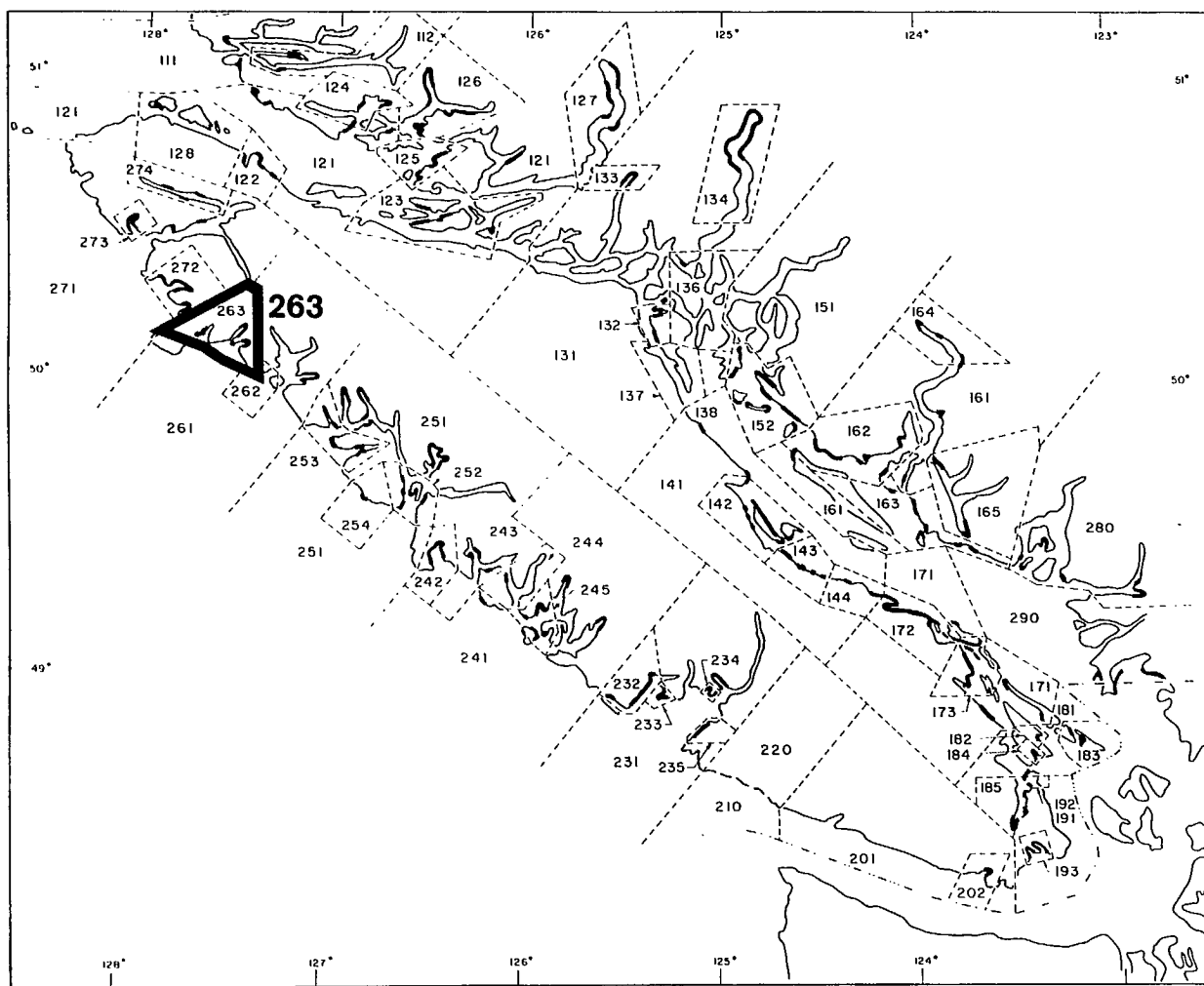


Fig. 263-1. Overview map showing location of section 263, Checleset Bay.

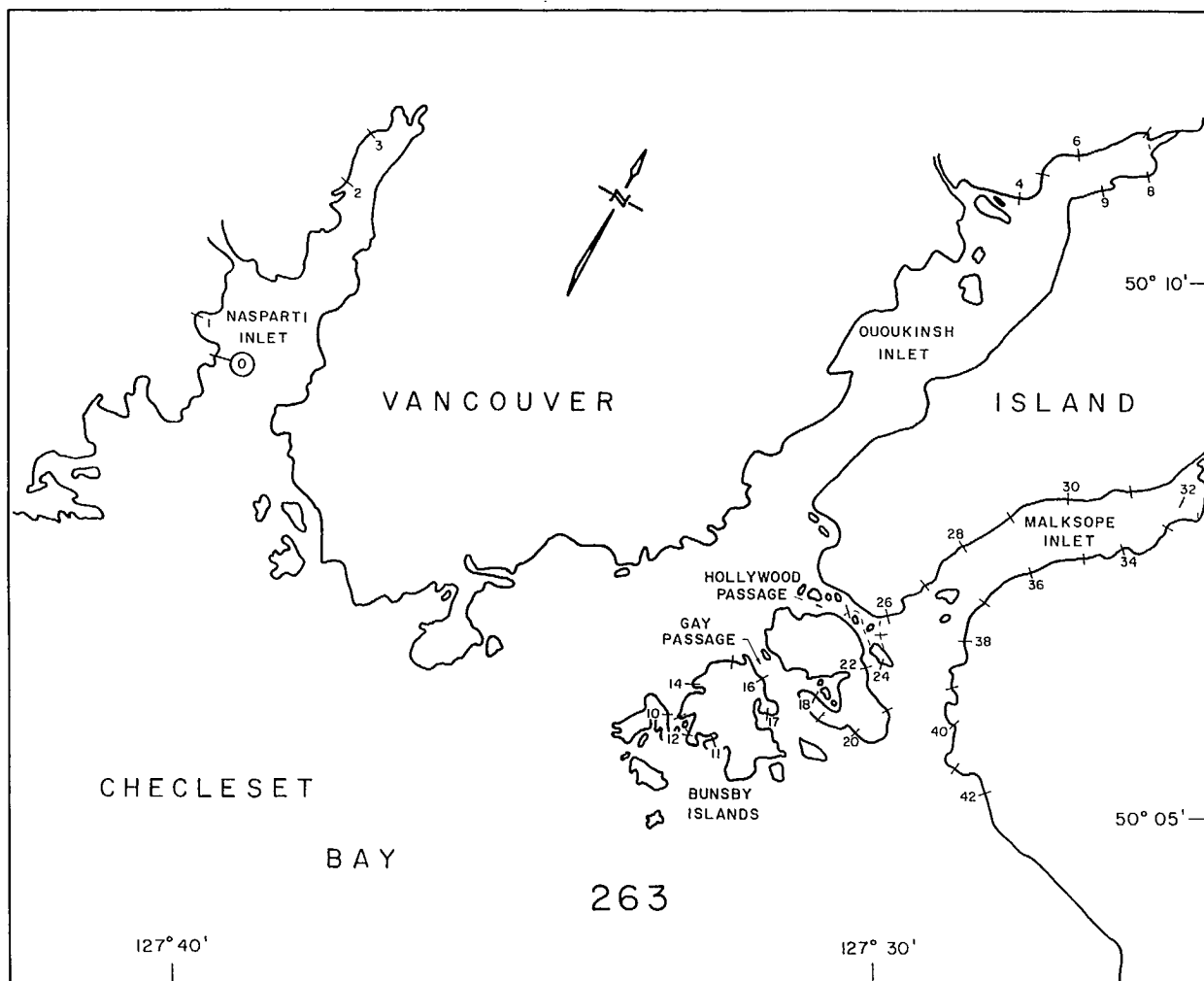


Fig. 263-2. Detailed map of section 263, Checleset Bay.

Table 263-1. Section 263 - Spawn position by year.

	0.00	10.00	20.00	30.00	40.00
1937 +	aaaaa	^^		bb	
1938 +	b	a		ab	
1939 +	a	^^		ab	
1940 +	a	^^	a	b	
1941 +	b	^^		a	
1942 +	b	^^		a	
1943 +	a	^^		ac	
1944 +	a		aa	b	
1945 +	a		aa	cd	
1946 +			a	a	
1947 +	b			ab	
1948 +			a	bb	
1949 +	b	d	^^	ad	
1950 +	ab			b	
1951 +	a			a	
1952 +					
1953 +			11	11	1
1954 +	12			11 11a	1
1955 +	aa	aa	1		1
1956 +					1
1957 +	1	1a		111	
1958 +	1	1			1
1959 +	a	1		1	11
1960 +		^^			
1961 +					1
1962 +	1				1
1963 +			1		
1964 +			11		
1965 +			1		
1966 +					
1967 +			11	111	
1968 +					
1969 +			111 111		
1970 +	1				
1971 +				11	1
1972 +				1	
1973 +					
1974 +					
1975 +	a			1	
1976 +					
1977 +					
1978 +					
1979 +					
1980 +					
1981 +					
1982 +					
1983 +					
1984 +					
1985 +					
1986 +					
	0.00	10.00	20.00	30.00	40.00
	N	O	G	H	M
	A	U	A	O	A
	S	O	Y	L	L
	P	U		L	K
	A	K	P	Y	S
	R	I	A	W	O
	T	N	S	O	P
	I	S		O	E
		H		D	
	I	I		P	I
	N	N		A	N
	L	L		S	L
	E	E			E
	T	T			T

Table 263-2. Section 263 - histogram of cumulative spawn frequency over distance

	pos	1	1on(km)															vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
	0.00	+	*															1	0	0	1
	1.00	+	*	0														1	2	0	3
NASPARTI INLET	2.00	+	*	*	*	0	0	0	0	0	0	0	0	0	0	0	0	4	21	0	25
	3.00	+	*															1	0	0	1
	4.00	+																0	0	0	0
	5.00	+	0															0	1	0	1
	6.00	+	*	0														1	1	0	2
OUOUKINSH INLET	7.00	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8
	8.00	+	*	0	0													1	2	0	3
	9.00	+	*	0														1	1	0	2
	10.00	+																0	0	0	0
	11.00	+																0	0	10	10
BUNSBY ISLANDS	12.00	+																0	0	10	10
	13.00	+																0	0	0	0
	14.00	+																0	0	0	0
	15.00	+																0	0	0	0
	16.00	+	*															1	0	0	1
	17.00	+	*	0														1	2	0	3
GAY PASS	18.00	+	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	6
	19.00	+	*															1	0	0	1
	20.00	+	*															1	0	0	1
	21.00	+																0	0	0	0
	22.00	+	*	*	*													3	0	0	3
HOLLYWOOD PASS	23.00	+	*	*	*	*												4	0	0	4
	24.00	+	*	*	*													2	0	0	2
	25.00	+	*	*	*	*												3	0	0	3
	26.00	+	*															1	0	0	1
	27.00	+																0	0	0	0
	28.00	+	*															1	0	0	1
	29.00	+	*															1	0	0	1
	30.00	+																0	0	0	0
	31.00	+	*	*	*	*	*	*										5	0	0	5
	32.00	+	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	6	14	0	20
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 263-2 (cont'd.)

```

position(km)
      0   5  10  15  20  25  30  35  40  45  50  55  60  65  70  75 vara varb varc all .
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
MALKSPE INLET    33.00 +*****00000000000000000000000000000000000000000000000          4     33     0    37
                  34.00 +                               0     0     0     0
                  35.00 +                               0     0     0     0
                  36.00 +**                             2     0     0     2
                  37.00 +**                             2     0     0     2
                  38.00 +*****                         5     0     0     5
                  39.00 +*                              1     0     0     1
                  40.00 +                                0     0     0     0
                  41.00 +                                0     0     0     0
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
              0   5  10  15  20  25  30  35  40  45  50  55  60  65  70  75 vara varb varc all

```

Table 263-3. Herring statistical spawn summary for section 263.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	4	90128	5805	0	4.0	65.3	7.58	67.0	43	77	4	3
1938	5	9781	630	0	3.4	54.2	6.23	63.0	38	66	5	3
1939	5	18647	1201	0	3.0	62.2	10.29	63.5	31	89	5	3
1940	5	16737	1078	0	3.8	65.0	7.43	70.9	44	79	4	4
1941	4	14594	940	0	2.5	48.5	5.17	61.0	43	64	3	3
1942	4	27543	1774	21	5.0	58.8	10.44	63.4	38	86	4	3
1943	5	23506	1514	15	3.8	52.0	7.78	55.7	30	73	5	3
1944	4	14610	941	20	4.0	52.8	3.30	55.8	48	62	3	3
1945	6	33350	2148	24	3.7	61.5	6.93	57.8	50	91	4	3
1946	2	2546	164	18	4.0	57.0	14.00	66.4	43	71	2	2
1947	4	18460	1189	18	4.0	53.8	4.15	51.2	47	64	3	2
1948	3	17032	1097	33	4.3	68.7	6.96	67.5	56	80	3	2
1949	11	19780	1274	17	5.7	65.5	4.79	64.7	28	77	7	4
1950	4	14610	941	21	6.5	57.5	4.33	62.1	50	65	2	2
1951	2	3975	256	8	3.0	60.5	0.50	60.1	60	61	2	2
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	3	32263	2078	19	3.7	75.3	12.33	72.4	51	91	3	2
1954	9	55133	3551	27	4.1	70.1	3.96	66.5	63	91	4	3
1955	4	26674	1718	4	5.0	55.3	6.02	55.1	42	70	4	4
1956	1	1071	69	5	3.0	26.0	0.00	26.0	26	26	1	1
1957	5	18165	1170	9	3.8	83.2	1.46	83.8	78	87	4	3
1958	3	10791	695	19	4.3	60.0	14.47	71.4	36	86	3	3
1959	4	11194	721	14	4.0	79.5	6.33	76.0	68	97	4	3
1960	2	14191	914	10	4.0	78.5	0.50	78.5	78	79	2	1
1961	1	5683	366	18	5.0	71.0	0.00	71.0	71	71	1	1
1962	2	2484	160	5	2.0	75.0	5.00	74.3	70	80	2	2
1963	1	8508	548	3	1.0	77.0	0.00	77.0	77	77	1	1
1964	1	5683	366	5	5.0	80.0	0.00	80.0	80	80	1	1
1965	1	714	46	3	1.0	75.0	0.00	75.0	75	75	1	1
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	3	26969	1737	10	3.3	67.0	10.82	68.1	52	88	3	1
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	2	51795	3336	2	3.0	74.5	9.50	74.6	65	84	2	2
1970	1	7095	457	32	3.0	54.0	0.00	54.0	54	54	1	1
1971	2	18445	1188	69	5.0	73.5	4.50	72.5	69	78	2	1
1972	1	8508	548	9	3.0	92.0	0.00	92.0	92	92	1	1
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	2	10651	686	18	3.0	66.0	0.00	66.0	66	66	1	2
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	2	0	0	0	0.0	68.5	0.50	0.0	68	69	2	2
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	118	641317	41306	18	4.0	64.3	1.46	66.8	26	97	50	6

Table 263-4. Spawn summary for section 263 from 1937 to 1986.

A. GENERAL:

There are four main spawning areas in this section:

- (i) Nasparti Inlet
- (ii) Ououkinsh Inlet
- (iii) Bunsby Islands and
- (iv) Malksope Inlet

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Kyuquot. Some small spawns may have been unreported from 1976 to 1986.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings from 1937 to 1975 except for the years, 1952, 1966, 1968 and 1973-74. No spawns have been recorded from 1976 to 1986.

D. MAGNITUDE OF SPAWNINGS: SMALL

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 35/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 34/39 (1937-75) |
| 3. CUMULATIVE SPAWN LENGTH | = 41.3 Km. |
| 4. CUMULATIVE SPAWN AREA | = 64.1 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 5 (64.3) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 8 (66.8) |

F. COMMENTS:

Spawning ceased in about 1975 with no record of subsequent spawns. A similar pattern is observed in the adjacent sections (261 and 262) but the explanation is unknown. Probably, some recent (post 1975) spawns have occurred and have not been reported, but it is clear that herring spawning patterns have changed.

G. ROE FISHERIES:

No major roe fisheries are documented.

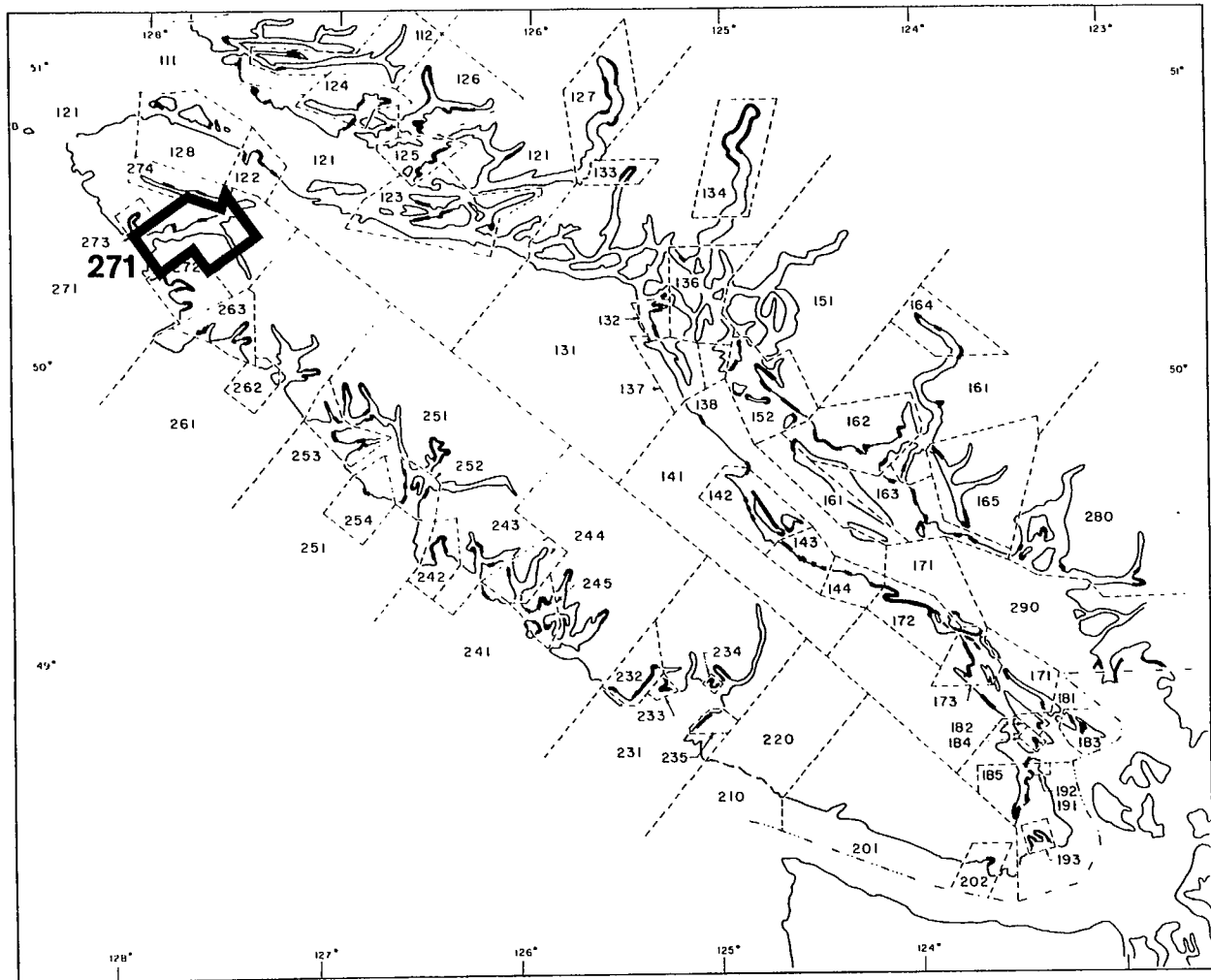


Fig. 271-1. Overview map showing location of section 271, Other Area 27.

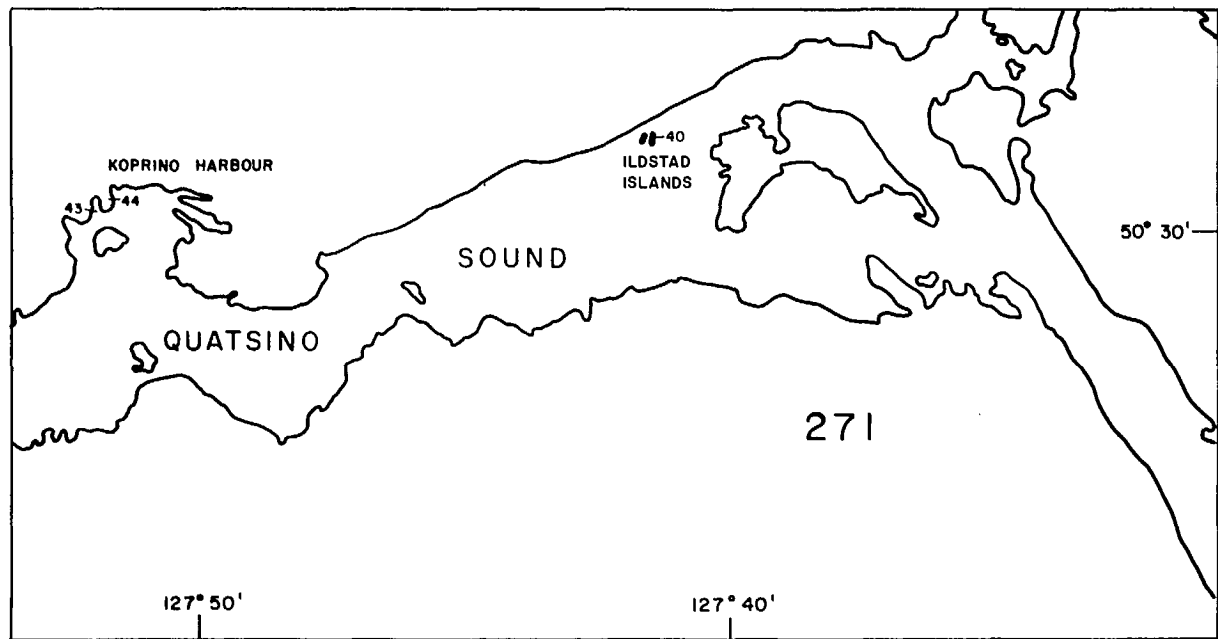


Fig. 271-2. Detailed map of section 271, Other Area 27.

Table 271-1. Section 271 - Spawn position by year.

42.00
+--
1937 +
1938 +
1939 +
1940 +
1941 +
1942 +
1943 +
1944 +
1945 +
1946 +
1947 +
1948 +
1949 +
1950 +
1951 +
1952 +
1953 +
1954 +
1955 + aa
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1962 +
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1964 +
1965 + 1
1966 +
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1985 +
1986 +

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42.00
K
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Table 271-2. Section 271 - histogram of cumulative spawn frequency over distance

		position(km)																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
ILDSTAD ISLAND	38.00	+																0	0	0	0
	39.00	+1																0	0	1	1
	40.00	+1																0	0	1	1
	41.00	+																0	0	0	0
KOPRINO HARBOUR	42.00	+																0	0	0	0
	43.00	+*0																1	1	0	2
	44.00	+0																0	1	0	1
	45.00	+																0	0	0	0
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 271-3. Herring statistical spawn summary for section 271.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1941	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1945	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1950	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1954	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1955	1	3771	823	5	3.0	90.0	0.00	90.0	90	90	1	1
1956	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1960	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	1	211	46	6	3.0	79.0	0.00	79.0	79	79	1	1
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	1	4188	914	18	3.0	46.0	0.00	46.0	46	46	1	1
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	1	839	183	18	3.0	67.0	0.00	67.0	67	67	1	1
1978	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	4	9008	1966	12	3.0	70.5	9.42	67.1	46	90	4	3

Table 271-4. Spawn summary for section 271 from 1937 to 1986.

A. GENERAL:

There are two main spawning areas in this Quatsino Sound section:

- (i) Koprino Harbour and
- (ii) Ildstad Island

B. COMPLETENESS OF RECORDS:

The 50 year record is probably not complete but in view of the proximity to Port Alice and Quatsino, most major spawning activity would have been observed, if it had occurred.

C. SPAWNING CONSISTENCY OVER TIME: INFREQUENT

There has been only four recorded spawnings, 1955, 1965, 1968 and 1977.

D. MAGNITUDE OF SPAWNINGS: VERY SMALL

- | | |
|---|------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 4/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 4/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 2.0 Km. |
| 4. CUMULATIVE SPAWN AREA | = 0.9 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 12 (70.5) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 8 (67.1) |

F. COMMENTS:

Section 271 is not a significant spawning area. Also, see comments for section 273.

G. ROE FISHERIES:

No major roe fisheries are documented.

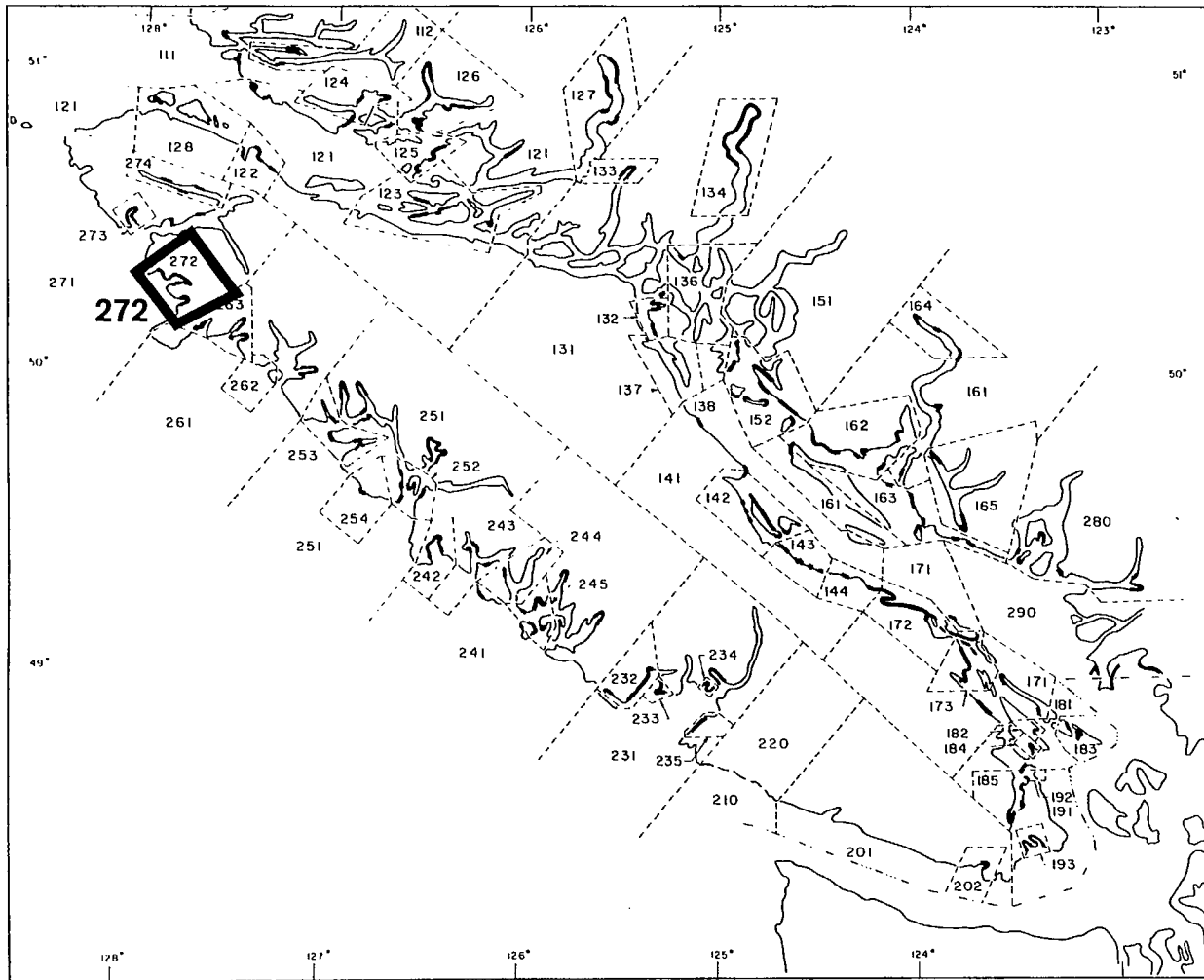


Fig. 272-1. Overview map showing location of section 272, Brooks Bay.

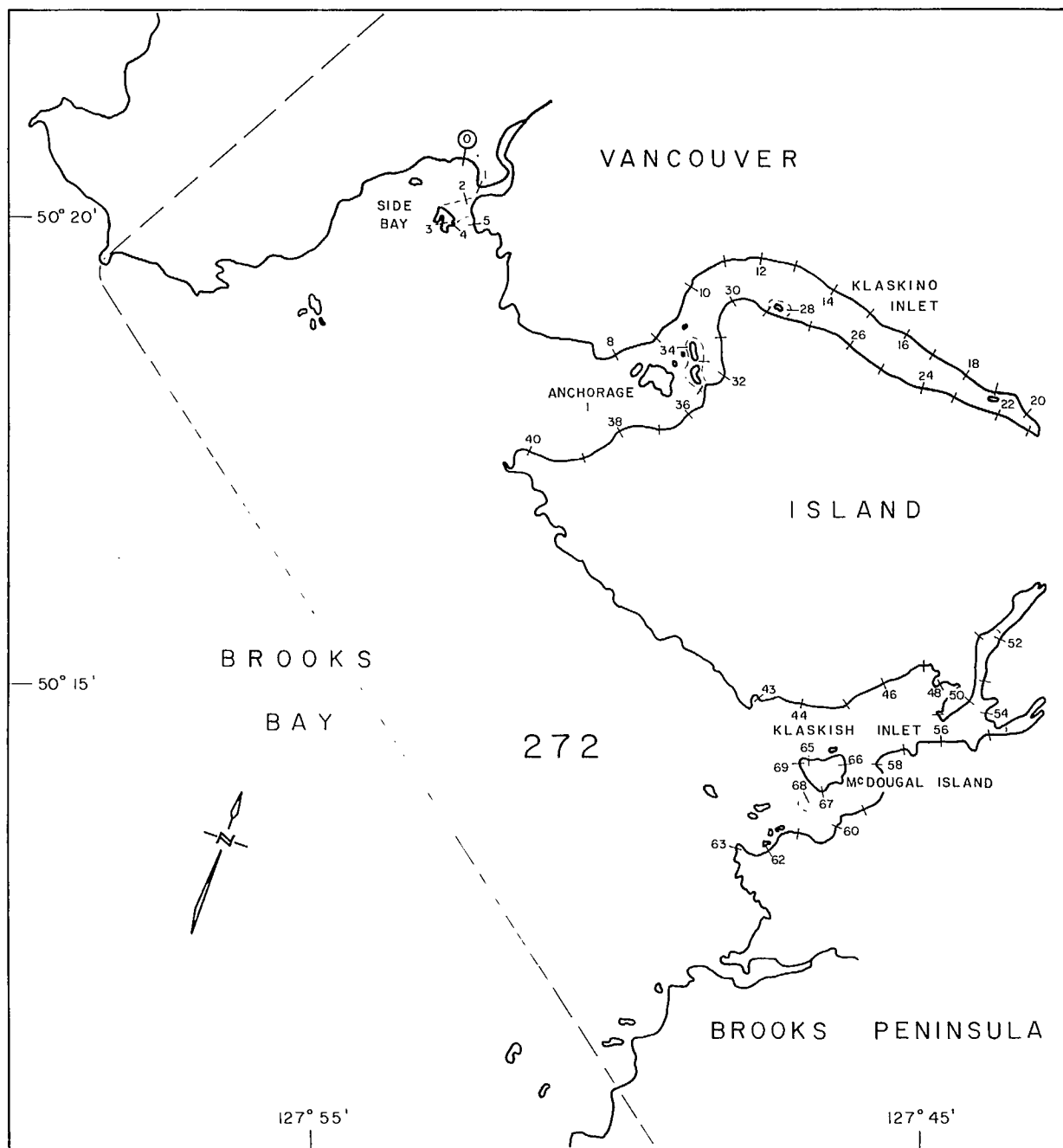


Fig. 272-2. Detailed map of section 272, Brooks Bay.

Table 272-1. Section 272 - Spawn position by year.

	0.00	10.00	20.00	30.00	40.00	50.00	60.00
1937 +						aa	
1938 +						aa	
1939 +						cc	
1940 +						bc	
1941 +				ba		aa	
1942 +				aa		ab	
1943 +				cb		bb	
1944 +				cb		aa	
1945 +							
1946 +				aa			
1947 +				aa		aa	
1948 +							
1949 +						aaaaaa	
1950 +				aa		aa	
1951 +				aa		aa	
1952 +							
1953 +						aa	
1954 +				aa		aa	
1955 +						aa	
1956 +							
1957 +							
1958 +							
1959 +							
1960 +						1	1
1961 +							
1962 +							
1963 +							
1964 +							
1965 +					1 1	11111	1 1
1966 +				1		1	
1967 +						1	
1968 +							
1969 +			c	1		gh	
1970 +	11 1			221		111113 2121	
1971 +							
1972 +							
1973 +			31	121		1 21	22
1974 +							
1975 +							
1976 +							
1977 +							
1978 +	111	1				1 12111	11
1979 +					1	11 1 111	111
1980 +	1		1			1111221211111	1121
1981 +							
1982 +				1	111	1 2\$1	1211 1121
1983 +							
1984 +							
1985 +						acda	
1986 +							
	0.00	10.00	20.00	30.00	40.00	50.00	60.00
	S		A	K		K	UM
	I		N	L		L	NC
	D		C	A		A	KD
	E		H	S		S	NO
	B		O	K		K	OU
	A		R	I		I	WG
	Y		A	N		S	NA
			G	O		H	L
			E				S
				I		I	EI
				N		N	CS
				L		L	.L
				E		E	A
				T		T	2N
							7D
							2

Table 272-2. Section 272 - histogram of cumulative spawn frequency over distance

	position(km)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
SIDE BAY	0.00	+															0	0	0	0
	1.00	+	*														1	0	0	1
	2.00	+	*														1	0	0	1
	3.00	+	*														1	0	0	1
	4.00	+															0	0	0	0
	5.00	+															0	0	0	0
	6.00	+															0	0	0	0
	7.00	+															0	0	0	0
	8.00	+															0	0	0	0
	9.00	+	**														2	0	0	2
	10.00	+															0	0	0	0
	11.00	+															0	0	0	0
	12.00	+															0	0	0	0
	13.00	+															0	0	0	0
	14.00	+															0	0	0	0
	15.00	+															0	0	0	0
	16.00	+															0	0	0	0
	17.00	+															0	0	0	0
	18.00	+															0	0	0	0
19.00	+	*														1	0	0	1	
20.00	+	*														1	0	0	1	
21.00	+															0	0	0	0	
22.00	+															0	0	0	0	
ANCHORAGE ISLAND	23.00	+	*														1	0	0	1
	24.00	+															0	0	0	0
	25.00	+															0	0	0	0
	26.00	+															0	0	0	0
27.00	+															0	0	0	0	
KLASKIND INLET	28.00	+	**	*	0	0	0	0	0	0	0	0	0	0	0	0	3	17	0	20
	29.00	+	**	*	0	0	0	0	0	0	0	0	0	0	0	0	2	11	0	13
	30.00	+															0	0	0	0
	31.00	+															0	0	0	0
	32.00	+															0	0	0	0
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
	+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			

KLASKISH INLET

UNKNOWN SEC. 272
MCDUGAL ISLAND

[illegible]

Table 272-2 (cont'd)

position(km)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
	+-----+																			
66.00	*****																4	0	0	4
67.00	*****																5	0	0	5
68.00	***																2	0	0	2
69.00	+																0	0	0	0
	+-----+																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 272-3. Herring statistical spawn summary for section 272.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	1	22807	804	0	3.0	73.0	0.00	73.0	73	73	1	1
1938	1	22807	804	0	5.0	60.0	0.00	60.0	60	60	1	1
1939	3	57018	2010	0	4.3	62.3	1.33	61.8	61	65	2	1
1940	3	36792	1297	0	3.7	60.0	5.00	56.1	55	70	2	1
1941	3	36792	1297	0	3.0	82.7	12.33	72.1	58	95	2	2
1942	3	40848	1440	47	4.3	52.3	0.88	53.0	51	54	3	2
1943	5	67428	2377	17	4.6	57.2	2.27	55.7	53	66	4	2
1944	4	42777	1508	21	5.0	61.0	4.74	60.5	54	75	4	2
1945	2	0	0	0	7.0	52.0	3.00	0.0	49	55	2	1
1946	1	12964	457	3	7.0	64.0	0.00	64.0	64	64	1	1
1947	2	28509	1005	15	5.0	56.0	0.00	56.0	56	56	1	2
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	1	129637	4570	183	1.0	67.0	0.00	67.0	67	67	1	1
1950	2	59627	2102	21	6.0	57.0	1.00	57.3	56	58	2	2
1951	2	47969	1691	7	5.5	66.0	17.00	71.1	49	83	2	2
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	1	23346	823	9	5.0	57.0	0.00	57.0	57	57	1	1
1954	2	41501	1463	6	5.0	58.5	1.50	58.7	57	60	2	2
1955	1	13106	462	4	3.0	59.0	0.00	59.0	59	59	1	1
1956	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1960	2	16226	572	6	4.0	60.0	0.00	60.0	60	60	1	1
1961	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1962	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1963	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	7	95937	3382	4	3.1	70.9	0.67	71.7	69	73	3	2
1966	2	16878	595	2	2.0	71.0	0.00	71.0	71	71	1	2
1967	1	12964	457	7	1.0	74.0	0.00	74.0	74	74	1	1
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	12	113440	3999	25	5.4	69.6	0.42	69.9	65	70	2	3
1970	15	155111	5468	14	5.7	57.6	0.79	58.6	54	60	2	2
1971	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1972	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1973	10	144331	5088	10	5.4	82.7	2.69	89.0	77	95	3	4
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1977	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1978	10	118234	4168	128	4.0	73.0	0.00	73.0	73	73	1	4
1979	5	132247	4662	90	4.0	67.8	0.20	67.5	67	68	2	2
1980	8	470580	16589	96	4.0	66.0	0.50	65.2	65	69	4	3
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	14	229404	8087	46	0.0	67.5	0.82	68.2	62	71	7	1
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	4	106376	3750	175	0.0	68.0	0.00	68.0	68	68	1	1
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	127	2295657	80927	45	4.6	66.4	0.83	66.8	49	95	29	6

Table 272-4. Spawn summary for section 272 from 1937 to 1986.

A. GENERAL:

There are two main spawning areas in this section:

- (i) Klaskino Inlet and
- (ii) Klaskish Inlet

B. COMPLETENESS OF RECORDS:

The 50 year record probably is not complete but it appears that spawning is documented in most years.

C. SPAWNING CONSISTENCY OVER TIME: FREQUENT

There has been one main spawning episode, 1937-55 with intermittent spawnings since 1955.

D. MAGNITUDE OF SPAWNINGS: MEDIUM

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 28/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 28/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 80.9 Km. |
| 4. CUMULATIVE SPAWN AREA | = 229.6 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 7 (66.4) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 8 (66.8) |

F. COMMENTS:

The record of spawnings is nearly continuous although there are frequent gaps of three or more years. In those years when spawnings occur, they are relatively early (March 7) compared to other locations on the west coast of Vancouver Island. Also, see comments for section 273.

G. ROE FISHERIES:

No major roe fisheries are documented.

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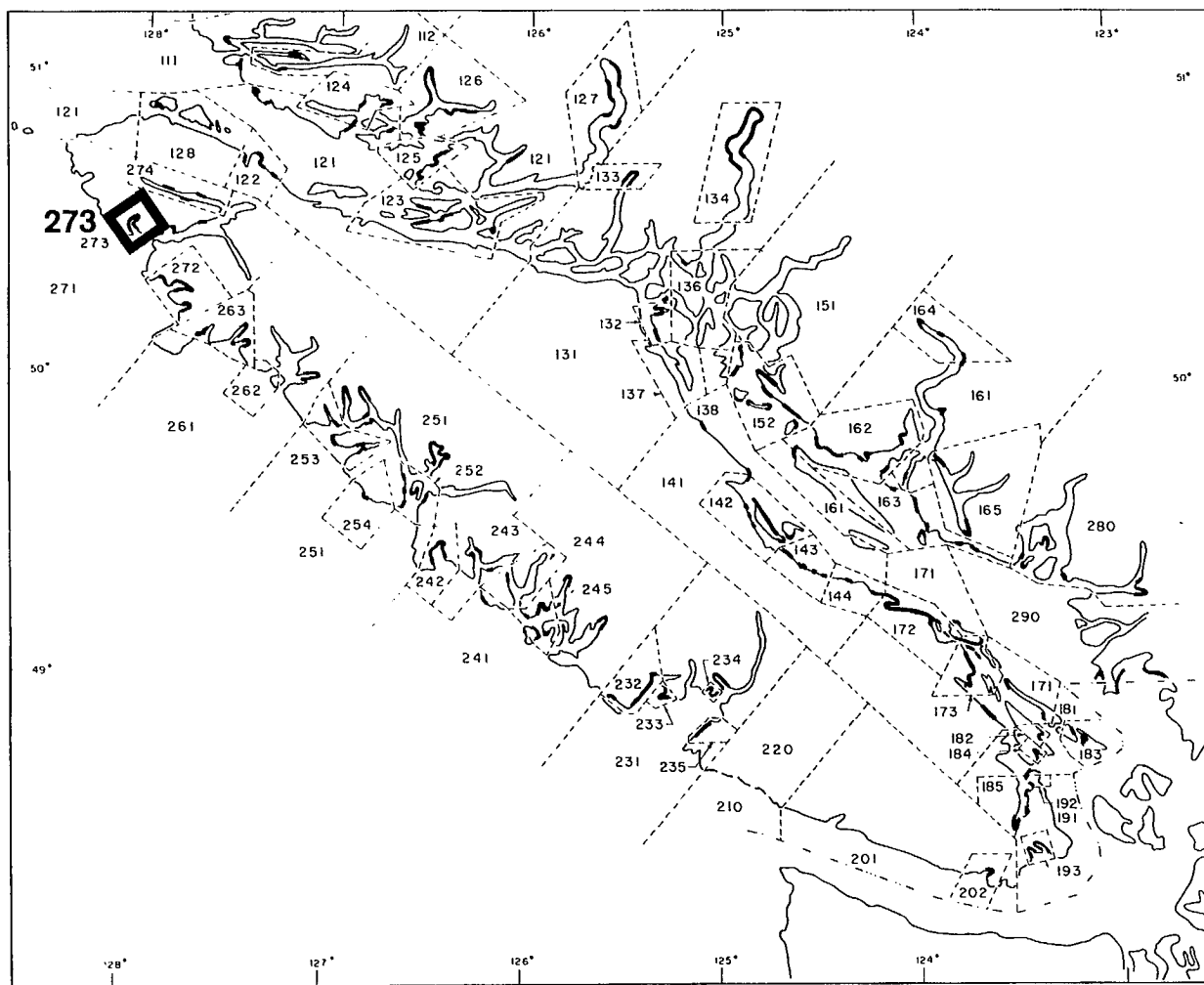


Fig. 273-1. Overview map showing location of section 273, Winter Harbour.

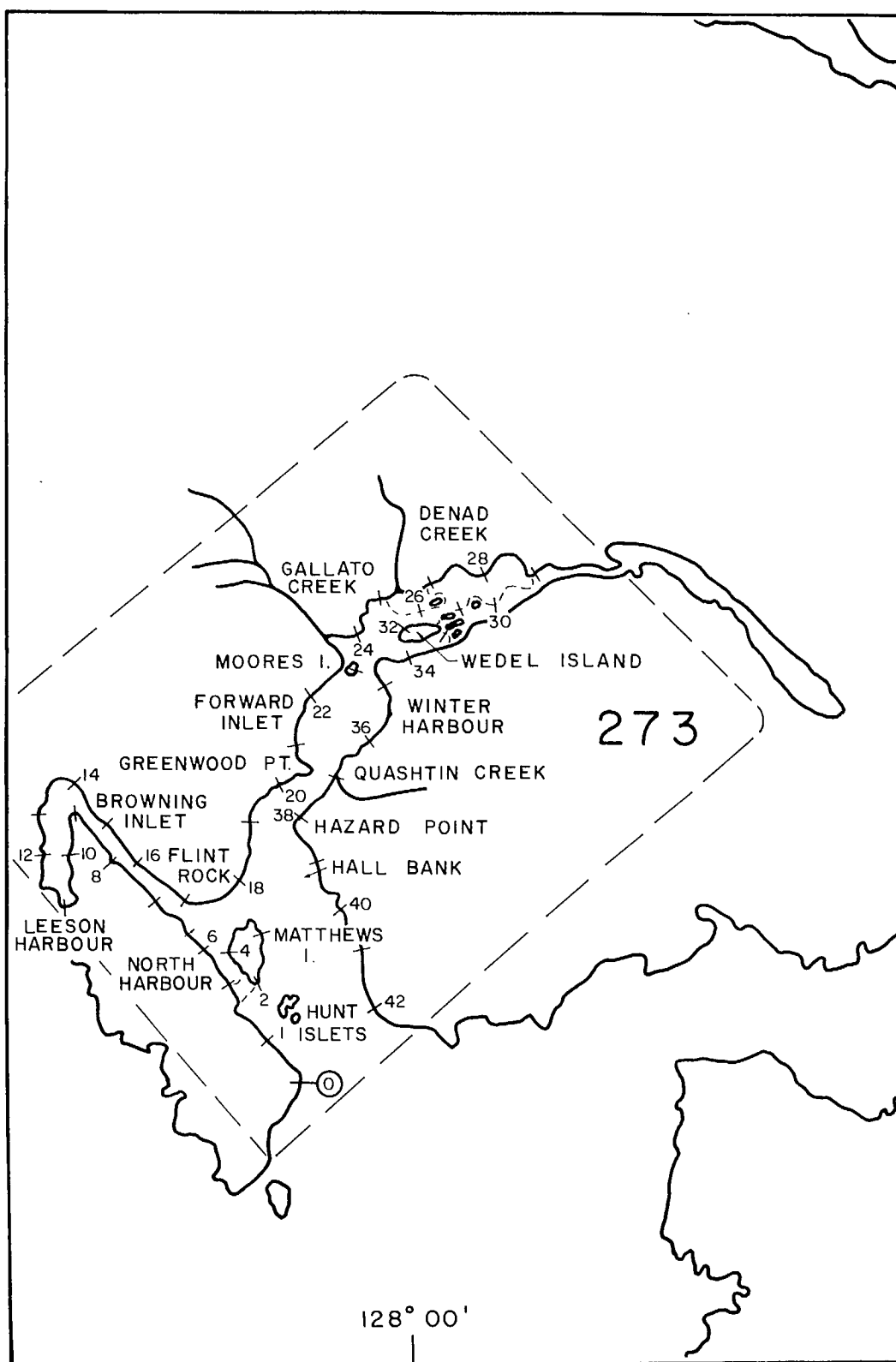


Fig. 273-2. Detailed map of section 273, Winter Harbour.

Table 273-1. Section 273 - Spawn position by year.

	0.00	10.00	20.00	30.00
1937 +	aa			aa
1938 +	aa			ec
1939 +	a		aba	cb
1940 +	a		ac	da
1941 +	aa		aa	eb
1942 +	bb		beb	cb
1943 +		a	ac	
1944 +			b	a
1945 +	a		be	b
1946 +			cd	aca
1947 +			b	aa
1948 +	aba cc	aa	bb	bb
1949 +	a	aa	ac	bb
1950 +	a	aa		dba
1951 +	aa	a	c	aba
1952 +		a	fa	a
1953 +		aaa	bbb	ceea
1954 +			aa	cdd
1955 +				bdd
1956 +			a	
1957 +		1111111		
1958 +		11		
1959 +		11		
1960 +			a	11
1961 +				21
1962 +		1 1		11
1963 +		111122111		
1964 +				
1965 +		1		133321
1966 +				1
1967 +				1
1968 +			b	
1969 +		21		
1970 +		1		1
1971 +				1
1972 +		11		
1973 +		2		12131
1974 +				
1975 +		11		2212241
1976 +		11		111
1977 +	11	122 11		332
1978 +	11a 11	141 2312312111		12211
1979 +	11332	1122121 2 121 1		12222
1980 +	1121 11	11122112111111		13311
1981 +	11\$ 1	1 1 1 11da11		11
1982 +		1 11111 11		111211121
1983 +	~ a a	~ a ~ ~ ~	~ &dc	aa
1984 +		aa& ~ ~	aa& ~ aa	a
1985 +		a ~ ~	~ & a	
1986 +	b		cb ~ dda	
	0.00	10.00	20.00	30.00
	M B	G ~	F L W H	H
	H A R	F R M G	O E I A	A
	U T O	L E O A	R E N Z	L
	N H W	I E O L	W S T A	L
	T E N	N N R A	A O E R	
	W I	T W E T	R N R D	B
	I S N	O S O	D	A
	S G	R O	H H P	N
	L I	O D I C	I A A O	K
	E S I	C S R	N R R I	
	T L N	K P L E	L B B N	
	S A L	O A E	E O O T	
	N	I N K	U	
	D	N D	R	
		T		

Table 273-2. Section 273 - histogram of cumulative spawn frequency over distance

	position(km)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all
		+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+				
	0.00	+	*																		
HUNT ISLETS	1.00	+	*	*	*	*												1	0	1	2
	2.00	+	*	*	*	*	*	*	0									5	0	1	6
MATHEWS ISLAND	3.00	+	*	*	*	*	*	*	0	0	0	0	0	0	0	0	0	7	1	0	8
	4.00	+	*	*	*	0												6	7	0	13
	5.00	+																3	1	0	4
	6.00	+	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BROWNING INL/NORTH HARBOU	7.00	+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	0	10
	8.00	+	*															0	15	0	15
	9.00	+	*	*														1	0	0	1
	10.00	+	*															2	0	0	2
	11.00	+																1	0	0	1
	12.00	+																0	0	0	0
	13.00	+																0	0	0	0
	14.00	+																0	0	0	0
	15.00	+																0	0	0	0
	16.00	+	*															0	0	0	0
	17.00	+	*	*														1	0	0	1
FLINT ROCK	18.00	+	*	*	*	*												2	0	1	3
	19.00	+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	7	0	1	8
	20.00	+	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	15	0	0	15
GREENWOOD POINT	21.00	+	*	*	*	*	*	*	*	0	0	0	0	0	0	0	0	10	5	0	15
	22.00	+	*	*	*	*	*	*	*	0	0	0	0	0	0	0	0	11	10	0	21
	23.00	+	*	*	*	*	*	*	*									18	2	5	25
MOORES ISLAND	24.00	+	*	*	*	*	*	*	*									13	0	8	21
GALATO CREEK	25.00	+	*	*	*													5	0	3	8
	26.00	+	*	*	*	*	*											8	0	0	8
	27.00	+	*	*	0	0	0	0	0	0	0	0	0	0	0	0	0	6	15	2	23
FORWARD INLE/ DENAD CREEK	28.00	+	*	*	0	0	0	0	0	0	0	0	0	0	0	0	0	4	35	2	41
	29.00	+	*	*	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	0	11
LEESON HARBOUR	30.00	+	*	*	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	0	23
	31.00	+	*	*	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	0	9
WINTER HARBO/ WEDEL ISLAN	32.00	+	*	*	0	0	0	0	0	0	0	0	0	0	0	0	0	6	9	10	25
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	5	52	10	67
		+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	vara	varb	varc	all

Table 273-2 (cont'd)

[illegible]

Table 273-3. Herring statistical spawn summary for section 273.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	2	70266	2010	0	4.0	83.0	0.00	83.0	83	83	1	2
1938	6	132875	3801	0	2.7	76.7	4.67	75.0	72	100	2	2
1939	6	129659	3709	0	3.3	63.8	0.48	64.0	63	66	3	3
1940	8	132840	3800	0	3.5	71.0	2.15	70.5	68	86	4	3
1941	7	140531	4020	0	4.4	71.6	3.91	70.4	67	95	3	3
1942	11	276378	7906	22	4.8	74.7	2.10	74.5	59	89	7	4
1943	4	46494	1330	19	5.0	70.8	3.61	72.3	60	75	3	2
1944	3	20765	594	22	5.0	62.7	1.20	62.2	61	65	3	2
1945	8	94911	2715	12	4.3	75.9	4.34	72.5	56	83	3	3
1946	7	190137	5439	15	3.9	73.3	5.08	71.3	64	102	3	2
1947	3	49535	1417	18	5.0	67.3	9.33	76.1	58	86	2	2
1948	10	328430	9395	93	3.0	60.0	3.43	61.3	48	75	5	5
1949	7	128890	3687	215	4.4	67.9	2.69	67.5	58	76	7	4
1950	7	103860	2971	18	5.3	78.0	8.30	73.0	59	119	4	4
1951	9	187340	5359	6	5.0	74.0	4.77	76.2	51	96	3	6
1952	9	65476	1873	5	4.6	72.8	3.94	67.8	57	93	9	4
1953	8	436730	12493	55	6.5	65.8	2.75	64.9	58	84	4	3
1954	6	282461	8080	7	6.0	79.7	3.62	77.8	65	90	5	3
1955	5	185662	5311	5	2.6	79.4	5.56	81.1	59	92	4	2
1956	1	1049	30	4	1.0	32.0	0.00	32.0	32	32	1	1
1957	2	143782	4113	4	1.0	79.0	2.00	80.6	77	81	2	2
1958	1	31952	914	91	1.0	70.0	0.00	70.0	70	70	1	1
1959	1	19157	548	46	3.0	84.0	0.00	84.0	84	84	1	1
1960	2	25554	731	14	3.0	61.0	0.00	61.0	61	61	1	2
1961	2	42159	1206	7	3.0	75.0	0.00	75.0	75	75	1	2
1962	3	31952	914	7	2.3	71.7	4.67	74.0	67	81	2	1
1963	2	319516	9140	5	1.0	54.0	5.00	58.0	49	59	2	1
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	8	216705	6199	6	4.4	71.5	2.58	67.1	64	82	7	2
1966	1	10557	302	3	1.0	73.0	0.00	73.0	73	73	1	1
1967	1	12795	366	5	1.0	69.0	0.00	69.0	69	69	1	1
1968	2	28735	822	14	3.0	62.5	16.50	68.0	46	79	2	1
1969	2	68692	1965	50	5.0	73.5	11.50	83.4	62	85	2	1
1970	2	23667	677	4	3.0	65.5	5.50	70.4	60	71	2	2
1971	1	12795	366	9	6.0	82.0	0.00	82.0	82	82	1	1
1972	1	9578	274	14	3.0	70.0	0.00	70.0	70	70	1	1
1973	8	76698	2194	6	5.4	75.9	0.44	76.2	74	77	3	2
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	14	222927	6377	30	5.3	85.0	0.00	85.0	85	85	1	3
1976	5	34573	989	28	3.4	74.0	5.00	73.2	54	79	2	1
1977	10	135812	3885	17	3.0	65.3	3.84	65.8	51	80	7	4
1978	21	498501	14260	106	4.0	73.8	1.43	72.8	68	87	6	6
1979	23	508045	14533	63	4.3	69.1	0.60	69.7	67	80	5	4
1980	14	601662	17211	67	4.1	69.0	2.02	67.5	62	94	7	5
1981	16	268477	7680	100	0.0	66.3	0.60	65.9	63	70	6	6
1982	14	186920	5347	87	0.0	69.6	0.36	69.6	68	73	5	6
1983	19	324900	9294	107	0.0	63.4	0.68	62.7	58	68	10	13
1984	11	234219	6700	20	0.0	67.7	0.33	67.9	66	69	4	9
1985	7	12235	350	10	0.0	67.0	0.00	67.0	67	67	1	6
1986	14	310427	8880	21	0.0	78.3	0.19	78.0	78	80	2	4
All	334	7417284	212177	49	4.2	71.1	0.53	70.4	32	119	50	16

Table 273-4. Spawn summary for section 273 from 1937 to 1986.

A. GENERAL:

- There are two main spawning areas in this section:
- (i) Browning Inlet and
 - (ii) Winter Harbour

B. COMPLETENESS OF RECORDS:

The 50 year record should be reasonably complete considering proximity to Winter Harbour.

C. SPAWNING CONSISTENCY OVER TIME: CONSTANT

If pooled among all localities, there has been a nearly constant annual record of spawnings since 1937 except for the years, 1964 and 1974.

D. MAGNITUDE OF SPAWNINGS: LARGE

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 48/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 48/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 212.2 Km. |
| 4. CUMULATIVE SPAWN AREA | = 741.7 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|-------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = March 12 (71.1) |
| 2. MEAN WEIGHTED DATE (DOY) | = March 11 (70.4) |

F. COMMENTS:

The main spawning location in the combined sections of 271, 272, 273 and 274 is centered in section 273, Winter Harbour with a near continuous record of 334 spawn records between 1937 and 1986 and a mean spawn time of March 12. Adjacent sections 272 and 271 have 127 and 4 records, respectively with mean spawn times of March 7 and 12. With 334 continuous spawn records in a relatively confined area, Winter Harbour is one of the most consistent spawning sites on the West Coast of Vancouver Island. Probably it is the center of a biological stock that occasionally spawns in adjacent areas.

G. ROE FISHERIES:

- | | |
|---|-------------------|
| 1. NUMBER OF SEINE FISHERY YEARS/15 YEARS | = 2/15 (1972-86) |
| 2. NUMBER OF GILLNET FISHERY YEARS/15 YEARS | = 10/15 (1972-86) |
| 3. MEAN SEINE CATCH/YEAR | = 375 tons |
| 4. MEAN GILLNET CATCH/YEAR | = 287 tons |

Table 273-5. History of roe fishery catches by gear type in Winter Harbour.

SECT. 273	SEINE NET ROE FISHERIES				GILLNET ROE FISHERIES			
	DATE YEAR OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA	DATE OPEN (D/Mo)	TIME OPEN (hrs)	HAILED CATCH (Tons)	FISHING AREA
1972	-	-	-	-	-	-	-	-
1973	-	-	-	-	-	-	-	-
1974	-	-	-	-	18/03- 22/03	96	20	sect. 273
1975	-	-	-	-	19/03- 24/03	120	1	sect. 273
1976	-	-	-	-	01/03- 12/03	216	86	sect. 273
1977	-	-	-	-	-	-	-	-
1978	-	-	-	-	14/03- 31/03	408	60	sect. 273
1979	08/03	7	450	Forward Inlet	07/03- 11/03	94	431	Winter Hbr.
1980	-	-	-	-	03/03- 09/03	127	750	Winter Hbr.
1981	-	-	-	-	06/03- 13/03	168	745	Forward Inlet
1982	07/03 & 08/03	-	300	Forward Inlet & North Hbr.	08/03- 14/03	143	400	Forward Inlet & North Hbr.
1983	-	-	-	-	28/02	90	190	sect. 273
1984	-	-	-	-	03/03- 06/03	57	182	sect. 273
1985	-	-	-	-	-	-	-	-
1986	-	-	-	-	-	-	-	-

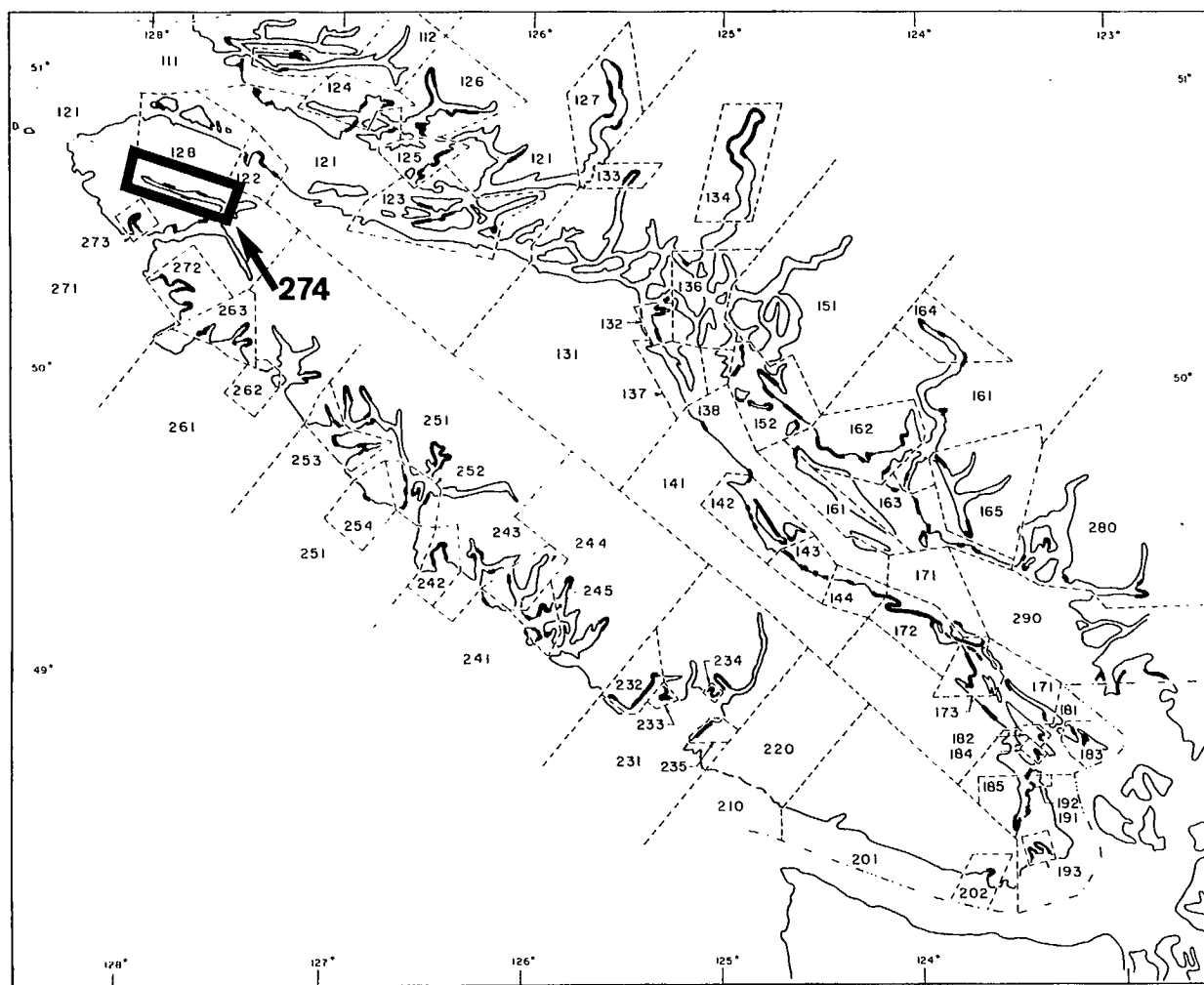


Fig. 274-1. Overview map showing location of section 274, Holberg Inlet.

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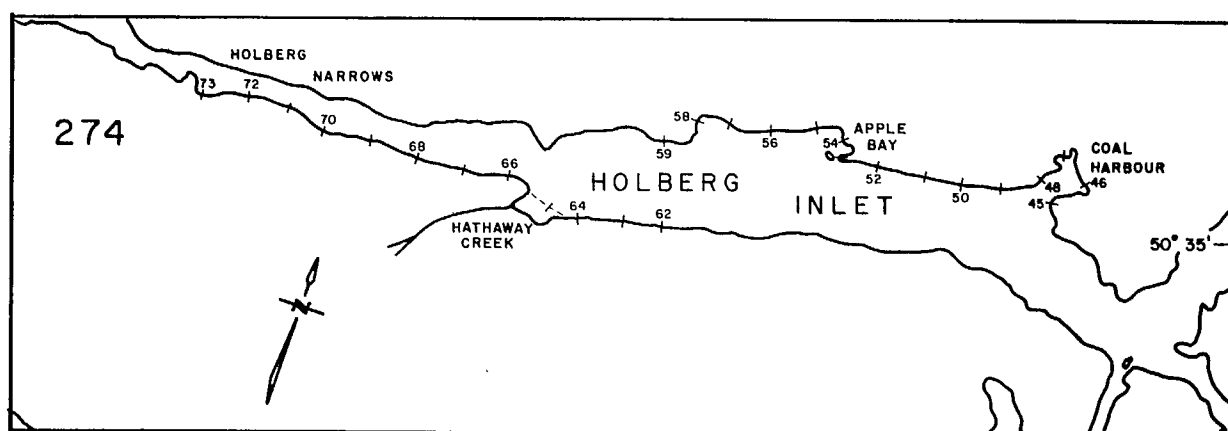


Fig. 274-2. Detailed map of section 274, Holberg Inlet.

Table 274-1. Section 274 - Spawn position by year.

	44.00	54.00	64.00
1937 +			
1938 +			
1939 +			
1940 +			
1941 +			
1942 +			
1943 +			
1944 +			
1945 +			
1946 +			
1947 +			
1948 +			
1949 +			
1950 +			
1951 +			
1952 +			
1953 +	aa	aa	
1954 +		aa	
1955 +			
1956 +			
1957 +			
1958 +			
1959 +			
1960 +			
1961 +		1	
1962 +		1	
1963 + 1			
1964 +			
1965 +		1	
1966 +			
1967 +			
1968 +			
1969 +			
1970 +			2
1971 +			131
1972 +			121
1973 +			111
1974 +			
1975 +			
1976 +			12
1977 +	11	1 1	
1978 +			12
1979 +			
1980 +			
1981 +			
1982 +			
1983 +			
1984 +			
1985 +			
1986 +			
	44.00	54.00	64.00
	S	A	H
	T	P	A
	E	P	T
	P	L	H
	H	E	A
	E		W
	N	B	A
	S	A	Y
		Y	
	B		C
	A		R
	Y		E
			K

Table 274-2. Section 274 - histogram of cumulative spawn frequency over distance

		position(km)																vara	varb	varc	all
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75				
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
STEPHENS BAY (COAL HR.)	43.00	+																0	0	0	0
	44.00	+																0	0	0	0
	45.00	+																1	0	0	1
	46.00	+																0	0	0	0
	47.00	+																0	1	0	1
	48.00	+																1	1	0	2
	49.00	+																1	0	0	1
	50.00	+																0	0	0	0
	51.00	+																0	0	0	0
	52.00	+																0	0	0	0
APPLE BAY	53.00	+																1	0	0	1
	54.00	+																1	2	0	3
	55.00	+																3	2	0	5
	56.00	+																0	0	0	0
	57.00	+																0	0	0	0
	58.00	+																0	0	0	0
	59.00	+																0	0	0	0
	60.00	+																0	0	0	0
	61.00	+																0	0	0	0
	62.00	+																0	0	0	0
HATHAWAY CREEK	63.00	+																5	0	0	5
	64.00	+																8	0	0	8
	65.00	+																7	0	0	7
	66.00	+																0	0	0	0
	67.00	+																0	0	0	0
HOLBERG NARROWS	68.00	+																0	0	1	1
	69.00	+																0	0	1	1
	70.00	+																0	0	0	0
		+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+																			
		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	vara	varb	varc	all

Table 274-3. Herring statistical spawn summary for section 274.

Year	Total records	Spawn index	Sum length	Av wid	Av int	Av date	SE date	Wt date	Min day	Max day	Ind day	Ind loc
1937	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1938	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1939	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1940	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1941	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1942	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1943	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1944	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1945	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1946	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1947	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1948	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1949	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1950	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1951	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1952	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1953	2	17813	2040	13	5.0	108.0	0.00	108.0	108	108	1	2
1954	1	8837	1012	11	5.0	109.0	0.00	109.0	109	109	1	1
1955	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1956	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1957	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1958	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1959	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1960	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1961	1	2000	229	3	1.0	87.0	0.00	87.0	87	87	1	1
1962	1	6383	731	4	1.0	114.0	0.00	114.0	114	114	1	1
1963	2	5588	640	5	1.0	102.0	18.00	94.3	84	120	2	2
1964	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1965	1	2393	274	2	1.0	84.0	0.00	84.0	84	84	1	1
1966	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1967	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1968	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1969	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1970	2	5588	640	5	6.0	93.5	3.50	93.0	90	97	2	1
1971	4	9579	1097	7	5.0	122.0	0.00	122.0	122	122	1	1
1972	4	10374	1188	8	5.0	120.0	0.00	120.0	120	120	1	1
1973	2	9579	1097	5	5.0	109.0	0.00	109.0	109	109	1	1
1974	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1975	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1976	2	6785	777	27	3.0	104.0	0.00	104.0	104	104	1	1
1977	4	5187	594	13	2.5	65.0	0.58	65.2	64	66	2	2
1978	3	2794	320	46	4.0	113.0	0.00	113.0	113	113	1	1
1979	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1980	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1981	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1982	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1983	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1984	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1985	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
1986	0	0	0	0	0.0	0.0	0.00	0.0	0	0	0	0
All	29	92900	10639	13	3.8	103.2	3.58	106.1	64	122	13	4

Table 274-4. Spawn summary for section 274 from 1937 to 1986.

A. GENERAL:

There are two main spawning areas in this Holberg Inlet section:

- (i) Hathaway Creek and
- (ii) Apple Bay

B. COMPLETENESS OF RECORDS:

The completeness of the fifty year record is uncertain. It should be reasonably complete considering proximity to Holberg and Coal Harbour.

C. SPAWNING CONSISTENCY OVER TIME: INFREQUENT

There has been intermittent spawnings from 1953 to 1978 with no recorded spawns in other years.

D. MAGNITUDE OF SPAWNINGS: VERY SMALL

- | | |
|---|-------------------|
| 1. NUMBER OF SPAWN YEARS/50 YEARS | = 13/50 (1937-86) |
| 2. NUMBER OF SPAWN YEARS/DOCUMENTED YEARS | = 13/50 (1937-86) |
| 3. CUMULATIVE SPAWN LENGTH | = 10.6 Km. |
| 4. CUMULATIVE SPAWN AREA | = 9.3 ha. |

E. SPAWNING TIME:

- | | |
|-------------------------------|--------------------|
| 1. MEAN UNWEIGHTED DATE (DOY) | = April 13 (103.2) |
| 2. MEAN WEIGHTED DATE (DOY) | = April 16 (106.1) |

F. COMMENTS:

Holberg Inlet has one of the latest mean spawn dates on Vancouver Island (April 13) with 29 spawn records which occurred between 1953 and 1978. The status of fish spawning in section 274 is uncertain. It is possible but unlikely that this inlet may support a small, late-spawning resident herring stock whose spawns are mainly unreported. Alternately, spawnings here represent occasional spawnings from a biological stock centered elsewhere, probably in Winter Harbour.

G. ROE FISHERIES:

No major roe fisheries are documented.

