

# **PACIFIC REGION FISHERY MONITORING AND REPORTING FRAMEWORK**

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**Fisheries and Oceans  
Canada**

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## 1. OVERVIEW

Timely and accurate information on harvest and harvesting practices is essential to assess the status of fish stocks and to ensure the conservation and the long-term sustainability of fish resources. Effective monitoring and accurate catch reporting in all fisheries whether they are First Nations, recreational or commercial are integral to resource management and the enforcement of fisheries rules. They are essential to ensuring responsible fishing. In addition, effective fishery monitoring and accurate catch reporting are equally important to support fishery planning by First Nations, stakeholders and all levels of government. Finally, accurate and timely catch reporting is fundamental to meeting Canada's international and other reporting obligations for fisheries.

This paper provides a framework to facilitate a review by Fisheries and Oceans Canada, in co-operation with First Nations and stakeholders, of fishery monitoring and catch reporting systems in Pacific Region. The objective of this review is to identify necessary improvements in these systems to better meet the needs of the resource, the government, stakeholders, the general public and the international community.

Specifically, this paper lays out the groundwork and a set of principles to guide the review, and where necessary the reform, of all fishery monitoring and catch reporting programs in Pacific Region. This framework paper also describes the various attributes of fisheries that need to be considered in designing and deciding on specific fishery monitoring and reporting strategies as well as the type and purpose of the information that may be required in particular instances. These principles and attributes are intended to assist in identifying gaps and other deficiencies (such as overlap and duplication of effort) in present monitoring and reporting programs. All of this is intended to provide a transparent basis for the establishment of appropriate fishery monitoring and reporting standards and for dialogue with First Nations and commercial and recreational stakeholders on the selection of appropriate fishery monitoring and reporting tools and requirements in order to best meet these standards.

## 2. KEY DEFINITIONS

**Fishery Monitoring:** means observing and understanding the fishery and its dynamics. It includes observing and examining the catching and landing of fish and any related activities, including the counting of fishing vessels or gear and the sampling of any fish caught. Fishery monitoring is generally carried out by someone other than the harvester although information from harvesters may be required to facilitate monitoring activities. Fisheries and Oceans Canada staff including fishery officers, fishery guardians, fishery managers, biologists, and scientists presently carry out monitoring activities. In addition, First Nations and, increasingly, third party observers designated by the Regional Director General, perform fishery monitoring.

**Catch Reporting:** means providing information, either verbally, in writing or electronically, on what is caught and other essential details related to the fishing activity (location, gear type etc.).

Catch reporting is performed by harvesters or by fish buyers, off-loaders or contracted third party dockside monitors/observers (designated by the Regional Director General) on behalf of harvesters.

**Additional activities associated with fishery monitoring and catch reporting include:**

- a) Specifying data requirements.
- b) Auditing the data to ensure its accuracy and completeness.
- c) Managing data that are collected.
- d) Enforcing compliance with catch reporting regulations and licence conditions.
- e) Analyzing and summarizing catch information.
- f) Communicating catch information within the department, and externally to First Nations, stakeholders, the general public and the international community, both in-season and post-season.

### **3. INTRODUCTION**

Accurate information on catch (harvested, released and discarded) in conjunction with other scientific data is required to establish long term conservation targets for fishery resources. In the short term, the same catch information is required to ensure that conservation targets are not being exceeded and that the sustainability of the resource is not being compromised by fishing activities. Depending on the nature of the resource and the fishery, and how actively it needs to be managed, catch information may be required on a real time basis, by detailed geographic area and/or by species and even individual stock. Information on fishing effort in relation to catch is also important for harvest planning and management.

Beyond the information requirements for conservation management, information on the value of catch and the extent and distribution of participation in fisheries is of key interest to First Nations, stakeholders, Fisheries and Oceans Canada, other governments and other government agencies. This information is essential to planning and dealing with the social and the economic aspects of fisheries.

In short, fishery monitoring and catch reporting systems in fisheries serve a variety of purposes. Some specific activities that are supported by fishery monitoring and reporting include:

- a) Stock assessment (e.g. determining the impact of the fishery on affected stocks).
- b) Fisheries management (e.g. opening and closing fisheries).
- c) Socio-economic analyses (e.g. assessing the employment and income impacts of changes in harvests and/or fishing opportunities).
- d) Planning for other government programs (e.g. workers compensation and other health and safety measures).

- e) Reporting to the public and international agencies (e.g. meeting the specific reporting provisions of bilateral international treaties and the general reporting provisions of the United Nations).

Each of these activities has its own set of objectives that determine specific information requirements. The design of the fishery monitoring and reporting framework should meet all of these information needs in a cost-effective manner while reflecting the attributes and logistical constraints of each fishery. This in turn needs to be reflected in the specific fishery monitoring and reporting tools used and activities undertaken in each fishery. A general overview of these inter-relationships is illustrated in Figure 1 at the end of this document

#### **4. CURRENT CONCERNS WITH FISHERY MONITORING AND REPORTING IN PACIFIC FISHERIES**

Effective fishery monitoring and reporting programs are necessary to support departmental objectives for precautionary management, ecological management and selective fishing, and they assist in promoting trust among users. Such programs provide assurance to the general public that fisheries are being managed in a responsible fashion. However, a number of outside observers such as the Auditor General and the Pacific Fisheries Resource Conservation Council conclude that some current monitoring and reporting systems are inadequate for Fisheries and Oceans Canada to achieve its conservation goals. This is in spite of extensive resources and effort devoted to monitoring and reporting activities in these fisheries. In addition, private sector analysts, international agencies, other governments and government agencies have increasingly complained about the lack of accurate and timely information on income and participation in fisheries that is essential for long term planning to address the social and economic needs of the fisheries.

##### **4.1. First Nations Fisheries**

Over recent years, fishing effort by First Nations has increased in part due to growth in the aboriginal population (although in many cases these numbers remain below historic population levels). As a result, it has been recognised that previous ad hoc data collection by fishery officers is now inadequate to provide a sufficiently complete and accurate accounting of the harvest.

Many First Nations fisheries are being monitored through census programs, roving and/or access point surveys and mandatory landing sites for pilot sales fisheries. These surveys and census programs are often developed and are being implemented in co-operation with First Nations. However, as aboriginal fisheries have continued to expand and evolve, the coverage of present efforts is increasingly incomplete.

Catch estimates are either absent or not being made available for many aboriginal fisheries, particularly those for shellfish, groundfish and herring. In addition, there are issues and questions regarding the timeliness and completeness of the information that is

received and/or reported to the department. First Nations and departmental staff need to engage in a meaningful dialogue on the adequacy of present monitoring efforts and in designing improvements that meet both First Nations and the department's needs.

## **4.2 Recreational Fisheries**

Recreational fisheries have also changed over time. Although it appears that overall recreational fishing activity has remained relatively stable over the last twenty years, the fishery has expanded geographically along the coast and increasing recreational fishing effort is devoted to other (non-salmon) species. Effort and catch has increased on the West Coast of Vancouver Island, the Central Coast and particularly the North Coast areas while declining in the Strait of Georgia. In contrast to the past where the vast majority of fishing effort was directed at salmon, substantial effort has been devoted in recent years to the harvest of groundfish and shellfish species.

In the mid-1980's, a major creel survey focussed on salmon was initiated for the Strait of Georgia where the vast majority of recreational fishing took place. Further creel surveys have been added over the years for other areas of the coast and for some fresh water systems at a significant and growing expense to the department. However, as recreational fisheries have continued to expand geographically and evolve to include other species, the coverage of present efforts is increasingly incomplete.

Catch estimates are absent for some recreational fisheries such as shellfish and the available estimates for groundfish and herring are likely unreliable. In addition, there are virtually no data on the number of fish released after being caught. The benefits, costs and adequacy of the present surveys in these fisheries need to be evaluated using a common framework and compared with alternative information collection methods.

## **4.3 Commercial Fisheries**

Historically, the principal means for capturing information on commercial fish landings is through a commercial fish slip system. When fishers offload their harvest, fish slips documenting the quantity, value and species of harvest by commercial harvester are forwarded to Fisheries and Oceans Canada for data processing.

Information from the fish slip system is increasingly inadequate for management purposes. For example, information on fish released or discarded at sea has never been captured by the fish slip system but with growing conservation concerns, this specific information gap has increased in importance. Also, the time required for gathering and processing fish slip information has always made the system insufficient for intensively managed fisheries such as salmon and herring. Recent management changes have also made fish slip information inappropriate in a growing number of fisheries. For example, the introduction of individual quotas has created the need for much more reliable,

detailed and timely information on individual fish landings than can be provided through the traditional fish slip system.

As well, the fish slip system has deteriorated in efficiency over time, in part due to the substantive changes that have occurred in the commercial fishing industry. More and more fishers market their own products directly to consumers. In addition, there has been a profusion of individual commercial buyers. Both of these factors have made it increasingly difficult to enforce compliance with fish slip reporting. As a result, there is known to be variable but growing amounts of unreported catch missing from the fish slip system.

Some of the deficiencies of the commercial sales slip system have been addressed by the introduction of other fishery monitoring and reporting programs, but they have been addressed inconsistently from fishery to fishery and in an uncoordinated way. Currently, there are numerous separate systems that include on-ground haul information in fisheries such as salmon and herring, and dockside monitoring records for quota fisheries such as halibut and logbook data for many fisheries. Although each of these systems addresses one or more specific inadequacy in the sales slip system, they themselves are often inadequate in other respects. As a result, numerous different estimates of commercial catch for any given fishery are often possible with no clear way of differentiating the most accurate or complete. This creates confusion on the part of the public and undermines the credibility of fisheries management. Maintaining these numerous diverse systems is also expensive and may involve considerable duplication of effort that has the potential to have adverse financial impacts on both government and stakeholders.

## **5. CURRENT POLICY GUIDELINES**

Monitoring and reporting in Pacific fisheries have been addressed in a number of recent policy initiatives by Fisheries and Oceans Canada. For example, "A New Direction for Canada's Pacific Salmon Fisheries" released in 1998 emphasises the need for government, First Nations and stakeholders to have joint responsibility and accountability for sustainable fisheries, including management costs and decisions.

The "Allocation Policy for Pacific Salmon" released in October 1999 further elaborates on this with respect to monitoring and reporting, and specifically notes that:

"(Fisheries and Oceans Canada) will work through consultation with representatives of all harvesting sectors to develop basic catch monitoring and reporting standards. These standards will:

- Identify the best catch data collection system for each fishery (these may well differ between and within sectors), and;



- Improve the comprehensiveness, timeliness and credibility of catch data while seeking to minimise the associated costs."

"Over the longer term, the costs of catch monitoring and reporting will be the responsibility of each harvesting group. (Implementation of) this will be discussed with each group (and) may reflect different arrangements according to the specific needs of the individual harvest group."

This overall policy shift towards joint responsibility and accountability has been further confirmed in the recently released "Policy for Selective Fishing in Canada's Pacific Fisheries". Specifically:

"Fisheries and Oceans Canada will, working with recreational fishing and commercial harvester organizations, develop selective fishing standards and implementation action plans for all Pacific recreational and commercial fisheries by January 2003."

"Fisheries and Oceans Canada will also work with First Nations to continue to develop selective fishing practices in all fisheries, including food, social and ceremonial fisheries."

"Responsibility and costs for (meeting these new standards) will reside principally with anglers and harvesters in the recreational and commercial sectors."

## 6. PRINCIPLES

The following principles reflect a comprehensive statement of Fisheries and Oceans Canada's direction and requirements related to fishery monitoring and catch reporting. These are intended as a starting point for discussion with stakeholders around necessary changes to monitoring and reporting programs in their individual fisheries.

### 6.1. Principle 1

**All fisheries must have fishery monitoring and reporting programs and they must be of sufficient accuracy and precision to address conservation needs, including the need for the appropriate and timely control of fishing.**

Effective fishery monitoring and accurate catch reporting is the cornerstone of precautionary fisheries management; it is essential to achieve conservation of resources and maintain sustainable fisheries. There is a wide recognition of the importance of conserving fishery resources and their habitat. Recent consultation with First Nations and stakeholders around allocation, selective fishing and other issues has confirmed their strong support for the principle of conservation and sustainable fisheries management.

The intensity of fishery monitoring and reporting and the types of data collected should be based on the biological impact and management requirements of the fishery. The

level of fishery monitoring and reporting needs to respond appropriately to the level of risk associated with each fishery. All fisheries must have, at minimum, a reliable annual estimate of total mortalities of target species and all significant by-catch species. Even where the risks to the resource from fishing are low, an annual estimate of total mortalities is needed to confirm that the harvest has not increased significantly. Where risks to fish are higher, a more accurate estimate of total mortalities will be required. When exploitation rates are high or the fishing capacity is large in relation to harvestable surpluses, monitoring and reporting requirements need to be more intensive. Depending on the fishery and the nature of the conservation risks, harvest estimates may be required on a frequent, detailed and/or geographically precise basis. Where the risks to the resource from fishing are higher or significant conservation concerns have arisen, catch monitoring and reporting programs must reflect this.

## **6.2. Principle 2**

**Fishery monitoring and catch reporting programs must be adequate to meet the provisions of international treaties and other agreements, First Nation Treaties and other domestic agreements or arrangements.**

Fishery monitoring and reporting programs must be adequate to meet Canada's international commitments to provide accurate and timely information on the quantity, weight and value of target species caught. In August 1995, the United Nations established an agreement, endorsed by Canada, on the "Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks". This agreement, subsequently ratified by the United Nations, lays out binding obligations for data collection to assess the impact of fishing on migratory and straddling fish stocks, including development of standards for collection, reporting, verification and exchange of data on fisheries. It notes the need for accurate and complete statistical data on these fisheries.

Where necessary, fishery monitoring and reporting programs must be sufficient to meet international or domestic allocation commitments and sharing arrangements established in treaties or other agreements. Some bilateral treaties with other countries require that Canada maintain accurate catch data by all harvest groups, to ensure that international catch sharing arrangements are being met. Specific examples include salmon fisheries under the Pacific Salmon Treaty and halibut fisheries governed by the International Pacific Halibut Commission. In addition, the recent treaty with the Nisga'a First Nation calls for specific sharing arrangements with respect to Nass River salmon. Finally, domestic allocation policy in the salmon fishery calls for sharing arrangements between different user groups and gear types. Fishery monitoring and reporting systems must be able to support the implementation of these existing and future similar arrangements.

## **6.3. Principle 3**

**Fishery monitoring and catch reporting programs must address all known significant ecosystem concerns including information on discards, by-catch and habitat impacts.**

Where a fishery has substantive impacts on other species or other elements of the ecosystem, information must be sufficient to quantify these impacts and to track them over time. In 1992, Canada and other nations endorsed the United Nations Convention on Biological Diversity that calls for a precautionary and ecosystem based approach to the management of biological resources in order to maximize species diversity. In 1997, the principles and objectives in this Convention were captured in Canada's *Oceans Act* that provides a legislative framework for a precautionary approach to the management of Canada's coastal marine resources through integrated management. In addition, "Species at Risk" legislation is under consideration by Parliament that would establish a legal mandate for the classification and protection of endangered and threatened species. International commitments and Canadian legislation and policy increasingly require careful attention to the collateral impacts of fisheries on other species and on the ecosystem as a whole.

#### **6.4. Principle 4**

**Fishery monitoring and reporting standards will be established for all fisheries and will be the basis for the selection of appropriate fishery monitoring and reporting tools and for establishing appropriate coverage requirements.**

Standards will vary by fishery and may change over time with shifts in the nature and intensity of the fishery. The issues of quality, accessibility and timeliness of the data need to be reviewed with stakeholders in each fishery. As a minimum, enough information must be collected to reliably establish the annual biological impact of the fishery on any of the stocks being harvested. At the other end of the spectrum, information may be required on the cumulative catch-to-date and any incidental mortalities with a high degree of precision at regular, short intervals during the fishery. In any case, consistent criteria need to be applied to each fishery to determine where it fits on this continuum. The minimum monitoring and reporting required for each fishery should then be expressed in terms of standards. These standards will be the basis for selection, in co-operation with stakeholders, of appropriate fishery monitoring and reporting tools and for determining required levels of coverage.

Standards for each fishery may be expressed in terms of the:

- a) Types of data to be collected: e.g., amount caught, amount released, effort, gear, harvester profiles, biological traits, value
- b) Resolution (level of detail) of the data: e.g., daily activity by fisher by Sub-area, set by set activity at a given latitude and longitude
- c) Precision/accuracy of estimates derived from the data (if sub-sampling): e.g., within 10% of the true value, 90% of the time

- d) Timeliness of data delivery to the Department: e.g., within 24 hours of the harvest
- e) Uniform coding schemes for species, locations, dates, times, etc.
- f) Data and software formats, and available technology.

## **6.5. Principle 5**

**Data will be collected in the most cost-effective manner to meet the required standards.**

Harvesters will be consulted to review and co-operatively plan monitoring and reporting programs for their fishery or groups of fisheries and on the methods to be used for data transmission to the department. It is recognised that fishery monitoring, catch reporting and associated data management activities, involves considerable cost and effort. In many fisheries the full costs of monitoring and reporting currently rest with the harvesters and this will be extended to other commercial and recreational fisheries over time. Care must be taken to avoid unnecessary duplication of effort. There is a need to review and seek advice on existing arrangements. In addition, wherever possible, advantage should be taken of cost effective new technologies as they become available.

In fisheries where self funding of fishery monitoring and reporting is not in place, commercial and recreational harvesters will be consulted on appropriate timelines for the implementation of self funding and appropriate self funding mechanisms for their fisheries. There are a number of options that can be considered by fishery organisations for recovery of catch monitoring and reporting costs. There are advantages and disadvantages associated with each of these options. Where self funding is not presently in place, the department will seek advice on which option would work best for each fishery.

## **6.6. Principle 6**

**Harvesters are individually and collectively responsible for providing catch monitoring information and catch data to the department.**

Compliance with fishery monitoring and reporting requirements is essential to achieving conservation-based fisheries management. It follows that lack of compliance may lead to restrictions in fishery openings and future fishing opportunities. The department will place a high priority on achieving compliance with fishery monitoring and reporting regulations. Administrative options to improve compliance with catch reporting will also be considered. The department will retain the responsibility for auditing to ensure data collection and reporting programs comply with requirements and that programs are meeting the established standards.

The department attempts to manage fisheries in a manner consistent with the decision of the Supreme Court of Canada in *R. v. Sparrow* and subsequent decisions. Where lack

of compliance with fishery monitoring and catch reporting requirements in a First Nation fishery is a problem, the department will seek to address the problem in a way that does not unjustifiably infringe any aboriginal or treaty rights that may exist.

#### **6.7. Principle 7**

**All catch and effort data will be owned and managed by the department who will report and release catch data in such a fashion that confidentiality is respected in accordance with policies determined by the *Privacy Act* and *Access to Information Act*.**

Responsible fisheries management is part of the department's core mandate, and reliable and timely catch information is essential for responsible fishery management. Although fish harvesters are responsible for providing the data and information required, all catch and effort data will be captured within departmental systems as soon as possible after collection to ensure its accessibility and security. First Nations will be consulted on the collection and management of data from aboriginal fisheries. Commercial and recreational fishers will be responsible for the associated costs of collection and transmission of catch data to the department. The department will remain responsible for the costs associated with managing the databases, compiling and analysing the data and publicly reporting the data in appropriate and suitable formats (subject to confidentiality provisions). Wherever possible, cost effective new technologies will be introduced to provide improved and more timely access to catch data information.

### **7. APPLICATION OF THE PRINCIPLES TO INDIVIDUAL FISHERIES**

Fishery monitoring and reporting standards will vary by fishery depending on their individual attributes. Attributes of importance may include: geographic scope, duration, fishing power, compliance history with fishing regulations and reporting requirements, number of participants, capacity of fishers to individually meet reporting requirements (e.g. ability to identify species), management objectives (biological, social and economic), by-catch, type of management regime (complex or simple), logistics of the fishery and number of species involved in the fishery.

To facilitate discussion with stakeholders on the development of appropriate monitoring and reporting systems, the information that may be required and its purposes are outlined below. These requirements are then cross-referenced to the various tools that could be used to collect the information (at present, more than one tool is currently in use in some fisheries). The information collected may then be delivered through a number of methods to the department. Duplication, whether in tools used or delivery methods, should be minimised, although partial coverage through supplementary tools may be appropriate in some fisheries as a useful cross-check on the accuracy and completeness of data provided.

<b>Information that may be required</b>	<b>Purpose</b>	<b>Tools</b>	<b>Data Delivery Methods</b>
1. Species catch numbers and/or weights	To ensure catches do not exceed “allowable” levels, either in total or individually (e.g. TAC or IQ). To assess fishery impacts.	Fish slips; Logbooks; Dockside monitoring; Observers; Hails; Harvester surveys	Mail; Telephone/radio; Interviews; Internet/ electronic mail; Real Time Vessel Monitoring Systems (VMS)
2. Discards, releases, by-catch and other fishery interactions	To ensure fishing-induced mortalities, other than landed catch, do not exceed “allowable” levels. To assess fishery impacts.	Observers; Logbooks; Hails; Harvester surveys; Video monitoring	Telephone/radio; Interviews; Internet/ electronic mail; Real Time VMS
3. Effort	To derive fishing capacity or catch rates. To allow for predictions of fishing impacts, pre-season and in-season.	Over-flights; Hails; Logbook; Observers; Video monitoring	Telephone/radio; Internet/ Electronic mail; Real Time VMS
4. Location	To determine the geographic extent of the fishery. To support ecosystem management. To support stock-specific management.	Observers Video monitoring; Logbooks; Over-flights	Mail; Internet/ electronic mail; Real Time VMS
5. Date and time	To biologically assess stocks and/or yields.	Observers; Video Monitoring; Logbooks	Mail; Internet/ electronic mail; Real Time VMS
6. Biological attributes of the catch, including marks	To determine age composition, stock composition and/or general health.	Observers; Dockside monitoring	Mail
7. Other Interactions, (e.g. with habitat, with marine mammals, with aquaculture operations)	To support the precautionary and ecosystem management approach.	Observers; Video monitoring	Internet/intranet/ electronic mail; Telephone/radio

<b>Information that may be required</b>	<b>Purpose</b>	<b>Tools</b>	<b>Data Delivery Methods</b>
8. Value of the commercial fishery	To measure the economic benefit of the fishery and facilitate assessment of any proposed management changes and to plan around socio-economic impacts. To predict the economic benefit or loss of proposed regulatory changes.	Fish Slips; Processor/Buyer surveys	Mail; Telephone; Internet/ electronic mail
9. Value of the recreational fishery	To measure the economic benefit of the fishery and facilitate assessment of any proposed management changes and to plan around socio-economic impacts. To predict the economic benefit or loss from proposed regulatory changes.	Angler surveys; Business/Supplier surveys;	Mail; Telephone; Internet/electronic mail

A specification of the information needs for a particular fishery must include a list of variables to be measured and collected, a description of the frequency and the geographic resolution with which they need to be collected, the error tolerance in estimates derived from them and the timeliness of delivery. The information may be used in-season to allow for well-informed decisions concerning openings and closures of fisheries. It may be used post-season to assess the cumulative impact of fisheries and in subsequent years, pre-season, to inform the development of future fishing plans.

## **8. SOME SPECIFIC ISSUES FOR DISCUSSION**

### **8.1. First Nations Fisheries**

There are a variety of monitoring and reporting programs in place for aboriginal salmon fisheries. Major salmon fisheries such as on the Skeena and the Fraser rivers are monitored and sampled fairly intensively and regular catch reports are produced. Fisheries that involve "pilot sales" have mandatory landing programs. Other fisheries are monitored through catch and effort surveys and census data usually in co-operation with First Nations' technical staff and with funding support from the department's Aboriginal Fisheries Strategy program. However, complete catch reports are not received from all First Nations salmon fisheries and biological sampling is absent for many of these

fisheries. In addition, the information that is received is often submitted to the department too late to be useful for biological assessments.

Fishery information gaps are particularly evident in other non-salmon fisheries by First Nations (such as for shellfish, groundfish, and herring). In these kinds of fisheries, there are few programs in place for the monitoring and reporting of First Nations non-salmon harvests. The lack of information in both salmon and non-salmon First Nations fisheries is a concern that requires attention.

#### 8.1.1. Issues for Discussion

- 8.1.1.1 How can catch reporting for First Nations salmon fisheries become more comprehensive, timely and accurate?
- 8.1.1.2 How can catch reporting programs be best conducted for First Nations invertebrate, herring and groundfish fisheries?
- 8.1.1.3 How can catch data sharing for aboriginal fisheries and access to this data be best achieved?
- 8.1.1.4 Should there be an attempt to measure the economic value of all aboriginal fisheries including food, social and ceremonial? If so, by whom and what indicators should be used?

## 8.2. Recreational Fisheries

Most major salmon tidal and non-tidal sport fisheries are being monitored through creel surveys (interviews at landing sites and boat/rod counts via overflights) during key fishing times. For example, the Strait of Georgia creel survey is presently conducted from April to September. The cost of these surveys to the department has averaged about \$1.5 million per annum in recent years. In addition, logbook programs are used with most fishing lodges and some charter operators. There are, however, portions of the coast, groups of anglers, river tributaries, and time periods where salmon fisheries are not monitored or reported. In some of these cases, estimates of catches are made from observations and reports of fishing activity and landings. The department, First Nations and local community groups conduct creel surveys on some systems. Funding for most of these small creel surveys is uncertain from year to year, and as a result, they are not conducted on a regular annual basis.

Some recreational groundfish fisheries are monitored in conjunction with salmon fishery creel and logbook programs. However, because these salmon creel surveys are not designed specifically to capture groundfish harvest information from recreational fisheries, the information gathered is often incomplete and may be inaccurate. There is also a concern with the species composition of the catch reported and the lack of data



from areas and times when salmon creels or logbook programs are not being conducted.

Recreational shellfish and herring fisheries are poorly monitored and reported. There is limited incomplete data on crab and prawn fishing from some creel surveys, yet again, the creel surveys are not designed for the shellfish recreational fisheries. There is no information from land-based fisheries such as clams and oysters.

In addition to creel surveys and logbook programs, there is also a National Survey of Recreational Fishers. This mail survey is conducted every five years, and was conducted most recently in 2001 to collect information on recreational fishing in year 2000. However, because of recollection problems on the part of those surveyed, there is considerable debate over the reliability of estimates of catch from this survey.

#### 8.2.1. Issues for Discussion

8.2.1.1. How can catch reporting for all recreational fisheries be made more comprehensive, timely and accurate?

8.2.1.2. Are there better alternatives to creel surveys?

8.2.1.3. How can the sport fishing sector self-fund fishery monitoring and catch reporting?

8.2.1.4. How can information on the economic value of the recreational fishery best be captured?

### 8.3. Commercial Fisheries

All major commercial fisheries have some form of fishery monitoring and reporting currently in place. The quality, comprehensiveness and timeliness vary on a fishery by fishery basis. Some fisheries rely solely on the commercial sales slip system with the increasing problems noted previously in Section Four. Many fisheries also have mandatory log book programs. In addition, all groundfish, herring (roe and spawn on kelp) and most shellfish fisheries have mandatory dockside monitoring programs.

Dockside monitoring programs are paid for by the commercial licence holders and provide complete, accurate and timely reports of all fish landed by individual licence holders. Some fisheries have on-board observers to monitor and sample all fish that are caught and released. For example, all groundfish bottom trawl-fishing vessels have mandatory observer coverage, with costs of these programs shared between licence holders and the department. The costs for observers used in some shellfish fisheries and herring spawn-on-kelp and the food herring fisheries are fully paid for by the licence holders. In contrast, the department pays for partial observer coverage in some salmon fisheries and on some salmon vessels.

In a number of commercial fisheries, the overall data and information available is excellent but there appears to be considerable overlap and duplication of effort between a number of monitoring and reporting programs. There may be potential for efficiencies in the integration of the various systems and through stream lining monitoring and reporting requirements. In other fisheries, the present information available is inadequate -- a situation that needs to be rectified. In addition, inconsistency between fisheries in the funding responsibilities of stakeholders for catch monitoring and reporting is a major issue that requires attention.

#### 8.3.1. Issues for Discussion

8.3.1.1. To what extent are present monitoring and reporting systems adequate or inadequate in each commercial fishery?

8.3.1.2. What additions or changes are necessary to address any inadequacies?

8.3.1.3. How can fishery monitoring and reporting be integrated and stream lined while still meeting acceptable standards?

8.3.1.4. How should self-funding for fishery monitoring and reporting be implemented where it is not presently in place? Over what time period?

8.3.1.5. How can information on the economic value of the commercial fishery best be captured?

## 9. ROLE OF THE PROVINCE OF BRITISH COLUMBIA

Fisheries and Oceans Canada and BC Fisheries are working together co-operatively on a number of fishery initiatives in Pacific Region. It is important that the provincial government be part of the review of fishery monitoring and reporting. The Province of British Columbia has a number of direct responsibilities related to fishery monitoring and reporting, including:

- a) The licensing of all freshwater recreational anglers, including those fishing for salmon (a federally-managed species).
- b) The licensing of fish buyers, brokers, vendors, and processors, including the requirement for these operators to submit catch reports (fish slips).
- c) The licensing of freshwater fishing guides.
- d) The licensing of aquaculture operations.
- e) The reporting of B.C. seafood industry production and wholesale value.

The provincial and federal governments need to jointly review their respective regulations to ensure that any changes to fishery monitoring and reporting are complementary and meet the

information needs of both governments. An objective of this review will be to reduce duplication and inconsistency between the two government's regulatory requirements.

## **10. ROLE OF HARVESTERS AND FISHERIES AND OCEANS CANADA**

The department's operating principle is that both government and harvesters are together responsible and accountable for effective monitoring and reporting in all fisheries. This involves a partnership based on specific roles, as well as accountability for well-defined responsibilities. Harvesters are responsible for providing accurate and complete information on their harvest and for the costs associated with the collection and delivery of this information to the department. If harvesters are to be accountable for these things, it is recognised that harvesters must have increased input into the design and implementation of fishery monitoring and reporting programs for their fisheries. At the same time, final responsibility for a number of matters must continue to rest with the department to ensure that public confidence in the management system is maintained. These include:

- a) Establishing the standards for catch reporting.
- b) Designating third party observers and/or companies and specifying their training and certification requirements.
- c) Establishing audit requirements and implementing audit plans to ensure the accuracy of the information provided.
- d) Managing, storing and analyzing the data provided.
- e) Publishing official summary reports of catch data by fishery and providing public accessibility to catch data in a timely manner.
- f) Enforcing the regulations pertaining to catch reporting.

## **11. NEXT STEPS**

For the reasons described in this framework paper, Fisheries and Oceans Canada is committed to improving fishery monitoring and reporting in Canada's Pacific fisheries in co-operation with First Nations and with commercial and recreational stakeholders. Advice and input from all fishers is essential to the design and implementation of efficient and cost-effective monitoring and reporting programs that will better serve the needs of the resource, stakeholders and the general public.

In 2002, the department will consult with First Nations, recreational and commercial advisory groups on issues related to monitoring and reporting on a fishery by fishery basis, including:

- a) The establishment of minimum fishery monitoring and reporting standards as well as the monitoring and reporting requirements, programs and regulations that need to be implemented for each fishery.

- b) The development, before commencement of fisheries in 2003, of schedules and action plans for any necessary changes to the fishery monitoring and reporting systems and requirements in each fishery.
- c) The development of self funding plans for fishery monitoring and reporting in recreational and commercial fisheries, and schedules for the implementation of self funding where this is lacking.

In addition, the department will invite First Nations, recreational and commercial advisory groups to participate in a cross-sectoral forum or forums in 2003:

- a) Where the schedules and action plans developed for each fishery can be presented, explained and discussed in an integrated context and
- b) Where the development of standards to ensure timely accessibility to catch data can be discussed.

If you would like to offer comments regarding the principles and approaches to fishery monitoring and reporting discussed in this framework paper, please contact the manager responsible for your fishery (refer to your Fishery Management Plan for contact information).

**FIGURE 1**

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