CONSOLIDATION OF FISHERIES RESOURCE INFORMATION WEST COAST VANCOUVER ISLAND

Southwest Vancouver Island (Race Rocks to Cape Beale)

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Les numéros 1 à 456 de cette série ont été publiés à titre de rapports techniques de l'Office des recherches sur les pêcheries du Canada. Les numéros 457 à 714 sont parus à titre de rapports techniques de la Direction générale de la recherche et du développement, Service des pêches et de la mer, ministère de l'Environnement. Les numéros 715 à 924 ont été publiés à titre de rapports techniques du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 925.

Les rapports techniques sont produits à l'échelon regional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

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CONSOLIDATION OF FISHERIES RESOURCE INFORMATION WEST COAST VANCOUVER ISLAND SOUTHWEST VANCOUVER ISLAND (Race Rocks to Cape Beale)

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLE

APPENDICES

ABSTRACT

In 1993, the South Coast Division of the Department of Fisheries and Oceans (DFO) initiated a program to collect, organize, map and report information pertinent to oil spill planning from fisheries field staff. This report, representing the second year of the program, incorporates information obtained from DFO field staff with experience in the Sooke/Nitinat area and from representatives of T'Sou-ke, Pacheenaht, Dititdaht and Ohiaht First Nations. Fisheries resources covered by this report include commercial, aboriginal and recreational inshore fisheries for finfish and shellfish as well as the location of important habitats. The location of shellfish beds and of spawning or rearing areas for finfish are also included as are areas where marine mammals are known to concentrate.

Key words: west coast Vancouver Island, fishery resources, oil spill planning

RÉSUMÉ

En 1993, la Division de la côte sud du ministère des Pêches et des Océans (MPO) lançait un programme dont l'objet était de recueillir, d'organiser, de cartographier et de rendre compte de l'information concernant les mesures d'intervention en cas de déversement de pétrole, en collaboration avec le personnel de terrain de MPO. Le présent rapport, qui fait état des travaux exécutés au cours de la deuxième année de ce programme, contient l'information obtenue auprès du personnel de terrain du MPO qui a une expérience de travail dans la région de Sooke/Nitinat et des représentants des Premières nations T'Sou-ke, Pacheenaht, Ditidaht et Ohiaht. Le rapport traite des ressources halieutiques, plus précisément des pêches commerciales, autochtones et récréatives infracôtières (poissons à nageoires et mollusques et crustacés), de même que de l'emplacement des habitats importants. Il traite également des sites où on trouve des mollusques et crustacés et des sites de reproduction ou de croissance des poissons à nageoires, de même que des endroits où on a observé des concentrations de mammifères marins.

Mots clés: côte ouest de l'île de Vancouver, ressources halieutiques, mesures d'intervention en cas de déversement de pétrole.

ACKNOWLEDGMENTS

The authors would like to thank the staff of Department of Fisheries and Oceans who contributed their knowledge and time to assist in this project. Those who were interviewed included Roy Osselton, John Stephen, Ron Kehl, Brad Rushton, Laurie Gordon, Denis Burnip, Harry Connor, Ken Widston, Rob Brouwer, Dennis Girodat, Kim Hyatt, Graeme Ellis and Sandy McFarlane. We would also like to thank representatives of First Nations who met with us and shared their invaluable knowledge of fisheries resources in their territories. These included James Cooper, Frank Planes, Jack Planes and Fred George (T'Sou-ke First Nation); Charles Jones, Helen Dunn, Bill Mitchell, Jeff Jones and Lawrence Jones (Pacheenaht First Nation); Carl Edgar, Sam Edgar, and Paul Seiber (Ditidaht First Nation) and Ed Johnson (Ohiaht First Nation). In addition we appreciate the contributions from Paddy Harrison, Ed Helgesson, Dave Planes, Karen Planes, Ken Ridgway, Rick Strong, Danny Heggelund and David Lightly who provided detailed information based on their experience in the area. Margaret Wright (South Coast Division) coordinated the project and provided valuable input throughout the study.

INTRODUCTION

1.1 Background

In 1993 the Department of Fisheries and Oceans (South Coast Division - Habitat Management Sector) initiated a project to capture information from DFO field staff regarding fishery stocks, fisheries and fish habitats in their sub-districts, with reference to their experience and to information on file in their offices. The goal of the program is to provide readily accessible detailed information to aid in oil spill response and in assessing damage for compensation and litigation purposes.

The pilot study, for Area 23 - Barkley Sound and Alberni Inlet - was completed in January 1994. The second year program, while following the format of the pilot study, has been expanded to include information from patrol vessel operators and Native Bands.

Information collected has been mapped (on hydrographic charts and digitally), site specific details incorporated into database files, and general anecdotal information, including reliability of data, presented in a report.

1.2 The study area - Southwest Coast of Vancouver Island

This study covers DFO Statistical Areas 20, 21 and 22 (and a portion of Area 123-1) - the coast between Race Rocks and Cape Beale, including Sooke Harbour/Basin, Nitinat Lake and other bays (see Figure 1). In some cases, polygons primarily in Area 21 extend into Area 121 which is the offshore area adjacent to the project study area. In addition, some resources from the western portion of Area 19 (east of Race Rocks) are included.

The area is represented by Canadian Hydrographic Charts 3606 (Juan de Fuca Strait) and 3602 (Approaches to Juan de Fuca Strait); with the upper portion of Nitinat Lake covered by Canadian topographical map 92C/15. Smaller scale Canadian Hydrographic Charts used in this project are 3641 (Albert Head to Otter Point), 3430 (Sooke Harbour), and 3647 (Port San Juan and Nitinat Narrows). Table 1 gives details on the maps used and the resources found on each.

1.3 Methods

The procedures used to gather and document information were similar to the pilot study (Booth and Rueggeberg 1996) and are outlined as follows:

Interviews and preliminary mapping and database input.

The initial task was to determine which fisheries field staff and Native Band representatives to contact. Margaret Wright provided a list of personnel with knowledge of resources in the study area and made initial contact with key individuals, informing them of the purpose of the study and requesting their co-operation.

Interviews were set up and conducted (approximately 2-3 per week) for the first six weeks (May 4 - June 18, 1994). Laminated charts were used to capture the spatial information, in most cases asking the person providing the information to draw polygons on the maps. Erasable pens were used to allow easy editing. Information about the polygon was written either on the map or in notes, with reference to the location and colour code of the polygon. In order to ensure maximum accuracy and completeness, interviews were taped and notes were reviewed, organized and typed up immediately following the meetings. A large amount of information was gathered in the initial interviews and was mapped (with permanent markers) and incorporated into draft database format as soon after the interviews as possible.

A system was adopted organizing data into elements (usually by species or groups of species) and attributes (type of fishery, holding area, spawning area, etc.). The various elements and attributes included in this study and a description of their coverage is given in Table 2.

With the majority of information incorporated, a second round of information gathering took place, involving follow-up phone calls to people interviewed, for verification and expansion of information provided. Additional interviews were made by phone to people recommended by field staff. Maps and database tables were edited as required.

In addition, information was incorporated from fishery management reports and other relevant sources, such as the Salmon Escapement Database.

The formats for maps, databases and reports were adopted from the pilot study. In some cases, minor modifications have been made to accommodate different content.

Drafting of the Report

With the majority of interviews completed, the narrative portion of the study was prepared and organized according to elements and attributes (see below).

Preparation of draft database and maps

Once it was decided that little further information was to be incorporated, changes were made to maps and database tables to take them to a level of near completion. This involved consolidating polygons that had identical information, numbering polygons to match database elements and generally tidying up and completing coding on the maps to be reviewed by the project authority, prior to preparation of the final presentation.

Review of maps, database and report with project authority and preparation of final presentations

Monthly meetings were held with the project authority to review progress on the project and clear up any problems encountered. The final meeting was to review the draft products submitted on July 29. Modifications were made according to recommendations of the scientific authority and final maps, databases and report were submitted in late August. Information was transferred from laminated draft maps to paper charts for the final product.

1.4 Criteria for inclusion of data in the study

Decisions had to be made regarding the level of importance of particular resources and whether or not to include them as mapped elements or in the database. While all resources have intrinsic value, they may not fit into the mandate of DFO, which is to protect fisheries, fish stocks and habitat. For example, while *Fucus* (rockweed) would be affected by an oil spill, it is not known to be critical to the survival of valuable fishery resources, so will be excluded. On the other hand, eel grass, which is not in itself of commercial value, provides rearing habitat to juvenile salmon and herring spawn substrate hence will be included.

1.5 Project Products

Project report: A document describing each element/attribute individually, giving the data sources, general non site-specific information and sources of additional information. For those elements/attributes with sufficient site-specific information, the data compiled and method used to rank the importance of individual sites are also given.

Database: A database containing a file for each element/attribute for which there was site-specific information. In this study there were 25 database files generated and 3 which were only described in general terms in the report.

Maps: Areas (polygons) significant to marine resources or fisheries are marked on Canadian Hydrographic Service charts using colours unique to each element/attribute. Polygons are labeled with a code describing the element/attribute and applying a unique number which links the map to the database. Thirteen charts were produced, using copies of five different Canadian Hydrographic Service charts and one topographical map. These are described in Table 1.

Electronic Maps: Each mapped element/attribute has also been digitized to create electronic map files.

1.6 Report Format

The organization of the report is similar to the Area 23 pilot study. Information is organized by elements and attributes (see Table 2). Where there is a lot of information for a given element/attribute, it is presented by dividing study area in two: Statistical Area 20 (east of Bonilla Point) and Area 21/22 (west of Bonilla Point). The reason for this is that it is a natural boundary between areas of responsibility for Field Staff. East of Bonilla Point is covered by the Sooke sub-district and areas west of Bonilla Point are the responsibility of the Port Alberni district. Where there is only a general description that applies to both areas, this division will not be used.

Each section of the report provides a directory for the information about that particular component. The following describes these sections:

DATA SOURCES:

This is a list of people interviewed, reports consulted or existing databases that were compiled using district field staff or First Nations information.

DATA COMPILED:

Each element/attribute described in the text may or may not be mapped and/or included in a database file. This section gives specific information about where to find the:

- database file structure (location)
- database file (name, location)
- mapped polygons (chart/map #'s)

USE LEVEL RATING:

This is a subjective estimate of the relative importance of the site to that element/attribute. Generally the rating goes from 0 - 5 with 5 being the rating representing the highest level of use. The value -9 is used when there is use made of a resource, but no use level value can be determined. Table 3 describes the system used for determining use level ratings for different data elements. Variations to this basic scheme are given in individual sections of the narrative.

GENERAL NOTES:

This section serves as an overview for the particular element/attribute and often contains historical information or oil spill considerations. Information that is either background information, lacks detail, covers extensive areas, or does not fit the database format, is presented here.

FURTHER INFORMATION:

Sources of further information on fishery resources, published or gathered by other agencies or private consultants, are referenced here. These may supplement or clarify what has been provided in this study.

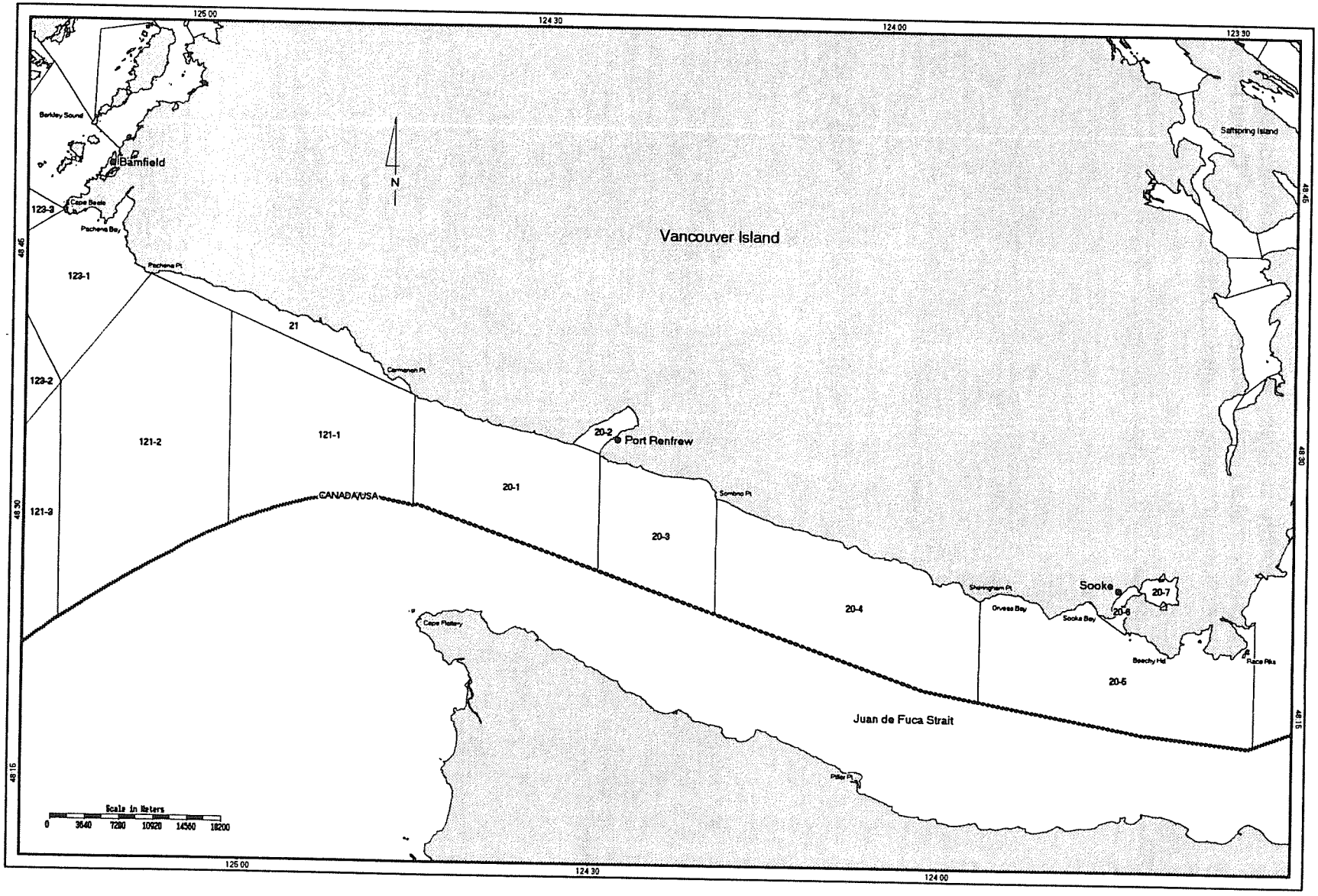

Figure 1. Map of Vancouver Island showing the study area.

Table 1. Charts used in mapping fishery resource information for Areas 20 - 22.

Map No.	Map Code	Area	Scale, Type	Attributes
1	3430	Sooke Harbour	1:12,000 Marine Chart	Shellfish
		Pedder Bay	1:6,000 Marine Chart	
		Becher Bay Pedder Bay	1:15,000 Marine Chart	
2	3602	Approaches to Juan de Fuca Strait	1:150,000 Marine Chart	Salmon
3	3602	Approaches to Juan de Fuca Strait	1:150,000 Marine Chart	Groundfish, Herring and Other Finfish
4	3602	Approaches to Juan de Fuca Strait	1:150,000 Marine Chart	Significant Habitats Marine Mammals
5	3606	Juan de Fuca Strait	1:110,000 Marine Chart	Salmon
6	3606	Juan de Fuca Strait	1:110,000 Marine Chart	Groundfish, Herring and Other Finfish
7	3606	Juan de Fuca Strait	1:110,000 Marine Chart	Significant Habitats Marine Mammals
8	3606	Juan de Fuca Strait	1:110,000 Marine Chart	Shellfish
9	3641	Albert Head to Otter Point	1:25,000 Marine Chart	Salmon
10	3641	Albert Head to Otter Point	1:25,000 Marine Chart	Shellfish Significant Habitats
11	3647	Port San Juan	1:18,000 Marine Chart	Salmon
		Nitinat Narrows	1:12,000 Marine Chart	
12	3647	Port San Juan	1:18,000 Marine Chart	Shellfish Significant Habitats
		Nitinat Narrows	1:12,000 Marine Chart	
13	92C15	Little Nitinat River	1:50,000 Topographic	Salmon

Table 2. Elements and attributes documented for Areas 20, 21, 22.

Element	Attribute	Narrative	Map	Database
Salmon	Commercial	X	X	X
	Aboriginal	X	X	X
	Recreational	X	X	X
	Estuaries with escapement	X	X	X
	Adult Holding	X	X	X
	Juvenile holding	X	X	X
Herring	Commercial, Recreational, Aboriginal	X	X	X
Groundfish	Commercial Fisheries	X	X	X
	Aboriginal Fisheries	X	X	X
	Recreational Fisheries	X	X	X
Other Finfish	Recreational and Aboriginal Fisheries;	X	X	X
Clams	Commercial, Aboriginal and Recreational	X	X	X
	Closures	X	X	
Crab	Commercial, Aboriginal and Recreational	X	X	X
Abalone	Beds/Harvest Areas	X	X	X
Geoduck	Beds/Harvest Areas	X		
Goose Barnacles	Beds/Harvest Areas	X	X	X
Mussels	Recreational/Aboriginal Harvest	X	X	X
Octopus	Commercial and Aboriginal Harvest	X	X	X
Oyster	Beds/Leases	X	X	X
Scallops	Commercial Fisheries; Presence	X	X	X
Sea Cucumbers	Beds/Harvest Areas	X	X	X
Sea Urchins	Beds/Harvest Areas	X	X	X
Shrimp, prawn	Commercial Fisheries; Presence	X	X	X
Squid	Beds/Harvest Areas	X	X	X
Marine Mammals	Distribution	X	X	X
Marine Vegetation	Major kelp, *Zostera* beds	X	X	X
Other Sig. Features	Reserves, Parks, etc.	X	X	

Table 3. Rationale for Use Level Ratings

(See the use level rating in each section for specific details for each element/attribute)

Element: attribute	Rating Rationale
Salmon: commercial fishery	Subjective rating based on Fisheries personnel's estimates of the number of boats at the site or in the vicinity at the peak of the fishing season.
Salmon: aboriginal fishery	Subjective rating based on Fisheries personnel's estimates of the number of boats at the site or in the vicinity at the peak of the fishing season.
Salmon: recreational fishery	Subjective rating based on Fisheries personnel's estimates of the number of boats at the site or in the vicinity at the peak of the fishing season, or on the descriptive rating given in B.C. Outdoors, April 1989 issue (e.g. "hot spot"; see DATA SOURCES for this element).
Salmon: escapement	Based on the maximum escapement of any species using that stream over the 10-year period 1983-1992.
Herring: commercial fishery	Subjective rating based on Fisheries personnel's estimates of the number of boats using the area.
Herring: spawning areas	Based on a combination of magnitude and frequency of spawn as reported by Hay *et al.*, 1989.
Herring: holding areas	Subjective rating based on soundings carried out during pre-season assessment surveys.
Groundfish: commercial fisheries	Subjective rating based on Field personnel recollections of average numbers of boats.
Groundfish: recreational fisheries	Subjective rating based on Field personnel recollections of average numbers of boats.
Clams	Subjective ratings based on size of beds and number and frequency of harvest activities.
Crabs	Subjective rating based on Fisheries personnel's estimates of the number of boats using the area.
Other shellfish	See individual sections: generally, unable to rate use levels.

ELEMENT: Salmon

ATTRIBUTE: Commercial Fisheries

DATA SOURCES

Area 20

- # Roy Osselton
- • Ron Kehl
- • John Stephen

Area 21/22

- # Brad Rushton
- • Laurie Gordon
- • Paddy Harrison
- • Harry Connor

DATA COMPILED

Database File Structure: Appendix Table B1
Database: SALMCOMM.dbf (Appendix Table C1)
Chart #: 2 (CHS # 3602)
5 (CHS # 3606)
9 (CHS # 3641)

USE LEVEL RATING

Use levels were rated 0 - 5 by field staff during the course of interviews, based on the number of boats participating, the duration of the fishery, and the level of catch.

GENERAL NOTES

Area 20

Net Fishery

There is a major salmon net fishery, targeting Fraser River sockeye and, in odd years, pink salmon. This fishery is worth about $8 - 10 million in some years (R. Kehl, pers. comm.) and involves about 250 - 350 gillnet boats and 150 - 250 seine boats. Fishing intensity depends on the diversion rate of sockeye between Johnstone Straits and Juan de Fuca as well as international considerations.

Although most of the Canadian portion of Area 20 is open, the effort is concentrated in the northwestern end, near the Blue Line (Bonilla Point to Tatoosh Island). Towards the end of the fishery, the outside boundary is often moved into Port San Juan. American boats fish their side of the international boundary for the same fish.

Seine boats are kept outside the 30 m depth contour by a ribbon boundary in an attempt to limit the bycatch of chinook. Outside this they organize themselves in 6 or 7 rows at the Blue Line, lining up for turns to make sets between this inner boundary and

the Canada/U.S. border. While the majority choose to fish at the Blue Line, (use level 5) there are also those who fish further inside where it is less crowded (use level 2).

Gillnetters fish the same area as the seiners, during the same period but do not have to adhere to the 30 m ribbon boundary. Gillnetting takes place at night and seining in the daytime. San Juan nets are larger than in other fisheries - 90 meshes deep, 550 m length for gillnets and 80 m deep by 550 m long for seines. This is the only commercial fishery in B.C. waters where seiners can use motorized skiffs.

There is a large bycatch of chinook and coho, and to a lesser extent, steelhead, in this fishery, in spite of the ribbon boundary. Some coho are caught originating from local streams, including Camper Creek and Walbran Creek.

There is a commercial net fishery on Nitinat chum salmon which normally ends at Bonilla Point. Occasionally, towards the end of the fishery, this boundary is extended for gillnets only, eastward to Logan Creek, taking in the northwestern portion of Area 20 (see Area 21).

Troll Fishery

Area 20 is closed to commercial trolling most of the time. Periodically there is an opening targeting Fraser River sockeye in order to make up the troll sockeye allocation. This takes place outside the Blue line during net openings and inside when there is no net fishing. This has only occurred 2 or 3 times in the last 10 years and involves 30 - 50 boats.

Area 21/22

Net Fishery

Historically, Nitinat has been a huge producer of chum salmon and valuable net fisheries took place inside the lake until it was closed in 1961 due to declining stocks. Since that time there have been three commercial openings on wild stocks in response to high returns in 1972,1973 and 1980.

The Nitinat hatchery, located at the confluence of the Nitinat and Little Nitinat rivers, was completed in 1980 and now, in full production, produces 30 million chum fry per year, as well as 6 million chinook fry, 100,000 coho fry, 100,000 coho smolts and 15,000 steelhead fry. Hatchery chums have been the target of major chum net fisheries every year since 1985. The fishery takes place outside the lake in Area 21, from Bonilla Point to Pachena Point, extending out 2 miles from shore, and involves some 150 gillnetters and 50 seine boats.

This fishery goes from mid-September to the end of October or early November. The majority of Nitinat chinooks enter the lake prior to this, so there is virtually no chinook bycatch in the net fishery.

The fishery is managed to an escapement target of 200,000, fishing at intervals throughout the run with a cleanup fishery once the escapement target is reached. Test fisheries inside and outside the lake are used to monitor the passing of chinook and chum through the fishing area and lake into the river.

There are minor incidental catches of Thompson River steelhead, as well as coho, chum and steelhead from local streams. There is a closed area at the mouth of the Cheewhat River to reduce bycatch of coho from that river.

The first two weeks of the fishery are open to gillnet only, and, during the opening, an area is opened for "gillnets only" inside the Bonilla Point line (to Logan Creek). Sometimes the fish are holding along the shore in this area and gillnet use is high (4 - 5). Other times the fish are holding further west and the gillnetters will stay in the area open to seiners. The 30 m depth contour closure (ribbon boundary) that is employed to protect chinook salmon during the San Juan sockeye fishery is not applied during the chum fishery.

West Coast Troll Fishery

Area 21 used to be closed to trolling in order to protect Nitinat chinook stocks but now that there is a hatchery surplus the area has been opened to trolling, hoping that this stock would be targeted. This has not been the case and only the odd troller actually fishes in Area 21, with the majority working 5 miles or more offshore (Area 121 and 123). The coast from Bonilla Point to Cape Beale (including a portion of Area 123) is open to trolling, but receives only light use by commercial trollers, targeting chinook and coho.

FURTHER INFORMATION

- Randy Brahniuk, DFO WCVI Species Co-ordinator (Troll) - Nanaimo, B.C.

ELEMENT: Salmon

ATTRIBUTE: Recreational Fisheries

DATA SOURCES

Area 20
- Roy Osselton
- Ron Kehl
- Ken Widsten

Area 21/22
- Brad Rushton
- Ken Widsten
- Harry Connor

Reference:
Collicutt, L.D. and T.F. Shardlow. 1992. Strait of Georgia Creel Survey - Statistics for Salmon and Groundfish, 1990. Can. Man. Rep. of Fish. Aquat. Sci. 2109. 76 pp.

DATA COMPILED

Database File Structure: Appendix Table B2
Database: SALMRECR.dbf (Appendix Table C2)
Chart #: 2 (CHS # 3602)
5 (CHS # 3606)
9 (CHS # 3641)
13 (Topo # 92C15)

USE LEVEL RATING

Use level rating information was provided verbally by DFO Fishery Officers and Patrol Vessel Operators, as well as using information provided by the Strait of Georgia Creel Survey and the Nitinat Lake Creel Survey. According to Roy Osselton, use level is governed more by proximity to populated areas and access than by availability of the resource.

GENERAL NOTES (including other salmonids)

Area 20

This is a very important area for salmon sport fishing. Overflights have revealed as many as 500 boats fishing at one time. The fishery takes place year-round with 85% of the effort occurring between May and October and peaking in mid-summer. All salmon species are caught, but primarily coho and, secondly, chinook. Pinks and chums are caught incidentally. There is some effort directed at sockeye during August, usually further offshore and using different gear.

The summer fishery involves a lot of tourists, either accessing the area by land or traveling up from the U.S. by boat. Owen Point is a heavily fished spot, (often 60 boats) and is a "destination fishery", mostly for people from other parts of Vancouver Island who are targeting large chinooks. The fishing tends to be concentrated between Otter Point and Church Point, with a general decline in use towards the west.

As well as traditional methods of fishing from boats (trolling and mooching) there is a significant shore fishery. There are people casting from shore wherever there's an accessible point of land. Inmates fish regularly off the dock at William Head, often as many as a dozen at a time, catching chinook up to 40 pounds.

In the wintertime, there is a much smaller core group of locals who remain closer in to Victoria and Sooke and stay close to shore in the bays and off the points. Weather and access generally limit distribution, but to a much greater extent during the winter.

There is a small fishery (about a dozen people) on sea-run cutthroat trout in Sooke Basin in April and May, then again from August to October. Although Sooke Harbour and Basin are closed to salmon sport fishing from August on, this fishery is permitted.

Area 21 and 22

The main sport fishery is targeted on Nitinat chinooks from August 1 to early September. This run produces escapements of about 25,000 - 30,000. Fishing takes place primarily outside the lake, just off Nitinat Bar, and extending close to shore from Clo-oose to Tsusiat River. There are about 30 - 40 boats fishing per day (weather permitting), accessing the area from the U.S. (Neah Bay), from inside the lake and from Sooke. More recently, charter boats have also been coming down from Port Alberni.

The second most important spot is near Cape Beale and around into Pachena Bay. This is a summertime fishery (July and August) targeting chinook and coho, consisting of about 30 boats coming from Bamfield or Port Alberni. In addition, there are often a few (up to 20) boats fishing 4 or 5 miles off Nitinat, primarily for coho.

Fishing for chinook inside Nitinat Lake takes place from late August to mid-September, near the mouth of the river. This is primarily jigging, since the fish don't bite. This is not an important fishery.

Searun cutthroat are present in the lake and river. The river fishery is important, and some people troll for them in the upper end of the lake. Carl Edgar reported that steelhead and cutthroat are constantly coming in and out over Nitinat bar.

FURTHER INFORMATION

- Leudke, Wilf, Louis Lapi, Susan Bates and Doug Tallman. (in press) The WCVI recreational fishery. Review of the Area 23 Creel Survey 1988-1993, and estimation of total annual catch and effort for all the WCVI.

ELEMENT: Salmon

ATTRIBUTE: Aboriginal Fisheries

DATA SOURCES

Area 20

Roy Osselton • Ron Kehl • Helen Dunn • T'Sou-ke Band representatives

Area 21/22

Brad Rushton • Ditidaht Band Representatives • Ed Johnson, Ohiaht Band

DATA COMPILED

Database File Structure: Appendix Table B3
Database: SALMABOR.dbf ; (Appendix Table C3)
Chart #: 2 (CHS # 3602)
5 (CHS # 3606)
9 (CHS # 3641)
13 (Topo # 92C15)

USE LEVEL RATING

Based on verbal ratings given by DFO field staff at time of interview (where known) or by band representatives, using number of boats fishing, the duration of the fishery, catch levels and the importance of the fishery to the band for food, social and ceremonial purposes. Use levels often vary from year to year, depending on abundance and arrangements between bands. Use levels reported here represent the most recent information available.

GENERAL NOTES

Native food fisheries are regulated by agreements between First Nations and DFO. Allocations have been negotiated for each band, for each salmon species, under the Communal Licensing Plan. In some cases a band will catch its entire allocation in its own territory, using its own boats and gear. Otherwise, a band or group of bands will contract a commercial vessel to fish for them and divide up the fish accordingly. The area between Bonilla Point and Port San Juan, and inside Pachena Point are typical areas for general food fisheries, and various gear types are used - troll, gillnet and seine. Locations vary from year, as do timing, species and the bands involved.

Area 20

Three local First Nations use fishery resources in Area 20 - Becher Bay, T'Sou-ke and Pacheenaht Bands. There is considerable overlap and sharing of these resources, governed by inter-tribal agreements.

The Becher Bay Band fishes coho, chinook, sockeye and pink salmon, by hook and line in Becher Bay and outside, using small boats and sport fishing methods.

The Pacheenaht Band normally contracts seine boats to provide them with food fish. These fish have been caught in Georgia Strait but the band now has a license for a 38 foot boat, and are soon likely to have a boat to gillnet sockeye at Bonilla Point, both in commercial openings and for food fish.

T'Sou-ke Band members troll off Sheringham, Otter Point and Beechey Head. One gillnetter fishes off Muir Creek and Sheringham, targeting sockeye in August and Sooke River chums in October (R. Osselton, pers. comm.). In some years, food fish caught in Georgia Strait come from seiners belonging to other bands (e.g. Qualicum). The T'Sou-ke Band is developing a floating fish trap to be used off Muir Point in the area where they traditionally harvested salmon with reef nets. This will be in the water from June until September each year, outside the big kelp bed at Muir Point.

The 1994 catch allocations, in pounds, for each band, under the AFS communal licensing plan, are as follows:

Band	SK	CO	PK	CH	CK
Becher Bay	1300	500	0	500	250
Sooke	1000	250	0	500	250
Pacheenaht *	3000	200	0	2000	250

Source: Colin Masson, AFS Biologist, South Coast Division.
* Most of catch from Strait of Georgia, but may fish in Area 20 this year.

Freshwater Harvest

Local bands harvest salmonids in freshwater and specific mention was made in some cases of this being important (T'Sou-ke Band and Pacheenaht Band). The following lists the important streams for subsistence harvest:

Stream	Band(s)	Species
Sooke R.	Sooke	All species
De Mamiel Cr.	Sooke	All species
Orveas Cr.	Sooke, Becher Bay	All species
Muir Creek	Sooke	All species
Jordan R.	Sooke, Pacheenaht	All species
Camper Cr.	Pacheenaht	CO, CM, PK, Steelhead
Walbran Cr.	Pacheenaht	CO,ST, CTT, Kokanee
San Juan River	Pacheenaht	All species
Gordon River	Pacheenaht	All species

Area 21/22

The two bands in this area are Ditidaht (Nitinat Lake) and Ohiaht. It is mainly the Ditidaht people that take food fish from Areas 21 and 22, however the Ohiaht Band, who fish mainly in Area 23, also fish in the area south of Cape Beale which will be included in this study area. There are inter-tribal agreements between west coast Vancouver Island Bands but it is not known to what extent sharing of resources from local traditional areas takes place and details are still being worked regarding boundaries of traditional territories.

Outside the lake, in Area 21, salmon are fished in a number of ways. There is normally a gillnet fishery on Cheewat sockeye in early June, however in the last three years these fish have been left so the run can re-build. Ditidaht Band members troll and gillnet Fraser River sockeye from mid-July through August. This takes place about 4 miles off Nitinat bar. Some chums are also taken. There is also trolling along the bar (rod and reel) throughout the year. Steelhead and searun cutthroat are also caught at the bar almost any time, presumably moving in and out of the lake.

Inside the lake, there are important food fisheries on sockeye, chinook and chum. There is a one-day-a-week gillnet fishery on Hobiton River sockeye during June. It involves up to 10 boats during the peak, using 50 fathom nets. In 1993 the fishing pressure was reduced (2-4 boats) to conserve stocks.

Nitinat chinooks are gillnetted from mid-September into October. This takes place mostly in the lower end of the lake, near Dynamite Point.

Chum salmon are netted in the lake following the chinook fishery, through the month of October. Initially it takes place in the lower end, but moves up the lake, ending up near the village. The band now has a small seine boat which is used in this fishery, as well as gillnets.

The 1993/94 catch allocations (in pounds) for these two bands, under the AFS Communal Licensing Plan are:

Band	Sockeye	Coho	Pink	Chum	Chinook
Ditidaht	2900	1600	200	2400	1065
Ohiaht*	6050	7030	1500	5000	2665

*Mostly fish in Barkley Sound

FURTHER INFORMATION

- Don Hall, Nuu-Chah-Nulth Tribal Council Biologist.
- Frank Crabbe, DFO West Coast Vancouver Island AFS Coordinator.

ELEMENT: Salmon

ATTRIBUTE: Estuaries with Salmon Escapement

DATA SOURCES

- Greg Serbic (PBS Salmon Escapement Database)
- Roy Osselton
- Brad Rushton
- Helen Dunn
- Kim Hyatt

DATA COMPILED

Database File Structure: Appendix Table B4
Database: SALMESC.dbf; (Appendix Table C4)
Chart #: 2 (CHS # 3602)
5 (CHS # 3606)
9 (CHS # 3641)
13 (Topo # 92C15)

USE LEVEL RATING

Use level ratings are based on the maximum escapement of any salmon species in the stream, during the period 1983 - 1992. The break levels, the same as those used in the Area 23 project, were chosen to reflect the magnitude of runs in Vancouver Island streams, where escapements over 50,000 are considered very high.

Use Level Rating	Verbal Rating	Maximum Escapement of any one Species	Number of Streams with Rating
0	Present historically, but none since 1983	0	7
1	Very Low	1 - 100	6
2	Low	101 - 1000	6
3	Moderate	1001 - 10,000	11
4	High	10,001 - 50,000	3
5	Very High	> 50,000	2

GENERAL NOTES

Salmon escapement estimates used in the data source (SEDS) are considered the best estimate available, drawing from the results of surveys conducted by overflight, annual or biannual stream walks (Fishery officers, guardians or contractors), surveys by local Native Bands, or data gathered by research crews, for example Pacific Biological Station.

In Area 20, many of the streams, especially west of Port Renfrew are difficult to access and are not surveyed intensively, if at all. In Areas 21 and 22, the Ditidaht Band conduct most of the stream surveys, with information also gathered by the Nitinat

Hatchery crew and personnel from PBS (including the Hobiton Creek, Cheewhat and Klanawa Rivers). Brad Rushton indicated that an intensive survey carried out on the Klanawa River revealed that the number of coho in the stream far exceeded what was recorded by the usual survey methods. Laurie Gordon agreed that coho estimates are probably low because they are hard to spot during both migration and spawning.

The Pacheenaht Band provided information supplemental to DFO escapement estimates, indicating that streams thought to have no salmonid species have been observed to host small runs (see database). They are preparing a report to DFO containing results of their own stream monitoring.

Information on timing of salmon in the various estuaries is based on observations of spawning. The dates included in the database are for adults of all species, and are not given for all streams. In addition there is often a period when adults mill outside prior to entering the estuary, and also, a critical period when juveniles are outmigrating and feeding in the estuary (see Adult Holding and Juvenile Salmon databases).

Nitinat Lake is essentially a big estuary where both juvenile and adult salmon spend considerable time during their outward and spawning migrations. Dennis Girodat, who was involved in assessment of the Grays Harbour (Nestucca) spill verified that oil has penetrated at least into the Narrows area and felt that under the "right" conditions, oil could be carried right up to the head of the lake. Probably the most critical time for this area is in the spring when 30 million hatchery chum fry and 6 million chinook fry are released between April 1 and June 1.

FURTHER INFORMATION

- T. J. Brown, Biologist, Pacific Biological Station.
- M.C. Wright, Consultant with the Ditidaht Band.

ELEMENT: Salmon

ATTRIBUTE: Adult Holding Areas

DATA SOURCES

Area 20

Roy Osselton
- John Stephen
- Harry Connor

Area 21/22

Rob Brouwer
- Brad Rushton
- Paddy Harrison

DATA COMPILED

Database file structure: Appendix Table B5
Database: SALMHOLD.dbf; (Appendix Table B6)
Chart #: 2 (CHS # 3602)
5 (CHS # 3606)
9 (CHS # 3641)
11 (CHS # 3647)
13 (Topo # 92C15)

USE LEVEL RATING

Based on subjective estimate of those interviewed. This would depend on the size of schools and duration of time at a particular location. Note that these estimates are very subjective and vary from year to year.

GENERAL NOTES

Salmon bound for spawning streams often hold in schools for several weeks before heading upstream. Field personnel showed areas where this commonly occurs; often not in the immediate vicinity of the stream or river mouth.

Area 20

The main holding area is outside Sooke Harbour (Whiffen Spit) and is utilized mainly by chum salmon. Fish also school up in the Basin. It is not known for certain whether fish holding outside are Sooke River fish or from other areas. There is a finfish closure in Sooke Basin during August to protect local stocks.

Inside Race Rocks is another important holding area. Migrating groups of salmon will congregate waiting for a favourable tide to pass through Race Passage.

Area 21/22

Chum Salmon

Chum salmon outside Nitinat start to build up in early September. Usually a gale will blow them in and they will typically hold at the can buoy off Clo-oose. After the storm they usually enter the lake in large groups (100,000 per night). Occasionally, instead of holding offshore, at the can buoy, they will be tight in along the shore to the west and east of the Narrows. Their typical behavior is to move in and out of the lake, over the bar before committing to their eventual upstream migration. This means that there is a large presence of chum in the vicinity of the lake outlet (perhaps 30,000 per day) during the period from early September until mid-November.

Whether or not they would be affected by an oil spill during this holding period is not known. Laurie Gordon speculated that their skimming behavior could make them susceptible to contact with surface oil but that they are cagey and would probably try to avoid the oil.

Inside the lake, chum hold in the lower end of the lake, notably Brown's Bay (Brown Cove). Once past Windy Point, they hold in schools on the west side of the lake but they will not turn back and exit the lake. Most years the lake "turns over" which results in toxic levels of hydrogen sulfide to be present at all depths. Chum are able to avoid this toxicity to a large extent by sticking to the west shore of the lake. Before moving upstream, they often hold again at the head of the lake.

Chinook Salmon

Chinook salmon mill outside the lake starting in late July. They begin to enter the lake by August 15, peak about September 15 (up to 15,000 holding in Lake), and are up to the head of the lake and into the river by October. They move in a steady stream, unlike chum which move in large groups, in and out. An important holding area is right in the narrows, in the deep holes near Whyac.

Other Species

Not as much is known about coho holding patterns except that the timing overlaps with chum and lasts until December. They are known to hold on the west side of Windy Point.

There are small runs of summer run steelhead in both the Caycuse and Nitinat Rivers, starting in early June. The winter run is from February until May with spawners in the Nitinat and Caycuse Rivers and Hobiton and Doobah Creeks.

Sockeye hold off the mouths of Hobiton Creek and Cheewhat River from May until the end of June before entering the stream. Fish have been known to enter both streams as early as February, but this is rare.

Barkley Sound sockeye are found schooling down the shoreline of Vancouver Island from Cape Beale to Carmanah Point during June and July, as well as Fraser River

sockeye which school outside Bonilla Point and north of there as well (Harry Connor, pers. comm.).

FURTHER INFORMATION

- Jim Mitchell, DFO Fisheries Technician, South Coast Division.
- Barry Marcotte, Commercial fisher on contract to test fish for DFO periodically outside Nitinat Lake.

ELEMENT: Salmon

ATTRIBUTE: Juvenile Rearing Locations

DATA SOURCES

Roy Osselton • Rob Brouwer • Dennis Girodat

DATA COMPILED

Database file structure: Appendix Table B6
Database File: SALMJUV.dbf; (Appendix Table C6)
Chart #: 2 (CHS # 3602)
5 (CHS # 3606)
9 (CHS # 3641)
11 (CHS # 3647)
13 (Topo # 92C15)

USE LEVEL RATING

Based on subjective estimates made by field personnel, these in turn based on numbers of juveniles observed, and duration of the period of residence.

GENERAL NOTES

The west coast area is largely rocky exposed habitat, providing little productive area for juvenile salmon feeding. The 3 main areas that provide suitable habitat are Becher Bay, Sooke Basin/Harbour and Nitinat Lake. Port San Juan and Pachena Bay also have some protected shallows and rearing habitat.

Fishery field staff provided some site specific information on juvenile concentrations and migrations and this information has been mapped and detailed where possible.

Area 20

There are chinook and coho raised at a small hatchery (Rocky Creek) in the Sooke system. There is a holding pen at Trollope Point (Sooke Harbour) where juveniles are held during the spring prior to release. There is also a small hatchery on the San Juan River, producing 1.1 million chinook, 350,000 coho and 50,000 chum. These juveniles are observed rearing in Port San Juan throughout the summer. Trevor Morris is the contact for more information on rearing and production from these facilities.

Area 21/22

Nitinat Lake, because of hatchery-related concerns, has been studied the most and the importance of the lake as a juvenile rearing area has been stressed by all DFO field staff interviewed. High fry-to-adult survival rates of Nitinat chum are largely due to the excellent protection provided by the lake. Rob Brouwer pointed out that the turnover of the lake each fall serves the salmon well by killing off a lot of the resident predators of juvenile salmon.

Wild chum fry migrate during February and March but the bulk of fry are from the hatchery and are reared until release in April and May. Chinook are virtually all hatchery fish, and are released just following the chum. Coho are released into the lake (100,000) and in the upper Nitinat river (also 100,000) where they rear until the following year. In addition 15,000 - 20,000 steelhead fry are released into the Little Nitinat, but their outmigration is not documented. The following table depicts the hatchery release schedule:

Species	Apr. 1	Apr. 21	May 10	May 15	May 21	June 1
Chum	10 million	10 million	10 million			
Chinook	(wild starts in March)			2 million	2 million	2 million
Coho				(wild and last year's smolts peak)	100,000	

The release schedule is planned to avoid the presence of mackerel (heavy predators) which show up a little later.

The distribution of these fry and smolts in the lake has been studied to some extent. Their behavior and distribution varies, depending on weather. A period of heavy rain will prompt juveniles to migrate out of the lake almost right away, whereas in dry weather they will remain longer. The general trend is for the juveniles to rear in the whole lake for a while, sticking close to the beaches initially then moving further offshore. Before leaving they spend time in the productive shallows of Nitinat Narrows.

Rob Brouwer estimates that the outmigration from the lake could be anywhere from March 1 (wild chum) until June 15 (most of the chinook). A few chinook will spend much longer in the Narrows area, some perhaps never leave.

Sockeye smolts from Hobiton Creek enter the lake during April and May and are thought to reside in the lake for 14 - 21 days before leaving. Not a lot of research has been done but some of them are thought to remain in the lake year-round (K. Hyatt, pers. comm.).

FURTHER INFORMATION

- M. C. Wright and Associates. Consultants for Ditidaht Band.
- Trevor Morris, Community Advisor - Salmonid Enhancement Program - Victoria.

ELEMENT: Herring

ATTRIBUTE: Commercial Fisheries

DATA SOURCES

Roy Osselton

DATA COMPILED

Database file structure: Appendix Table B7
Database: HERRING.dbf; (Appendix Table C7)
Chart #: 6 (CHS # 3606)

USE LEVEL RATING

A verbal rating of very light (or 1) was given for this fishery.

GENERAL NOTES

There is no commercial herring roe fishing south of Cape Beale. The only commercial herring fishing is a sporadic bait/food fishery off Albert Head in March. This is a lottery fishery involving only 1 or 2 boats.

FURTHER INFORMATION

- unknown

ELEMENT: Herring

ATTRIBUTE: Aboriginal and Recreational Fisheries

DATA SOURCES

Roy Osselton
- Ditidaht Band Representatives, including Paul Seiber, Carl Edgar Jr., and Sam Edgar.

DATA COMPILED

Database file structure: Appendix Table B7
Database: HERRING.dbf; (Appendix Table C7)
Chart #: 6 (CHS # 3606)

USE LEVEL RATING

Use level was described as light - about 1 ton of herring.

GENERAL NOTES

A small fishery in Nitinat lake was the only mention of aboriginal herring harvest that takes place currently although historical harvests have been mentioned by the T'Souke Band.

A local but very popular recreational fishery takes place in the Gorge area of Victoria, where people jig herring from bridges during February and March. Herring spawn in Portage Inlet at the top end of the Gorge.

FURTHER INFORMATION

- unknown

ELEMENT: Herring

ATTRIBUTE: Adult Holding Areas

DATA SOURCES

Harry Connor • Roy Osselton

DATA COMPILED

Database file structure: Appendix Table B7
Database: HERRING.dbf; (Appendix Table C7)
Chart #: 6 (CHS # 3606)

USE LEVEL RATING

Based on subjective estimates of field staff interviewed.

GENERAL NOTES

Immature herring gather in bays and protected areas throughout the study area to feed. The only areas where herring are reported to gather prior to spawning are close to Victoria.

Harry Connor reported a large body of herring (up to 25,000 tons estimated) just inside Race Rocks. These fish later spawn in Georgia Strait, but hold for about a month here from December 15 to mid- to late-January, in a large school. Mr. Connor felt that they would be very susceptible to oil here because the oil would be sucked in by currents, and either S.E. or S.W. winds and would concentrate in this area. He felt an oil spill here in December would have a serious impact on the herring stock and fishery.

Other smaller stocks also hold in this area later (February and March) as well as in the Gorge. These are associated with spawning in Portage Inlet, Gonzales Bay, Clover Point and in front of Esquimalt Harbour.

FURTHER INFORMATION

- unknown

ELEMENT: Herring

ATTRIBUTE: Spawning Areas

DATA SOURCES

Roy Osselton • Helen Dunn (Pacheenaht Band) • T'Sou-ke Band
• Ditidaht Band Representatives, including Paul Sieber, Carl Edgar Jr., and Sam Edgar
• Ed Johnson, Ohiaht Band.

DATA COMPILED

Database file structure: Appendix Table B8
Database: HERRSPAW.dbf; (Appendix C8)
Chart #: 6 (CHS # 3606)

USE LEVEL RATING

Based on a combination of magnitude and fequency of spqn as reported by Hay *et al.*, 1989.

GENERAL NOTES

All bands interviewed reported some historical herring spawning, but only in Nitinat Lake was there site-specific information given for current spawning. Spawning in Nitinat Lake is reported to occur during April on a 1 km bench halfway up to Doobah. Ed Johnson thought there was still some spawning in Pachena Bay but was able to give no specific information.

Other herring spawning occurs in Area 19, off Esquimalt and Victoria.

FURTHER INFORMATION

• unknown

ELEMENT: Groundfish

ATTRIBUTE: Commercial Fisheries

DATA SOURCES

Area 20

- # Roy Osselton
- Ron Kehl
- Sandy McFarlane
- Pacheenaht Band.
- T'sou-ke Band.

Area 21/22

- Brad Rushton

DATA COMPILED

Database File Structure: Appendix Table B9
Database: GRNDCOMM.dbf; (Appendix Table C9)
Chart #: 3 (CHS # 3602)
6 (CHS # 3606)

USE LEVEL RATING

Use level ratings were subjective and based on numbers of boats observed by DFO field staff and patrol boat operators.

GENERAL NOTES

Area 20

Commercial harvesting of groundfish is sporadic in Area 20. Midwater trawl vessels, normally fishing offshore in Area 121 will fish inside Area 20 in response to the migration of fish or to avoid bad weather outside. There are several boats, ranging from 35 to 100 feet. In summer (June to October) the target species is hake, and the fishery takes place throughout the area, outside 15 fathoms, but concentrated in deep water. These boats would deliver to offshore factory vessels.

In spring, there is a smaller fishery closer to shore, targeting Pacific cod, and to a lesser extent, English sole and yellowtail rockfish. These boats use bottom trawl gear and are associated with a much larger Pacific cod fishery on Swiftsure Bank.

Where specific locations have been pointed out by field staff, these trawl areas have been mapped, otherwise it can be stated that occasional sporadic trawling by these two methods occurs in areas as described above.

On May 1, the commercial lingcod fishery opens from Sheringham Point west. There are a few boats fishing lingcod and rockfish, in the rock piles and along the shore, to 50 m depth. Except for two known areas for longlining, site-specific information was not supplied, other than that it would occur in the areas marked as recreational groundfish. Methods used are handline and longline. One boat fishes live rockfish (dive fishery) to supply the aquarium (Undersea Gardens).

Area 21/22

A few boats have been reported to fish rockfish (handline or longline) in Area 21 but use is very light. Small rockfish and lingcod have been observed inside Nitinat Lake in a dive survey commissioned by Nitinat hatchery, but there are no fisheries targeting these fish.

FURTHER INFORMATION

- unknown

ELEMENT: Groundfish

ATTRIBUTE: Recreational Fishery

DATA SOURCES

Area 20
Roy Osselton
- John Stephen
- Ron Kehl

Area 21/22
Brad Rushton

Reference:
J. O. Thomas and Associates . 1991 Nitinat Sportfish Creel Survey Analysis.

DATA COMPILED

Database File Structure: Appendix Table B10
Database: GRNDRECR.dbf; (Appendix Table C10)
Chart #: 3 (CHS # 3602)
6 (CHS # 3606)

USE LEVEL RATING

Use level ratings are based on a combination of boat counts (Fisheries Patrol boats and creel surveys) and subjective estimates by field staff, based on their knowledge of accessibility and the habits of fishers. Generally, the further from populated areas, the lighter the usage.

GENERAL NOTES

Area 20

Halibut sportfishing is important in Area 20. The season peaks from February to May, but continues all year except January when it is closed. Generally the effort shifts to salmon during the summer months and often fishers will target on both salmon and groundfish in the same trip. Geographically, halibut fishing tends to replace salmon west of Jordan River. Rod and reel and handline are the main methods of fishing.

It is speculated that smaller halibut, common in the 60 foot depths off Port San Juan and other coastal areas, are resident stocks, whereas larger fish, found further offshore, are migratory stocks.

As with recreational salmon, a lot of the fleet is comprised of American boats. It is necessary for them to declare their catch of salmon to Canadian Customs, but this doesn't apply to groundfish.

Recreational fishing for lingcod is open year-round, but limited to 5 fish per person per day east of Sombrio Point and 8 per day west of that. This fishery increases toward the west, however large numbers are reported in creel survey for area 19B+ (Race Rocks to Sooke). Roy Osselton feels that the net fishery in area 20 has impacted the bottom fish abundance, in spite of the 30 m ribbon boundary.

Generally, rockfish are found out to about 10 m, on rocky points and reefs, and lingcod from 10m to 50 or 60 m. Red snapper can be found in even deeper water. Halibut are on ledges and flat gravel or rocky bottom.

Other species included in sports catch include dogfish, Pacific herring, hake, tomcod, and cod, Walleye pollock, perch, greenlings, flounders and sole.

Area 21/123

There is some hook and line fishing for halibut right on Nitinat bar and on the sandy areas to the outside. This is a popular fishery from March to May, when herring stocks move onshore to spawn. Salmon and halibut move into this area in response to the herring during this period. In the rockier areas people will catch rockfish, greenling and red snapper. Later in the summer the effort extends out into deeper water in response to movement of herring (therefore halibut), better weather and areas of salmon fishing.

FURTHER INFORMATION

- Collicutt, L. D. and T.F. Shardlow. 1992. Strait of Georgia Sport Fishery Creel Survey - Statistics for Salmon and Groundfish, 1990. Can. MS Rep. Fish. Aquat. Sci. 2109.

ELEMENT: Groundfish

ATTRIBUTE: Aboriginal Fisheries

DATA SOURCES

Helen Dunn • Ed Johnson • Ditidaht First Nation • T'sou-ke First Nation

DATA COMPILED

Database File Structure: Appendix Table B11
Database: GRNDABOR.dbf; (Appendix Table C11)
Chart #: 3 (CHS # 3602)
6 (CHS # 3606)

USE LEVEL RATING

Subjective verbal rating, depending on how important resource is as a source of food.

GENERAL NOTES

Members of local bands fish for halibut, rockfish and lingcod up and down the coast, using handlines or longlines. Most of the polygons identified as recreational and commercial groundfish areas are also fished for Native subsistence.

In addition to these fisheries, other species may also be taken. For example the Pacheenaht Band listed the following as species taken inside the harbour, between the San Juan and Gordon Rivers and up to the two bridges:

English sole	Starry flounder
Rock sole	Bat rays
Lemon sole	Skates
Speckled sanddabs	

Sturgeon were historically caught in the harbour and the lower Gordon River.

Perch are fished in the harbour (specifically mentioned was the Government dock) and species were listed as follows:

Rainbow seaperch	Striped bass	American shad
Kelp perch	Kelp bass	Redtailed seaperch
Striped seaperch	Pacific Ocean perch	Buffalo sculpin

FURTHER INFORMATION

- unknown

ELEMENT: Other FinFish

ATTRIBUTE: Recreational and Aboriginal Fisheries and Observations

DATA SOURCES

Roy Osselton • Rob Brouwer

DATA COMPILED

Database file structure: Appendix Table B12
Database: OTHFISH.dbf; (Appendix C12)
Chart #: 6 (CHS # 3606)

USE LEVEL RATING

Based on subjective estimates of use levels for recreational and aboriginal fisheries.

GENERAL NOTES

Fish that are not the target of specific fisheries are present throughout the study area. Their distribution and abundance are not well-documented by DFO Field staff but their importance as food, competition or as predators of commercially valuable fish was mentioned.

Nitinat Lake supports populations of rockfish, kelp greenling, sturgeon, sandlance, mackerel, perch and anchovy, which are not fished by either sport, commercial or aboriginal fishermen. Anchovy, a common food species of salmon, are common in all inlets but were especially noted in Nitinat (the whole lake). Mackerel were also noted as present outside Nitinat during the period when hatchery juveniles are released, and accordingly, release dates were scheduled early in order to avoid these predators. Mackerel, associated with warm currents, are present offshore and move onshore in the summer.

Sandlance, or needlefish, are considered as important a source of food for salmon as herring in Area 20 (R. Osselton, pers. comm.). Their habitat was described as gravely bottom along the shore or in channels. They come off the bottom at slack tide to feed and are common in bays and areas where herring are feeding. They spawn on local beaches in September and October, however the only specific area given was in Port San Juan. Sandlance were also reported as being present in Nitinat Narrows all summer.

Smelt are known to spawn at the head of Port San Juan and there is a recreational and aboriginal gillnet fishery on these. The recreational fishery is during the summer (June to September - Friday noon to Monday noon). Native fisheries take place on beaches off reserve. There is a concern over incidental catch of juvenile coho. Capelin have been observed in the area near Bentick Island, and are thought to spawn there.

FURTHER INFORMATION

- unknown

ELEMENT: Clams

ATTRIBUTE: Commercial, Aboriginal and Recreational Fisheries

DATA SOURCES

Ed Helgeson, Dave Planes - Cooper's Cove Oyster Farm • Ditidaht First Nation

DATA COMPILED

Database File Structure: Appendix Table B13
Database: CLAMS.dbf; (Appendix Table C13)
Chart #: 1 (CHS # 3430)
8 (CHS # 3606)
12 (CHS # 3647)

USE LEVEL RATING

The only reference to commercial use level was given verbally by Dave and Karen Planes who supervise harvesting in Sooke Basin for Cooper's Cove Depuration Plant. These values are based on current use though, several times, they mentioned other beds that they are not digging in order to allow rebuilding of stocks.

GENERAL NOTES

The presence of clams is not common in Area 20, 21 or 22. Since most of the coast is exposed to surf, the presence of littleneck, butter, manila, and other species are limited to the protected bays of Sooke Basin/Harbour, Becher Bay, Port San Juan, Nitinat and Pachena Bay. There are razor clams on some coastal beaches but these are only utilized by a few recreational and aboriginal diggers. Access is a severe limiting factor and contamination closures are in place in both Sooke Harbour and Basin as well as a PSP closure that affects Port San Juan.

The main commercial activity is the harvesting of marginally contaminated littleneck and manila clams from Sooke Basin and the south side of Sooke Harbour. While there are clams on the north shore of Sooke Harbour, shellfish harvesting is prohibited except for crabs, from Coopers Cove Plant to Whiffen Spit. The coliform levels are too high even for depuration.

Depuration is a form of cleansing where the clams are harvested, held for 48 hours in tanks while being flushed with purified sea water, and marketed much like clams harvested by traditional means. Year-round access to a large area of productive beaches ensures steady work for harvesters, and this, combined with rigorous testing by DFO Inspections Branch ensure good markets and prices.

Aboriginal harvesting occurs in Port San Juan (Pacheenaht Band), in spite of the PSP closure, and Nitinat (Ditidaht Band) where there is a small bed of littleneck clams - the only bed that has survived from a planting, about 50 years ago, of several beaches in the area. The Ditidaht and Ohiaht Bands note the presence of razor clams but do not harvest any.

There is minor recreational harvest of clams in Areas 20, 21 and 22, although there may be some sporadic digging in some of the bays where there is access. The main areas are outside Whiffen Spit in Sooke Inlet and at French Beach Provincial Park. Parks Canada wardens suggest there may be some razor clams harvested along the West Coast Trail but this would be minor.

FURTHER INFORMATION

- Ed Helgeson - Coopers Cove Oyster Farm and Depuration Plant.
- Rudy Chiang - DFO Inspections Branch.
- The publication "Intertidal Clam Resources of the South Coast Area - 1992 (Clam Catalogue), which normally details information on use levels, does not contain information on Sooke Basin at this time. When the polygons are digitized, this information will be completed (K. Hobbs, pers. comm.).

ELEMENT: Clams

ATTRIBUTE: Closure Areas

DATA SOURCES

DFO Pacific Region 1994 Management Plan - Intertidal Clams.
- Ed Helgeson - Coopers Cove Oyster Farm and Depuration Plant.

DATA COMPILED

Database file structure: none
Database: none
Chart #: 1 (CHS # 3430)
8 (CHS # 3606)

USE LEVEL RATING

Not applicable.

GENERAL NOTES

Sooke Basin and Harbour are closed due to fecal coliform contamination, as is the area on the S.E. shore of Sooke Inlet. Most of the area is marginally contaminated, meaning that clams (and perhaps oysters in future), can be consumed if they are cleansed. The exception to this is the north shore of Sooke Harbour which is a prohibited area, meaning that coliform contamination is higher that that allowed in a depuration license.

Pedder Bay is closed due to fecal coliform contamination. No harvest is allowed.

FURTHER INFORMATION

- Rudy Chiang, DFO Inspections Branch, Vancouver.

ELEMENT: Crabs

ATTRIBUTE: Commercial, Recreational and Aboriginal Fisheries

DATA SOURCES

Roy Osselton • Ron Kehl • Ken Widsten • Harry Connor
• Pacheenaht First Nation • T'sou-ke First Nation • Ohiaht First Nation
• Ditidaht First Nation

DATA COMPILED

Database file structure: Appendix Table B14
Database: CRABS.dbf; (Appendix Table C14)
Chart #: 1 (CHS # 3430)
3 (CHS # 3602)
8 (CHS # 3606)
12 (CHS # 3647)

USE LEVEL RATING

Subjective ratings based on the number of traps observed by various field staff and fishers providing information.

GENERAL NOTES

Crab fishing is one of the major commercial activities in the study area. Commercial harvest is by trap or pot to depths of about 50 feet, both in open coastal areas and protected harbours. Fishing is concentrated in 10 main areas, some of these with up to 700 traps. Some fishers fish several of the areas, and some combine it with other fishing such as salmon. Dungeness is the main species targeted.

Aboriginal and recreational fisheries are close to populated areas and may be in some of the same areas as commercial. There is some harvest in intertidal areas, by hand.

In surveys conducted after the Gray's Harbour oil spill, D. Girodat reported finding globs of bunker oil in the pincers and mouthparts of crabs sampled in Nitiant Narrows. Oil was also observed on the rocks and in the eelgrass throughout the Narrows.

The size limit of dungeness crabs is 165 mm and red rock crabs is 115 mm. Females are to be released. Fishing is year round, with commercial, in some areas, heavier in the winter where salmon fishers switch to crab fishing in their off-season.

FURTHER INFORMATION

- unknown

ELEMENT: Abalone

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Ron Kehl • Roy Osselton

DATA COMPILED

Database file structure: Appendix Table B15
Database: ABALONE.dbf; (Appendix Table C15)
Chart #: 8 (CHS # 3606)
10 (CHS # 3641)

USE LEVEL RATING

Abalone are closed to any harvest so there is no use level given. Abundance is also unknown, although Ron Kehl stated that they are making a comeback and would likely be abundant where they used to be harvested, but not for several years.

GENERAL NOTES

Abalone have previously been an important commercial resource in the study area, but have been depleted due to overharvesting. There has been some illegal harvesting in the Becher Bay area recently, otherwise there is no harvest. The fishery has been closed since 1989. Abalone occur in fairly exposed, rocky habitat, down to 50 feet, but more often 15 - 20 feet.

Abalone were reported as being present outside Nitinat Lake although no specific location was given (Dennis Girodat, pers. comm.).

No mention was made of aboriginal use of abalone.

FURTHER INFORMATION

- Allan Campbell. Shellfish Scientist, Pacific Biological Station.

ELEMENT: Chitons

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Helen Dunn • Ed Johnson, Ohiaht First Nation • Ditidaht First Nation

DATA COMPILED

Database file structure: Appendix Table B16
Database: CHITONS.dbf; (Appendix Table C16)
Chart #: 3 (CHS # 3602)
8 (CHS # 3606)
12 (CHS # 3647)

USE LEVEL RATING

No rating.

GENERAL NOTES

Two species of chitons (Black katy and Pacific) are used by some of the local bands (Pacheenaht, Ditidaht and Ohiaht). Harvest would involve going out by boat or on foot and picking these from the intertidal zone in rocky areas. A stick is used to pry the chiton from the rocks.

Chitons are considered a great delicacy and are the most tender in the spring. Several methods of preparation are used, mostly involving cooking, though they can be eaten raw. The plates and viscera are removed after cooking.

FURTHER INFORMATION

- *Teachings of the Tides* by David Ellis and Luke Swan. Describes harvesting and preparation of chitons.

ELEMENT: Geoduck

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Roy Osselton • Ron Kehl

DATA COMPILED

Database file structure: none
Database: none
Chart #: none

USE LEVEL RATING

No rating.

GENERAL NOTES

No site specific information was provided on the location of geoduck beds in the study area. Although there has been harvesting in the past, R. Osselton reported that there has been none for the past few years. Native Bands interviewed made no mention of geoducks.

Specific information on beds may be available through DFO South Coast Division.

FURTHER INFORMATION

- Geoduck fishery logbook system maintained by R. Harbo, South Coast Division. This information is provided by fishers and is confidential.

ELEMENT: Gooseneck Barnacles

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Brad Rushton • Roy Osselton • Helen Dunn • Ed Johnson
• Ditidaht First Nation • T'sou-ke First Nation

DATA COMPILED

Database file structure: Appendix Table B17
Database: GOOSENEC.dbf; (Appendix Table C17)
Chart #: 3 (CHS # 3602)
8 (CHS # 3606)
12 (CHS # 3647)

USE LEVEL RATING

Where aboriginal harvesting occurs, use levels were sometimes indicated.

GENERAL NOTES

Gooseneck barnacles occur in patches along the outer coast. They are often associated with mussels. Commercial harvest may occur but it is considered light because of the exposed nature of the coast and limited access. Harvest is prohibited in Botanical Beach, French Beach and Pacific Rim parks. Site specific information was not provided on commercial or recreational fisheries.

Aboriginal harvest is common and all bands mentioned gooseneck barnacles being used for food and one band expressed concern over possible commercial harvest in their traditional territory within Barkley Sound (Ohiaht).

FURTHER INFORMATION

- Gooseneck barnacle fishery logbook system maintained by R. Harbo, South Coast Division. This information is provided by fishers and is confidential.

ELEMENT: Mussels

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Roy Osselton • Ron Kehl • Ditidaht First Nation • Ohiaht First Nation
• Pacheenaht First Nation • T'sou-ke First Nation

DATA COMPILED

Database file structure: Appendix Table B18
Database: MUSSEL.dbf; (Appendix C18)
Chart #: 3 (CHS # 3602)
8 (CHS # 3606)
10 (CHS # 3641)
12 (CHS # 3647)

USE LEVEL RATING

Aboriginal use was described by some of the bands.

GENERAL NOTES

Two species of mussels occur in the study area - California (*Mytilus californianus*), and blue or bay mussel (*Mytilus edulis*). California mussels are larger than the bay mussels and occur in rockier, more exposed areas as opposed to the more protected shores. These are both very prolific in the area and cover most of the rocky shoreline of the study area.

There is a moratorium on commercial harvest so usage is limited to aboriginal and recreational, both of which are light to moderate, and dependent on access. All the bands interviewed harvest mussels. Roy Osselton also reported that it is common to see people picking them in the Sooke area wherever a road leads to a mussel bed. This is very localized.

There are recreational bag limits of 75 bay and 25 California mussels per day. Within the boundaries of Pacific Rim National park, the limit is reduced to 12 mussels per day (total). Mussel harvesting is prohibited in areas closed due to sewage contamination (Pedder Bay and Sooke Harbour and Basin).

FURTHER INFORMATION

- unknown

ELEMENT: Octopus

ATTRIBUTE: Known Occurrence/Harvest Areas

DATA SOURCES

Ron Kehl • Helen Dunn - Pacheenaht First Nation • T'sou-ke First Nation
• Ken Widsten

Reference:
Rob Morris. Octopus Divers - Hunting the Giants. Westcoast Fisherman Magazine, 6(1); July, 1991, p. 26-29.

DATA COMPILED

Database file structure: Appendix Table B19
Database: OCTOPUS.dbf; (Appendix Table C19)
Chart #: 1 (CHS #3430)
3 (CHS # 3602)
8 (CHS # 3606)
10 (CHS # 3641)

USE LEVEL RATING

Subjective estimates provided in some cases for aboriginal fishery.

GENERAL NOTES

Area 20 has, in the recent past, supported an important dive fishery for the giant Pacific Octopus (*Octopus dofleini*) - mostly for halibut bait. The introduction of the quota management system in the halibut fishery in 1991 has reduced the competitiveness and the need for high quality bait which octopus provided. As a result, demand for octopus has decreased significantly. On a coastwide basis, landings for B.C. dropped from 200 t. (1988 -90) to 102 t. in 1992.

Landings of 200 - 300 pounds a day were common in the late 1980's in Area 20, with annual totals as high as 12 t. This dropped to 2 tonnes in 1991, but a brief recovery took place in 1992 with 9 tonnes landed, but this dropped off again in 1993 to 2 tonnes.

The main area for fishing is around Race Rocks and Becher Bay. Ron Kehl feels the octopus are still there but not fished and that octopus is an underutilized resource. In the future, the market for human consumption may expand, but this market requires a smaller octopus - around 15 pounds, and rapid freezing. To date boats have not been properly equipped to supply to this market.

Ken Widsten reports that there is still some commercial octopus diving, but more in the Victoria area. Specific information was not available.

Octopus are also fished in traps, by hook and line and by trawl. They also turn up incidentally in crab traps. One commercial crab fisherman reported catching 4000 pounds of octopus as incidental catch off Nitinat last year.

The Pacheenaht Band fishes octopus off Jordan River and at other rocky locations along the outer coasts.

Recreational harvest may take place but no information was available.

FURTHER INFORMATION

- Octopus fishery logbook system maintained by R. Harbo, South Coast Division. This information is provided by fishers and is confidential.

ELEMENT: Oysters

ATTRIBUTE: Beds/Leases

DATA SOURCES

Dave and Karen Planes and Ed Helgeson. Cooper's Cove Oyster Farm, Sooke, B.C.
- T'sou-ke First Nation

DATA COMPILED

Database file structure: Appendix Table B20
Database: OYSTER.dbf; (Appendix Table C20)
Chart #: 1 (CHS # 3430)

USE LEVEL RATING

Based on a verbal rating by E. Helgeson. (All sites are inactive except for one).

GENERAL NOTES

There are oysters inside Sooke Harbour and Basin, however, they are not harvestable because of a sewage contamination closure. Cooper's Cove Oyster Company would like to harvest oysters from their two lease sites and depurate them, but so far have not received permission to do this. One of the leases (at the mouth of the Sooke River) is used to grow oysters and sell them before they are mature to another oyster farmer who then finishes them on a non-contaminated beach and sells them. The other lease is in front of the depuration plant and is used for storage. There is one other oyster lease in addition to the two held by Cooper's Cove Oyster Company, but this is not being used. It is in Anderson Cove.

The T'sou-ke Band described the Sooke River Flats area as traditionally important for oysters. They also mentioned historic use of Olympic oysters from Anderson and Roche Coves. Similarly, the Pacheenaht Band mentioned historical use of oysters in Port San Juan. This use would be secondary to clams.

FURTHER INFORMATION

- unknown

ELEMENT: Scallops

ATTRIBUTE: Known Occurrence/Harvest Areas

DATA SOURCES

Ron Kehl • Roy Osselton • Dennis Girodat

DATA COMPILED

Database file structure: Appendix Table 21a
Database: SCALLOPS.dbf; (Appendix Table 21b)
Chart #: 8 (CHS # 3606)
10 (CHS # 3641)

USE LEVEL RATING

Based on the number of boats fishing and duration of fishery.

GENERAL NOTES

The only fishery is by trawl for pink and spiny scallops. This is very localized off Sooke Bluffs in about 50 m. There was no mention of scallops taken by dive.

Presence of scallops was reported at Race Rocks, in the Ecological Reserve. The dive survey at Nitinat also recorded both rock scallops and pink or spiny scallops at Limestone Bluffs. Dennis Girodat stated that there were rock scallops outside Nitinat.

Recreational harvest of either swimming or rock scallops in the area is likely, but not documented.

The only Native group to mention use of scallops was the Pacheenaht Band who said that they are taken outside the harbour as well as along the shores toward the outside of Port San Juan.

FURTHER INFORMATION

- Scallop fishery logbook system maintained by R. Harbo, South Coast Division. This information is provided by fishers and is confidential.

ELEMENT: Sea Cucumbers

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Roy Osselton • Ron Kehl • Rob Brouwer

DATA COMPILED

Database file structure: Appendix Table B22
Database: CUCUMBER.dbf; (Appendix Table C22)
Chart #: 3 (CHS # 3602)
8 (CHS # 3606)
10 (CHS # 3641)
12 (CHS # 3647)

USE LEVEL RATING

No information was provided on site specific use levels.

GENERAL NOTES

Sea cucumbers occur in rocky sub tidal areas to 50 feet - much the same habitat as urchins, but more sheltered. They are also found on sandy or muddy flat bottom. They are common along the coast of the study area east of Port San Juan but westward of this they are less common.

Sea cucumbers are fished to area quotas and are often fished by the same fishers as are sea urchins. There is a moratorium on recreational harvest because of difficulty in regulating the sport fishery.

Harvesting is prohibited in Pacific Rim National Park, Botanical Beach Park, and Race Rocks Ecological Reserve.

FURTHER INFORMATION

Sea cucumber fishery logbook system maintained by R. Harbo, South Coast Division. This information is provided by fishers and is confidential.

ELEMENT: Sea Urchins

ATTRIBUTE: Beds/Harvest Areas

DATA SOURCES

Ron Kehl • Roy Osselton • Helen Dunn - Pacheenaht First Nation
• Ditidaht First Nation • Ohiaht First Nation

DATA COMPILED

Database file structure: Appendix Table B23
Database: URCHINS.dbf; (Appendix Table C23)
Chart #: 3 (CHS # 3602)
8 (CHS # 3606)
10 (CHS # 3641)
12 (CHS # 3647)

USE LEVEL RATING

Use levels for commercial harvest are not known by DFO Field Staff. A subjective estimate of aboriginal use was given verbally by band members interviewed.

GENERAL NOTES

Urchins are present all along the coast in rocky areas, and kelp beds. They are present from low tide to 50 feet. Red, green and purple urchins are found in the area.

Fishery Officers had little information about this fishery, but general information was available from the DFO 1996 Management Plan for Red and Green Urchins and provided by representatives of the Urchin Harvesters Associations.

Area 20 is a relatively important area for commercial urchin harvesting (dive). Both red and green urchins are fished and an experimental permit has been issued in one area for purple urchins. No commercial harvest is known to take place in Area 21/123, the northern part of the study area.

Red urchins are fished for their roe mainly, and the oriental market. As of 1996 the fishery will be managed by an individual quota (IQ) system. The coast is divided into North and South Areas and the total area quota (TAQ) is divided amongst the individual license holders. The quota for Area 20 for 1996 is 73,500 lbs. In the past, most of the fishing in Area 20 was done in December. Under the new IQ system openings occur on a rotating basis and Area 20 opens after Area 24 closes.

The distribution of the beds is fairly uniform throughout the area, but so far the harvesting has been to the east of Port San Juan.

Green urchins are smaller than red urchins, and are marketed whole rather than just for the roe, to the Japanese market. This is a newer fishery than for red urchins, having begun in 1987, compared to the 1970's. The 1995/96 quota for Area 20 for green urchins is 12,800 lbs. and the fishery is open from November 20 - May 31. A pilot program began in 1995 to try out the IQ management system on the South Coast.

Rick Strong, of the Green Urchin Harvesters Association, described their distribution as patchy, and that they move up and down quite a bit. Harvesting takes place in the Sooke area, William Head, Whirl Bay and some at Sombrio Point.

Exact locations are included in logbook submissions to DFO South Coast Division, but this information is confidential and was not accessed.

There is a moratorium on commercial harvest of purple urchins, although one experimental harvest permit was issued in the area.

There is probably some recreational harvest, but information on this was not available.

Harvest of all urchins is prohibited in the Race Rock Ecological Reserve, Pacific Rim National Park and Botanical Beach Provincial Park.

Aboriginal harvest was mentioned by Fishery Officers and bands. Sooke, Becher Bay, Pacheenaht, Ditidaht, and Ohiaht Bands all use urchins for food. While Becher Bay apparently target reds and greens (R. Kehl, pers. comm.), the others all mentioned purple as the species they utilize. Groups interviewed showed general areas on the charts where this may take place.

FURTHER INFORMATION

- Red and green urchin fishery logbook system maintained by R. Harbo, South Coast Division. This information is provided by fishers and is confidential.

ELEMENT: Shrimp

ATTRIBUTE: Commercial Fisheries/Known Areas of Abundance

DATA SOURCES

Roy Osselton • Ron Kehl • Rob Brouwer

DATA COMPILED

Database file structure: Appendix Table B24
Database: SHRIMP.dbf; (Appendix Table C24)
Chart #: 1 (CHS # 3430)
8 (CHS # 3606)

USE LEVEL RATING

For commercial fishery, based on the number of traps.

GENERAL NOTES

The only commercial fishery reported in the area is in Sooke Basin. There are 6 boats, using about 20 cedar lathe traps each.

There were, however, large populations of shrimp observed in Nitinat Lake - off Indian Reserve #9 and off the Ecological reserve. These were observed in the 1993 and 1994 dive surveys. The former were reported as shrimp and the latter as prawns. R. Brouwer feels that shrimp and/or prawns in Nitinat could support a commercial fishery. Studies have been carried out to determine the feasibility of this as a commercial venture for the Ditidaht Band, but so far the fishery has not been attempted.

FURTHER INFORMATION

- M. C. Wright and Associates. Consultants to the Ditidaht Band.

ELEMENT: Squid

ATTRIBUTE: Reported Occurrence/Harvest Areas

DATA SOURCES

Roy Osselton • Ed Johnson • Dennis Burnip

DATA COMPILED

Database file structure: Appendix Table B25
Database: SQUID.dbf; (Appendix Table C25)
Chart #: 3 (CHS # 3602)
8 (CHS # 3606)

USE LEVEL RATING

Based on number of boats fishing.

GENERAL NOTES

Squid occur sporadically in Sooke Harbour/Basin, Port San Juan, Pachena Bay and adjacent areas. Commercial squid fishing was reported to take place in Port San Juan during the summer, and there may be some recreational fisheries on squid when they are in the bay (Dickens *et al.* Oil Spill Response Atlas for the Southwest Coast of Vancouver Island. B.C. Environment. August, 1990). Local Fishery Officers could not confirm this. The Pacheenaht Band used to fish squid in the deep water off Port San Juan and Roy Osselton reported the presence of squid in the stomachs of salmon caught in deep water. He also reported to occasional report of squid in Sooke Basin and Sooke Harbour.

The seine fishery for squid (*Loligo opalescens*) is primarily for bait for commercial crab and sablefish trapping. The market is decreasing, with hake replacing squid as the preferred bait.

There are 7 boats licensed to fish squid on the west coast Vancouver Island but only one is known to fish in this area. This is in Deadman Cove, just northwest of Pachena Bay.

FURTHER INFORMATION

- unknown

Other Shellfish - Nitinat Dive Survey

Some specific information has been recorded based on observations in the dive survey conducted by DFO at various sites in Nitinat during September 1993 and January 1994. In addition to data which has been included in the maps and database there were other species mentioned. These include:

Limestone Bluffs	Sea slugs Rock scallops A possible octopus den Plumose anemones Mussels Green sea urchin Sunflower star Stalked tunicates Swimming scallops Cockle shell with evidence of predation by moon snail
Ecological Reserve	Prawns Sea anemones Sea cucumbers
Throughout Lake	Jellyfish (red - 2-3 feet diameter; and white - to 1 foot diameter) Brachiopods

The presence of these species indicates that Nitinat Lake is actually more an inlet than a lake, supporting a rich diversity of marine life.

ELEMENT: Gray Whales

ATTRIBUTE: Distribution

DATA SOURCES

Ron Kehl • Brad Rushton • Ohiaht First Nation • Ditidaht First Nation
• Graeme Ellis

DATA COMPILED

Database file structure: Appendix Table B26
Database: WHALES.dbf; (Appendix Table C26)
Chart #: 4 (CHS # 3602)
7 (CHS # 3606)

USE LEVEL RATING

No rating; presence of whales only indicated.

GENERAL NOTES

Gray whales are fairly common in the study area. They are bottom feeders and are often seen feeding off stream mouths in shallow water (to 30 m) as well as further offshore. They are most numerous in spring (March to April) when they are on their northward migration. They are spotted in Juan de Fuca Strait but the eastern limit is Jordan River. Sitings are common from Port Renfrew and the West Coast Trail. While most are migratory, there are also some residents. There is one gray whale that is often seen off Nitinat, and even went inside the lake one year.

Other whales sited further offshore include minkie and humpback.

FURTHER INFORMATION

- Robin Baird. Marine Mammal Research Group. Victoria, B.C.

ELEMENT: Killer Whales

ATTRIBUTE: Distribution

DATA SOURCES

Graeme Ellis • Harry Connor

DATA COMPILED

Database file structure: Appendix Table B26
Database: WHALES.dbf ; (Appendix Table C26)
Chart #: 7 (CHS # 3606)

USE LEVEL RATING

No rating; presence of whales only indicated.

GENERAL NOTES

Killer whales are common in Area 20 and quite well studied. There are three main types - residents, transients and offshore whales.

The resident Orca belong to J, K, and L pods. They swim in and out through Juan de Fuca Strait and tend to stay closer to the Canadian shore. There are about 95 of these whales and are most frequently seen during the summer. They feed mainly on salmon.

The transients are more looseknit groups and frequent the whole coast. They can be present in the area any time of year. They are difficult to enumerate and G. Ellis estimates there are at least 160. They feed mainly on seals and sea lions and are common around Race Rocks.

The offshore group have only been studied since 1989. There appear to be about 200 animals, mostly catalogued in Queen Charlotte Strait. They spend much of their time off the west coast between Victoria and the Queen Charlotte Islands, traveling in groups of 30 or more. Between 1969 and 1989 they were not seen in the Victoria area, but since then their numbers have increased, with 92 individuals having been identified in the area since 1989.

Other members of the dolphin family seen in the area include Harbour porpoises (between the 20m and 100 m contours), Pacific white-sided dolphins (mostly winter), and Dall's porpoises (outside 20 m). Pilot whales are occasionally sited.

FURTHER INFORMATION

- Robin Baird. Marine Mammal Research Group. Victoria, B.C.

ELEMENT: Harbour Seals

ATTRIBUTE: Haulout Sites

DATA SOURCES

Ron Kehl • T'sou-ke First Nation • Brad Rushton • Ditidaht First Nation
• Paddy Harrsion • Rob Brouwer

DATA COMPILED

Database file structure: Appendix Table B27
Database: SEALS.dbf; (Appendix Table C27)
Chart #: 4 (CHS # 3602)
7 (CHS # 3606)

USE LEVEL RATING

A subjective rating, based on number of seals reported.

GENERAL NOTES

Seals feed on salmon and herring primarily, therefore their distribution varies according to season. In areas 20 and 21 the main sites are where large salmon concentrations occur, namely Nitinat and Race Rocks. There is also a large concentration of herring that hold off Race Rocks in December and January and a group of seals associated with them.

Several caves were mentioned between Bonilla Point and Providence Cove. These caves are known to be resting and pupping areas for seals. Access is difficult and numbers of seals inside these deep caves is not well-known.

Seals are found at most rocky points and few of these were mentioned by people interviewed.

FURTHER INFORMATION

- Peter Olesiuk, Marine Mammal Unit, Pacific Biological Station, Nanaimo, B.C. Maintains a seal distribution database.

ELEMENT: Sea Lions

ATTRIBUTE: Haulout Sites

DATA SOURCES

Ron Kehl • Harry Connor • Rob Brouwer • Paddy Harrsion

Reference:
Bigg, M.A. 1984. Sighting and Kill Data for the Stellar Sea lion (*Eumentopias jubatus*) and California Sea Lion (*Zalophus californianus*) in British Columbia, 1892-1982, with some records from Washington and Southeastern Alaska. Can. Data Rep. Fish. Aqua. Sci. No. 460.

DATA COMPILED

Database file structure: Appendix Table B28
Database: SEALIONS.dbf; (Appendix Table C28)
Chart #: 4 (CHS # 3602)
7 (CHS # 3606)

USE LEVEL RATING

Subjective, based on the numbers of animals observed.

GENERAL NOTES

Two species of sea lion occur in the area: Stellar and California. Information on the haulout sites is derived from recent observations of DFO and contract field personnel, and Native Band members. This information covers the main congregations of sea lions (areas of salmon and herring concentrations), but not the minor ones. Ron Kehl stated that there were seals and sea lions "on all the rockpiles throughout Juan de Fuca Strait", but was unable to be more specific.

The sitings recorded by M. Bigg (1984) give counts for :

Race Rocks (1955-82), California (max.= 320) and Stellar (max.=396); mostly winter.
Sombrio Point (1970-78), California (max.=60) and Stellar (max.=45); more in winter.
Carmanah Point (1938-82), Stellar (max.=200); Summer
Pachena Point (1970-82), Stellar (max.=130); more in spring and fall

FURTHER INFORMATION

- Peter Olesiuk, Marine Mammal Unit, Pacific Biological Station, Nanaimo, B.C. maintains a seal distribution database.

- Robin Baird. Marine Mammal Research Group. Victoria, B.C.

ELEMENT: Significant Habitats

ATTRIBUTE: Kelp Beds

DATA SOURCES

Roy Osselton • T'sou-ke First Nation • Harry Connor • Ditidaht First Nation

Reference:
Sutherland, I. R. 1989. Kelp Inventory, 1988 - Juan de Fuca Strait. B.C. Ministry of Agriculture and Fisheries - Fish. Dev. Rep. No. 35. 17 pp and 6 charts.

DATA COMPILED

Database File Structure: Appendix Table B29
Database: KELP.dbf; (Appendix Table C29)
Chart #: 4 (CHS #3602)
7 (CHS # 3606)

USE LEVEL RATING

No rating; presence of habitat indicated.

GENERAL NOTES

Kelp occurs in patches along the outer coast of Area 20 and 21. There are minor concentrations inside bays and Nitinat Lake as well. The two main species are *Nereocystis luetkeana* and *Macrocystis integrifolia*, with approximately 98% of the biomass represented *by N. luetkeana* (Sutherland, 1989).

Kelp symbols on hydrographic charts are indicative of concentrations (H. Connor, pers. comm.), however, only the major beds of *Nereocystis* (as reported in Sutherland 1988) are included on our charts and database. Kelp beds are associated with rich invertebrate communities, marine salmon rearing, groundfish, herring, and areas of traditional aboriginal harvest. T'sou-ke Band members described harvesting salmon in a huge kelp bed off Muir Point. The kelp fronds formed a funnel leading into a trap where the salmon were captured.

There are presently 2 applications for commercial harvesting of kelp in Area 20 (C. Hodgson, pers. comm.), however, they are not yet active. One area of potential harvest is Orveas Bay.

Nereocystis is found inside Sooke Harbour, as are *Enteromorpha* and *Sargassum* in shallower zones. All provide important salmon rearing habitat.

FURTHER INFORMATION

- Christine Hodgson, Ministry of Agriculture, Fisheries and Food, Courteney, B. C.

ELEMENT: Significant Habitats

ATTRIBUTE: *Zostera* Beds

DATA SOURCES

Roy Osselton • T'sou-ke First Nation • Dennis Girodat • Rob Brouwer • Ditidaht First Nation.

Reference:
Feakins, T.L. 1991. Sooke Harbour and Basin Fish Habitat Inventory. Can. MS Rep. of Fish. Aquat. Sci. No. 2131. 87 pp.

DATA COMPILED

Database file structure: Appendix Table B30
Database: ZOSTERA.dbf; (Appendix Table C30)
Chart #:10 (CHS # 3641)
12 (CHS #3647)

USE LEVEL RATING

No rating; presence of habitat indicated.

GENERAL NOTES

Eelgrass beds (*Zostera* sp.) are important in stabilizing sediments and provide habitat for an abundance of invertebrate life. They are generally associated with estuaries, and are important areas for emergent salmonid juveniles in providing food and rearing habitat during a very critical part of their life cycle.

Some site specific information was obtained for Sooke Basin from the T'Sou-ke Band clam diggers, however, R. Osselton recommended a survey conducted by T. L. Feakins as being the best source of information.

Nitinat Narrows was the other area specifically identified as an important eelgrass area. Large shallow areas and swift currents through this area make it extremely productive. It serves both as habitat for an important crab fishery and as a rearing area for over 30 million of hatchery-produced salmon juveniles, as well as the wild juveniles resulting from the Nitinat system.

FURTHER INFORMATION

- unknown

APPENDIX A. INFORMATION SOURCES

A1. PERSONNEL INTERVIEWED

Department of Fisheries and Oceans

1. Field Staff:

Roy Osselton, Fishery Officer, since 1991. Previously Fishery Officer in Port Alberni for 6 months. Lived in Victoria all his life, sport fished in the area and was employed as a deckhand and Fish master on the Charter vessel Marabelle for 7 years.

Ron Kehl, Acting District Supervisor, Victoria - District 6. In area since 1979.

John Stephen, Fishery Officer in Sooke since 1979.

Brad Rushton, Habitat Technician, West Coast Vancouver Island, since 1989.

Laurie Gordon, Species Co-ordinator (salmon), District 4 Port Alberni. Experience in District since 1991.

Paddy Harrison, commercial fisher and test boat operator for Area 22.

Harry Connor, Captain of Fisheries Patrol Vessel James Sinclair. Fisheries patrol of B.C. coast for 31 years.

Denis Burnip, Field Supervisor, District 4 Port Alberni from 1991- 94.

Ken Widsten, Patrol Vessel Operator since1981.

Rob Brouwer, Manager Nitinat Hatchery since 1981.

Dennis Girodat, Fishery Officer, formerly District 4 Port Alberni (1975-1991).

2. Pacific Biological Station:

Kim Hyatt, Scientist Pacific Biological Station (Nitinat system sockeye).

Graeme Ellis, Marine Mammal Specialist, Pacific Biological Station, since 1968.

Sandy McFarlane, Groundfish Biologist, Pacific Biological Station.

Native Bands

T'Sou-ke Chief James Cooper, Frank Planes, Jack Planes, Fred George, Dave Planes and Karen Planes.

Becher Bay Pat Chips (after brief discussion, refused to provide information).

Pacheenaht Chief Charles Jones, Fisheries Advisor Helen Dunn, Bill Mitchell, Jeff Jones and Lawrence Jones.

Ditidaht Carl Edgar Jr., Sam Edgar (Guardian) and Paul Seiber (Fisheries Advisor).

Ohiaht Ed Johnson (Guardian).

Other

Paddy Harrison, Commercial fisher with test fish contract for Area 21/22 since 1980.

David Lightly, Former DFO field biologist (Nitinat area from 1975 - 1979).

Ed Helgeson, Owner Coopers Cove Oyster Farm and Depuration Plant.

Ken Ridgeway, Red Urchin Harvesters Association.

Rick Strong, Green Urchin Harvesters Association.

Danny Heggeund, Crab Fisher in Areas 20 and 21.

A2. REFERENCES

Bigg, M.A. 1984. Sighting and Kill Data for the Stellar Sea lion (*Eumentopias jubatus*) and California Sea Lion (*Zalophus californianus*) in British Columbia, 1892-1982, with some records from Washington and Southeastern Alaska. Can. Data Rep. Fish. Aqua. Sci. No. 460.

Booth, J. and H. I. Rueggeberg. 1994. Consolidation of fisheries resource information west coast Vancouver Island. Part 1: Barkley Sound and Alberni Inlet. Can. Tech. Rep. Fish. Aquat. Sci. 2002: 50 p. + appendices.

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Leudke, Wilf, Louis Lapi, Susan Bates and Doug Tallman. (in press) The WCVI recreational fishery:. Review of the Area 23 Creel Survey 1988-1993, and estimation of total annual effort and catch for all the WCVI.

Morris, R. 1991. Octopus Divers - Hunting the Giants. Westcoast Fisherman [July] 6(1): 26 - 30.

Sutherland, I. R. 1989. Kelp Inventory, 1988 - Juan de Fuca Strait. B.C. Ministry of Agriculture and Fisheries - Fish. Dev. Rep. No. 35. 17 pp and 6 charts.

Department of Fisheries and Oceans, Pacific Region, unpublished documents

Record of Management Strategy - Salmon (RMS). Department of Fisheries and Oceans (1994)

Department of Fisheries and Oceans, Pacific Region, 1996 Management Plans for:

Abalone
Crab
Geoduck and Horse Clam
Goose Barnacle
Groundfish by Hook and Line
Intertidal Clam
Octopus by trap and dive
Prawns
Sea Cucumber
Sea Urchin - red and green

APPENDIX B - DATABASE FILE STRUCTURES

Table B1. Data structure for SALMCOMM.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Seine Sp	Text
Gillnet Sp	Text
Troll Sp	Text
Seine Use Level	Number
Gillnet Use Level	Number
Troll Use Level	Number
Seine Use	Text
Gillnet Use	Text
Troll Use	Text
Seine Tm	Text
Gillnet Tm	Text
Troll Tm	Text
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Comments 3	Memo
Data Date	Text
Map Date	Date/Time

Table B2. Data structure for SALMRECR.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Use Level	Number
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comment 1	Memo
Comment 2	Memo
Data Date	Text
Map Date	Date/Time

Table B3. Data structure for SALMABOR.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Seine Sp	Text
Gillnet Sp	Text
Troll Sp	Text
Seine Use Level	Number
Gillnet Use Level	Number
Troll Use Level	Number
Seine Use	Text
Gillnet Use	Text
Troll Use	Text
Seine Tm	Text
Gillnet Tm	Text
Troll Tm	Text
Day Start	Number
Day End	Number
Timing	Text
Bands	Text
Source 1	Text
Source 2	Text
Comment	Memo
Data Date	Text
Map Date	Date/Time

Table B4. Data structure for SALMESC.dbf.

FIELD NAME	DATA TYPE
Stream ID	Number
Chart	Number
Stat Area	Number
RAB Code	Text
Latitude	Number
Longitude	Number
Location	Text
Use Level	Number
SO Yr	Number
SO Max	Number
SO Max Yr	Number
SO Avg	Number
SO Avg Yrs	Number
CO Yr	Number
CO Max	Number
CO Max Yr	Number
CO Avg	Number
CO Avg Yrs	Number
PI Yr	Number
PI Max	Number
PI Max Yr	Number
PI Avg	Number
PI Avg Yrs	Number
CMYr	Number
CM Max	Number
CM Max Yr	Number
CM Avg	Number
CM Avg Yrs	Number
CN Yr	Number

(cont'd.....)

Table B4. Data structure for SALMESC.dbf. continued.....

CN Max	Number
CN Max Yr	Number
CN Avg	Number
CN Avg Yrs	Number
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B5. Data structure for SALMHOLD.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Species	Text
Timing	Text
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Data Date	Text
Map Date	Date/Time

Table B6. Data structure for SALMJUV.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Species	Text
Importance	Number
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Data Date	Text
Map Date	Date/Time

Table B7. Data structure for HERRING.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Use Level	Number
Use	Text
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Data Date	Text
Map Date	Date/Time

Table B8. Data structure for HERRSPAW.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Use Level	Number
Use	Text
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B9. Data structure for GRNDCOMM.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Gear	Text
Use Level	Number
Use	Text
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B10. Data structure for GRNDRECR.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Use Level	Number
Use	Text
Day Start	Number
Day End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B11. Data structure for GRNDABOR.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart No	Number
Location	Text
Targets	Text
Gear	Text
Use Level	Number
Use	Text
Day Start	Number
Day End	Number
Timing	Text
Bands	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B12. Data structure for OTHFISH.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Gear	Text
Commecial Use	Number
Recreational Use	Number
Aboriginal Use	Number
Use	Text
Day Start	Number
Day End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B13. Data structure for CLAMS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Location	Text
Stat Area	Text
Sub Area	Text
Chart No	Number
Targets	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Number
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Data Date	Text
Map Date	Date/Time

Table B14. Data structure for CRABS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Gear	Text
Commercial Use	Number
Aboriginal Use	Number
Sport Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B15. Data structure for ABALONE.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B16. Data structure for CHITONS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Commercial Use	Number
Aboriginal Use	Number
Sport Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B17 . Data structure for GOOSENEC.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B18 . Data structure for MUSSEL.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B19. Data structure for OCTOPUS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B20. Data structure for OYSTER.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Stat Area	Number
Sub Area	Number
Targets	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B21. Data structure for SCALLOPS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B22 . Data structure for CUCUMBER.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B23. Data structure for URCHINS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B24. Data structure for SHRIMP.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B25. Data structure for SQUID.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Commercial Use	Number
Aboriginal Use	Number
Recreational Use	Number
Use	Text
Day Start	Number
Day End	Number
Peak Start	Number
Peak End	Number
Timing	Text
Gear	Text
Source 1	Text
Source 2	Text
Source 3	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B26. Data structure for WHALES.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Timing	Text
Activity	Text
Source 1	Text
Source 2	Text
Comments	Memo
Data Date	Text
Map Date	Date/Time

Table B27. Data structure for SEALS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Timing	Text
Activity	Text
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Data Date	Text
Map Date	Date/Time

Table B28. Data structure for SEALIONS.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Use	Text
Timing	Text
Activity	Text
Source 1	Text
Source 2	Text
Comments 1	Memo
Comments 2	Memo
Data Date	Text
Map Date	Date/Time

Table B29. Data structure for KELP.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Targets	Text
Comments	Memo
Source 1	Text
Source 2	Text
Data Date	Text
Map Date	Date/Time

Table B30. Data structure for ZOSTERA.dbf.

FIELD NAME	DATA TYPE
Polygon	Number
Chart	Number
Location	Text
Target	Text
Comments	Memo
Source 1	Text
Source 2	Text
Data Date	Text
Map Date	Date/Time

APPENDIX C. DATABASE TABLES

Table C1 : COMMERCIAL SALMON FISHERIES in the Sooke/Nitinat area

Co-de	Map	Location	Species			Use Level			Use			Timing			Day		Timing	Source 1	Source 2	Comment 1	Comment 2	Comment 3	Data Date	Map Date
			Sn	Gn	Tr	Sn	Gn	Tr	Sn	Gn	Tr	Sn	Gn	Tr	St	End								
1	5	Sombrio - Bonilla Pt.	Fraser R. SO,PI	Fraser R. SO,PI	SO, PI, CN,CO	4	5	1	150 - 250 boats (daytime)	250 - 350 boats (night)	30 - 50 boats (3 times in last 10 yrs.)	Opens early Aug and lasts up to 20 d	Opens early Aug and lasts up to 20 d.	End Aug till troll quota met	213	244	Aug - Sept	R.Kehl	R.Osselton	Target Fraser R. SO, PI; (CN, CO, ST incidental).	Seines have 30 fath. ribbon boundary.	Larger nets than normal and motorized skiffs used.	R.Kehl since 1979	5/6/94
2	2	Bonilla Pt. - Logan Cr.		Nitinat CM		0	4	0		0-250			Mid - late Oct (some years)		294	311	Oct.	L. Gordon	H. Connor	Nitinat CM targetted (CN, CO incidental).	Sometimes in-season decision to move boundary in.	Gillnets only to help them acheive their allocaotion	L.Gordon since 1991	5/6/94
3	2	Bonilla Pt. - Pacheena Pt.	Nitinat CM	Nitinat CM		4	5	0	50+	150+		Mid-Sept to early Nov	Mid-Sept to early Nov		258	311	Sept. - Nov.	L. Gordon	B. Rushton	Every year since 1985; target hatchery chum.	Opening delayed to protect Thompson steelhead.	Local closures at creek mouths to protect coho.	L.Gordon since 1991	5/6/94
5	5	Outside Bonilla Point			SO	0	0	1			30 or more boats			July - August	182	243	During troll season	R.Kehl	H.Connor	Trollers tack in and out of line-ups for net fishery.	Target CO in July, SO later if quota left.	SO non-retention once sockeye troll quota reached	R.Kehl, since 1979	6/9/94

Table C2: RECREATIONAL SALMON fisheries in the Sooke/Nitinat area

Code	Map	Location	Targets	Use Level	Day		Timing	Source 1	Source 2	Comment 1	Comment 2	Map Date	Data Date
					Start	End							
6	5	Various rocky points (7) with access	CN, CO	4	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Shore casting - often 15 people at a time	Coho more in Sept. - Oct.	5/6/94	R. Osselton, since 1991
7	9	Various rocky points in Sooke Basin	CT	3	91	304	Dies off in summer	R. Osselton	J. Stephen	Shore casting	Not subject to Aug. - Sept. finfish closure in Sooke basin	5/6/94	R. Osselton, since 1991
8	5	Various rocky points (3) W. of Otter Pt.	CN, CO	3	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Shore casting, along points and shoreline	Less use as go west. Cutthroat also.	5/6/94	R. Osselton, since 1991
9	9	Hill Hd, Sooke Basin	CT	2	91	304	Peaks Aug. - Oct.	R. Osselton	J. Stephen	Troll area	Not subject to Aug. - Sept. finfish closure in Sooke basin	5/6/94	R. Osselton, since 1991
10	5	Otter Pt. - Pt. No Pt.	CN, CO	5	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Troll area		5/6/94	R. Osselton, since 1991
11	5	Pt. San Juan	CN, CO, PI SO	5	121	304	85%between May and October	R. Osselton	J. Stephen	Troll area - peaks in August	200/day max. within 1 mile; 40/day out to 2 miles	5/6/94	R. Osselton, since 1991
12	9	N William Head	CN, CO	5	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Troll area		5/6/94	R. Osselton, since 1991
13	9	William Head	CN, CO	5	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Shore casting off Prison docks	Known to get 40 pound chinook from dock	5/6/94	R. Osselton, since 1991
14	9	Sooke Bay	CN, CO	5	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Troll area		5/6/94	R. Osselton, since 1991
15	5	Off Jordan River	CN,CO	4	121	304	May-Oct.	R. Kehl	B.Rushton	Troll Area		5/6/94	R. Kehl, since 1979

Table C2: RECREATIONAL SALMON fisheries in the Sooke/Nitinat area

Code	Map	Location	Targets	Use Level	Day		Timing	Source 1	Source 2	Comment 1	Comment 2	Map Date	Data Date
					Start	End							
16	2	Clo-oose	CN,CO	4	60	273	Peaks August to early Sept.	B. Rushton	K.Widsten	Use increasing each year - dependent on weather)	75 boats at peak	5/6/94	B. Rushton, since 1979
17	2	N.E.Swiftsure Bank	CN,CO,SO,PI	2	152	258	June-Sept.	B.Rushton	K.Widsten	Offshore troll area - 40% of boats from U.S.	Approx. 30-40 boats at peak	5/6/94	B. Rushton, since 1979
18	2	Cape Beale	CN,CO,SO,PI	3	182	243	July -August	B.Rushton	H. Connor	Up to 100 boats, mostly from Bamfield, trolling		5/6/94	B. Rushton, since 1979
19	13	Hd Nitinat Lake	CN, (CO,CM,CT)	3	244	288	Sept. - Mid Oct.	R.Brouwer	C.Edgar	Rod and Reel	Up to 25 boats/day	6/6/94	R.Brouwer since 1981
20	9	William Hd. - Trap Shack	CN, CM, CO	5	121	304	Year-round but 85% May-Oct.	H.Connor	R.Kehl	Rec Troll,eco-tourism.		6/6/94	H. Connor, since 1963
21	5	Albert Head	CN, CO	4	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Shore casting - often 15 people at a time	Coho more in Sept. - Oct.	5/6/94	R. Osselton, since 1991
22	9	Various rocky points (7) with access	CN, CO	4	121	304	Year-round but 85% May-Oct.	R. Osselton	J. Stephen	Shore casting - often 15 people at a time	Coho more in Sept. - Oct.	5/6/94	R. Osselton, since 1991

Table C3: ABORIGINAL SALMON FISHERIES in the Sooke/Nitinat area

Co-de	Map	Location	Species			Use Level			Use			Timing			Day		Timing	Bands	Source 1	Source 2	Comments	Data Date	Map Date
			Sn	Gn	Tr	Sn	Gn	Tr	Sn	Gn	Tr	Sn	Gn	Tr	Start	End							
22	2	Cape Beale			CN, SO	0	0	1			5 speed boats			April 1 - Sept 30	91	273	Spring - Summer	Ohiaht	E.Johnson		Ohiaht band mostly fish inside Barkley sound.	Guardian since 1992	5/18/94
23	5	Lower Nitinat Lake (moves up lake thru season)	CM	CM, CN	CN	0	3	2		4-5 boats	Up to 10 boats	Oct-Nov.	Sept.- Nov.		258	274	CN - then CM	Ditidaht	C.Edgar	P. Seiber	Chinook is the prefered species.	n/a	5/18/94
24	5	Mouth Hobiton River		SO		0	4	0		2-4 boats, 50f gillnets			June		152	181	Month of June	Ditidaht	C.Edgar	P. Seiber	Hobiton R. SO: effort reduced for conservation.	n/a	5/18/94
25	2	Clo-oose-N.Swifsure Bank		SO	CN, SO, PI, CO	0	2	3		1 boat	Several boats - sport fishing gear		July - August	April 1 - Sept. 30	91	273	Spring - Summer	Ditidaht	C.Edgar	P. Seiber	Target Fraser R. sockeye.	n/a	5/18/94
26	5	Bonilla Pt.	SO			2	0	0	Few boats			Early September			244	258	After commercial opening	Sooke, Beecher B., Dididaht. Mixed SWVI	R.Osselton	Sooke Band	Bands hire commercial boat to catch food fish.	R.Osselton, since 1991	5/18/94
27	5	Orveas Bay		CM	SO	0	1	2		1 gillnet	1 Troller, plus few others		Oct	Aug	213	304		Sooke, Beecher B.	R.Osselton	Sooke Band	Bands fish through sports fleet.	R.Osselton, since 1991	5/18/94
28	9	Beechey Head			SO, CM, CO	0	0	2			A few boats							Sooke, Beecher B.	R. Osselton,R.Kehl	Sooke Band	Troller (unlicensed) fishes through sport fleet	R.Osselton, since 1991	5/18/94
29	9	Race Rocks		SO		0	3	0		2-3 gillnetters ; 2 - 4 nights; 700 fish			Aug. - Sept.		227	250	Later portion of Fraser sockeye	Sooke Band, Off-reserve Victoria residents	R.Kehl	Sooke Band	3 Boats fish this area for aboriginal fishery.	R.Kehl, since 1979	5/18/94
30	5	Port San Juan	SO, CO, CM			3	0	0	2 boats (comm)			Sept-Oct			244	304	After commercial net fishery in	Pacheenaht	R.Osselton	Sooke Band	This is being negotiated.	R.Osselton, since 1991	5/18/94
31	9	Becher Bay			CN, CO	0	0	-9			Several rec. boats and 1 comm.			Summer	121	304	June-Nov	Becher B, Sooke	R Kehl,R. Osselton	Sooke,Becher	Quota based on escapement.	R.Kehl since 1979	6/9/94

Table C3: ABORIGINAL SALMON FISHERIES in the Sooke/Nitinat area

Co-de	Map	Location	Species			Use Level			Use			Timing			Day		Timing	Bands	Source 1	Source 2	Comments	Data Date	Map Date
			Sn	Gn	Tr	Sn	Gn	Tr	Sn	Gn	Tr	Sn	Gn	Tr	Start	End							
32	13	Hd Nitinat Lake	CM	CM, CN	CN	2	4	1	1 small seiner	4-5 Boats	up to 10 boats	October-November	October-November	Sept.-October	274	319	Sept	Ditidaht	C.Edgar	R.Brouwer	Mainly CM - fish off village and lake head.	n/a	6/6/94
33	2	E. of Pachena Point	SO, CN, CO	CM	CN, SO, PI, CM	-9	-9	-9				Sept. - Oct.	Sept. - Oct.	Sept. - Oct.	244	304	Not during commercial fisheries	South V. I. bands	Sooke Band		Limited access to fish; often hire comm. boats	n/a	6/6/94
34	2	M. Cheewhat R.		SO		0	4	0		Depends on run strength			June - July		152	190		Ditidaht	C. Edgar	K. Hyatt	Not fished in 1993&94 - low #'s of sockeye	n/a	7/21/94

Table C4: Streams with SALMON ESCAPEMENTS in the Sooke/Nitinat Area (Fields 1 - 33)

Code	Map	Stat Area	RAB Code	Location	Use Level	Sockeye					Coho					Pink					Chum					Chinook				
						Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs
1	5	20	93-0300	Sooke River	5	1	3	85	0	7	4	120	84	24	7	0	0	0	0	6	10	60000	88	25170	10	10	800	90	291	10
1.1		20	93-0300-050	De Mamiel Cr.	4	0	0	0	0	7	10	1340	87	683	10	0	0	0	0	6	10	44000	88	10131	10	5	28	88	5	8
1.2		20	93-0300-050-030	Rocky Creek	3	0	0	0	0	7	8	450	87	112	8	0	0	0	0	6	8	2500	88	574	8	2	6	88	1	6
1.3		20	93-0300-100	Charters River	3	0	0	0	0	7	4	14	87	4	7	0	0	0	0	6	9	3500	88	1143	9	1	3	85	0	6
2	5	20	93-0100	Matheson Creek	1	0	0	0	0	5	1	4	86	0	5	0	0	0	0	4	0	0	0	0	4	0	0	0	0	4
3	5	20	93-0250	Ayum Creek	3	0	0	0	0	7	6	16	86	5	8	0	0	0	0	6	10	3500	88	1020	10	0	0	0	0	6
4	5	20	93-0275	Lannon Creek (Kaltasin Cr.)	1	0	0	0	0	6	3	15	86	5	6	0	0	0	0	4	3	6	92	2	5	0	0	0	0	4
5	5	20	93-0380	Tugwell Creek	2	0	0	0	0	7	10	72	86	26	10	0	0	0	0	6	8	130	88	33	10	0	0	0	0	6
6	5	20	93-0400	Muir Creek	3	1	2	90	0	8	6	16	86	4	9	0	0	0	0	6	10	2400	88	914	10	0	0	0	0	6
7	5	20	93-0420	Kirby Creek (Coal Cr.)	3	0	0	0	0	7	9	80	86	38	9	0	0	0	0	6	10	1500	88	471	10	0	0	0	0	6
8	5	20	93-0600	Jordan River	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1
9	5	20	93-0620	Uglow Creek	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
10	5	20	93-0624	Maidenhair Creek (Little China Cr.)	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
11	5	20	93-1000	San Juan River	4	6	400	83	122	9	10	16000	86	7413	10	6	300	90	98	9	10	10500	86	1702	10	10	1500	88	646	10
11.1		20	93-1000-030	Falls Creek (Faller, False cr.)	1	0	0	0	0	2	1	7	92	3	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2

Table C4 (cont'd): SALMON ESCAPEMENTS - Sooke/Nitinat (Fields 34 - 41)

Code	Map	Stat Area	RAB Code	Location	Day Start	Day End	Tim-ing	Source 1	Source 2	Comments	Data Date	Map Date
1	5	20	93-0300	Sooke River	275	354		SED - Greg Serbick (PBS)			1983-92	5/9/94
1.1		20	93-0300-050	De Mamiel Cr.	283	392		SED - Greg Serbick (PBS)		Tributary of Sooke R.	1983-92	5/9/94
1.2		20	93-0300-050-030	Rocky Creek	288	392		SED - Greg Serbick (PBS)		Trib. of Sooke R.; hatchery - chinook and coho	1983-92	5/9/94
1.3		20	93-0300-100	Charters River	289	385		SED - Greg Serbick (PBS)		Tributary of Sooke R.	1983-92	5/9/94
2	5	20	93-0100	Matheson Creek	319	364		SED - Greg Serbick (PBS)			1983-92	5/9/94
3	5	20	93-0250	Ayum Creek	281	385		SED - Greg Serbick (PBS)			1983-92	5/9/94
4	5	20	93-0275	Lannon Creek (Kaltasin Cr.)	305	349		SED - Greg Serbick (PBS)			1983-92	5/9/94
5	5	20	93-0380	Tugwell Creek	289	380		SED - Greg Serbick (PBS)			1983-92	5/9/94
6	5	20	93-0400	Muir Creek	302	349		SED - Greg Serbick (PBS)			1983-92	5/9/94
7	5	20	93-0420	Kirby Creek (Coal Cr.)	298	354		SED - Greg Serbick (PBS)			1983-92	5/9/94
8	5	20	93-0600	Jordan River	0	0		SED - Greg Serbick (PBS)	J. Stephen	No surveys in last five years.	1983-92	5/9/94
9	5	20	93-0620	Uglow Creek	0	0		SED - Greg Serbick (PBS)			1983-92	5/9/94
10	5	20	93-0624	Maidenhair Creek (Little China Cr.)	0	0		SED - Greg Serbick (PBS)			1983-92	5/9/94
11	5	20	93-1000	San Juan River	250	396		SED - Greg Serbick (PBS)	H. Dunn	FW harvest by Band	1983-92	5/9/94
11.1		20	93-1000-030	Falls Creek (Faller, False cr.)	321	364		SED - Greg Serbick (PBS)		Tributary of San Juan R.	1983-92	5/9/94

Table C4: Streams with SALMON ESCAPEMENTS in the Sooke/Nitinat Area (Fields 1 - 33)

Code	Map	Stat Area	RAB Code	Location	Use Level	Sockeye					Coho					Pink					Chum					Chinook				
						Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs
11.2		20	93-1000-050	Mosquito Creek (Davis Cr.)	1	0	0	0	0	2	1	32	92	16	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
11.3		20	93-1000-070-010	Renfrew Creek (Granite Cr.)	2	2	200	84	85	3	3	687	90	495	3	0	0	0	0	2	3	150	84	67	3	1	6	90	2	3
11.4		20	93-1000-120	Harris Creek	3	0	0	0	0	2	2	8000	84	4243	2	0	0	0	0	2	0	0	0	0	2	2	100	84	73	2
11.5		20	93-1000-120-150	Hemingson Creek	3	0	0	0	0	2	2	2000	84	1032	2	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
11.6		20	93-1000-150	Lens Creek	2	0	0	0	0	2	1	120	92	60	2	0	0	0	0	2	1	32	92	16	2	0	0	0	0	2
12	5	20	93-1100	Gordon River	3	4	380	90	83	9	8	1600	87	499	8	0	0	0	0	6	10	6000	86	1361	10	10	150	84	51	10
13	5	21	93-1400	Cheewhat River	3	8	5000	87	2795	8	5	453	91	202	7	0	0	0	0	4	0	0	0	0	4	0	0	0	0	4
14	2	21	93-1600	Klanawa River	0	0	0	0	0	5	0	0	0	0	4	0	0	0	0	5	0	0	0	0	4	0	0	0	0	4
15	5	22	93-1200	Walbran Creek	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1
16	5	22	93-1300	Carmanah Creek	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1
17	13	22	93-1500	Nitinat River	5	3	250	85	42	7	7	4000	90	2368	7	3	50	85	10	6	9	350000	91	151043	9	10	30000	92	12504	10
18	5	22	93-1500-130	Doobah Creek	2	0	0	0	0	5	3	50	86	27	4	0	0	0	0	5	4	500	91	224	5	0	0	0	0	5
19	5	22	93-1500-150	Marchand Creek	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	3	0	0	0	0	2	0	0	0	0	3
20	5	22	93-1500-200	Hobiton Lake/River	4	10	22149	83	9333	10	1	50	86	16	3	0	0	0	0	6	1	2200	86	1100	2	0	0	0	0	5
21	13	22	93-1500-300	Caycuse River	3	0	0	0	0	5	2	200	87	75	5	0	0	0	0	5	6	5000	91	1285	7	4	75	90	20	8

Table C4 (cont'd): SALMON ESCAPEMENTS - Sooke/Nitinat (Fields 34 - 41)

Code	Map	Stat Area	RAB Code	Location	Day Start	Day End	Tim-ing	Source 1	Source 2	Comments	Data Date	Map Date
11.2		20	93-1000-050	Mosquito Creek (Davis Cr.)	274	335		SED - Greg Serbick (PBS)		Tributary of San Juan R.	1983-92	5/9/94
11.3		20	93-1000-070-010	Renfrew Creek (Granite Cr.)	305	364		SED - Greg Serbick (PBS)		Tributary of San Juan R.	1983-92	5/9/94
11.4		20	93-1000-120	Harris Creek	253	352		SED - Greg Serbick (PBS)		Tributary of San Juan R.	1983-92	5/9/94
11.5		20	93-1000-120-150	Hemingson Creek	283	335		SED - Greg Serbick (PBS)		Tributary of San Juan R.	1983-92	5/9/94
11.6		20	93-1000-150	Lens Creek	298	349		SED - Greg Serbick (PBS)		Tributary of San Juan R.	1983-92	5/9/94
12	5	20	93-1100	Gordon River	250	384		SED - Greg Serbick (PBS)			1983-92	5/9/94
13	5	21	93-1400	Cheewhat River	152	349	C.Edgar reports sockeye	SED - Greg Serbick (PBS)	K. Hyatt	As many as 20,000 sockeye	1983-92	5/9/94
14	2	21	93-1600	Klanawa River	-9	-9		SED - Greg Serbick (PBS)	B. Rushton	Major producer of coho, steelhead, possibly chum.	1983-92	5/9/94
15	5	22	93-1200	Walbran Creek	-9	-9		SED - Greg Serbick (PBS)		Not surveyed due to dificult access	1983-92	5/9/94
16	5	22	93-1300	Carmanah Creek	-9	-9		SED - Greg Serbick (PBS)		Not surveyed due to dificult access	1983-92	5/9/94
17	13	22	93-1500	Nitinat River	263	349		SED - Greg Serbick (PBS)			1983-92	5/9/94
18	5	22	93-1500-130	Doobah Creek	292	359		SED - Greg Serbick (PBS)			1983-92	5/9/94
19	5	22	93-1500-150	Marchand Creek	-9	-9		SED - Greg Serbick (PBS)			1983-92	5/9/94
20	5	22	93-1500-200	Hobiton Lake/River	156	309		SED - Greg Serbick (PBS)			1983-92	5/9/94
21	13	22	93-1500-300	Caycuse River	259	359		SED - Greg Serbick (PBS)			1983-92	5/9/94

Table C4: Streams with SALMON ESCAPEMENTS in the Sooke/Nitinat Area (Fields 1 - 33)

Code	Map	Stat Area	RAB Code	Location	Use Level	Sockeye					Coho					Pink					Chum					Chinook				
						Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs	Yrs	Max	Max Yr	Avg	Avg Yrs
22	13	22	93-1500-350	Campus Creek	2	0	0	0	0	3	0	0	0	0	4	0	0	0	0	3	2	700	90	200	4	1	1500	91	375	4
23	2	23	93-1800	Pachena R.	1	1	5	91	0	7	0	0	0	0	4	1	25	91	3	7	1	50	91	12	4	0	0	0	0	6
24	5	20	unknown	Camper Cr.	-9	0	0	0	0	0	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	-9	0	0	0	0	0
25	5	20	unknown	Cullite Cr.	-9	0	0	0	0	0	-9	-9	-9	-9	-9	0	0	0	0	0	-9	-9	-9	0	-9	-9	-9	-9	-9	-9

Table C4 (cont'd): SALMON ESCAPEMENTS - Sooke/Nitinat (Fields 34 - 41)

Code	Map	Stat Area	RAB Code	Location	Day Start	Day End	Tim-ing	Source 1	Source 2	Comments	Data Date	Map Date
22	13	22	93-1500-350	Campus Creek	298	334		SED - Greg Serbick (PBS)			1983-92	5/9/94
23	2	23	93-1800	Pachena R.	-9	-9		SED - Greg Serbick (PBS)			1983-92	5/9/94
24	5	20	unknown	Camper Cr.	-9	-9		Pacheenaht Band		Band reports coho, chum, pink and steelhead	n/a	5/9/94
25	5	20	unknown	Cullite Cr.	-9	-9		Pacheenaht Band		Band reports coho, chum, pink and steelhead	n/a	5/9/94

Table C5: SALMON - ADULT HOLDING in the Sooke/Nitinat area

Code	Map	Location	Species	Timing	Source 1	Source 2	Comment 1	Comment 2	Data Date	Map Date
1	9	Race Rocks	SO, CM, CO	August - Oct	R. Osselton	J. Stephen	Hold up waiting for slack tides, Race Pass-Race Rks.		Since 1991	5/9/94
2	5	Whiffen Spit	CM, CO	August - Sept	R. Osselton	J. Stephen	Suspect fish are Sooke R. stock, but not sure		Since 1991	5/9/94
3	9	Becher Bay	CM, CO	August - Sept	R. Osselton	J. Stephen	Off Creyke Point		Since 1991	5/9/94
4	5	Port San Juan	CN, CM	June - Sept	B. Rushton		Important feeding spot		Since 1989	5/9/94
5	5	Point No Point	CM,CO	June - Sept	Harry Connor	R.Oselton	Important feeding spot		Since 1963	6/6/94
6	5	Tsusiat Pt. - Tsuquanah Pt. - 2 polygons	CM	Sept. - Nov.	H.Connor	P. Harrison	Nitinat bound stock		Since 1963	6/6/94
7	2	Clo-ose-Dare Beach	SO,CN (Nitinat)	SO Jun-July; CN Sept.-Nov.	H.Connor	K. Hyatt	Up to 50% of run hold for several weeks	SO - Cheewhat - As early as Feb.	Since 1963	6/6/94
8	5	Limestone Bluff	CM,CN	Sept. - Nov.	C.Edgar	P.Harrison	Chum hold in schools		n/a	6/6/94
9	11	Nitinat Lake - 3 polygons	CM,CN	Sept. - Nov.	C.Edgar	P.Harrison	Chum will move back out of lake from this area		n/a	6/6/94
10	5	Dickenson Pt.	CM,CO	Sept. - Nov.	C.Edgar	P.Harrison	There are only marginal stocks of CO		n/a	6/6/94
11	13	N.of Ecolgical res.	CM	Sept. - Nov.	C.Edgar	P.Harrison			n/a	6/6/94
12	13	Knob Pt.	CM, CN	Sept. - Nov.	C.Edgar	P.Harrison	Important spot if lake going to turn over		n/a	6/6/94
13	13	Hd of Nitinat Lake	CM, CN, CT	Oct. - Nov.	C.Edgar	Rob Brouwer	Latter part of runs		R. Brouwer -	6/6/94
14	2	Pacheena Pt.	CM	Sept.- Oct.	H.Connor	C.Edgar	Nitinat bound		Since 1963	6/6/94
15	2	Bonilla Pt.	CM	Sept. - Oct.	B. Rushton	H.Connor	Nitinat and local rv. stocks		Since 1989	6/6/94

Table C5: SALMON - ADULT HOLDING in the Sooke/Nitinat area

Code	Map	Location	Species	Timing	Source 1	Source 2	Comment 1	Comment 2	Data Date	Map Date
16	9	Hill Hd /Sooke Basin	CM,CT	Aug. - Early Sept.	R.Osselton	Band	CM concentrate at Hill hd ,ct school in bays etc..		Since 1991	6/6/94
18	13	Off Hobiton R.	SO	May 15 - June 30	C. Edgar	K. Hyatt	May hold here for several weeks		n/a	6/6/94
19	5	Carmanah Pt.- Bonilla Pt.	SO	May - August	H. Connor		Barkley sockeye often school here	Fraser R. sockeye - often large school outside Blu	Since 1963	6/6/94
20	5	Clo-ose - W. Carmanah	CM	Sept.-Nov	P. Harrison	L. Gordon	Nitinat-Bound	Holding area variable	Since 1980	6/6/94

Table C6: SALMON - JUVENILE REARING in the Sooke/Nitinat area

Code	Map	Location	Species	Importance	Day		Timing	Source 1	Source 2	Comment 1	Comment 2	Data Date	Map Date
					Start	End							
21	5	Victoria Harbour	CN,CO	0	60	152	Spring and summer	R. Osselton	J. Stephen	Rear durning spring and summer		R. O., since '91	5/9/94
22	5	Esquimalt Harbour/Lagoon	CN, CM, CO	0	60	152	Spring and summer	R. Osselton	J. Stephen	Rear durning spring and summer		R. O., since '91	5/9/94
23	5	Parry Bay	CN, CM, CO	0	60	152	Spring and summer	R. Osselton	J. Stephen	Rear durning spring and summer		R. O., since '91	5/9/94
24	5	Beecher Bay	CN, CM, CO	4	60	152	Mostly spring and summer	R. Osselton	J. Stephen	Rear all year round		R. O., since '91	5/9/94
25	5	Sooke Basin/Harbour	CN, CM,CO	4	60	152	Mostly spring and summer	R. Osselton	J. Stephen	Rear all year round		R. O., since '91	5/9/94
26	5	Pedder Bay	CN, CM, CO	4	60	152	Mostly spring and summer	R. Osselton	J. Stephen	Rear year round		R. O., since '91	5/9/94
27	11	Port San Juan	CN, CO, CM	4	60	167	Spring and summer	R. Osselton	H.Dunn	1.3M hatchery smolts released -		R. O., since '91	5/9/94
28	11	Nitinat Narrows - 2 polygons	CM,CN,CO,SO	5	60	167	Peak mid-May	R.Brower	P.Harrison	Outmigration from lake from March 1 to June 15	Some CN and SO rear year-round	R.Brouwer, since 1981	6/6/94
29	13	Upper Nitinat Lake - 2 polygons	CN, CO, CM	3	60	167	Late May	R. Brouwer	D. Lightly	Chinook near-shore till 60 mm	Concentrate in shallow bays, beaches	R.Brouwer, since 1981	6/6/94

Table C7 : HERRING fisheries and populations in the Sooke/Nitinat area.

Code	Map	Location	Use Level	Use	Day		Timing	Source 1	Source 2	Comments	Data Date	Map Date
					Start	End						
1	6	Gorge Waters	-9	Unknown				R.Osselton		Herring Holding area.	R. Osselton, since 1991	5/18/94
2	6	Browns Bay	2	Cf - light	91	105	Early April	C.Edgar,S.Edgar	R.Brower,P.Harrison	1 ton fished near Brown's Bay.	n/a	6/6/94
3	6	Gorge - Victoria	3	Rf - moderate	32	90	Feb.-Mar.	R.Osselton		People (kids mainly) jig from bridges in Gorge	R. Osselton, since 1991	5/11/94
4	6	Off Albert Head	1	Cf - very light	32	90	Feb.-Mar.	R.Osselton		Commercial food/bait seine - Lottery entry	Since 1990	6/9/94
5	6	Off Esquimalt	5	Ho - very heavy	349	380	Dec/Jan	H.Connor	R.Osselton	Up to 25,000 t. headed to Georgia Strait to spawn	H. Connor, since 1960	6/9/94

Table C8: HERRING spawn areas in the Sooke/Nitinat area.

Code	Map	Location	Use Level	Use	Day		Timing	Source 1	Source 2	Comments	Data Date	Map Date
					Start	End						
6	6	W.of Victoria	-9	Unknown				R.Osselton		Herring Spawn	R. Osselton, since 1991	5/18/94
7	6	E.of Ogden Pt.	-9	Unknown				R.Osselton		Herring Spawn	R. Osselton, since 1991	5/18/94
8	6	I.R.#9 E. Nit. Lk.	1	Sp - very light	105	120	Late April	C.Edgar,S.Edgar	R.Brower,P.Harrison	Small spawn	n/a	6/6/94

Table C9: COMMERCIAL GROUNDFISH fisheries in the Sooke/Nitinat area

Code	Map	Location	Tar-gets*	Gear	Use Level	Use	Day		Timing	Source 1	Source 2	Comments	Data Date	Map Date
							Start	End						
1	6	Sooke B. - Orveas Bay	DO,FL	Long Lline	2	Light	60	151	Spring	R. Osselton	R.Kehl	Involves a few boats - market-driven	R.Osselton, since 1991	5/9/94
2	6	Race Rks.	DO	Long Lline	1	Extremely light	60	151	Spring	R.Kehl			R. Kehl, since 1979	5/9/94
3	6	Esquimalt & off Becher Bay	HK	Mid-water Trawl	1	Sporadic	152	304	Summer	R. Osselton	R.Kehl	Occasional use by offshore boats.	R.Osselton, since 1991	5/9/94
4	6	Sombrio Pt.	RO	Dive (live catch)	1	1 harvester	0	0	Unknown	R. Osselton	R.Kehl	Brightly coloured rockfish, for sale to aquarium	R.Osselton, since 1991	5/9/94
5	6	off Port San Juan	RO	Long line	1	1 boat	0	0		Pacheenaht	H.Dunn	Aboriginals fish area also	H.Dunn, since 1992	5/28/94
6	6	Bonilla - Carmanah Pt.	RO	Long line	1	1 boat	0	0		Pacheenaht	H.Dunn	Aboriginals fish area also	H. Dunn, since 1992	5/28/94

*DO = dogfish; FL = flounder; HK = hake; RO = rockfish

Table C10: RECREATIONAL GROUNDFISH fisheries in the Sooke/Nitinat area

Code	Map	Location	Targets*	Use Level	Use	Day Start	Day End	Timing	Source 1	Source 2	Comments	Data Date	Map Date
7	6	Race Pass - Church Pt.	HA, LI, RO	5	Popular area, good access	32	365	Peaks Feb. - May	R. Osselton	J. Stephen	Peak Feb-May, residential & migratory stocks.	R.Osselton, since 1990	5/9/94
8	6	Secretary Is. - Sooke Bay	HA, RO	4	Moderate - Heavy	32	365	Feb 1- Dec 31	R. Osselton	J. Stephen	Small to average size boats	R.Osselton, since 1990	5/9/94
9	6	Pt. No Pt. - Magdelena Pt.	HA, RO	3	Moderate	32	365	Feb 1- Dec 31	R. Osselton	J. Stephen	Larger vessels fish Otter Pt. - West	R.Osselton, since 1990	5/9/94
10	6	Sombrio Pt.- San Juan Pt.	HA, RO	3	Moderate	32	365	Feb 1- Dec 31	R. Osselton	J. Stephen	Heavy U.S. fishers	R.Osselton, since 1990	5/9/94
11	6	Owen Pt. -Bonilla Pt.	HA, RO, LI	3	Moderate	32	365	Similar to salmon	R. Osselton	J. Stephen	May 1 st. ling cod opening	R.Osselton, since 1990	5/9/94
12	6	Off Rosedale Rock	HA	5	Heavy use	32	365	Peaks Feb. - May	R. Kehl	R. Osselton	Probably most productive HA sport fishery on WCVI	R. Kehl, since 1979	5/9/94
13	3	Off Nitinat	HA, RO,GL	2	<10 boats/day	121	273	Peaks March -	B.Rushton	D. Burnip	Weather limits use- conc.close to Nitinat Bar	B.Rushton, since 1979	5/20/94

*HA = halibut; LI = lingcod; RO = rockfish; GL = greenling

Table C11: ABORIGINAL GROUNDFISH fisheries in the Sooke/Nitinat area

Code	Map	Location	Tar-gets*	Gear	Use Level	Use	Day Start	Day End	Timing	Bands	Source 1	Source 2	Comments	Data Date	Map Date
14	6	Race Pass - Church Pt.	HA, LI, RO	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke, Becher Bay	R. Osselton	R. Osselton	Peak Feb-May, residential&migratory stocks. I.e. " Chickens"	Since 1991	5/9/94
15	6	Off Rosedale Rock	HA	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke	R.Kehl	R. Osselton	Same area as recreational	Since 1979	5/9/94
16	6	Secretary Is. - Sooke Bay	HA, RO	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke, Becher Bay	Bands	R. Osselton	Same area as recreational	Since 1991	5/9/94
17	6	Point No Point - Magdalena Pt.	HA, RO	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke, Becher Bay, Pacheenaht	Bands	R. Osselton	Same area as recreational	Since 1991	5/9/94
18	6	Sombrio Pt.- San Juan Pt.	HA, RO, LI	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke, Becher Bay, Pacheenaht	Bands	R. Osselton	Same area as recreational	Since 1991	5/9/94
19	6	Owen Pt. - Bonilla Pt.	RO, LI	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke, Becher Bay, Pacheenaht	Bands	R. Osselton	Same area as recreational	Since 1991	5/9/94
20	6	Sooke Hrb.	FL,RO	Rod & Reel, Handline	-9		32	365	Feb 1-Dec 31	Sooke	Sooke Band	R.Osselton	Same area as recreational	Since 1991	5/9/94
21	6	off Port San Juan	RO	Longline	-9		1	365	Year-round	Pacheenaht	Pacheenaht	H.Dunn	Same area as commercial	Based on trad. knowledg	5/28/94
22	6	Bonilla - Carmanah Pt.	RO	Longline	-9		1	365	Year-round	Pacheenaht	Pacheenaht	H.Dunn	Same area as commercial	Based on trad. knowledg	5/28/94
23	3	Outside Nitinat Lake	HA, RO, GL, SK	Longline	4	Important source of food	152	304	June-October	Ditidaht	C.Edgar	S.Edgar	Important for food and cermonial purposes.	Based on trad. knowledg	6/6/94
24	3	Off Pachena Bay	HA, RO, LI, RS	Rod & Reel, Handline	4	Important source of food	1	365	Year-round	Ohiaht	E. Johnson		Halibut come into Pachena Bay May-July	Based on trad. knowledg	7/14/94

HA = halibut; LI = lingcod; RO = rockfish; FL = flounder; GL = greenling, SK = skate; RS = red snapper; SO = sole

Table C11: ABORIGINAL GROUNDFISH fisheries in the Sooke/Nitinat area

Code	Map	Location	Tar-gets*	Gear	Use Level	Use	Day Start	Day End	Timing	Bands	Source 1	Source 2	Comments	Data Date	Map Date
25	6	Head Port San Juan	FL, SO	Rod and reel	-9	Mentioned traditional and present use	1	365	Year-round	Pacheenaht	H. Dunn		Off mouths and in lower reaches SJ and Gordon R.	Based on trad. knowledg	6/6/94

HA = halibut; LI = lingcod; RO = rockfish; FL = flounder; GL = greenling, SK = skate; RS = red snapper; SO = sole

Table C12 : OTHER FINFISH populations in the Sooke/Nitinat area

Code	Map	Location	Targets	Gear	Use Level			Use	Day		Timing	Source 1	Source 2	Comments	Data Date	Map Date
					Comm	Recr	Ab		Start	End						
26	6	Hd Port San Juan	Smelt	Gn	0	2	2	Moderate	152	244	June - Sept.	R.Osselton	H. Dunn	Recreational open Friday noon to Monday noon.	R. Osselton, since 1991	5/18/94
27	6	Quarter Tide Rks.(Pt.San Juan)	Sandlance	Gn	0	1	2	Light	152	244	June 1-Sept	H. Dunn			n/a	5/18/94
28	6	Port Renfrew - Government Dock	Perch	Hl	0	0	1	Very Light	1	365	Year-round	H. Dunn		Listed many different species of perch	n/a	6/6/94

Table C13: CLAM populations in the Sooke/Nitinat area

Code	Map	Location	Stat. Area	Sub-Area	Targets*	Use Level				Source 1	Source 2	Comments	Data Date	Map Date
						Comm	Ab	Rec	Use					
1	1	W Goodridge Penninsula - Cooper's C	20	7	MN, LN	3	0	0	3	D. Planes	K. Planes	Mill effluent on outside G. Penn.: little productive area.	D. Planes, since 1/88	5/5/94
10	1	NE Roche Cove	20	7	MN, LN	1	0	0	1	D. Planes	K. Planes	Few clams	D. Planes, since 1/88	5/5/94
11	1	Hd Roche Cove	20	7	MN, LN	4	0	0	4	D. Planes	K. Planes	More clams	D. Planes, since 1/88	5/5/94
6	1	Inside Sooke Basin	20	7	MN, LN	3	0	0	3	D. Planes	K. Planes	Consistent clam beach	D. Planes, since 1/88	5/5/94
23	1	SE Hill Hd (5 areas)	20	7	MN, LN	4	0	0	4	D. Planes	K. Planes	Hot spot - general area is spotty	D. Planes, since 1/88	5/5/94
34	1	Billings Pt (5 areas)	20	7	MN, LN	3	0	0	3	D. Planes	K. Planes	All species - mussels in lower half	D. Planes, since 1/88	5/5/94
7	1	Inside Sooke Basin	20	6	MN, LN	2	0	0	2	D. Planes	K. Planes	Medium digging area - patchy	D. Planes, since 1/88	5/5/94
44	1	Middle Ground	20	6	MN, LN, BT, CC	0	0	0	0	D. Planes	K. Planes	Lots of clams, unable to dig (proposed dredging)	D. Planes, since 1/88	5/5/94
40	1	Oyster Lease	20	6	MN, LN	3	0	0	3	D. Planes	K. Planes	Oyster lease. All species - mussels in lower half	D. Planes, since 1/88	5/5/94
28	1	NW Sooke Basin (6 areas)	20	7	MN, LN	3	0	0	3	D. Planes	K. Planes	Rocky - little clams between wharves, pilings	D. Planes, since 1/88	5/5/94
45	1	Whiffen Spit - Outside	20	7	MN,LN,BT,CC	1	3	3	4	R.Osselton	F. & J.Planes	Recreational digging outside spit	R. Osselton, since 1991	5/5/94
46	1	Coopers Cove - outside	20	6	MN,LN,BT,CC	1	3	0	3	F.Planes	J. Planes	Muddy Area clams throughout spit	D. Planes, since 1/88	5/5/94
52	12	E. of Owen Pt./Mth. San Juan R.	20	2	BT,CC,MN,LN	0	3	0	3	H. Dunn	Pacheena	Contamination Closure but dig anyway	Based on trad. knowledge	6/6/94
54	12	Nitinat Narrows - Whyac	22		LN	0	4	0	4	C.Edgar, S.Edgar	R.Brouwer	Planted LN that are only surviving species in lake.	Based on trad. knowledge	6/6/94
55	8	French Beach Prov. Park	20	5	LN, MN	0	0	3	3	R.Osselton		Park - harvest is legal but reduced bag limits.	R.Osselton, since 1991	7/15/94
47	1	Whiffen Spit - Inside	20	6	MN,LN,BT,CC	1	3	0	3	D. Planes	K. Planes	Recreational digging prohibited	D. Planes, since 1/88	6/6/94
48	8	Nitinat Narrows	22		RZ, CC	0	0	0	0	R. Brouwer		Observed in dive survey - not harvested	Dive survey, 1993	7/28/94

*MN = manilla; LN = littleneck; BT = butter; CC = cockle; RZ = razor

Table C14: CRAB populations in the Sooke/Nitinat area

Code	Map	Location	Targets	Gear	Use Levels			Use	Day		Peak		Timing	Source 1	Source 2	Comments	Data Date	Map Date
					Cm	Ab	Rec		Start	End	Start	End						
1	1	NW Sooke Basin	Dungeness	Traps	4	3	5	Popular recreational area	1	365	1	365	All Year	R.Osselton	D. Planes	Red rock, spider crabs released	R.Osselton, since 1991	5/5/94
2	1	Sooke Harbour	Dungeness	Traps	5	3	3		1	365	1	365	All Year	R.Osselton	D. Planes	Red rock, spider crabs released	R.Osselton, since 1991	5/5/94
3	1	S.Sooke Basin	Dungeness	Traps	5	3	3		1	365	1	365	All Year	J. Planes	F. Planes		Life-time residents	5/5/94
4	1	Billings Spit(S.Hrb)	Dungeness	Traps	4	5	3		1	365	1	365	All Year	J. Planes	F. Planes		Life-time residents	5/5/94
5	12	Nitinat Lk.	Dungeness	Traps	4	5	0		1	365	1	365	All Year	B.Rushton			B.Rushton, since 1979	5/5/94
6	12	Nitinat Narrows	Dungeness	Traps	4	5	0	30 or more traps	1	365	1	365	All Year	B.Rushton	C. Edgar		B.Rushton, since 1979	5/5/94
7	12	Port San Juan	Dungeness	Traps	4	5	5	3-6 boats - 450+ traps(comm.); 200 sport	1	365	1	365	All Year	R.Kehl	D.Heggelund		R.Kehl, since 1979	5/5/94
8	8	Jordan River-Sheringham	Dungeness	Traps	5	1	1	4 boats - 700 traps (comm.)	1	365	1	365	All Year	H.Connor	D.Heggelund	Aboriginal west of J.R., commercial east	H. Connor, since 1965	6/6/94
9	8	Nitinat Bar	Dungeness	Traps	4	2	2	3 boats - 450 traps	335	258	335	152	Not during net opening	H. Connor	B. Rushton	Octopus incidental (4000 lb./year)	H. Connor, since 1965	6/6/94
10	3	Pachena Bay/Keeha Bay	Dungeness	Traps	2	2	0		1	365	1	365	All year	Ed Johnson	H.Connor	Mainly aboriginal, 2 or 3 boats commercial	E. Johnson, since 1992	6/20/94

Table C15: ABALONE populations in the Sooke/Nitinat area

Code	Map	Location	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
			Comm	Ab	Rec		Start	End	Start	End								
1	10	Race Rks.	0	0	0	Present; no fishery	0	0	0	0	Unknown	Reserve	R.Kehl	R. Osselton	F.Planes	Botanical area	R. Osselton, since 1991	5/18/94
2	10	Otter Pt.	0	0	0	Present; no fishery	0	0	0	0	Unknown	none	R.Kehl	R. Osselton		Closed fishery for abalone	R. Osselton, since 1991	5/18/94
3	8	Sheringham Pt.	0	0	0	Present; no fishery	0	0	0	0	Unknown	none	R.Kehl	R. Osselton		Closed fishery for abalone	R. Osselton, since 1991	5/18/94
4	10	Whirl Bay	0	0	0	Present; no fishery	0	0	0	0	Unknown	none	R.Kehl			Once harvested here, now closed	R. Kehl,since 1979	5/18/94
5	10	Muir Pt.	0	0	0	Present; no fishery	0	0	0	0	Unknown	none	R. Osselton	R. Kehl		Once harvested here, now closed	R. Osselton, since 1991	5/18/94
6	11	San Juan Pt.	0	0	0	Present; no fishery	0	0	0	0	Unknown	none	R.Kehl	R. Osselton		Once harvested here, now closed	R. Kehl,since 1979	5/18/94
7	8	Owen Pt.	0	0	0	Present; no fishery	0	0	0	0	Unknown	none	R.Kehl			Once harvested here, now closed	R. Kehl,since 1979	6/6/94
8	10	Bedford Islands	0	0	0	Illegal harvest	-9	-9	-9	-9	Unknown	Dive	R. Osselton			Recent illegal harvest	R. Osselton, since 1991	5/11/94
9	10	Frazer Is.	0	0	0	Illegal Harvest	-9	-9	-9	-9	Unknown	Dive	R. Osselton			Recent illegal harvest	R. Osselton, since 1991	5/11/94
10	10	Church Pt.	0	0	0	Illegal Harvest	-9	-9	-9	-9	Unknown	Dive	R. Osselton			Recent illegal harvest	R. Osselton, since 1991	5/11/94

Table C16: CHITONS populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End							
20	12	San Juan Pt.	(Black Katy, Pacific)	0	1	-9	Light	1	365	-9	-9	Year-round	Hand	H. Dunn	Pacheenaht Band	Current aboriginal use	Based on trad. knowledge	5/18/94
21	8	W. of Tsuquanah Pt.	(Black Katy, Pacific)	0	2	-9	Mod.-Light	1	365	-9	-9	Year-round	Hand	C.Edgar	R. Brouwer	Current aboriginal use	Based on trad. knowledge	6/6/94
22	3	Pachena Bay	(Black Katy, Pacific)	0	3	-9	Moderate	1	365	-9	-9	Year-round	Hand	E. Johnson	Bill Green	Current aboriginal use	E. Johnson - Guardian since 1992	6/15/94

Table C17 : GOOSENECK BARNACLE populations in the Sooke/Nitinat area

Code	Map	Location	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Comments	Data Date	Map Date
			Comm	Ab	Rec		Start	End	Start	End							
1	8	Sooke B. - Otter Pt.	0	-9	-9	Present, aboriginal use sporadic	1	365	-9	-9	Year-round	Hand	R. Osselton	Sooke Band	Rocky exposed areas	R. Osselton, since 1991	5/11/94
2	8	San Simon Pt.- San Juan Pt.	0	-9	-9	Present, aboriginal use sporadic	1	365	-9	-9	Year-round	Hand	R. Osselton	H. Dunn	Rocky exposed areas	R. Osselton, since 1991	5/11/94
3	8	Owen Pt. - Bonilla Pt.	0	-9	-9	Present, aboriginal use sporadic	1	365	-9	-9	Year-round	Hand	R. Osselton	Sooke Band	Rocky exposed areas	R. Osselton, since 1979	5/11/94
4	12	San Juan Pt. - Woods Nose	0	2	-9	Present, aboriginal use sporadic	1	365	-9	-9	Year-round	Hand	R. Kehl	H. Dunn	Rocky exposed areas	R. Kehl, since 1979	5/11/94
5	8	Carmanah Pt. to W. of Tsuquahhah Pt	0	2	-9	Fairly important food	1	365	-9	-9	Year-round	Hand	C. Edgar		Rocky exposed areas - weather permitting	Based on trad. knowledge	6/6/94
6	3	Pachena Bay	0	2	-9	Fairly important food	1	365	-9	-9	Year-round	Hand	E. Johnson		Would like to keep commercial harvesters out	F. Guardian since 1992	6/17/94

Table C18: MUSSEL populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End							
1	10	N.E. Pedder Bay	M.edulis	0	-9	1	Where there is access	1	365	-9	-9	Year-round	Hand	R. Osselton		Local areas - gathered by residents	R. Osselton, since 1991	5/11/94
2	10	Pedder Bay - Church Pt.	M.edulis	0	-9	1	Where there is access	1	365	-9	-9	Year-round	Hand	R. Osselton		Local areas - gathered by residents	R. Osselton, since 1991	5/11/94
3	10	Becher B. - Aldridge Pt.	M.edulis	0	-9	1	Where there is access	1	365	-9	-9	Year-round	Hand	R. Osselton		Local areas - gathered by residents	R. Osselton, since 1991	5/11/94
4	10	Beechey Hd. - Christie Pt.	M.edulis, M.calif.	0	-9	1	Where there is access	1	365	-9	-9	Year-round	Hand	R. Osselton		Local areas - gathered by residents	R. Osselton, since 1991	5/11/94
5	10	Sooke Basin	M.edulis	0	-9	0	Closed area but mussels abundant	0	0	0	0	None	n/a	D. & K. Planes	R. Osselton	Used to be mussel culture in Basin; now closed	D. Planes - clam digger since 1988	5/11/94
6	10	W. Sooke Harb. - Sooke Bay	M.edulis	0	-9	0	Closed area	0	0	0	0	None	n/a	R. Osselton		Contaminated area	R. Osselton, since 1991	5/11/94
7	8	Sooke B. - Otter Pt.	M.edulis, M.calif.	0	-9	2	Where there is access	1	365	-9	-9	Year-round	Hand	R. Osselton		Harvest where there is access	R. Osselton, since 1991	5/11/94
8	8	Pt No Pt	M.edulis, M.calif.	0	-9	2	Harvested by boy scouts for PSP testing	1	365	-9	-9	Year-round	Hand	R.Kehl	R. Osselton	Present along coast.	R. Kehl, since 1979	5/18/94
9	8	San Simon Pt.- San Juan Pt.	M.edulis, M.calif.	0	2	-9	Pacheenaht Band harvests	1	365	-9	-9	Year-round	Hand	R. Osselton	H. Dunn	Pacheenaht Band	R. Osselton, since 1991	5/11/94
10	8	Owen Pt. - Bonilla Pt.	M.edulis, M.calif.	0	-9	-9	Unknown - difficult access	1	365	-9	-9	Year-round	Hand	R. Osselton	H. Dunn	Present but harvest rate unknown	R. Osselton, since 1991	5/11/94
11	12	San Juan Pt. - Woods Nose	M.edulis, M.calif.	0	2	-9	Light Abor. use	1	365	-9	-9	Year-round	Hand	R. Osselton	H. Dunn	Pacheenaht Band	H. Dunn, since 1992	5/11/94

Table C18: MUSSEL populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End							
12	12	Wood's Nose - San Juan R.	M.edulis, M.calif.	0	2	-9	Light Abor. use	1	365	-9	-9	Year-round	Hand	R. Osselton	H. Dunn	Pacheenaht Band	H. Dunn, since 1992	5/11/94
13	12	NW Port San Juan - Owen Pt.	M.edulis, M.calif.	0	2	-9	Light Abor. use	1	365	-9	-9	Year-round	Hand	R. Osselton	H. Dunn	Pacheenaht Band	H. Dunn, since 1992	5/11/94
14	12	Nitinat Narrows	M.edulis, M.calif.	0	2	-9	Present -	0	0	0	0	Year-round	Dive	P. Harrison	C. Edgar	Very thick - M. edulis	P. Harrison, since 1980	6/6/94
15	8	Carmanah Pt. to W. of Tsuquannah Pt	M.edulis, M.calif.	0	2	-9	Abor. harvest and poss. West Coast	1	365	-9	-9	Year-round	Hand	C. Edgar		Many mussels - all rocky areas	Band trad. knowledge	6/6/94
16	8	Nitnat Lake	M.edulis	0	0	0	None	0	0	0	0	none	n/a	R. Brouwer			Dive survey - Sept/93	6/6/94
17	3	Pachena Bay	M.edulis, M.calif.	0	3	-9	Moderate	1	365	-9	-9	Year-round	Hand	E. Johnson		Ohiaht band use	Based on traditional knowledge	6/18/94
18	10	Parry Bay	M.edulis	0	-9	1	Where there is access	1	365	-9	-9	Year-round	Hand	R. Osselton		Local areas - gathered by residents	R. Osselton, since 1991	5/11/94

Table C19 : OCTOPUS populations in the Sooke/Nitinat area

Code	Map	Location	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
			Comm	Ab	Rec		Start	End	Start	End								
1	10	Race Rks.	0	0	-9	None	0	0	0	0	Year-round closure	Ecological Reserve	R.Kehl	R. Osselton	F.Planes	Productive and diverse area	R. Kehl, since 1975	5/18/94
2	10	off Beechy Head	-9	-9	-9	Unknown	-9	-9	-9	-9	Unknown	Dive (comm.), Trap (abor.)	F. Planes	R. Kehl	R. Osselton		R. Kehl, since 1979	5/18/94
3	8	off Secretary-Sheringham pt.	-9	-9	-9	Unknown	-9	-9	-9	-9	Unknown	Dive (comm.), Trap (abor.)	F. Planes	R. Kehl	R. Osselton	Historic abor. use	R. Kehl, since 1979	5/18/94
4	8	Pt No Pt-Pt San Juan	-9	1	-9	Light	-9	-9	-9	-9	Unknown	Dive (comm.), Trap (abor.)	H. Dunn	R. Kehl	R. Osselton	Off Jordan R. and other rocky spots	Based on trad. knowledge	5/18/94
5	10	Bentick Island	-9	1	-9	Unknown	-9	-9	-9	-9	Unknown	Dive (comm.), Trap (abor.)	F. Planes	R.Kehl	R. Osselton	Use declining	R. Osselton, since 1991	5/18/94
6	1	Sooke Harbour	0	1	-9	Light	1	365	-9	-9	Year-round	Unknown	F. Planes	R. Osselton		Historic and current aboriginal use	R. Osselton, since 1991	5/18/94

Table C20: OYSTER populations in the Sooke/Nitinat area

Code	Map	Location	Stat. Area	Sub-Area	Targets	Use Level				Source 1	Source 2	Comments	Comments 2	Data Date	Map Date
						Comm	Ab	Rec	Use						
1	1	NE Roche Cove	20	7	Japanese	0	0	0	0	D. Planes	K. Planes	Few clams		D. Planes, since 1988	5/5/94
2	1	Anderson Cove Oyster Lease	20	7	Japanese	0	0	0	0	D. Planes	K. Planes	Oyster lease		D. Planes, since 1988	5/5/94
3	1	W. of Sooke R. Mouth	20	6	Japanese	1	0	0	0	E. Helgeson	D&K Planes	Contaminated area - special lease	Immature oysters sold & finished on clean beach	D. Planes, since 1988	5/5/94

Table C21: SCALLOP populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End								
1	10	OffSooke Bay	Pink and Spiny	1	0	0	Light-only 1 boat	264	440	-9	-9	Winter (fall to spring)	Trawl	R.Kehl	J. Stephen		Beam trawl in about 50 ft depth	R. Kehl, since 1979	5/18/94
2	8	Nitinat Lake	Rock and swimming	0	0	0	None	0	0	0	0	Observed in fall	Dive	R.Brouwer			Dive survey by DFO of lake. Ecological Reserve	R. Brouwer, since 1981	6/6/94
3	10	Race Rks.	Rock	0	0	0	None	0	0	0	0	Not fished	Ecological Reserve	R.Kehl	R. Osselton	F.Planes	Rich and diverse marine life	R. Kehl, since 1979	5/18/94
4	8	Owen Pt.	Rock	0	1	0	Very light	0	0	0	0	Occasion-ally harvested	Unknown	H. Dunn			A few are taken	Based on trad. knowledge	

Table C22: SEA CUCUMBER populations in the Sooke/Nitinat area

Code	Map	Location	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
			Comm	Ab	Rec		Start	End	Start	End								
1	10	Race Rks.	0	0	0	None	0	0	0	0	Closed year round	Reserve	R.Kehl	R. Osselton	F.Planes	Federal Ecological Reserve - Pearson Coll. studies	R. Kehl, since 1979	5/18/94
2	10	Creyke Point	-9	-9	0	Probable comm. harvest	304	365	335	365	Year-round	Dive	R.Kehl	R. Osselton	F.Planes,P. Chips		R. Kehl, since 1979	5/18/94
3	10	Off Beechy Head	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Comm in Dec; Abg. yr-round	Dive	R.Kehl	R. Osselton	FPlanes		R. Kehl, since 1979	5/18/94
4	10	Muir Pt	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Comm in Dec; Abg. yr-round	Dive	R.Kehl	R. Osselton			R. Kehl, since 1979	5/18/94
5	10	Otter Pt.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Comm in Dec; Abg. yr-round	Dive	R.Kehl	R. Osselton		Closed fishery for abalone	R. Kehl, since 1979	5/18/94
6	8	Sheringham Pt.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Unknown	Dive	R.Kehl	R. Osselton		Closed fishery for abalone	R. Kehl, since 1979	5/18/94
7	8	Orveas Bay	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Comm in Dec; Abg. yr-round	Dive	R.Kehl	R. Osselton			R. Kehl, since 1979	5/18/94
8	8	off Sombrio Rv.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Unknown	Dive	R.Kehl	R. Osselton		Experimental Purple Urchin Harvest Permit	R. Kehl, since 1979	5/18/94
9	8	Dare Pt.	-9	-9	0	Present	0	0	0	0	No harvest		R.Brower	P.H,C.Edgar			R. Brouwer, since 1981	6/6/94
10	8	Clo-ose	-9	-9	0	Present	0	0	0	0	No harvest		R.Brower	P.H,C.Edgar			R. Brouwer, since 1981	6/6/94

Table C22: SEA CUCUMBER populations in the Sooke/Nitinat area

Code	Map	Location	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
			Comm	Ab	Rec		Start	End	Start	End								
11	8	off Providence C.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Unknown	Dive	R.Kehl	R. Osselton			R. Kehl, since 1979	5/18/94
12	12	San Juan Pt.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Year-round	Dive	R. Osselton	H. Dunn		Some abor. use	R. Osselton, since 1991	5/18/94
13	8	Owen Pt.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Year-round	Dive	R. Osselton	H. Dunn		Some abor. use	R. Osselton, since 1991	5/18/94
14	8	Nitinat Lake	-9	-9	0	Present	0	0	0	0	Present		R.Brower	P.H,C.Edgar		Dive survey by DFO of lake. Ecological Reserve	Sept. 93	6/6/94
15	10	Bentlcke Is.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Presence known	Dive	R.Osselton	R.Kehl			R. Osselton, since 1991	5/18/94
16	10	Frazer Is.	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	Unknown	Dive	R.Kehl			Once harvested here, now closed	R. Kehl, since 1979	5/11/94
17	10	William Head	-9	-9	0	Probable comm. harvest but use unknown	304	365	335	365	November to Feb.	Dive	R. Osselton				R. Osselton, since 1991	5/11/94
18	8	W. of Tsuquanah Pt.	0	0	0	Present	0	0	0	0	n/a	Observed	P. Harrison	C. Edgar			P. Harrison, test fisher since 1980	6/6/94
19	3	Pachena Bay	0	0	0	not used	0	0	0	0	n/a		E. Johnson			Historic aboriginal use	E. Johnson, guardian since 1992	6/18/94
20	10	Bedford Isl.		-9	0	Probable comm. harvest but use unknown	304	365	335	365	Unknown	Dive	R. Osselton	R. Kehl				

Table C23: SEA URCHIN populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End								
1	10	Race Rks.	red, green	0	0	0	0	0	0	0	0	Closed to harvest	Reserve	R.Kehl	R. Osselton	F.Planes	Botanical area	R. Kehl, since 1979	5/18/94
2	10	Creyke Point	red, green	-9	-9	-9	Becher Bay Band	1	365	-9	-9	Year-round	Unknown	R.Kehl	R. Osselton			R. Kehl, since 1979	5/18/94
3	10	off Beechy Head	red, green	-9	-9	-9	Commercial harvest area	304	365	335	365	Comm in Dec; Abor yr-round		R.Kehl	R. Osselton	F. Planes		R. Kehl, since 1979	5/18/94
4	10	Muir Pt	red	-9	1	-9	Sooke Band	304	356	335	365	Comm in Dec; Abor yr-round	Commercial - dive	R. Osselton	Sooke Band			Roy Osselton, since 1990	5/18/94
5	10	Otter Pt.	red, green	-9	1	-9	Sooke Band	304	356	335	365	Comm in Dec; Abor yr-round	Commercial - dive	R. Osselton	Sooke Band		Closed fishery for abalone	Roy Osselton, since 1990	5/18/94
6	8	Orveas Bay	red	-9	1	-9	Sooke Band	304	356	335	365	Comm in Dec; Abor yr-round	Commercial - dive	R. Osselton	Sooke Band			Roy Osselton, since 1990	5/18/94
7	8	off Sombrio Rv.	red, green, purple	-9	0	-9	Experimental Harvest	-9	-9	-9	-9	Unknown	Dive	R.Kehl	R. Osselton		Experimental Purple Urchin Harvest Permit	R. Kehl, since 1979	5/18/94
8	8	Dare Pt.	purple, red	0	2	-9	Ditidaht Band harvest	1	365	-9	-9	Year-round	Hand	C. Edgar	P. Harrison			R. Kehl, since 1979	6/6/94
9	8	Clo-ose	purple, red	0	2	-9	Ditidaht Band harvest	1	365	-9	-9	Year-round	Hand	C. Edgar	P. Harrison			R. Kehl, since 1979	6/6/94

Table C23: SEA URCHIN populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End								
10	12	San Juan Pt.	red, green, purple	-9	-9	-9	Pachee naht Band target	1	365	-9	-9	Year-round	Unknown	R. Osselton	H. Dunn			Roy Osselton, since 1990	5/18/94
11	8	Owen Pt.	red, green, purple	-9	-9	-9	Pachee naht Band target	1	365	-9	-9	Year-round	Unknown	R. Osselton	H. Dunn			Roy Osselton, since 1990	5/18/94
12	8	Nitinat Lake	green	0	0	0	Not utilized	0	0	0	0	No harvest	Dive survey, observed from boats	R.Brower	P.H,C.Edgar		Concentrations across from Doobah and in Narrows	Sept 1993	6/6/94
13	10	Bentick Island	red, green	-9	-9	-9	Unknow n	-9	-9	-9	-9	Presence known		R.Osselton	R.Kehl			Roy Osselton, since 1990	5/18/94
14	10	Bedford Islands	red, green	-9	-9	-9	Aborigin al - Becher Bay	-9	-9	-9	-9	Unknown		R.Kehl				R. Kehl, since 1979	5/18/94
15	10	Frazer Is.	red, green	-9	-9	-9	Aborigin al - Becher Bay	-9	-9	-9	-9	Unknown		R.Kehl				R. Kehl, since 1979	5/18/94
16	10	William Head	red, green	-9	0	-9	Comme rcial for greens	305	425	-9	-9	November to Feb.	Dive	R. Strong				Unknown	6/20/94
17	8	W. of Tsuquanah Pt.	purple, red	0	2	-9	Ditidaht Band harvest	1	365	-9	-9	Year-round	Hand	C. Edgar	P. Harrison		Current aboriginal use	R. Brouwer, since 1981	6/6/94
18	3	Pachena Bay	red, purple	0	3	-9	Importa nt for food	1	365	-9	-9		Hand - using poles	E. Johnson			Current aboriginal use	Guardian since 1992	6/18/94

Table C24: SHRIMP populations in the Sooke/Nitinat area

Code	Map	Location	Tar-gets	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Source 3	Comments	Data Date	Map Date
				Comm	Ab	Rec		Start	End	Start	End								
1	1	Sooke Basin	Coonstri pe Shrimp	3	0	0	6 boats, 20 traps each	1	365	305	425	Peaks Nov. - March	Trap	R. Osselton	R. Kehl		Use cedar lathe traps	R. Osselton, since 1979	6/6/94
2	8	Nitinat Lake - Ecol. Reserve, narrows	Shrimp and Prawns	0	0	0	Some feasibility studies done	0	0	0	0	n/a	Dive	R.Brouwer	P.H,C.Edgar		2" in length - transparent	R. Brouwer, since 1981	6/6/94

Table C25: SQUID populations in the Sooke/Nitinat area

Code	Map	Location	Use Level			Use	Day		Peak		Timing	Gear	Source 1	Source 2	Comments	Data Date	Map Date
			Comm	Ab	Rec		Start	End	Start	End							
1	8	Pt No Pt-Pt San Juan	0	0	-9	Possible recreational use	-9	-9	-9	-9	Summer?	Jig	H.Dunn	R. Osselton	Historic use, still present	H. Dunn since 1992	5/18/94
2	3	Deadman Cove	1	0	0	One boat fishes in summer - 7 licenced	121	212	-9	-9	May to July	Seine	D. Burnip		Landings not known	D. Burnip, since 1991	6/17/94
3	1	Sooke Harbour	0	-9	-9	Seen at commercial dock and present in Harbour	0	0	0	0	Unknown	None	R. Osselton	D. Heggelund	No fishery due to poor market	R. Osselton, since 1979	7/28/94

Table C26: WHALE populations in the Sooke/Nitinat area.

Code	Map	Location	Targets*	Timing	Activity	Source 1	Source 2	Comments 1	Data Date	Map Date
5	7	Owen Pt.	KW	Summer	Unknown	Harry Connor		Probably feeding on salmon	H. Connor, since 1963	6/10/94
6	7	Nitinat Bar	GW	Spring	Feeding	B.Rushton	C.Edgar	Feeding at bar; also seen in lake once	B. Rushton, since 1979	6/1/94
7	7	Jordan R.	GW	Spring	Feed at river mouth	R.Kehl		Never see gray whales east of Jordan R.	R. Kehl, since 1979	5/11/94
10	4	Pachena Bay	GW	Spring-Summer	Feeding	E.Johnson		Reported 5 in bay at time of interview (Jun. 24)	Fisheries Guardian since 1992	6/18/94

*KW = killer whale; GW = grey whale

Table C27: SEAL populations in the Sooke/Nitinat area.

Code	Map	Location	Targets*	Timing	Activity	Source 1	Source 2	Comments 1	Comments 2	Data Date	Map Date
1	7	Race Rocks	HS	Peak Dec. 15 - Jan 15	Feeding	R.Kehl	H.Connor	Up to 500 mixed Stellar and California, tourist attraction	Seals present year-round, more in summer	R. Kehl, since 1979	5/11/94
2	7	Various locations near Port San Juan	HS	Year-round	Resting, reproduction	Sooke Band	R. Kehl	Caves with seals and cormorants		R. Kehl, since 1979	5/11/94
3	7	Nitinat Lake	HS	All year; peaks Sept. to Nov.	Feed on CK & CM, anchovies and smolts (spring)	Carl Edgar	R.Brouwer	Various locations around lake (some caves)	Often 50 in lake, even up into Nitinat R.	R.Brouwer, since 1981	6/6/94
4	7	Nitinat Narrows and Clo-oose to Tsuquanah Pt.	HS	Sept-Nov	Feeding - salmon	Carl Edgar	R.Brouwer	Follow salmon runs into Nitinat; large #'s at times in narrows.		R.Brouwer, since 1981	6/6/94
8	4	Keeha Beach/C. Beale	HS	July-August	Feeding	E.Johnson		10 - 20 per site; pups seen at C. Beale		Fisheries Guardian since 1992	6/18/94

*HS = harbour seal

Table C28: SEA LION populations in the Sooke/Nitinat area.

Code	Map	Location	Targets	Timing	Activity	Source 1	Source 2	Comments 1	Comments 2	Data Date	Map Date
1	7	Race Rocks	Stellar and California	Peak Dec. 15 - Jan 15	Feeding	R.Kehl	H.Connor	Up to 500 mixed Stellar and California, tourist attraction	Seals present year-round, more in summer	R. Kehl, since 1979	5/11/94
3	7	Nitinat Lake	Stellar	All year; peaks Sept. to Nov.	Feeding on CK and CH; also anchovies and smolts in spring	Carl Edgar	R.Brouwer	Mainly outside lake but follow salmon in		R.Brouwer, since 1981	6/6/94
4	7	Nitinat Narrows and Clo-oose to Tsuquanah Pt.	Stellar	Sept-Nov	Feeding - salmon	Carl Edgar	R.Brouwer	50 - 100 stellar sea lions at Narrows and bar.		R.Brouwer, since 1981	6/6/94
9	4	Pachena Pt.	Stellar and California	March - May	Feeding	E.Johnson		100 or more on rock to west side of lighthouse		Fisheries Guardian since 1992	6/18/94

Table C29: KELP BEDS in the Sooke/Nitinat area.

Code	Map	Location	Target	Comments	Source 1	Source 2	Data Date	Map Date
1	7	Race Rocks - 2 polygons	Nereocystis	Ecological Reserve	H.Connor	R.Kehl	1/1/80	6/6/94
2	7	Muir Pt.	Nereocystis	6,300 tonnes	1988 Kelp Inventory	R. Osselton	8/1/88	6/20/94
3	7	Orveas Bay - 2 polygons	Nereocystis	2,700 tonnes	1988 Kelp Inventory		8/1/88	6/20/94
4	7	W. of Sombrio Point	Nereocystis	6,800 tonnes	1988 Kelp Inventory		8/1/88	6/20/94
5	7	Bonilla Point	Nereocystis	11,800 tonnes	1988 Kelp Inventory		8/1/88	6/20/94
6	7	Owen Point	Nereocystis	Used to be much bigger	Ron Kehl	H. Connor	R.Kehl, since 1979	6/6/94
7	7	E. of San Juan Point	Nereocystis	Botanical Beach Park	Ron Kehl	1988 Kelp Inventory	R.Kehl, since 1979	6/6/94
8	7	Dare Point - 2 polygons	Nereocystis		C. Edgar		n/a	6/6/94
9	4	Outer coast of Pachena Bay and off C. Beale	Nereocystis	Not dense, but extensive	E. Johnson	Louis Druehl (Bamfield Mar. Stn.)	E.Johnson - since 1992	6/14/94

Table C30: EELGRASS BEDS in the Sooke/Nitinat area.

Code	Map	Location	Target	Comments 1	Comments 2	Source 1	Source 2	Data Date	Map Date
1	10	Sooke Harbour and Basin - various locations	Z. Marina	Clams (Butter, cockles, horse, razors). Not harvested		D. Planes/K. Planes	Feakins, Sooke Basin Study	D.&K. Planes, since 1988	5/5/94
2	10	Sooke Harbour and Basin - various locations	Z. Marina	Important areas for salmon rearing		Feakins, Sooke Basin Study		Published 1991	5/5/94
3	10	Sooke Harbour and Basin - various locations	Z. Marina	Clams (Butter, cockles, horse, razors). Not harvested		D. Planes	K. Planes	D&K Planes, clam harvesters since 1988	5/5/94
5	12	Nitinat Narrows	Z.Marina	Very important for crabs and salmon juvenile rearing	Oil was observed after Gray's Harbour Spill in eelgrass and on crabs	D. Girodat	R.Brower	D. Girodat, since 1975	6/6/94
4	12	Mouths of Gordon R. and San Juan R.	Marsh grasses	Traditional aboriginal use		H. Dunn	Pacheenaht Band	H. Dunn, since 1992	5/26/94