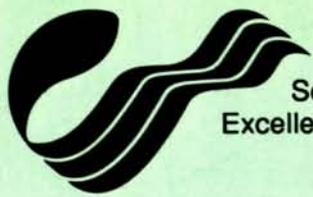


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Nestucca Project: Inventory of Department of Fisheries and Oceans Biological Resource Datasets

M.E. Wright

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1994

Canadian Manuscript Report of Fisheries and Aquatic Sciences 2259

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Canadian Manuscript Report of Fisheries and Aquatic Sciences

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Manuscript reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport manuscrit canadien des sciences halieutiques et aquatiques

Les rapports manuscrits contiennent des renseignements scientifiques et techniques qui constituent une contribution aux connaissances actuelles, mais qui traitent de problèmes nationaux ou régionaux. La distribution en est limitée aux organismes et aux personnes de régions particulières du Canada. Il n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, c'est-à-dire les sciences halieutiques et aquatiques.

Les rapports manuscrits peuvent être cités comme des publications complètes. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports manuscrits sont résumés dans la revue *Résumés des sciences aquatiques et halieutiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les numéros 1 à 900 de cette série ont été publiés à titre de manuscrits (série biologique) de l'Office de biologie du Canada, et après le changement de la désignation de cet organisme par décret du Parlement, en 1937, ont été classés comme manuscrits (série biologique) de l'Office des recherches sur les pêcheries du Canada. Les numéros 901 à 1425 ont été publiés à titre de rapports manuscrits de l'Office des recherches sur les pêcheries du Canada. Les numéros 1426 à 1550 sont parus à titre de rapports manuscrits 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 1551.

Les rapports manuscrits sont produits à l'échelon régional, 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.

Canadian Manuscript Report of
Fisheries and Aquatic Sciences 2259

1994

**NESTUCCA PROJECT:
INVENTORY OF DEPARTMENT OF FISHERIES AND OCEANS
BIOLOGICAL RESOURCE DATASETS**

by

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ABSTRACT

Wright, M.E. 1994. Nestucca Project: Inventory of Department of Fisheries and Oceans biological resource datasets. Can. Manusc. Rep. Fish. Aquat. Sci. 2259: 76p.

Fifty-two biological resource datasets held within the Department of Fisheries and Oceans, Pacific Region are described in terms of their data; parameters, form of collection, geographic extent, georeference, collection dates and frequency, confidentiality and quality. The applicability of the data to oil spill response is stated. The electronic and hardcopy format, operating system and software are described along with the dataset status, frequency of update and access protocol. Dataset manager names, office location and telephone numbers are provided. Biological resources include marine fish (salmon, herring and groundfish), shellfish (crustaceans, mollusks and echinoderms), vegetation and marine mammals.

RÉSUMÉ

Wright, M.E. 1994. Nestucca Project: Inventory of Department of Fisheries and Oceans biological resource datasets. Can. Manusc. Rep. Fish. Aquat. Sci. 2259: 76p.

Cinquante-deux fichiers de ressources biologiques conservés dans la région du Pacifique du ministère des Pêches et des Océans sont décrits en fonction des données qu'ils renferment, des paramètres, de la forme de collecte, de l'étendue géographique, de la géoréférence, des dates et de la fréquence de collecte, du caractère confidentiel et de la qualité. On mentionne si les données peuvent s'appliquer aux mesures prises en cas de déversement d'hydrocarbures. Le format électronique et papier, le système d'exploitation et le logiciel sont décrits ainsi que l'état des fichiers, la fréquence de leur mise à jour et le protocole d'accès. On fournit le nom du gestionnaire de chaque fichier, l'endroit où est situé son bureau et son numéro de téléphone. Les ressources biologiques comprennent les poissons marins (saumon, hareng et poissons de fond), les coquillages, les crustacés et les échinodermes, la végétation et les mammifères marins.

PREFACE

The need for an inventory of Department of Fisheries and Oceans' (DFO) biological resource datasets was identified as part of the Nestucca Project for the integration of DFO datasets with oil spill response. The informational requirement priorities identified by DFO and their spill response partners (Department of Environment, Canadian Coast Guard, Parks Canada, B.C. Ministry of Environment, Lands & Parks, West Coast Vancouver Island Native Tribal Councils) will be applied to this inventory to establish a list of datasets to be investigated for the feasibility of adapting their access protocols and output to oil spill requirements.

The term "dataset" was broadly interpreted to mean any set of biological resource information owned and maintained by DFO, Pacific Region, that may be useful to spill responders during an oil spill. Datasets exist as electronic databases, reports, chart series, or unpublished collections of files. Datasets are described in terms of their data type, parameters, location, data quality, database format, access protocols and contact persons. Datasets are listed under the dominant resource group they represent (ie. salmon, herring, shellfish, groundfish and marine mammals). As many datasets hold data on more than one resource group, a subject index is provided. The study resulted in a collection of 52 dataset descriptions.

The author would like to express her appreciation to all contributors who patiently responded to the interviews.

SALMON

1. COMMERCIAL CATCH STATISTICS SYSTEM (CCSS)

Category: Fish and shellfish. Species represented in the CCSS are listed in the Catch Statistics Coding Summary provided in Appendix A.

Spill response applicability: This database provides catch, effort and value data for fish and shellfish harvested in commercial fisheries for each DFO statistical area.

DATA DESCRIPTION

Parameters: Purchasing company, plant, landing date, DFO statistical area, CFV of vessel, days fished, gear, weight, price, landed form, species and number of fish (for salmonids only).

Form of collection: Commercial fish slips are completed when a fisher sells catch to a provincially licensed fish buyer or processor. The slips are completed by the buyer or processor and submitted to DFO. Contractors for DFO review the slips for completeness and accuracy prior to database entry. The contractors also collect reports of fish purchases from fish companies. These data are compared to the slip data and discrepancies are investigated. The slip data are often compared to other sources (eg. logbooks, validation logs, hauls, samples) as well. Remote data entry to the CCSS can be performed by the processing companies. Slips are entered onto the processor's computers using their data entry and edit programs. Each processor has a program that converts the slip data to DFO codes and format. The data files reside in directories on the processor's computers and are picked up nightly by the DFO VAX.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area.

Start date: 1980

End date: On-going

Seasonality: Year round

Collection frequency: Annual

Confidentiality: Detailed fish slip records and average value files are confidential; summarized data are not confidential.

Methodologies (std?): The CCSS performs extensive data checks during on-line data entry and on data received electronically from buyers.

Data deficiencies/limitations: The sales slips are not always filled out accurately by the buyers and processors. The database is limited in providing only 5 species codes for rockfish while there are over 30 individual species fished. Reported catches of individual species are combined to fit the available codes.

DATABASE CHARACTERISTICS

Electronic Format: Resident on the Regional Headquarters (RHQ) VAX. The system contains three types of data files. These are sales slip files (detailed fish slip records), average files (average values) and summary files (summarized catch and value data).

Hard copy: The preliminary data for the current year are reported monthly in three separate reports entitled "Salmon weight and pieces", "Shellfish", and "Other fish". Final data are reported annually in the "British Columbia Commercial Catch Statistics" by species, gear, month and area and in the "Annual Summary of British Columbia Commercial Catch Statistics".

Operating system: VMS

Software: In-house software

Record format: Fixed fields

Status: Current

Frequency of update: Annual

Access protocol: This system is difficult to access for the uninitiated. There have been hundreds of programs written for reporting the data in various ways. A Report Generator Program (RGP) has also been written to improve access to the CCSS. This program has a set of predefined reports that accept report parameters. Copies of the current and previous years' sales slip data are produced automatically on a weekly basis. These files are available to data users to allow direct access to the data for analysis. When sales slip data for a year become final, a copy is written to flat files in 2 formats and stored on tape. This database is also accessible on PBS VAX through the Salmon Stock Assessment (SSA) Database (see entry 5 of this inventory).

CONTACT INFORMATION

Name of manager(s): Lia Bijsterveld

Location: Regional Headquarters, Operations Branch, Conservation and Protection Division, Fisheries Data Management Unit, Vancouver

Telephone: (604) 666-6501

2. RECREATIONAL CATCH STATISTICS (RECSTAT)

Category: Salmon, shellfish, other fish

Spill response applicability: This database provides catch, effort and value data for salmon, lingcod, rockfish and halibut harvested in recreational fisheries for each DFO statistical area.

DATA DESCRIPTION

Parameters: Year of catch, DFO statistical area of catch, month of catch, species code, number of fish caught, effort (angler days).

Form of collection: This data have been obtained from Fishery Officer reports, creel surveys, and logbook programs. Fishery Officer reports were the source of data prior to 1979. These were replaced with a creel survey in Georgia Strait beginning in 1980. Catch estimates from the North Coast have been provided since 1985 and are obtained from all three methods.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area.

Start date: 1953. See "Form of collection".

End date: On-going

Seasonality: Year round

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: Fishery Officer reports were considered to be a reasonably accurate source in early years, however as duties changed, and Officers were not able to dedicate the same amount of effort to this task, the data became less reliable. Information is missing from some fields for some years and areas. Monthly catch and effort is available beginning in 1980 for some areas only. Catch by area is available for major areas (Rivers Inlet, Georgia Strait, Barkley and Nootka Sounds, Vancouver area) only until the late 1950's. Effort data is available beginning in 1960 for major areas only. Catch data for non-salmon species is available beginning in 1980. Logbook accuracy may not be very good with respect to fish identification. The standard error estimated for creel survey catch estimates has been <5% of the catch estimate for all areas.

DATABASE CHARACTERISTICS

Electronic format: Resident on the RHQ VAX.

Hard copy: Data prior to 1977 are reported in annual Sport Fishing Statistical reports. The Georgia Strait Creel Survey data are reported in Can. J. Fish. Aquat. Sci. Manuscript reports.

Operating system: VMS

Software: Ingres utilities EQUQL and PL1, Reportwriter, and SQL programs. Ingres files will be accessible to Microsoft Access in the future.

Status: Current

Frequency of update: Annual

Access protocol: Accessible on the RHQ VAX using Ingres software or on the PBS VAX through the Salmon Stock Assessment (SSA) Database (see entry 5 of this inventory).

CONTACT INFORMATION

Name of manager(S): Lia Bijsterveld

Location: Regional Headquarters, Operations Branch, Conservation and Protection Division, Fisheries Management Unit, Vancouver

Telephone: 666-6501

3. NATIVE CATCH STATISTICS (NATIVE)

Category: Salmon, groundfish, shellfish

Spill response applicability: This database provides information on the catch of salmon and steelhead in aboriginal fisheries for each DFO statistical area.

DATA DESCRIPTION

Parameters: Year, DFO statistical area, period, location, gear code, band number, species code, number of fish caught, number of permits issued.

Form of collection: Aboriginal catch data has been obtained through interviews with fishers, net patrols, sampling programs, observation of limited fisheries, logbook/diary programs, and landing slips. The form of data collection depends on the area and the relationship between the Department and the native people.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area. In some cases, more exact location information is available.

Start date: 1953, although there are gaps for some areas and species.

End date: On-going

Seasonality: Varied

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: The data are available in differing levels of detail and completeness across time and area. With the exception of catch estimates for the Fraser River, the quality of the data are very poor. The data are collected using inconsistent methods and the source has generally been considered unreliable.

DATABASE CHARACTERISTICS

Electronic format: Resident on the RHQ VAX.

Hard copy: The data from 1953 through 1984 have been published in a Can. J. Fish Aquat. Sci. Data report by James and Bijsterveld. Annual statistics reports were published from 1985 to 1989, when data were considered too unreliable to publish.

Operating system: VMS

Software: Ingres utilities EQUQL and PL1.

Record format: Fixed fields

Status: Current

Frequency of update: Annual

Access protocol: The data are accessible on the RHQ VAX using Ingres utilities (ie. Query by Forms (QBF), Reportwriter and using SQL queries). Ingres files will be accessible to Microsoft Access in the future. Data are also accessible on the PBS VAX through the Salmon Stock Assessment (SSA) Database (see entry 5 of this inventory).

CONTACT INFORMATION

Name of manager(s): Lia Bijsterveld

Location: Regional Headquarters, Operations Branch, Conservation and Protection Division, Fisheries Data Management Unit, Vancouver

Telephone: 666-6501

4. COMMERCIAL SALMON CATCH SPREADSHEET PROGRAM

Category: Salmon

Spill response applicability: This database provides catch, effort, timing and value data for salmon caught in commercial fisheries for each DFO statistical area.

DATA DESCRIPTION

Parameters: Year, Area, time period, gear, species (grade), days open, days fished, number of boats, pieces, total weight, % dressed, average price.

Form of collection: Each time a commercial catch is sold, a sales slip is completed and a copy sent to DFO in Vancouver (CCSS). These data are then processed by a series of database programs and summary catch information is maintained on the PBS computer.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area.

Start date: 1981-83

End date: On-going

Seasonality: Year round

Collection frequency: Annual

Confidentiality: These summary data are not confidential.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic Format: Resident on the PBS VAX.

Hard copy: The preliminary data for the current year are reported monthly in three separate reports entitled "Salmon weight and pieces", "Shellfish", and "Other fish". Final data are reported annually in the "British Columbia Commercial Catch Statistics" by species, gear, month and area and in the "Annual Summary of British Columbia Commercial Catch Statistics".

Operating system: VMS

Software: In-house software

Record format: Fixed fields

Status: Current

Frequency of update: Annual

Access protocol: Holmes, M.A. and D.W.A. Whitfield. 1991. User's Manual for the Commercial Salmon Catch Spreadsheet Program. Can. Tech. Rep. Fish. Aquat. Sci. 1807: 44p.

CONTACT INFORMATION

Name of manager(s): Louis Lapi/Brenda Adkins

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Assessment Data Section, Nanaimo, B.C.

Telephone: 756-7144/7094

5. SALMON ESCAPEMENT DATABASE AND REPORTING SYSTEM (S.E.D.S)

Category: Salmon

Spill response applicability: This database provides salmon escapement and run-timing information.

DATA DESCRIPTION

Parameters: Stream identification, start, peak and end of spawning, run timing, estimated number of fish, stream inspection dates, biological conditions and comments on any other conditions affecting the stream.

Form of collection: Departmental field staff annual reports.

Geographic extent: B.C.

Georeference: RAB code, watershed code, DFO statistical area

Start date: Escapement have been recorded in "Annual reports of salmon streams and spawning populations" since the early 1930's.

End date: On-going

Seasonality: Fall

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.?): A variety of different methods exist for estimating spawning populations and these methods have different accuracies. Hence, the accuracy of spawning estimates vary between streams employing different estimation procedures.

Data deficiencies/limitations: Comparison of annual escapement estimates between, and within streams must proceed with caution. In many instances, escapement estimates are useful only as indicators of growth or decline of salmon populations.

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX.

Hard copy: Annual reports of Salmon Streams and Spawning Populations

Operating system: VMS

Software: Database software was developed by Comshare.

Record format: N/A

Status: Current

Frequency of update: Annual

Access protocol: Available for users on the PBS VAX. System documentation available. Serbic, G. 1991. The Salmon Escapement Database and Reporting System. Can. Tech. Rep. Fish. Aquat. Sci. 1791: 104 p.

Also accessible through the Salmon Stock Assessment (SSA) Database (see entry 5 of this inventory).

CONTACT INFORMATION

Name of manager(s): Greg Serbic

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Assessment Methods Section, Nanaimo, B.C.

Telephone: 756-7193

6. MARK RECOVERY PROGRAM (MRP)

Category: Salmon

Comment: This database provides information on the age-class structure of catches, gear selectivity, recruitment of cohorts, age/morphometric interrelationships and growth rates of salmon.

DATA DESCRIPTION

Parameters: Species, length, weight, age, gear.

Form of collection: Biological samples are collected primarily from chinook and coho caught in every major fishery occurring off British Columbia's coast. In addition, coho, pink, sockeye, steelhead are also sampled.

Geographic extent: Mark recovery data encompasses information from California to Alaska. Finclip data includes Canadian Pacific Ocean recoveries and all B.C. hatchery releases.

Georeference: Data are georeferenced by MRP statistical areas and sub-areas. The MRP statistical areas are similar to the DFO salmon management statistical areas, however the boundaries are different as they encompass geographic areas where major fisheries occur.

Start date: MRP started in 1973.

End date: On-going

Seasonality: Summer/fall

Collection frequency: On-going

Confidentiality: Data are not confidential.

Methodologies (std?): N/A

Data deficiencies/limitations: Private contractors started collecting biological samples from the commercial fishery in 1980. Prior to 1980, the area coverage was not as extensive as the post 1980 period. It is difficult to obtain discrete locations for some samples, as some troll gear operate by catch region, not by statistical area. Also, there is no resolution to the size of mesh used in the seine and gillnet fisheries.

DATABASE CHARACTERISTICS

Electronic Format: Resident on the Pacific Biological Station (PBS) VAX. ASCII flat files.

Hard copy: Various report outputs and data publications.

Operating system: VMS

Software: Fortran programs

Record format: Fixed fields; can be downloaded to spreadsheet/ text reports or disk files (flat files).

Status: Current

Frequency of update: Weekly

Access protocol: Access to MRP available through the Salmon Stock Assessment (SSA) database on the PBS VAX. Modem communication is available at 756-7096 or 756-7107.

Manuals for use:

1. Kuhn, B.R., L. Lapi, and J.M. Hamer. 1988. An introduction to the Canadian database on marked Pacific salmonids. Can. Tech. Rep. Fish. Aquat. Sci. 1649: viii + 56p.
2. Kuhn, B.R. 1988. The MRP-Reporter Program: A data extraction and reporting tool for the Mark Recovery Program database. Can. Tech. Rep. Fish. Aquat. Sci. 1625: 145p.
3. Serbic, G. 1992. The Finclip Recovery Database and Reporting System. Can. Tech. Rep. Fish. Aquat. Sci. 1850: 32p.

CONTACT INFORMATION

Name of manager(s): Louis Lapi/Brenda Adkins/Susan Bates

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Assessment Data Section, Nanaimo, B.C.

Telephone: 756-7144

7. RECORD OF MANAGEMENT STRATEGIES (RMS)

Category: Salmon, groundfish

Comment: These reports are produced each year by Fishery Officers for DFO Statistical areas within which terminal fisheries occur. Information is provided for commercial, sport and native fisheries.

Spill response applicability: These data provide information on the timing, specific location, and catch and effort of commercial, sport and Indian food fisheries for selected DFO statistical areas.

DATA DESCRIPTION

Parameters: Timing, species, catch (per size category for chinook only), # of boats, # of anglers, escapement, closures, violations, comments.

Form of collection: Fishery officers compile information based on their experience in managing the fisheries through the season.

Geographic extent: West coast Vancouver Island and Qualicum in the South Coast Division

Georeference: Data are georeferenced by DFO statistical area.

Start date: 1990; intermittent prior to 1990. The entire west coast Vancouver Island is included in one RMS for 1985.

End date: On-going

Seasonality: Summer-fall

Collection frequency: Information is collected annually.

Confidentiality: Data are not confidential.

Methodologies (std.?): Since RMS reports are written by many different Fishery Officers for the individual areas, many inconsistencies occur with respect to format and content. Measures are being taken to standardize these inconsistencies.

Data deficiencies/limitations: Each RMS may not include information on all of the fisheries that occur in the area.

DATABASE CHARACTERISTICS

Electronic format: N/A

Hard copy: Report of Management Strategies (RMS). Internal DFO document.

Operating system: N/A

Software: N/A

Record format: N/A

Status: N/A

Frequency of update: N/A

Access protocol: Contact individual District offices for specific RMS reports.

CONTACT INFORMATION

Name of manager(s): District offices or Wilf Luedke - West Coast Vancouver Island, Leroy Hop Wo - Qualicum.

Location: Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.

Telephone: 756-7157/756-7294

8. JUVENILE SALMON DISTRIBUTION DATABASE

Category: Salmon, juvenile

Spill response applicability: This dataset provides information on the distribution and abundance of juvenile pink salmon in the southern Strait of Georgia from March through July.

DATA DESCRIPTION

Parameters: Date, time, length, location of catch, species, gear type, latitude, longitude and catch.

Form of collection: Series of observations from beach seines and trolls surveys by Alan Chapman, IPSFC.

Geographic extent: Georgia Strait; from the Fraser River plume to the Gulf Islands.

Georeference: Data are georeferenced by latitude and longitude.

Start date: 1958

End date: 1976

Seasonality: Surveys done through March - July each year.

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.?): Data were standardized for entry into the database. Different gear used for collection made quantification difficult.

DATABASE CHARACTERISTICS**Electronic format:** RBASE database files**Hard copy:** Series of maps showing indexes of catch for juvenile pink salmon using Compugrid.**Operating system:** DOS**Software:** RBASE**Record format:** N/A**Status:** Report to be written.**Frequency of update:** No updates planned.**Access protocol:** Data can be loaded onto the VAX or transferred onto floppies. Contact manager for access.**CONTACT INFORMATION****Name of manager(s):** Ian Williams**Location:** Pacific Biological Station, Biological Sciences Branch, Salmon Division, Salmon Habitat Section, Nanaimo, B.C.**Telephone:** 756-7095**9. STREAM INFORMATION SUMMARY SYSTEM (SISS)****Category:** Salmon**Spill response applicability:** These data provide salmon escapement values by species and life history timing for adult migration and juvenile rearing.**DATA DESCRIPTION****Parameters:** Data Categories: A. Description of stream location; B. Obstructions to migration; C. Flow; D. Distribution summary; E. Escapement summary; F. Life history timing; G. Enhancement/Management activities in watershed; H. Land use/Water use/Water quality; I. Fish production potential/Constraints/General Comments; J. Fishery Officer narrative; K. SIS completed by.**Form of collection:** Information was collected from federal and provincial fisheries staff, local residents and a variety of literature sources. References are provided.**Geographic extent:** B.C.**Georeference:** Latitude and longitude are associated with the stream mouths.**Start date:** 1985**End date:** 1991**Seasonality:** N/A**Collection frequency:** N/A**Confidentiality:** Data are not confidential.**Methodologies (std.):** N/A

Data deficiencies/limitations: Non-salmonid species are not included. Salmonid Enhancement Program information may not always be included. The database and hard copy maps are separate entities making it difficult to keep track of updates. Efforts are underway to bring the hard copy maps into a digital environment that can be linked to the existing textual database. "Solid data" (that which is most reliable) includes the distribution data, obstruction data and life history timing.

DATABASE CHARACTERISTICS

Electronic format: Resident on the RHQ VAX in Vancouver.

Hard copy: One SISS catalogue produced for each DFO subdistrict.

Operating system: VMS

Software: Ingres

Record format: Fixed fields

Status: Currently, there is no update strategy.

Frequency of update: N/A

Access protocol: Ingres files can be downloaded to dbf format. The database is accessible to any DFO VAX user. System introduction and user documentation have been published in a SISS User's Manual. SISS Catalogues are available to public with disclaimer.

CONTACT INFORMATION

Name of manager(s): Kathy Pontus

Location: Regional Headquarters, Operations Branch, Habitat Management Division, Policy and Information Unit, Vancouver

Telephone: 666-6683

B. HERRING

10. HERRING SPAWN DATABASE

Category: Herring spawn, Kelp

Spill response applicability: This database provides information on intertidal and subtidal areas utilized by herring for egg deposition. This information was extensively used during the Nestucca oil spill.

DATA DESCRIPTION

Parameters: Date of spawning and collection (start, finish), time, DFO statistical area, location code, station no., transect no., transect length (width of spawn), distance (length of spawn), depth, bottom type, bottom %, bottom layers, vegetation type (rockweed, grass, leafy-, stringy-algae), vegetation height, % coverage, egg layers.

Macrocystis (Giant Kelp) data - macrocystis bed width and length, plant height, plant layers, fronds < & > 1 meter.

Form of collection: Spawn data are entered into the database on three different record formats related to the type of survey employed to collect the data. The two types of surveys are surface and dive surveys. Dive survey data is broken down to include transect data and macrocystis observations in separate files. Egg count data from laboratory counts of herring spawn samples form a fourth component.

Geographic extent: Coastal B.C.

Georeference: The data are georeferenced to the specific herring locations within herring sections which encompass 293 sub-components of statistical areas on the coast. The data can be georeferenced at a smaller spatial scale but this requires extensive re-analysis of historic charts since the current location names are not consistent over the time series of data (ie. Denman Island could refer to Komass Bluff in one year and Chrome Island in another).

Start date: Surface survey data collection started in 1937; dive survey data collection started in 1988. Some limited datasets from experimental and prototype dive surveys prior to 1988 are available.

End date: On-going

Seasonality: January - June

Collection frequency: Annual

Confidentiality: Permission is required to use unpublished data collected after 1986.

Methodologies (std.?): Some variation in collection methods between Fishery Officers is expected. Spawn assessment methodology has changed several times over the data series.

Data deficiencies/limitations: Data collected since the early 1972 are generally of high quality. More recently, with the emphasis on conducting diving surveys of the major spawning stocks, some of the minor stocks which spawn in less accessible areas or at earlier or later times of the year are often not surveyed completely. Surface surveys are limited by the turbidity of the water, so surveys of subtidal spawns prior to 1988 may be minimal estimates only. The completeness of both dive and surface surveys can be affected severely by weather and other logistical considerations, as well as survey personnel who may leave out the collection of certain data.

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX. ASCII flat files.

Hard copy: Spawn occurrence data from dive surveys is available on CHS charts for the West Coast of Vancouver Island, Prince Rupert and the Queen Charlotte Islands. Only field maps are available for dive surveys in other regions and surface survey data.

Various research papers are produced using this data from time to time. Selected spawn data is incorporated into annual reports produced by D. Chalmers entitled "Spawn Areas Index Report" and the annual PSARC herring stock status report.

Base charts of vegetation data is held on 1:6,000 vellum overlays derived by projecting air photographs onto enlargements of CHS base charts. There are 33 overlays covering the major herring spawning grounds of south-west Vancouver Island. Many of these do not have lat./long. references on them limiting their use as digitizing basemaps.

Operating system: VMS

Software: Statistical Analysis System (SAS)

Record format: Fixed fields

Status: Current

Frequency of update: Major updates are done annually in July and minor updates occur as needed.

Access protocol: Queries can be made with SAS software on the ASCII file database. Database is inaccessible to most, training is possible given access to the PBS VAX.

CONTACT INFORMATION

Name of manager(s): Jake Schweigert/Chuck Fort/Lorena Hamer

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7203/756-7259/756-7196

11. SPAWNING AREAS OF BRITISH COLUMBIA HERRING: A REVIEW, GEOGRAPHICAL ANALYSIS AND CLASSIFICATION

Category: Herring spawn, roe fishery

Comment: This dataset comprises 6 volumes of herring spawn location and classification data. Vol.I: Queen Charlotte Islands; Vol.II: North Coast; Vol.III: Upper Central Coast; Vol.IV: Lower Central Coast and Johnstone Strait; Vol.V: Georgia Strait and Vol.VI: West Coast Vancouver Island. An updated version of these data are available to 1993 on disk. The tables include spawn position by year and histograms of cumulative spawn frequency over distance.

Spill response applicability: This database provides information on the annual frequency of spawns in one kilometer segments of the coast. The intensity and mean spawning dates of spawn for each are also included. Volume VI of this series was used during the Nestucca oil spill.

DATA DESCRIPTION

Parameters: DFO statistical area, geographical name, section no., total # of records, the spawn index (an estimate of the areas of spawn), the total length of spawn in meters for each year, average width of spawn in meters for each year, average intensity of spawn on a scale of 1 (very light) to 9 (very heavy), average spawning date, standard error of the mean weighted spawn date, average weighted spawn date, earliest spawn date recorded each year,

latest spawn date recorded each year, number of different days over which spawning occurred, number of different spawning locations used, spawning consistency over time. Tables of fishery data include the following information for both seine and gillnet fisheries from 1972-1986, year, date open, time open, hauled catch (tons), fishing area.

Form of collection: Fishery Officer spawn survey records. Fishery data was extracted from annual DFO information bulletins and industry reports.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced to 1 k sections of the coast, although not referenced to lat./long. coordinates.

Start date: 1937

End date: 1986

Seasonality: N/A

Collection frequency: N/A

Confidentiality: Data are not confidential.

Methodologies (std.?): N/A

Data deficiencies/limitations: The accuracy of the estimated spawn positions varied with the quality of the Fishery Officer's record. Some reported spawning positions were reported on fine-scale maps while others were course-scaled charts. Overall, the least precise estimated position involved records with spawns >5 k.

DATABASE CHARACTERISTICS

Electronic format: Data exist in .dbf format.

Hard copy: Hay, D.E., P.B. McCarter, R. Kronlund and C. Roy. 1989. Spawning areas of British Columbia herring: a review, geographical analysis and classification. Volumes I-VI. Can. MS Rep. Fish. Aquat. Sci. 2019.

Operating system: DOS

Software: Compugrid

Record format: Fixed fields

Status: Complete

Frequency of update: 1994

Access protocol: Reports are available from B. McCarter. Data files are available from D. Hay.

CONTACT INFORMATION

Name of manager(s): Doug Hay/Bruce McCarter

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Ocean Environment and Fisheries Section, Nanaimo, B.C.

Telephone: 756-7201/756-7198

12. CLASSIFICATION OF HERRING SPAWNING AREAS OF BRITISH COLUMBIA HERRING (*Clupea harengus pallasii*)

Category: Herring spawn

Comment: This dataset was developed as an abridged version of the Technical Report Series described in the next entry. This report served as an preliminary report to PSARC presented at the Annual Herring Stock Assessment Meeting, September 4-5, 1986.

Spill response applicability: This dataset provides a classification of spawn over geographic locations known as herring sections.

DATA DESCRIPTION

Parameters: DFO statistical area, sub-area, geographical name, classification, chart no., kilometer positions, concern (an approximate estimate of the maximum number of repeat spawns that have occurred within the specified positions) and comment (in most cases provides more detailed frequency or location information).

Form of collection: This report was prepared from data held in the Herring Spawn Database. Original source of the data are Fishery Officer spawn survey records.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced to 1 k sections of the coast, although not referenced to lat./long. coordinates.

Start date: 1937

End date: 1986

Seasonality: N/A

Collection frequency: N/A

Confidentiality: Data are not confidential.

Methodologies (std.?): N/A

Data deficiencies/limitations: The accuracy of the estimated spawn positions varied with the quality of the Fishery Officer's record. Some reported spawning positions were reported on fine-scale maps while others were course-scaled charts. Overall, the least precise estimated position involved records with spawns >5 km.

DATABASE CHARACTERISTICS

Electronic format: None

Hard copy: Hay, D.E. 1986. Classification of Spawning Areas of British Columbia Herring (*Clupea harengus pallasii*). PSARC Working Paper H86-5. Presented at the Annual Herring Stock Assessment Meeting, September 4-5, 1986.

Operating system: N/A

Software: N/A

Record format: N/A

Status: Complete

Frequency of update: None

Access protocol: Report can be reproduced; contact manager.

CONTACT INFORMATION

Name of manager(s): J. Morrison/M. Wright

Location: Operations Branch, South Coast Division, Habitat Management Unit, Nanaimo, B.C.

Telephone: 756-7256/756-7269

13. HERRING CATCH DATABASE

Category: Herring, fishery

Spill response applicability: This data provides information on the distribution and concentration of adult herring through the fall to spring period when herring are migrating inshore.

DATA DESCRIPTION

Parameters: Total catch, geographic location name.

Form of collection: Varied

Geographic extent: Coastal B.C.

Georeference: The data are georeferenced to the nearest herring section which encompass 293 sub-components of statistical areas on the coast.

Start date: 1946

End date: On-going

Seasonality: During reduction fishery - fall and winter and roe fishery in March and April.

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: Data are generally of high quality coming from sales slip information. The only deficiency of these data relate to the bait fishery, largely in Georgia Strait for which limited reporting occurs.

DATABASE CHARACTERISTICS

Electronic format: The catch data are stored on VMS direct-access files on the VAX at PBS.

Hard copy: N/A

Operating system: VMS

Software: Custom Fortran programs are used to access and summarize these data.

Record format: Fixed fields

Status: Complete update on database is usually one year behind due to the receipt of all sales slip data.

Frequency of update: Annual

Access protocol: The data is directly accessible to outside retrieval given access to the PBS VAX.

CONTACT INFORMATION

Name of manager(s): Jake Schweigert/Lorena Hamer

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7203/756-7196

14. HERRING BIOLOGICAL SAMPLING DATABASE

Category: Herring

Spill response applicability: These data provide information on the size distribution of herring for different times of the year.

DATA DESCRIPTION

Parameters: Age composition, average length, weight at age, sex ratio and maturity.

Form of collection: Varied; standardized samples of 100 herring by specific geographic location name.

Geographic extent: Coastal B.C.

Georeference: The data are georeferenced to the nearest herring section which encompass 293 sub-components of statistical areas on the coast.

Start date: 1946

End date: On-going

Seasonality: Data have been collected at all times of the year during different fisheries; reduction fishery in the fall and winter and more recently during roe fishery concentrating in March and April.

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.?): N/A

Data deficiencies/limitations: Data are generally of high quality coming from pre-fishery charters or directly from fishery catches as well as research samples. The only deficiency of these data relate to the bait fishery, largely in Georgia Strait for which no samples are available.

DATABASE CHARACTERISTICS

Electronic format: This data are stored in VMS direct-access files on VAX cluster at PBS.

Hard copy: Summaries of data published annually in Data Report series.

Operating system: VMS

Software: Custom Fortran programs are used to summarize these data.

Record format: Fixed fields

Status: Current

Frequency of update: Database is usually updated in July after all ageing for the current year is complete.

Access protocol: The data is directly accessible to outside retrieval given access to the PBS VAX.

CONTACT INFORMATION

Name of manager(s): Jake Schweigert/Lorena Hamer

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7203/756-7196

15. HERRING TEST FISHING PROGRAM

Category: Herring
Comment: Test fishing vessels sample herring catch to enable fishery managers to assess stock abundance, distribution, fish size and state of sexual maturity of Pacific herring. These data are used to determine the location and timing of the commercial roe herring fishery openings. In addition, a number of the fish are tagged. The tag recovery data provide information on inshore distribution and migration patterns as well as supplemental information for stock identification.
Spill response applicability: Usual herring roe fishing areas are identified.

DATA DESCRIPTION

Parameters: Vessel name, vessel manager, catch (tons), location, timing, test fishery duration, depth, roe quota, roe yield, sex ratio, roe grade, stock abundance, distribution, fish size, state of sexual maturity.
Form of collection: DFO chartered herring seine and gillnet boats conduct pre & post-fishery test fishing.
Geographic extent: Coastal B.C.
Georeference: Data are georeferenced by DFO statistical area.
Start date: 1980
End date: On-going
Seasonality: March and April
Collection frequency: Annual
Confidentiality: Data are not confidential.
Methodologies (std.?): Methods are standard and documented.
Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Raw data stored in Lotus spreadsheet format; report written in Wordperfect.
Hard copy: DFO Canadian Industry Report of Fisheries and Aquatic Sciences reports are produced annually.
Operating system: DOS
Software: Lotus 123
Record format: Spreadsheet
Status: Reports are published approximately one year behind the fishery.
Frequency of update: Annual
Access protocol: Reports are available from manager.

CONTACT INFORMATION

Name of manager(s): Bob Armstrong
Location: Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.
Telephone: 756-7286

16. REVIEW OF THE BRITISH COLUMBIA HERRING FISHERY AND SPAWN ABUNDANCE REPORTS

Category: Herring

Comment: The herring fisheries are reviewed for the past year, these include the food and bait fishery, the sac roe fishery and the spawn-on-kelp fishery.

Spill response applicability: Distribution and abundance of herring holding and herring catch. Tonnage by gear type and statistical area are provided. Spawn data is provided.

DATA DESCRIPTION

Parameters: Assessment of the stock size and ripeness: date, location, yield; Fishery: timing, effort, catch by fishing grounds (or DFO statistical area) and gear type. Fishery dates and locations from 1980. Spawn-on-kelp fishery: Area (west coast Vancouver Island, Central Coast, Prince Rupert, Johnstone Strait & Queen Charlotte Islands), number of licences, total production. Spawn: spawning grounds, start and end date of spawn, length and width of spawn, layers of spawn, % cover and spawn area index.

Form of collection: DFO chartered herring seine and gillnet boats conduct pre & post-fishery test fishing.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area for herring catch and value data with more specific geographic definition for the test fishery and spawning information.

Start date: 1980-85

End date: On-going

Seasonality: November and December; March and April

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.?): Methods are standard and documented.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Raw data stored in Lotus spreadsheet format; report written in Wordperfect.

Hard copy: DFO Canadian Industry Report of Fisheries and Aquatic Sciences reports are produced annually.

Operating system: DOS

Software: Lotus 123

Record format: Spreadsheet

Status: Reports are published approximately one year behind the fishery.

Frequency of update: Annual

Access protocol: Reports are available from manager.

CONTACT INFORMATION**Name of manager(s):** Dennis Chalmers**Location:** Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.**Telephone:** 756-7287**17. WINTER HERRING HYDROACOUSTIC DISTRIBUTION DATA****Category:** Herring**Spill response applicability:** This dataset identifies important herring overwintering areas and provides estimates of adult herring abundance.**DATA DESCRIPTION****Parameters:** Species, area of survey, estimate of herring abundance (t), herring density (#/m³), latitude, longitude, date, time, depth, voltage squared intensity values averaged over 1 minute by depth interval.**Form of collection:** Based on 10-12 day survey of continuous echo integration sounding from research vessels, G.B. REED, J.P. TULLY and W.E. RICKER.**Geographic extent:** Browning Entrance and SE Moresby Island. Surveys conducted in herring overwintering holding areas.**Georeference:** Data are georeferenced by latitude and longitude.**Start date:** 1984,85,87,88,90-92.**End date:** On-going**Seasonality:** Winter; December**Collection frequency:** Data collected whenever survey is proposed and funded.**Confidentiality:** Data are not confidential.**Methodologies (std.?):** Methods have been standardized.**Data deficiencies/limitations:** There are no data gaps as surveys cover intended area of study. Confidence limitations have not been worked up.**DATABASE CHARACTERISTICS****Electronic format:** ASCII flat files**Hard copy:** DFO Manuscript reports with survey charts**Operating system:** DOS**Software:** In-house hydroacoustic programs written by R. Kieser, COMPUGRID**Record format:** Fixed fields that can be converted to worksheet.**Status:** Current**Frequency of update:** Updated as further surveys are conducted.**Access protocol:** Data can be transferred via floppy disks to PC.

CONTACT INFORMATION**Name of manager(s):** D. Hay/B.McCarter**Location:** Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Ocean Environment and Fisheries Section, Nanaimo, B.C.**Telephone:** 756-7201/756-7198**18. JUVENILE HERRING DATABASE****Category:** Herring, juvenile**Spill response applicability:** These data provide information on the presence of young of the year herring in the Desolation Sound area from June through October.**DATA DESCRIPTION****Parameters:** Locations of seine sets, approximate catches, length, weight, date, time, incidental catches of other species.**Form of collection:** Hand and purse seine catches.**Geographic extent:** Desolation Sound**Georeference:** The data can be georeference to chart locations but this has not been done.**Start date:** 1987**End date:** 1989**Seasonality:** Data were collected from June to October.**Collection frequency:** Annually for three years only.**Confidentiality:** Data are not confidential.**Methodologies (std.?):** N/A**Data deficiencies/limitations:** Data are of average quality due to the selectivity of the gear used but are appropriate for indicating presence or absence of juvenile herring from sampled locations at this time of year.**DATABASE CHARACTERISTICS****Electronic format:** Information on the length and weight of samples of the juvenile herring collected are in ASCII files on the PBS VAX.**Hard copy:** At present the data are stored in field notebooks, although a report is in preparation.**Operating system:** N/A**Software:** N/A**Record format:** N/A**Status:** N/A**Frequency of update:** N/A**Access protocol:** The data are inaccessible to outside retrieval at this time.

CONTACT INFORMATION

Name of manager(s): Jake Schweigert

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division,
Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7203

C. SHELLFISH

19. COMMERCIAL INVERTEBRATE HARVEST LOG DATA

Category: Shellfish, invertebrates (geoduck, horse clams, sea cucumber, red sea urchin, green sea urchin, purple sea urchin, scallops, goose barnacles, octopus, squid and euphausiids).

Spill response applicability: This database provides harvest location and effort data for the harvested invertebrate species. Data were provided to spill responders during the Nestucca oil spill.

DATA DESCRIPTION

Parameters: Year, species code, gear code, CFV number, licence tab number, month, day, diver code, DFO statistical area, sub-area, bed code, depth (min., max.), container quantity, fishing time, catch-pieces, catch-weight, company code.

Form of collection: Log books are completed and submitted by the fishers. At this time, the purple sea urchin fishery takes place under scientific permit; harvest log data for purple sea urchins has been collected from 1989.

Geographic extent: Coastal B.C.

Georeference: Areas of harvest have been entered onto hydrographic charts; catch and effort data are available by DFO statistical sub-area.

Start date: Varies by species; geoduck data collection started in 1978; other species' data collection commenced in the 1980's.

End date: On-going

Seasonality: Varies by species

Collection frequency: Log sheet submission is required of fishers on a monthly basis throughout the calendar year, however, a seasons' collection may come all at once at the end of the year.

Confidentiality: Data are confidential.

Methodologies (std.?): N/A

Data deficiencies/limitations: See Table 1.

DATABASE CHARACTERISTICS

Electronic format: Log data prior to 1989 exists in several different formats according to species and year, as text files on VAX VMS tape at PBS, Nanaimo, B.C.. Data for 1990 to 1992 have been converted to a standard Ingres record format on VAX VMS tape at RHQ, Vancouver. Purple sea urchin data is stored on VAX VMS tape at PBS.

Hard copy: Paper copies of harvest logs and charted bed data are stored in locked cabinets at South Coast Division. Annual reports are produced of catch and effort by species, by licence, area and gear type. Ad hoc environmental reports of landings and effort are produced for habitat concerns or research.

Operating system: VMS

Software: Data stored as text files on VAX VMS tape at PBS can be accessed with Datatrieve software. Data from 1990 are stored in Ingres tables on RHQ VAX, with menu driven reporting.

Record format: Fixed fields. >1990 data are stored in Ingres "DFLLOG".

Status: Data for 1993 are not yet keypunched.

Frequency of update: Throughout the year as logbooks are received.

Access protocol: Ingres data on VAX can be downloaded to LOTUS files, however, a PC link software is required for data queries.

CONTACT INFORMATION

Name of manager(s): Rick Harbo/Kerry Hobbs

Location: Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.

Telephone: 756-7268/756-7158

**Table 1. COMMERCIAL INVERTEBRATE HARVEST LOG DATA
DATA PROBLEMS**

SPECIES	DATA PROBLEMS
Geoduck	<ol style="list-style-type: none"> 1. 1978-87 data does not include sub-areas. 2. 1988-89 data includes sub-area but is not the actual DFO statistical sub-area. 3. Diver minutes probably the least reliable piece of information, frequently not recorded. 4. Data prior to 1990 have not been electronically verified, many code errors likely exist in diver and bed code fields. 5. Unit of weight measurement is not standard; this may be a source of error. 6. Data does not include a species code prior to 1988.
Horse Clams	<p>Data problem nos. 1,2,4,6 as listed above.</p> <ol style="list-style-type: none"> 7. Horse clam bed codes are the same as for geoduck up to 1990. Beds are probably larger than actually fished for horse clams. 8. Catch per unit effort should be used with caution as horse clam catch is incidental to geoduck.
Sea Cucumber	<p>Data problem nos. 3, 4 & 5 as listed above.</p> <ol style="list-style-type: none"> 9. In standardizing units of weight in landings data, conversions are likely a large source of error. 10. Some files prior to 1985 have weights expressed in kilograms instead of pounds.
Red Sea Urchins	<p>Data problem nos. 3, 4 & 10 as listed above. Comment: reported weights are probably more reliable than # of pieces.</p>
Green Sea Urchin	Data problem no. 3 as listed above.
Octopus	<p>Data problem no. 10 as listed above.</p> <ol style="list-style-type: none"> 11. Effort data is unreliable. Octopus is used almost entirely for bait.
Squid	Data problem no. 10 as listed above.
Scallops	Data problem no. 10 as listed above.
Mussels	<p>Data problem no. 11 as listed above. Mussel fisher identity is often not recorded on logs submitted.</p> <ol style="list-style-type: none"> 12. Log format prior to 1990 was poorly suited to recording anything but overall catch by area for hand harvesting.
Goose Barnacles	Data problem nos. 11 & 12 as listed above.
Euphausiids	Data problem no. 10 as listed above.

20. COMMERCIAL CRAB HARVEST LOG DATA

Category: Shellfish, crab

Spill response applicability: This database provides information on the location of crab fishing grounds and catch and effort of the fisheries. This data were provided to spill responders during the Nestucca oil spill.

DATA DESCRIPTION

Parameters: Date, catch (weight in pounds or number of pieces), number of traps, soak time, DFO statistical area and depth.

Form of collection: Log sheets are completed and submitted by fishers.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area.

Start date: 1990

End date: On-going

Seasonality: Year round. Main season extends from May to October.

Collection frequency: Annual

Confidentiality: Harvest log data are confidential.

Methodologies (std.?): The measurements of catch have not been standardized and may be expressed as weight or number of crab.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX.

Hard copy: Paper copies of harvest logs stored at PBS, Nanaimo, B.C..

Operating system: VMS

Software: Datatrieve and SAS are used to access the data.

Record format: Fixed fields. Each record represents either a single trap or a string of crab traps.

Status: Annual records total 12,000.

Frequency of update: Throughout the year as log books are received.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Glen Jamieson/Antan Phillips

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7223/756-7110

21. CRAB LENGTH FREQUENCY DATABASE

Category: Shellfish, crab

Spill response applicability: This database provides information on the length frequencies of crab within the Fraser River estuary, Tofino and other selected regional locations.

DATA DESCRIPTION

Parameters: DFO statistical area, sub-area, location, year, month, day, depth (max., min.), set number, gear type, soak time (hours), vessel and vessel code, sampler, recorder, sex, shell width (mm), condition (shell, injury, claws, legs, marks), trap no.

Form of collection: PBS research surveys.

Geographic extent: Fraser River estuary, Tofino and Hecate Strait, Dixon Entrance and MacIntyre Bay.

Georeference: Data are georeferenced by DFO statistical sub-area.

Start date: Fraser R. estuary: 1988-Present; Tofino: 1985-Present; Hecate Strait/Dixon Entrance/MacIntyre Bay: 1983,1984.

End date: N/A

Seasonality: Varies

Collection frequency: Fraser River estuary: biannual since 1988. Tofino: Monthly to 1986, then quarterly since 1987.

Confidentiality: Data are not confidential.

Methodologies (std.?): These data provide an unbiased indication of the area's harvest potential due to the sampling coverage of research surveys.

Data deficiencies/limitations: Research surveys will sample all sizes of crabs and areas other than high fishery areas, therefore, the commercial data is not as valuable as the research data.

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX. ASCII flat files.

Hard copy: Standardized research forms.

Operating system: VMS

Software: Varied

Record format: N/A

Status: Current

Frequency of update: Irregular

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Glen Jamieson/Antan Phillips

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7223/756-7110

22. TOFINO CRAB TAGGING PROGRAM

Category: Shellfish, crab

Spill response applicability: This dataset provides information on crab distribution in the Tofino area and the West Coast of Vancouver Island.

DATA DESCRIPTION

Parameters: Species, sex, width, condition, DFO statistical area, sub-area, location, year, month, day, depth (max., min.), gear type, soak time, set number.

Form of collection: PBS research surveys.

Geographic extent: Tofino area

Georeference: Data are georeferenced by DFO statistical sub-area.

Start date: 1985 and 1990

End date: On-going

Seasonality: Year round

Collection frequency: N/A

Confidentiality: Data are not confidential.

Methodologies (std.?): Methodologies are standardized.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: ASCII files

Hard copy: None

Operating system: N/A

Software: N/A

Record format: N/A

Status: Current

Frequency of update: N/A

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Glen Jamieson

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7223

23. COMMERCIAL CRAB SAMPLING DATASET

Category: Shellfish, crab
Comment: This program is a Green Plan initiative.
Spill response applicability: This dataset provides information on the distribution of crab in the Fraser River estuary and associated areas.

DATA DESCRIPTION

Parameters: Date, time, vessel, depth, DFO statistical area, sub-area, locality code, gear type, soak time, catch/trap, sex, species, shell width, condition, trap number.

Form of collection: Samples are collected from the commercial fishing boats.

Geographic extent: North Arm Fraser River south to Tsawwassen.

Georeference: Data are georeferenced by DFO statistical sub-areas and specific geographic location name.

Start date: 1993

End date: On-going as funded

Seasonality: July - September

Collection frequency: N/A

Confidentiality: Data are confidential.

Methodologies (std.?): Methods are standard and documented.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: To be resident on PBS VAX. ASCII flat files.

Hard copy: Hand-written length frequency data forms

Operating system: VMS

Software: Various

Record format: Fixed fields

Status: Current

Frequency of update: Updated as data are collected.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Glen Jamieson

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7223

24. COMMERCIAL SHRIMP AND PRAWN HARVEST LOG DATA

Category: Shellfish, shrimp, prawn

Spill response applicability: This database provides information on shrimp and prawn harvest areas, catch and effort for the fisheries. This information was provided during the Nestucca oil spill.

DATA DESCRIPTION

Parameters: Shrimp and prawn: skipper, fishing CFV, vessel name, weight unit (kg or lb.), day, month, year, hour of set, DFO statistical area, subarea, depth (min./max.) depth, catch weight by species; Shrimp only: Tow duration. Prawn only: whole or tail weight, gear, no. of traps, no. of tunnels, trap type, no. each trap type, hour of haul, location, hours fished.

Form of collection: Log sheets are completed and submitted by fishers.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area.

Start date: Shrimp:1987; Prawn:1984.

End date: On-going

Seasonality: Year round

Collection frequency: Annual

Confidentiality: Harvest log data are confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: Weights are estimated. Sales slip data are compared to these data to verify estimation.

DATABASE CHARACTERISTICS

Electronic format: Log data are stored as text files, by year, on VAX VMS tape at PBS, Nanaimo, B.C..

Hard copy: Paper copies of harvest logs stored at PBS, Nanaimo, B.C..

Operating system: VMS

Software: Datatrieve and SAS are used to access the data.

Record format: Fixed fields

Status: On-going. Shrimp records total approximately 13,000 annually; Prawn records total approximately 33,850 annually.

Frequency of update: Varied

Access protocol: VAX access. See "Software".

CONTACT INFORMATION

Name of manager(s): Jim Boutillier

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C..

Telephone: 756-7030

25. WEST COAST SHRIMP BIOMASS SURVEYS

Category: Shellfish; shrimp

Spill response applicability: This dataset provides distribution and abundance information for the west coast of Vancouver Island.

DATA DESCRIPTION

Parameters: Date, time, vessel, species, length frequency, catch, sex

Form of collection: PBS research surveys; swept trawl

Geographic extent: Cape Beale to Estevan Point on the west coast of Vancouver Island

Georeference: Data are georeferenced by latitude and longitude.

Start date: 1966

End date: On-going

Seasonality: Mid-April to the end of May

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.): Methods are standard and documented.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX. ASCII flat files.

Hard copy: Technical report published for each research cruise.

Operating system: VMS

Software: Fortran generated programs, Lotus 123, Systat for analysis

Record format: Fixed fields

Status: Current

Frequency of update: Annual

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Boutillier/Colin Wallace

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7048/756-7030

26. SOOKE BASIN COMMERCIAL COONSTRIPE SHRIMP FISHERY DATASET

Category: Shellfish; shrimp

Spill response applicability: Dataset provides information on the distribution and abundance of Coonstripe shrimp in Sooke Basin.

DATA DESCRIPTION

Parameters: Sex, catch, length by trap, date, time, depth, location name, bycatch species

Form of collection: PBS research surveys, commercial sampling and fishery log data

Geographic extent: Sooke Basin

Georeference: Data are georeferenced by geographic location names.

Start date: 1978

End date: 1984; commercial sampling to 1986.

Seasonality: September - January

Collection frequency: Annual

Confidentiality: Data are confidential.

Methodologies (std.?): Methods are standard and documented.

Data deficiencies/limitations: Commercial fishery usually occurs at the mouth and at depth within the basin; data are not provided for the entire area.

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX and stored on magnetic tape. ASCII flat files.

Hard copy: Paper logs, PSARC working papers

Operating system: VMS

Software: Fortran/SAS

Record format: Fixed fields

Status: Current

Frequency of update: N/A

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Boutillier/Colin Wallace

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7047/756-7030

27. STRAIT OF GEORGIA SHRIMP TRAWL SURVEY

Category: Shellfish; shrimp

Spill response applicability: Dataset provides information on the distribution and abundance of shrimp in the Strait of Georgia in 1982.

DATA DESCRIPTION

Parameters: Sex, catch, length by trap, date, time, depth, location name, bycatch species

Form of collection: PBS research survey.

Geographic extent: Strait of Georgia

Georeference: Data are georeferenced by geographic location name.

Start date: 1982

End date: 1982

Seasonality: June

Collection frequency: N/A

Confidentiality: Data are not confidential.

Methodologies (std.): Methods are standard and documented.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: N/A

Hard copy: Manuscript report No. 1762.

Operating system: N/A

Software: N/A

Record format: N/A

Status: Complete

Frequency of update: N/A

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Boutillier

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7047

28. PRAWN ASSESSMENT SURVEY DATASET

Category: Shellfish; prawns

Spill response applicability: This dataset provides information on prawn distribution and abundance in Howe Sound and Salmon and Sechelt Inlets, Knight and Kingcome Inlets, Central Coast, North Coast and Queen Charlotte Islands. Information on the distribution of prawns in other areas of the B.C. coast is also available (west coast Vancouver Island)

DATA DESCRIPTION

Parameters: Date, time, DFO statistical area, sub-area, year class strength, sex, length frequency, parasite presence, diseases.

Form of collection: Research surveys and commercial fishery sampling.

Geographic extent: Research surveys: Howe Sound, Salmon/Sechelt Inlet, Knight/Kingcome Inlets, Central Coast, North Coast and the Queen Charlotte Islands. Commercial sampling: Coastal B.C. including Sooke Basin, Barkley Sound, Alberni Inlet, Nootka Sound Inlet and Quatsino Sound.

Georeference: Data are georeferenced by geographic location name and statistical sub-areas.

Start date: Research surveys: 1974-Present. Commercial sampling was done over a variety of areas and years as listed in Table 2.

End date: On-going

Seasonality: Research surveys: Throughout the year. Commercial sampling: summer and late fall

Collection frequency: Two or three times a year.

Confidentiality: Data are not internally confidential.

Methodologies (std.?): Methods are standard and documented.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX. ASCII flat files.

Hard copy: Total catch per unit effort (TCPUE) forms, Length frequency (LF) forms or summaries.

Operating system: VMS

Software: Various Fortran programs, SAS

Record format: Fixed fields

Status: Current

Frequency of update: As data are collected.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Boutillier/Steve Head/Colin Wallace

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7048/756-7202/756-7030

**Table 2. PRAWN ASSESSMENT SURVEY DATASET
Commercial Fishery Sampling**

Stat Area	Location Name	Years Sampled
Area 7		1980-1981
Area 8		1980
Area 9	Rivers Inlet	1986
Area 12	Kingcome Inlet, Tribune Channel, Knight Inlet	1980-1985
Area 13	Bute Inlet, Ramsay Arm, Lochborough Inlet, Philip Arm and adjacent waters	1980,1981,1985
Area 14	Strait of Georgia	1982
Area 16	Malaspina Strait, Sabine Channel, Jervis Inlet, Sechart Inlet, Salmon Inlet	1979-Present
Area 17	Strait of Georgia	1979-1986
Area 19	Saanich Inlet	1980, 1981, 1983
Area 20	Sooke Basin	1986-1987
Area 23	Barkley Sound, Alberni Inlet	1979-Present
Area 25	Nootka Sound, Inlet	1980-1983,1985
Area 27	Quatsino Sound	1981-1982
Area 28	Howe Sound, Burrard Inlet	1978-Present

29. COMMERCIAL PRAWN FISHERY SAMPLING DATABASE

Category: Shellfish; prawns

Spill response applicability: This dataset provides limited information on the distribution of prawns.

DATA DESCRIPTION

Parameters: Date, sample weight, depth (min./max.), time (set, haul, duration), catch (number by sex), total number.

Form of collection: Sampling on the commercial fishing boats.

Geographic extent: West and east coast Vancouver Island (South Coast Division)

Georeference: Data are georeferenced by DFO statistical area, sub-area in electronic database. Geographic location names are entered onto trap forms.

Start date: 1979

End date: On-going

Seasonality: April - December

Collection frequency: Annual

Confidentiality: Data are not confidential, however access is controlled by manager.

Methodologies (std.): Methods are standard and documented.

Data deficiencies/limitations: Area coverage is incomplete.

DATABASE CHARACTERISTICS

Electronic format: Lotus files

Hard copy: Trap C.P.U.E. Form

Operating system: DOS

Software: Lotus 123

Record format: Spreadsheet

Status: Current

Frequency of update: Periodic

Access protocol: Contact manager for summaries.

CONTACT INFORMATION

Name of manager(s): Bruce Adkins

Location: Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.

Telephone: 756-7285

30. KNIGHT INLET PRAWN DATASET

Category: Shellfish; prawns

Spill response applicability: This dataset provides information on the distribution and abundance of prawns in Area 12.

DATA DESCRIPTION

Parameters: CPUE/string of 20 traps, sex, length, date, time, year class strengths by sex.

Form of collection: PBS research surveys; 6 strings of traps per day.

Geographic extent: Knight Inlet

Georeference: Data are georeferenced by geographic location name.

Start date: 1974

End date: 1982

Seasonality: Fall, winter and, some years, spring or early summer.

Collection frequency: 2-3 times/year

Confidentiality: Data are not confidential within DFO.

Methodologies (std.): Methods were standard and documented.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX. ASCII flat files.

Hard copy: Paper logs, PSARC working papers

Operating system: VMS

Software: BMDP, Fortran generated programs, SAS

Record format: Fixed fields

Status: Current

Frequency of update: Updated as data are collected.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Boutillier/Colin Wallace

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7048/756-7030

31. CLAM CATALOGUE

Category: Shellfish; clams
Comment: Anecdotal information is collected from DFO Fishery Officers, sent to Ministry of Environment, Lands and Parks (MELP) for data entry and digitizing and an updated copy of the database is returned to DFO.
Spill response applicability: This database provides information on the total harvested area of clams and the harvest intensity rating for commercial, recreational and native fisheries for each DFO statistical sub-area.

DATA DESCRIPTION

Parameters: Record no., DFO statistical area, sub-area, [MELP fields - sector, shellfish sector, other sector], location name, chart no., intensity codes for commercial use, recreational use and native use, beach area (ha), latitude and longitude.

Form of collection: Fishery officer interviews.

Geographic extent: South coast of B.C.

Georeference: Data are georeferenced by latitude and longitude.

Start date: 1986

End date: On-going

Seasonality: N/A

Collection frequency: Every 2-3 years

Confidentiality: Data are not confidential.

Methodologies (std.?): N/A

Data deficiencies/limitations: Data are largely unverified.

DATABASE CHARACTERISTICS

Electronic format: QuikMap/Dbase files, Lotus files, Compugrid .dig files.

Hard copy: Clam bed information is held on hydrographic charts which indicate the clam bed locations and user intensity. Reports of site codes, DFO statistical area and sub-area, geographic location name, hydrographic chart no., rating of harvest intensity (1 to 5) and total areas of harvest per location. Atlases of clam bed locations have been produced which include tables of clam bed data.

Operating system: DOS

Software: QuikMap, Dbase, Compugrid

Record format: Fixed fields

Status: Last partial update in 1992.

Frequency of update: Varies, 2-3 years.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Rick Harbo/Kerry Hobbs

Location: Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.

Telephone: 756-7268/756-7158

32. CLAM BIOLOGICAL DATASET

Category: Shellfish, clams

Spill response applicability: This data provides site-specific clam distribution and density data.

DATA DESCRIPTION

Parameters: Species, length, density, location (beach).

Form of collection: Surveys conducted by DFO staff and contractors.

Geographic extent: West coast and east coast Vancouver Island

Georeference: Data are georeferenced by DFO statistical areas, sub-areas and site number.

Start date: 1982

End date: On-going

Seasonality: No

Collection frequency: Annual/semi-annual

Confidentiality: Data are not confidential.

Methodologies (std.?): Methods are standard and documented. Stratified random sampling using 0.5 m² quadrates.

Data deficiencies/limitations: Beach specific data only.

DATABASE CHARACTERISTICS

Electronic format: Lotus spreadsheet

Hard copy: Manuscript reports of summary data are available.

Operating system: DOS

Software: Lotus 123

Record format: Spreadsheet

Status: Current

Frequency of update: Periodic

Access protocol: Contact manager for data summaries.

CONTACT INFORMATION

Name of manager(s): Bruce Adkins

Location: Operations Branch, South Coast Division, Management Biology Unit, Nanaimo, B.C.

Telephone: 756-7285

33. ABALONE HARVEST LOG DATABASE

Category: Shellfish; abalone

Spill response applicability: This database provides information on the location of abalone fishing grounds and catch and effort data.

DATA DESCRIPTION

Parameters: DFO statistical area and sub-area, geographical location, date, diver, catch (weight), dive hour, dive day, catch/dive hour, catch/dive day, operator name, CFV of vessel.

Form of collection: Log sheets are completed and submitted by fishers.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical area.

Start date: 1977

End date: 1990. Data collection will resume when the moratorium (conservation) is lifted. Moratorium placed on the harvest of abalone in 1990 for a minimum of 5 years.

Seasonality: Year round

Collection frequency: Annual

Confidentiality: Data are confidential.

Methodologies (std.?): Accuracy of dive logs submitted by fishers are a concern. Divers may have harvested more than recorded.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: EXCEL database files residing on the DFO North Coast Division Local Area Network (LAN).

Hard copy: Harvest logs and associated maps. Computer printout of raw data.

Operating system: DOS

Software: Excel

Record format: Fixed fields

Status: All records have been verified.

Frequency of update: N/A

Access protocol: Data are accessible on floppy disks.

CONTACT INFORMATION

Name of manager(s): Greg Thomas

Location: Operations Branch, North Coast Division, Management Biology Unit, Prince Rupert

Telephone: 624-0465

34. CO-MANAGEMENT URCHIN DENSITY AND SIZE FREQUENCY DATASET

Category: Shellfish; red sea urchins, vegetation

Spill response applicability: This dataset provides information on the density and size frequency of red sea urchins.

DATA DESCRIPTION

Parameters: Urchin Density and Station Log: Vessel, site no., divers, region, area, sub-area, location, latitude and longitude, year, month, day, time start, time finish, depth from datum (max., min.), tide start, exposure, survey design, quadrat no. species, count, weight (kg), estimated density/m². Urchin Size Frequency: sample type, sample no., year, month, day, time, statistical area, sub-area, location, latitude/longitude, depth (max./min.), tide height, vessel, divers, gear code, substrate, slope, exposure, dominant algae, dominant invertebrate, total weight urchins.

Form of collection: Native/industry surveys of sea urchin.

Geographic extent: North and Central coast.

Georeference: Survey locations are georeferenced by latitude and longitude.

Start date: 1993

End date: On-going

Seasonality: N/A

Collection frequency: Annual

Confidentiality: Data are not confidential.

Methodologies (std.?): Standardized methodologies

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: ASCII flat files

Hard copy: Data sheets

Operating system: VMS

Software: Systat

Record format: Fixed fields; each record represents a single quadrant.

Status: Current

Frequency of update: Throughout the year as surveys are conducted.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Glen Jamieson

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.

Telephone: 756-7223

35. SEA URCHIN HABITAT DATASET

Category: Shellfish, sea urchins

Comment: Sea urchin beds showing commercial quantities were mapped by the Underwater Harvesters. This information has been digitized.

Spill response applicability: This database provides total area measurements for sea urchin habitat for DFO statistical sub-areas. Biomass estimates are forecast for the fall of 1993.

DATA DESCRIPTION

Parameters: DFO statistical area, sub-area, depth parameters include 0 to 11.08 meters.

Form of collection: These data are updated from harvest log book maps submitted by the fishers. DFO and Indian Band survey data will augment these data.

Geographic extent: Cape Caution north to the U.S border and the S.E. coast of the Queen Charlotte Islands.

Georeference: Data are georeferenced by DFO statistical sub-area.

Start date: Log book data: 1987

End date: On-going

Seasonality: N/A

Collection frequency: Year round

Confidentiality: Data are confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: Density measurements do not distinguish between high and low quality of product (gonad condition).

Compugrid maps show all blue areas (<10 meters) included; all non-blue areas that are marked may not contain sea urchin habitat. It is thought that the densities balance out across a sub-area. Maps should not be used for detailed site specific information, but for sub-area totals. Data will be modified with more site specific survey information.

DATABASE CHARACTERISTICS

Electronic format: ASCII, database files

Hard copy: Hydrographic charts (1:20,000 to 1:72,000), Compugrid maps, paper harvest logs

Operating system: DOS/VMS

Software: Compugrid

Record format: N/A

Status: Data are being used to produce polygons of sea urchin habitat and biomass estimates.

Frequency of update: Annual

Access protocol: Contact manager for database files.

CONTACT INFORMATION**Name of manager(s):** Dwight Heritage**Location:** Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Shellfish Section, Nanaimo, B.C.**Telephone:** 756-7023**36. NESTUCCA FISHERIES RESOURCE CHARTS****Category:** Shellfish, fish, marine mammals**Comment:** These charts were compiled for the Nestucca oil spill.**Spill response applicability:** One set of charts display distribution information for fish, shellfish and marine mammals. Oil sightings are marked on the charts. A second series indicate the date and location of monitoring during and after the Nestucca oil spill. These charts include the results of monitoring for oiled traps and animals.**DATA DESCRIPTION****Parameters:** Resources: Locations of the resources, in some cases use information is associated. Monitoring sites: crab traps: date, # oiled traps/traps pulled, # oiled crabs/# crabs trapped. Dives: date, time, dive team (in some cases), sub-area. Hagfish traps: date, # of traps.**Form of collection:** Data collection during spill response.**Geographic extent:** From the approaches of Juan de Fuca Strait to Queen Charlotte Strait. Hydrographic charts: 3602, 3603, 3604, 3605 & 3649.**Georeference:** Information is displayed at a scale of 1:150,000 for the entire west coast of Vancouver Island; and at 1:40,000 for SE portion of Clayoquot Sound.**Start date:** 1988/89**End date:** N/A**Seasonality:** N/A**Collection frequency:** N/A**Confidentiality:** Data are not confidential.**Methodologies (std.?):** N/A**Data deficiencies/limitations:** N/A**DATABASE CHARACTERISTICS****Electronic format:** None**Hard copy:** Hydrographic charts showing color-coded resource information.**Operating system:** N/A**Software:** N/A**Record format:** N/A**Status:** N/A**Frequency of update:** N/A**Access protocol:** Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Morrison

Location: Operations Branch, South Coast Division, Habitat Management Unit, Nanaimo, B.C.

Telephone: 756-7256

37. PACIFIC REGION DIOXIN DATASET

Category: Shellfish: crab, oyster, clam, shrimp, prawn, mussel, cockle, scallop, sea urchin, abalone, sea cucumber, limpet, gooseneck barnacle and chiton. Finfish: groundfish, salmon, herring, eulachon, stickleback, ratfish and sturgeon.
Spill response applicability: These data may provide limited information on the distribution of the noted fisheries resources.

DATA DESCRIPTION

Parameters: Levels of dioxin and furan (2,3,7,8 congeners and totals - tetra, penta, hexa, hepta and octa chlorinated forms).

Form of collection: Some data collected by DFO &/or DOE, some by contractors for the pulp mills.

Geographic extent: Vicinity of coastal and inland pulp mills, urban harbours, and isolated sites (baseline data).

Georeference: Some of the data are georeferenced by latitude and longitude. All sample sites have been mapped on hydrographic charts (in some cases locations are approximate).

Start date: 1988; there are a few pre-1988 samples that were collected by EP & CWS.

End date: On-going

Seasonality: In the last couple of years (1991-92), winter collection has been specified, however, samples have been collected throughout the year prior to 1991.

Collection frequency: Currently the pulp mills are conducting annual sampling, other data (e.g. DFO) is collected sporadically.

Confidentiality: Data are confidential until assessment by Health and Welfare Canada is complete. This must occur within 72 hours of samples being analyzed.

Methodologies (std.?): Analyses of samples are conducted by government and private labs, all of which have to meet a rigid quality control/quality assurance standard.

Data deficiencies/limitations: Statistical significance of data in question due to the small sample sizes at many sites. Not all congeners required for TEQ calculations were reported in the early years of the dioxin monitoring program.

DATABASE CHARACTERISTICS

Electronic format: Some select data stored in Dbase spreadsheet files.

Hard copy: All data are available in hard copy tables which accompanied the many press releases of the DFO/DOE Dioxin Monitoring Program.

Operating system: DOS

Software: Software developed by Albert Tam (ISD); combination of WP and Dbase III/IV.

Record format: spreadsheet

Status: Electronic database has not been updated in 2.5 years and contains only data collected under National Dioxin Program; it does not contain any data collected by pulp mill contractors.

Frequency of update: Updates are not anticipated at this time.

Access protocol: Not accessible to outside electronic retrieval.

CONTACT INFORMATION

Name of manager(s): Steve Samis/Wayne Knapp

Location: Regional Headquarters, Operations Branch, Habitat Management Division, Vancouver

Telephone: 666-0209/666-0130

D. GROUND FISH

38. GROUND FISH CATCH STATISTICS DATABASE

Category: Groundfish

Spill response applicability: This database provides information on catch and effort data by fishing ground.

DATA DESCRIPTION

Parameters: Source, vessel, skipper, landing date, trip length, location of processor, name of fishing grounds, depth range, species, catch (weight), effort, fishing area, gear type, tow number. Data prior to 1991 recorded as groups of tows; data collected after 1991 are recorded as individual tows.

Form of collection: There are two sources for groundfish catch data; the two being fishing logs and sales slips. The fishing logs are obtained from vessel skippers by mail. Interviews may be conducted by the PBS liaison officers as each groundfish vessel lands at the processing plant. The skipper supplies information on location, fishing ground, depths fished, amount of effort expended and estimates of weight by species or species group. The liaison officers may also observe the unloading of the vessel to provide more detail on species composition and collect biological samples of the landed fish to verify and augment the fishing log. Sales slips are submitted to DFO which record the actual catch weight by species and the price paid.

Geographic extent: Coastal B.C.

Georeference: Data are georeferenced by DFO statistical sub-area. Latitude and longitude coordinates of fishing tows will be recorded beginning in 1994.

Start date: Trawl gear - 1954; Longline and trap gear - 1979.

End date: On-going

Seasonality: N/A

Collection frequency: Information is collected daily, summarized and stored by year.

Confidentiality: Data are confidential.

Methodologies (std.?): Fishing log information are compared to sales slips for each trip; in most cases they match very closely. The main source of error is in the species composition. Sales slip information is used to replace the estimated amounts given on the fishing logs. The proportion of catch assigned to each area or tow remains the same.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Resident on the PBS VAX.

Hard copy: Logs, trip reports, summaries of logs.

Operating system: VMS

Software: Groundfish Selection (GFSEL)

Record format: Fixed fields (indexed flat file)

Status: Current

Frequency of update: As log and sales slip data are received.

Access protocol: Groundfish Selection (GFSEL) is a general use data retrieval program developed specifically for this database. System introduction and user documentation have been published in a User's Guide. Manager must give access to registered VAX users.

CONTACT INFORMATION

Name of manager(s): Kathy Rutherford/Rick Stanley

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7171/756-7134

39. SLIP

Category: Groundfish, Aboriginal fishery

Comment: This system is being developed as the initial phase in replacing the CCSS with a more detailed system that is more easily accessed. Initially, this system will store groundfish and aboriginal fishery slips data. It is expected that the system will evolve to include all species.

Spill response applicability: This database provides information on species fished, catch and effort data, and the value of fisheries in each DFO statistical area.

DATA DESCRIPTION

Parameters: Purchasing company, plant, landing date, DFO statistical area of catch, CFV of catching vessel, days fished, gear used, weight, price, landed form for each species and number of fish.

Form of collection: Commercial fish slips are completed when a fisher sells catch to a provincially licensed fish buyer or processor. The slips are completed by the buyer or processor and submitted to DFO. The slips are reviewed for completeness and accuracy prior to entry by contractors for DFO. The contractors perform an addition survey of the fish companies, requesting a report from their records of fish purchases. These data are compared to the slip data and discrepancies are investigated. The slip data are often compared to other sources (eg. logbooks, validation logs, hauls, samples) as well.

Geographic extent: Coastal B.C.

Georeference: Data will be georeferenced by DFO statistical sub-area.

Start date: Data entry is expected to begin in 1993.

End date: On-going

Seasonality: Year round

Collection frequency: Annual

Confidentiality: Detailed fish slip records are confidential.

Methodologies (std.?): The data will be converted to CCSS format and codes and exported to the CCSS. This will ensure that the CCSS will have a complete data set. CCSS performs extensive data checks during on-line data entry.

Data deficiencies/limitations: The sales slips are not always completed accurately by the buyers and processors.

DATABASE CHARACTERISTICS

Electronic format: SLIP is being developed to reside on the RHQ VAX using the Ingres data management system.

Hard copy: N/A

Operating system: VMS

Software: Ingres ABF

Record format: Fixed fields

Status: Under development

Frequency of update: N/A

Access protocol: These data will be accessed using INGRES utilities; Query by Form (QBF), Reportwriter, and using SQL queries. Ingres files will be accessible to Microsoft Access in the future.

CONTACT INFORMATION

Name of manager(s): Lia Bijsterveld

Location: Regional Headquarters, Operations Branch, Conservation and Protection Division, Data Management Unit, Vancouver

Telephone: 666-6501

40. GROUND FISH, FLAT FISH DATABASE

Category: Groundfish, flatfish

Spill response applicability: This database provides information on species and distribution of groundfish. Species distribution and habitat preference information was provided during the Nestucca oil spill.

DATA DESCRIPTION

Parameters: Research survey: Length composition, age composition, species composition by weight, size composition, DFO statistical area and date. Derived data: catch per unit effort, relative abundance, absolute standing crop. Commercial port samples: species, length and maturity composition, date and location. Commercial observer program: DFO statistical area, date, species composition by weight, total number of halibut, weight and length.

Some size composition data for commercial and non-commercial species (as time permitted on observer trips).

Form of collection: Database consists of data from three sources: survey results from PBS research surveys in Hecate Strait and West Coast Vancouver Island; port sampling of coastal commercial groundfish fisheries; and an observer program on the commercial trawl vessels to observe halibut by-catch. Samples were taken on the research cruises and from port sampling of commercial catch. Observations made during commercial trawl fisheries.

Geographic extent: Research surveys in Hecate Strait and the West Coast of Vancouver Island. Port sampling done at all major ports in Vancouver and Prince Rupert which receive fish from the entire coast of B.C. Observer data is collected throughout coastal B.C.

Georeference: Survey data are georeferenced by latitude and longitude. Other data are not georeferenced.

Start date: Hecate Strait surveys: 1984, 1986, 1987, 1989, and then run every other year. Commercial port sampling began in the early 1940's. The observer program began in 1991.

End date: On-going

Seasonality: Year round

Collection frequency: Research surveys: every other year; port sampling done continuously throughout year which usually results in 20-30 samples/year. Observer program: 20-30 trips per year.

Confidentiality: Observer data are confidential; other data are not confidential.

Methodologies (std.?): Sampling methods are standard. Confidence limits associated with biomass estimates can be calculated.

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: ASCII flat files. Database size - 2.6 megabytes. Resident on the PBS VAX.

Hard copy: Manuscript or Technical reports are produced from data collected during research surveys. Raw data from the commercial fisheries port samples are summarized in reports. In-house data reports are produced for every observer trip.

Operating system: VMS

Software: In-house software, self written database program.

Record format: Three different record formats for each of the following: length and maturity compositions, age composition and research data.

Status: Current

Frequency of update: Database updated several times/year.

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jeff Fargo

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Assemblage Management Section, Nanaimo, B.C.

Telephone: 756-7165

41. ROCKFISH BIOLOGICAL AND DISTRIBUTION DATABASE

Category: Groundfish, rockfish
Comment: This database contains data for slope and shelf rockfish occurring >50 fathoms.
Spill response applicability: This database provides information on the distribution of offshore rockfish.

DATA DESCRIPTION

Parameters: Species, length, sex, age, date, type of data (research, port sample - Vancouver, port sample - Prince Rupert, foreign observer, domestic observer, other agency).

Form of collection: Logbooks, research surveys and port samples from commercial landings.

Geographic extent: West Coast Vancouver Island and Queen Charlotte Islands.

Georeference: All research data georeferenced by latitude and longitude. Commercial sample data only georeferenced from 1992-1993.

Start date: 1960

End date: On-going

Seasonality: Year round; approximately 50 samples collected per year.

Collection frequency: Annual

Confidentiality: Logbook data are confidential. Other data are not.

Methodologies (std.): Methodologies are standard.

Data deficiencies/limitations: High level of accuracy in the research data.

DATABASE CHARACTERISTICS

Electronic format: ASCII flat files

Hard copy: Published reports for every survey.

Operating system: DOS/VMS

Software: FORTRAN; header search program is METADATA. Actual data storage in record separate from header so header can be queried.

Record format: Fixed fields

Status: Current

Frequency of update: N/A

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Bruce Leaman/Rick Stanley

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division, Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7176/7134

42. HYDROACOUSTIC STOCK ASSESSMENT DATA OF OFFSHORE FISH

Category: Hake, pollock, rockfish, herring
Spill response applicability: This database provides distribution and biomass data for offshore fish species.

DATA DESCRIPTION

Parameters: Fish density, species, latitude and longitude and depth.

Form of collection: PBS research surveys conducted offshore to provide hydroacoustic estimates of fish associated with shelf areas and some surveys conducted closer to shore to assess herring distribution. Auxiliary net catches provide species identification and biological samples.

Geographic extent: Strait of Georgia, West Coast Vancouver Island, Queen Charlotte Sound, Hecate Strait. Surveys typically done at water depths >100m. Minimum depths surveyed are 50m.

Georeference: Data from 1988 onward are georeferenced by latitude and longitude. Mapping and biomass estimates rely on custom software and the Compugrid spatial analysis.

Start date: 1982

End date: On-going

Seasonality: Surveys are typically in August and December.

Collection frequency: 2-3 surveys/year.

Confidentiality: Data are not confidential, however permission for access is required from the manager.

Methodologies (std.?): Standard fisheries acoustic techniques (echo integration) are used to measure acoustic back scattering strength. Fish density is recorded every minute along transects. Major species are identified.

Data deficiencies/limitations: There are no data gaps as surveys cover intended area of study. Confidence limitations have not been worked up.

DATABASE CHARACTERISTICS

Electronic format: Flagged ASCII files and ASCII flat files

Hard copy: Manuscript reports of results have been produced for most surveys.

Operating system: DOS

Software: Plotting and biomass estimation rely on in-house software and Compugrid.

Record format: ASCII fixed fields. One 2 - 3 week survey results in approx. 10 megabytes of information.

Status: Current

Frequency of update: N/A

Access protocol: In-house retrieval, personnel can be easily trained in software use. Interface could be developed that would render data more easily accessible. Data <5 years are easily accessed. Data from >5 years can be accessed through summary reports. Data access should be cleared with manager.

CONTACT INFORMATION

Name of manager(s): Robert Kieser

Location: Pacific Biological Station, Biological Sciences Branch, Marine Fish Division,
Marine Fish Population Dynamics Section, Nanaimo, B.C.

Telephone: 756-7181

E. MARINE MAMMALS

43. KILLER WHALE DISTRIBUTION

Category: Marine mammals

Spill response applicability: This database provides information on killer whale distribution (primarily in the summer months).

DATA DESCRIPTION

Parameters: Individual identification, pod identification, date, time, location.

Form of collection: Data derived from photographs taken by PBS staff as well as other researchers and naturalists.

Geographic extent: Coastal B.C. as well as some data for SE Alaska, Washington, Oregon and California.

Georeference: Data are georeferenced by geographic location name. These geographic location names have been georeferenced using a digitized pilot, but the coordinates have not yet been linked with the database.

Start date: 1973

End date: On-going

Seasonality: Data were collected throughout the year, but mainly during July - October when whales spend more time inshore.

Collection frequency: Annual

Confidentiality: Data are not confidential. Access is controlled.

Methodologies (std.?): N/A

Data deficiencies/limitations: The data are considered very reliable. Limitations are that the data not only reflect the distribution of whales but also the distribution on sampling effort. Deficiencies are that the data was collected primarily during summer months and primarily in inshore waters.

DATABASE CHARACTERISTICS

Electronic format: ASCII/Dbase III files. Data to 1987 entered and proofed in ASCII format and subsequent data entered in Dbase format.

Hard copy: Computer printouts

Operating system: VMS/DOS

Software: Purpose-written Pascal routines and Dbase III+

Record format: Fixed field

Status: Current

Frequency of update: Database is updated once annually. Data for season are usually compiled and entered during November-March.

Access protocol: The data are not currently accessible to outside retrieval, but occasionally copies/subsets of the data are provided on special requests.

CONTACT INFORMATION

Name of manager(s): Peter Olesiuk/Graeme Ellis

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Marine Mammals Section, Nanaimo, B.C.

Telephone: 756-7254/756-7245

44. SEA LION CENSUS AND KILL DATA

Category: Marine mammals

Spill response applicability: These data provide information on haul out sites used by sea lions throughout the year.

DATA DESCRIPTION

Parameters: Site name, date, time, count, type of count and source of record.

Form of collection: Aerial and boat censuses and kill reports conducted by DFO researchers and managers as well as other researchers and naturalists.

Geographic extent: Coastal B.C. and selected data for SE Alaska and Washington State.

Georeference: Latitude and longitude coordinates of haul out sites are contained in a separate linkable file.

Start date: 1892

End date: On-going

Seasonality: Data collected throughout the year, although most censuses are conducted in June-August.

Collection frequency: Annual

Confidentiality: Data are not confidential. Access is controlled.

Methodologies (std.): N/A

Data deficiencies/limitations: The data are considered very reliable. Data are limited in that censuses were made mainly during summer months, so that seasonal shifts in distribution are not represented. There are no major deficiencies.

DATABASE CHARACTERISTICS

Electronic format: ASCII flat files

Hard copy: Computer printouts; Data to 1982 have been published as technical report.

Operating system: VMS

Software: Purpose-written PASCAL routines.

Record format: Fixed fields

Status: All data up to 1990 entered; more recent data are in the process of being entered. Data will be compiled and entered into the following three forms: 1) electronic database to include all census data on sea lions, otters and seals; 2) GIS to enable access and retrieval of data by geographic area with seasonal component; and 3) a series of hard copy maps showing location of haul outs and tables showing counts of animals.

Frequency of update: Data for each season have usually been compiled and entered during November-March. Database is updated usually once every several years.

Access protocol: Data up to 1982 are available in a data report; more recent data can be provided as copies/subsets on special request. An accessible public domain database will be developed by March 1994.

CONTACT INFORMATION

Name of manager(s): Peter Olesiuk

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Marine Mammals Section, Nanaimo, B.C.

Telephone: 756-7254

45. HARBOUR SEAL CENSUS DATA

Category: Marine mammals

Spill response applicability: This database provides information on probable haul out sites utilized by harbour seals in the months of April through October.

DATA DESCRIPTION

Parameters: Site name, date, time, count, type of count and animal activity.

Form of collection: Aerial and boat censuses conducted by PBS researchers.

Geographic extent: Strait of Georgia, SW Vancouver Island, Queen Charlotte Strait, NE Queen Charlotte Islands, and lower Skeena River.

Georeference: Latitude and longitude coordinates of haul out sites are contained in a separate linkable file.

Start date: 1944

End date: On-going

Seasonality: Data were collected primarily during April-October.

Collection frequency: Annual

Confidentiality: Data are not confidential. Access is controlled.

Methodologies (std.): N/A

Data deficiencies/limitations: The data are considered very reliable. Limitations are that censuses were made only during summer months, so that seasonal shifts in distribution are not represented. Deficiencies are that only select portions of B.C. coast have been surveyed. Data collected prior to 1973 are less reliable.

DATABASE CHARACTERISTICS

Electronic format: ASCII flat files on magnetic tape

Hard copy: Computer printouts

Operating system: VMS

Software: Purpose-written PASCAL routines.

Record format: Fixed field

Status: Data to 1992 has been entered; several 1992 and all 1993 censuses have not yet been entered. Data will be compiled and entered into the following three forms: 1) electronic database to include all census data on sea lions, otters and seals; 2) GIS to enable access and retrieval of data by geographic area with seasonal component; and 3) a series of hard copy maps showing location of haul outs and tables showing counts of animals.

Frequency of update: Data for each season are usually compiled and entered during November-March (annually).

Access protocol: The data are currently not accessible to outside retrieval; copies/subsets of the data are occasionally provided on special request. An accessible, public domain database will be developed by March 1994.

CONTACT INFORMATION

Name of manager(s): Peter Olesiuk

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Marine Mammals Section, Nanaimo, B.C.

Telephone: 756-7254

46. NORTHERN FUR SEAL DISTRIBUTION AND LIFE HISTORY

Category: Marine mammals

Spill response applicability: This database provides information on the distribution of the Northern fur seal.

DATA DESCRIPTION

Parameters: Sighting effort, sightings, sex, age, length, weight, reproductive status and stomach contents.

Form of collection: PBS staff collection trips.

Geographic extent: Entire NE Pacific

Georeference: Latitude and longitude coordinates of vessel tracks, sightings, and specimen collections are recorded.

Start date: 1958

End date: 1974

Seasonality: Data were collected throughout the year, however, regional surveys were conducted in specific seasons due to the annual migration of fur seals.

Collection frequency: Annual

Confidentiality: Data are not confidential. Access is controlled. The same data are also held at the National Marine Mammal Laboratory in Seattle.

Methodologies (std.): N/A

Data deficiencies/limitations: The data are extensively reviewed for accuracy by both Canadian and U.S. researchers. Data reflect the relative, rather than absolute, distribution and abundance of fur seals. Data are no longer being collected.

DATABASE CHARACTERISTICS

Electronic format: ASCII flat files on magnetic tape

Hard copy: Computer printouts/Annual NPFSC reports

Operating system: VMS

Software: Purpose-written FORTRAN routines.

Record format: Fixed field

Status: Data entered and proofed up to 1974.

Frequency of update: No further data collection taking place.

Access protocol: The data are currently not accessible to the outside retrieval; copies/subsets of the data are occasionally provided on special request.

CONTACT INFORMATION

Name of manager(s): Peter Olesiuk

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Marine Mammals Section, Nanaimo, B.C.

Telephone: 756-7254

47. SEA OTTER CENSUS DATASET

Category: Marine mammals, sea otters

Spill response applicability: This dataset provides information on the distribution and abundance of sea otters along the west coast of Vancouver Island and the central coast of B.C.

DATA DESCRIPTION

Parameters: Date, number of animals; occasionally pups are counted.

Form of collection: PBS staffed boat and aircraft surveys.

Geographic extent: West coast Vancouver Island - Quatsino Sound to Estevan Point.
Central coast: Cape Calvert to Milbank Sound

Georeference: Data are georeferenced by geographic location name.

Start date: 1977

End date: On-going

Seasonality: Mainly summer, however recently surveys have been done at other times of the year.

Collection frequency: Annual since 1987

Confidentiality: Data are not confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: Numbers vary with survey conditions, range of the animal is expanding rapidly making counts more difficult. Winter distribution is not well known.

DATABASE CHARACTERISTICS

Electronic format: None

Hard copy: Survey maps and annual summaries.

Operating system: N/A

Software: N/A

Record format: N/A

Status: Current

Frequency of update: Annual

Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Graeme Ellis/Tom Smith

Location: Pacific Biological Station, Biological Sciences Branch, Salmon Division, Marine Mammals Section, Nanaimo, B.C.

Telephone: 756-7245/756-7253

OTHER INFORMATION SOURCES**48. BIOLOGICAL RESOURCES OF COASTAL BRITISH COLUMBIA: INVENTORY AND ANALYSIS OF SENSITIVITY TO OIL SPILLS. MAP FOLIO, VOL. XVII.**

Category: Intertidal habitat, marine plants and plankton, shellfish, fish, birds, and mammals

Comment: Trans Mountain Pipeline Company Ltd. was required to describe the potential effects of oil tankers and cargo on Canadian waters and coastlines as part of their proposal to install and operate an oil pipeline to transport crude oil from Low Point, Washington to the mid-western United States. LGL Limited and ESL Environmental Services Ltd. were contracted to prepare the inventory.

Spill response applicability: This inventory describes fisheries resources, the oil retention potential and the overall relative sensitivity of an area to oil.

DATA DESCRIPTION

Parameters: Location, sensitivity of resource

Form of collection: Information is secondary having been collected from various sources within the federal and provincial governments and through a literature search of published reports.

Geographic extent: Juan de Fuca Strait to Barkley Sound (1:70,000), Strait of Georgia (1:250,000), West Coast Vancouver Island (1:250,000) and the Queen Charlotte Islands and offshore to 200 mile (320 km) limit (1:1,000,000). The areas of concentration and the maps scales were chosen to reflect the relative risk to the environment from an oil spill, given the tanker routes preferred by the U.S. Coast Guard.

Georeference: Information is displayed on hydrographic charts.

Start date: 1980

End date: N/A

Seasonality: N/A

Collection frequency: N/A

Confidentiality: Data are not confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: Boundaries showing locations of resources are generally arbitrarily set, and often reflect opportunistic data rather than complete coastal systematic surveys. It is important to read the text which accompanies each section to ensure that resource information is used appropriately.

DATABASE CHARACTERISTICS

Electronic format: None

Hard copy: 18 maps consisting of 10 - 1:70,000, 6 - 1:250,000 and 2 - 1:1,000,000 comprise. Reference: LGL Limited and ESL Environmental Sciences Limited. 1980. Biological Resources of British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Volume XVII. Prepared for Trans Mountain Pipe Line Company Ltd.

Operating system: N/A

Software: N/A
Record format: N/A
Status: Complete
Frequency of update: N/A
Access protocol: Contact manager for access.

CONTACT INFORMATION

Name of manager(s): Jim Morrison
Location: Operations Branch, South Coast Division, Habitat Management Unit, Nanaimo, B.C.
Telephone: 756-7256

49. OIL AND CHEMICAL SPILL COUNTERMEASURES SERIES

Category: Shellfish, clams, oysters, herring spawn
Comment: This dataset is a series of charts that is presently incomplete in the DFO PBS library. The charts available are for the Duncan area, east coast of Vancouver Island. The charts were produced by Environment Canada, Environmental Protection Service in 1976.
Spill response applicability: This dataset provides information on clams, oysters, herring spawn and limited aquatic vegetation on the east coast of Vancouver Island.

DATA DESCRIPTION

Parameters: Access and land status; physical base, land and water use; fish and shellfish (herring spawn, clams and oysters); and birds, mammals and aquatic vegetation (kelp beds, eelgrass, estuaries, salt marshes).
Form of collection: Unknown.
Geographic extent: Duncan; from Cowichan River in the south to Holland Creek in the north, including Saltspring, Kuper and Thetis Islands.
Georeference: Data displayed on hydrographic charts.
Start date: 1976
End date: 1976
Seasonality: N/A
Collection frequency: N/A
Confidentiality: Data are not confidential.
Methodologies (std.): N/A
Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: None
Hard copy: NTS Sheets. 92B/13. E & W, Duncan, B.C.
Operating system: N/A

Software: N/A
Record format: N/A
Status: Complete
Frequency of update: N/A
Access protocol: PBS library privileges.

CONTACT INFORMATION

Name of manager(s): Gordon Miller
Location: Pacific Biological Station, Library Services, Nanaimo, B.C.
Telephone: 756-7071

50. FISHERY OFFICER RESOURCE DATASET - BARKLEY SOUND, ALBERNI INLET

Category: Salmon, shellfish, herring, groundfish, marine mammals
Comment: This database was compiled as part of a Nestucca project which provides for the consolidation of Fishery Officer resource information for the west coast of Vancouver Island. This database contains data for Barkley Sound and Alberni Inlet. Information for Juan de Fuca Strait north to Cape Beale will be consolidated in 1994, and the remaining areas of the west coast of Vancouver Island in the subsequent two years of the project.
Spill response applicability: This dataset provides information on fish and fish habitats and commercial, recreational and Native fisheries for Barkley Sound and Alberni Inlet.

DATA DESCRIPTION

Parameters: Fisheries (main species targeted by gear type, use level rating by gear type, location, timing, closure areas); Escapement; Herring spawn and holding areas (location, use level, timing); Marine mammal habitats (location, distribution, use level, observation/survey type, animal activity); Shellfish beds; Significant habitats (kelp beds, eelgrass beds, reefs);
Form of collection: Fishery Officer interviews, fishery management plans, interviews with DFO scientists at PBS.
Geographic extent: Barkley Sound, Alberni Inlet; project will see the collection of information from the entire west coast of Vancouver Island over the four year term.
Georeference: Data have been digitized from CHS charts.
Start date: 1993/94
End date: 1996/97
Seasonality: N/A
Collection frequency: One time data collection for each area.
Confidentiality: Data are not confidential.
Methodologies (std.): N/A
Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Attribute data exist in Dbase files and mapped information has been digitized using Compugrid.

Hard copy: CHS charts (3668 and 3671) contain color coded fisheries resource information.

Operating system: DOS

Software: Dbase, Access, Compugrid

Record format: Fixed fields

Status: Complete

Frequency of update: N/A

Access protocol: Contact manager.

CONTACT INFORMATION

Name of manager(s): Jim Morrison/Margaret Wright

Location: South Coast Division, Habitat Management, Nanaimo, B.C.

Telephone: 756-7256/756-7269

51. FISHERY OFFICER RESOURCE DATASET - NOOTKA SOUND, ESPERANZA INLET

Category: Salmon, shellfish, herring, groundfish, marine mammals

Spill response applicability: This dataset provides information on fish and fish habitats and commercial, recreational and Native fisheries for Nootka Sound and Esperanza Inlet (DFO statistical area 27).

DATA DESCRIPTION

Parameters: Fisheries (main species targetted by gear type, use level rating by gear type, location, timing, closure areas); Escapement; Herring spawn and holding areas (location, use level, timing); Marine mammal habitats (location, distribution, use level, observation/survey type, animal activity); Shellfish beds; Significant habitats (kelp beds, eelgrass beds, reefs);

Form of collection: Fishery Officer interviews, fishery management plans, interviews with DFO scientists at PBS.

Geographic extent: Nootka Sound, Esperanza Inlet

Georeference: Data have been digitized from CHS charts.

Start date: 1993/94

End date: N/A

Seasonality: N/A

Collection frequency: One time data collection for each area.

Confidentiality: Data are not confidential.

Methodologies (std.?): N/A

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Attribute data exist in Dbase files and mapped information has been digitized using Compugrid.

Hard copy: CHS charts contain color coded fisheries resource information.

Operating system: DOS

Software: Dbase, Access, Compugrid

Record format: Fixed fields

Status: Complete

Frequency of update: N/A

Access protocol: Contact manager.

CONTACT INFORMATION

Name of manager(s): Jim Morrison

Location: South Coast Division, Habitat Management, Nanaimo, B.C.

Telephone: 756-7256

52. OIL BIBLIOGRAPHY

Category: Oil

Spill response applicability: This provides information on the toxicity of oils and dispersants to fish, shellfish and habitats. Case studies of oil spills and associated reports are referenced.

DATA DESCRIPTION

Parameters: A header section identifies each reference in terms of it's subject matter (toxicity, impact, case study), substance (oil, dispersant, mixture), organism (salmon, groundfish, crustacean, mollusc, etc.) and environment (marine, estuarine, freshwater). Document type is also available (article, proceedings, journal, textbook, microfiche).

Form of collection: Collection of references by Mike Flynn at Habitat Management Division, RHQ over many years have been electronically indexed.

Geographic extent: International

Georeference: N/A

Start date: N/A

End date: N/A

Seasonality: N/A

Collection frequency: N/A

Confidentiality: Data are not confidential.

Methodologies (std.): N/A

Data deficiencies/limitations: N/A

DATABASE CHARACTERISTICS

Electronic format: Electronic library index resides in asksam software on a PC in HMD,RHQ.

Hard copy: All references are kept in filing cabinets in the HMD,RHQ.

Operating system: DOS

Software: asksam

Record format: Fixed fields

Status: Requires updating

Frequency of update: N/A

Access protocol: Contact manager

CONTACT INFORMATION

Name of manager(s): Mike Flynn

Location: Water Quality Unit, Habitat Management Division, Regional Headquarters, Vancouver, B.C.

Telephone: 666-6878

DFO RESOURCE DATASET INVENTORY - Subject Index**Salmon**

1. Commercial Catch Statistics System (CCSS)
2. Recreational Catch Statistics (RECSTAT)
3. Native Catch Statistics (NATIVE)
4. Commercial Salmon Catch Spreadsheet Program
5. Salmon Escapement Database and Reporting System (SEDS)
6. Mark Recovery Program (MRP)
7. Record of Management Strategies (RMS)
8. Juvenile Salmon Distribution Database
9. Stream Information Summary System (SISS)
42. Hydroacoustic Stock Assessment Data of Offshore Fish
36. Nestucca Fisheries Resource Charts
37. Pacific Region Marine Dioxin Database
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol.XVII.
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

Herring

1. Commercial Catch Statistics System (CCSS)
3. Native Catch Statistics (NATIVE)
10. Herring Spawn Database
11. Spawning Areas of British Columbia Herring: A Review, Geographical Analysis and Classification
12. Classification of Herring Spawning Areas of British Columbia Herring (*Clupea harengus pallasii*)
13. Herring Catch Database
14. Herring Biological Sampling Database
15. Herring Test Fishing Program
16. Review of the British Columbia Herring Fishery and Spawn Abundance Reports
17. Winter Herring Hydroacoustic Distribution Data
18. Juvenile Herring Database
42. Hydroacoustic Stock Assessment Data of Offshore Fish
36. Nestucca Fisheries Resource Charts
37. Pacific Region Marine Dioxin Database
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII.
49. Oil and Chemical Spill Countermeasures Series
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

DFO RESOURCE DATASET INVENTORY - Subject Index

Shellfish - Crustaceans

1. Commercial Catch Statistics System (CCSS)
2. Recreational Catch Statistics (RECSTAT)
3. Native Catch Statistics (NATIVE)
19. Commercial Invertebrate Harvest Log Data
20. Commercial Crab Harvest Log Data
21. Crab Length Frequency Database
22. Tofino Crab Tagging Program
23. Commercial Crab Sampling Dataset
24. Commercial Shrimp and Prawn Harvest Log Data
25. West Coast Shrimp Biomass Surveys
26. Sooke Basin Commercial Coonstripe Shrimp Fishery Dataset
27. Strait of Georgia Shrimp Trawl Survey
28. Prawn Assessment Survey Dataset
29. Commercial Prawn Fishery Sampling Database
30. Knight Inlet Prawn Dataset
36. Nestucca Fisheries Resource Charts
37. Pacific Region Marine Dioxin Database
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII.
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

Shellfish - Mollusks

1. Commercial Catch Statistics System (CCSS)
2. Recreational Catch Statistics (RECSTAT)
3. Native Catch Statistics (NATIVE)
31. Clam Catalogue
32. Clam Biological Dataset
33. Abalone Harvest Log Database
36. Nestucca Fisheries Resource Charts
37. Pacific Region Marine Dioxin Database
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII.
49. Oil and Chemical Spill Countermeasures Series
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

DFO RESOURCE DATASET INVENTORY - Subject Index

Shellfish - Echinoderms

1. Commercial Catch Statistics System (CCSS)
2. Recreational Catch Statistics (RECSTAT)
3. Native Catch Statistics (NATIVE)
34. Co-Management Urchin Density And Size Frequency Dataset
35. Sea Urchin Habitat Dataset
36. Nestucca Fisheries Resource Charts
37. Pacific Region Marine Dioxin Database
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII.
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

Groundfish

1. Commercial Catch Statistics System (CCSS)
2. Recreational Catch Statistics (RECSTAT)
3. Native Catch Statistics (NATIVE)
7. Record of Management Strategies (RMS)
36. Nestucca Fisheries Resource Charts
37. Pacific Region Marine Dioxin Database
38. Groundfish Catch Statistics Database
39. SLIP
40. Groundfish, Flatfish Database
41. Rockfish Biological and Distribution Database
42. Hydroacoustic Stock Assessment Data of Offshore Fish
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

Vegetation

10. Herring Spawn Database
48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII.
49. Oil and Chemical Spill Countermeasures Series
50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
52. Oil Bibliography

DFO RESOURCE DATASET INVENTORY - Subject Index

Marine Mammals

- 36. Nestucca Fisheries Resource Charts
- 43. Killer Whale Distribution
- 44. Sea Lion Census and Kill Data
- 45. Harbour Seal Census Data
- 46. Northern Fur Seal Distribution and Life History
- 48. Biological Resources of Coastal British Columbia: Inventory and Analysis of Sensitivity to Oil Spills. Map Folio, Vol. XVII.
- 50. Fishery Officer Resource Dataset - Barkley Sound, Alberni Inlet
- 51. Fishery Officer Resource Dataset - Nootka Sound, Esperanza Inlet
- 52. Oil Bibliography

DFO RESOURCE DATASET INVENTORY - Contact List

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 Dataset: 16

Ellis, Graeme

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 Dataset: 43,47

Fargo, Jeff

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 Nanaimo, B.C.
 Tel: 756-7165
 Dataset: 40

Fort, Chuck

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 Pacific Biological Station
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 Tel: 756-7259
 Dataset: 10

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 Datasets: 10,13,14

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 Datasets: 19,31

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 Datasets: 11,17

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 Dataset: 28

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 Dataset: 35

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 Datasets: 19,31

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 Dataset: 7

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Jamieson, Glen

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 Dataset: 41

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Datasets: 20,21

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Datasets: 10,13,14,18

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Dataset: 5

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Dataset: 47

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Datasets: 38,41

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Dataset: 8

APPENDIX A.

**1993
CATCH STATISTICS CODING SUMMARY
(for DFO use)**

Revised: September 14, 1993

AREAS		GEAR CODES				LANDING STATUS			
FRASER:		01 DIGGING OR HAND	45 SCALLOP DREDGE	01 COMMERCIAL	08 CONTAMINATED				
28	280	10 SALMON GILLNET	46 CLAM DREDGE	02 TEST FISHING	10 HATCHERY SALE				
29AH	781	11 OTHFR GILLNET	50 TRAWL	03 RESEARCH	11 QUOTA OVERAGE				
79f	797	12 OCTOPUS DIP NET/SCOOP	51 MID WATER TRAWL	04 SEIZED	12 SLIP NOT RECEIVED				
74f	793	19 HI RING GILLNET	52 PAIR SEINE	06 LOSS AT SEA	13 EXPORT TO NON-US COUNTRIES				
79f	794	20 SALMON SEINE	57 SHRIMP TRAWL	06 DUMPED	14 AQUACULTURE				
		21 OTHER SEINE	59 HERRING TRAWL	07 PERSONAL USE	15 LATE SALES SLIPS				
		29 HERRING SEINE	70 BEACH SEINE	08 DIRECT EXPORT TO USA	16 NOT SOLD/ CONSIGNMENT				
		30 SALMON TROLL	80 DIVING		17 REDUCTION				
		31 SALMON TROLL FREEZER	90 OTHER TRAP		18 NOT LICENSED				
		36 HANDLINE (non-salmon)	97 PRAWN TRAP		19 DEPURATION				
		40 LONGLINE	98 CRAB TRAP						
SALMON									
NORTH:		SPECIES				FORM			
1	010	08 ATLANTIC SALMON		1	ROUND		- PIECE & WEIGHT		
2E	021	10 LGE. RED CHINOOK		2	ROUND		- WEIGHT ONLY		
2W	022	11 MED. RED CHINOOK		3	DRESSED HEAD/ON		- PIECE & WEIGHT		
3XY	031	12 SMALL CHINOOK		4	DRESSED HEAD/ON		- WEIGHT ONLY		
3Z	033	12 JACK (pieces only, GN, SN only)		5	PIECE ONLY		- (JACK)		
4	040	13 #2 RED CHINOOK		6	DRESSED HEAD/OFF		- WEIGHT & WEIGHT		
5	050	14 WHITE CHINOOK		7	DRESSED HEAD/OFF		- WEIGHT ONLY		
6	060	15 SOCKEYE		8	SMOKED SALMON				
7	070	16 COHO		9	SALMON STEAK				
8	080	17 PINK		10	SALMON CHUNK				
9	090	18 CHUM		11	SALMON FILLET				
10	100	19 STEELHEAD							
30	300								
NON-SALMON									
SOUTH:		HALIBUT (form 1,2,3,21,22,23)		COD (form 1,2,3,6,7,21,22,23,24,27)		FORM			
11	110	20 LARGE 60 - OVER	41 LINGCOD	0	TON	17	BACK (DOGFISH)		
12	120	21 MEDIUM 10 - 59	42 PACIFIC COD (GREY COD)	1	FRESH ROUND OR IN SHELL	18	LIVER (DOGFISH)		
13	130	22 CHIX UNDER 10	43 SABLEFISH (BLACK COD)*	2	FRESH DRESSED HEAD/ON	19	FIN & TAIL (DOGFISH)		
14	140	23 #2		3	FRESH DRESSED HEAD/OFF	20	FIN (DOGFISH)		
15	150	24 MIXED		4	TAIL	21	FROZEN, ROUND		
16	160			5	FLAP/WING	22	FROZEN, DR/ON		
17	170			6	FROZEN, JAPANESE CUT	23	FROZEN, DR/OFF		
18	180			7	BODY MEAT/MEAT/FILLET	24	FRESH, J/C		
19	190			8	DOZEN (ROUND)	25	FROZEN, DOGFISH BODY		
20	200			9	PIECE (ROUND)	26	FRESH, DOGFISH BODY		
21	210			11	OCTOPUS DR. SKIN/ON	27	COLLAR		
22	220			12	OCTOPUS DR. SKIN/OFF	28	SPLIT (SEA CUKE)		
23	230			13	CRAB LEG				
24	240			14	COOKED CRAB				
25	250			15	GEODUCK NECK				
26	260			16	GEODUCK NECK & BODY				
27	270								
		SOLE (form 1,2,3,6,7,21,22,23,24)		ROCKFISH (form 1,2,3,6,7,21,22,23,24,27)					
		30 BRILL	44 PACIFIC OCEAN PERCH						
		31 BUTTER	45 REEDI (YELLOW MOUTH)						
		32 DOVER	46 GREENIE (YELLOW TAIL)						
		33 LEMON	47 ROCKFISH						
		34 REX	48 RED SNAPPER (YELLOW EYE)						
		35 ROCK	58 IDIOT						
		36 MIXED							
		GROUND FISH & OTHER SPECIES landed form 1, except (*)		HERRING () indicates landed forms		SHELLFISH landed form 1, except (*)			
DISTRICT 4:		27 HAGFISH	89 ROE ON KELP (0,1)	52	SQUID				
ALASKA	400	38 MACKEREL	90 ROE HERRING (0,1)	53	PLANKTON (EUPHASIID)				
TAKU	441	50 SALMON ROE	91 FOOD HERRING (0,1)	61	OCTOPUS* (1,11,12,21)				
STIKINE	442	51 NON-FOOD (MINK-FEED, SCRAP, REDUCTION)	92 BAIT HERRING (1,8)		SEA URCHIN* (1,9):				
YUKON	450	54 FLOUNDER* (1,7)	93 POND HERRING (1,8)	69	- RED SEA URCHIN				
		55 SKATE* (1,5)	94 HERRING (UNSPECIFIED)	02	- GREEN SEA URCHIN				
		56 EULACHON		26	- PURPLE SEA URCHIN				
		57 STURGEON* (1,2,3)		70	PRAWN* (1,4,7)				
WASHINGTON	508	59 PERCH* (SILVER) (1,6)		71	SHRIMP* (1,7):				
OREGON	518	60 TUNA* (1,2,3,21,22,23)			CLAM* (1,7):				
CALIFORNIA	528	62 SMELT		72	- RAZOR				
		63 OTHER FISH		73	- BUTTER				
		64 TURBOT* (1,2,3,6,7,21,22,23,24)		74	- MANILA				
		65 POLLOCK* (1,2)		75	- NATIVE LITTLENECK				
		67 DOGFISH* (0,1,2,3,5,6,17,18,19,20,21,22,23,24,25,26)		76	- MIXED				
		68 HAKE* (0,1,2,3,6,21)		29	- DEEP WATER LITTLENECK				
		84 FRESHWATER FISH (1,2)		77	ABALONE* (1,7)				
		Yukon, Taku, Stikine only			CRAB* (1,7,8,9,13,14):				
		95 SHARK* (1,2,3,6,7,17,18,19,20,21,22,23,24,25)		78	- DUNGNESS/GREEN/RIVER/OCEAN				
		96 ANCHOVY* (1,2,3)		03	- TANNER				
		99 OTHER GROUND FISH (GREEN LING) (1,2,3,6)		04	- KING (GOLDEN/RED)				
				05	- RED ROCK/OTHER				
				79	OYSTER				
				80	GEODUCK* (1,7,15,16)				
				81	HORSE CLAM* (1,7)				
				82	MUSSEL				
				83	GOOSENECK BARNACLE				
				85	SCALLOP* (1,7)				
				86	SNAIL				
				87	CRAYFISH				
				88	SEA CUCUMBER* (1,7,9)				

FORMS FOR CODS

GREY COD - FORM 1, unless otherwise specified, BLACK COD - FORM 3, unless otherwise specified, LINGCOD - FORM 3, unless otherwise specified. RED, ROCK, SNAPPER, & ROCKFISH - FORM 1, unless otherwise specified.

APPENDIX B.

DFO RESOURCE DATASET INVENTORY - Questions for dataset review

A. Data Description

1. Scope

Parameters of data (species, number of fish, etc.)

What was the form of data collection?

Location in space (geographic extent, DFO statistical areas)

Location in time (age of data)

- when did data collection begin/end?

- if the data are seasonally collected, which months are represented?

- is data collection on-going, at what frequency?

Are the data confidential?

2. Quality

How accurate/reliable are the data?

Were standard methods used over the course of data collection?

What the source of data consistent?

What are the data deficiencies/limitations?

3. Applicability to spill response

How do you envision your data being used for spill response?

Have you provided this data to spill responders in the past?

B. Database Characteristics

1. Format

What is the electronic storage medium of the data (ASCII files)?

What is the hard-copy storage medium of the data (reports, charts)?

What computer operating system is used?

What computer software is used?

What is the record format (fixed fields, worksheet)?

Can a record sample be provided?

2. Update

What is the status of the database?

What is the frequency of data entry?

Are there provisions for updating?

DFO RESOURCE DATASET INVENTORY - Questions for dataset review

3. Georeferencing characteristics

Are the data georeferenced?

How are the data georeferenced?

Does the data lend itself to georeferencing?

4. Accessibility

How accessible are the data to outside retrieval? (ie. what are the capabilities for linking directly to PC's or other systems?)

C. Contact Information

Who manages the database?

Address and telephone number of the manager(s).

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Wright, M.E.
Nestucca project :
inventory for Department...
181335 12062800 c.1

