

Response to Marine Stewardship Council

Indicators for Principle 3- Fishery Management System

Pacific Wild Salmon Fishery

Fraser River Sockeye

Fisheries and Oceans Canada

Pacific Region

November 2003

TABLE OF CONTENTS

Table of Contents	i
Introduction	1
Indicator 3.1.1	2
Indicator 3.1.2	4
Indicator 3.1.3	9
Indicator 3.1.4	11
Indicator 3.1.5	14
Indicator 3.1.6	16
Indicator 3.1.7	21
Indicator 3.1.8	23
Indicator 3.2.1	28
Indicator 3.2.2	31
Indicator 3.3.1	34
Indicator 3.4.1.1	39
Indicator 3.4.1.2	41
Indicator 3.4.2.1	42
Indicator 3.4.2.2	44
Indicator 3.5.1	47
Indicator 3.5.2	48
Indicator 3.5.3	50
Indicator 3.5.4	51
Indicator 3.6.1	54
Indicator 3.6.2	56
Indicator 3.6.3	57
Indicator 3.7.1	59
Indicator 3.7.2	62
Indicator 3.7.3	63

Indicator 3.7.4..... 65
Indicator 3.7.5..... 66

Introduction

The BC Wild Salmon Fishery has applied for certification of its fisheries to the Marine Stewardship Council.

In June 2003, the Marine Stewardship Council published their MSC Evaluation Criteria for BC Salmon fisheries (which included Units of Certification, Performance Indicators and Scoring Guideposts) describing in detail how the certification process will be conducted¹. The Marine Stewardship Council has defined a total of 47 Indicators under three Principles.

This document prepared with the assistance of Fisheries and Oceans Canada is the BCSMC's technical submission on the indicators for Fraser River sockeye for all three principles. This principle evaluates the rules and procedures of the managing agency, how they are implemented to maintain a sustainable fishery and to ensure that the impact on the marine environment is minimized.

For the purposes of Principle 3, the "management system" is defined to mean all public sector entities with responsibility for managing salmon in British Columbia, including

- Fisheries and Oceans Canada (DFO),
- the Pacific Salmon Treaty (PST),
- Pacific Salmon Commission (PSC), and
- PSC Fraser Panel Technical Committee (FRTC)

in addition to scientific assessment groups such as the

- Pacific Scientific Advice Review Committee (PSARC)

and other governmental entities that provide advice to managers.

The Scoring Guideposts as identified by MSC have been colour coded to indicate the level of agreement with the statements.

Green - The requirements of the guidepost have been met.

Red - The requirements of the guidepost have not been met.

Orange - The requirements of the guidepost have partially been met.

Black - The requirements of the guidepost are not applicable to the Fraser River sockeye fishery.

¹ Marine Stewardship Council. 2003. MSC Evaluation of BC Salmon Fisheries: Units of Certification, Performance Indicators and Scoring Guideposts.

Indicator 3.1.1

The management system has a clear and defensible set of objectives for the harvest and escapement for target species and accounts for the non-target species captured in association with, or as a consequence of, fishing for target species.

DFO Response**Current Situation**

Management objectives are enunciated each year in the annual IFMP.²

Conservation objectives are expressed in a number of ways including exploitation rate, ceiling/range, or spawning escapement goal.³

Specific objectives for stocks expected to return below target levels and other stocks of concern are elaborated in Section 3 of the IFMP.⁴

Annual escapement targets are developed pre-season by Fisheries and Oceans Canada for individual stocks or a group of stocks. Escapement goals are set to meet conservation requirements and to provide for reasonable amounts necessary for rebuilding depressed stocks.⁵

Exploitation rate ceilings are set pre-season for Fraser River sockeye management units and for stocks of concern.⁶ The escapement plan is guided by exploitation rate ceilings that range from 0 to 65%. DFO sets targets for stocks of concern (eg, 3% for Thompson coho, 25% for Cultus Lake sockeye) that have a higher priority than the "general" exploitation rate ceilings. The rates are chosen based on input from Science Branch, First Nations, and stakeholders. The objective is to protect the stock of concern while providing some opportunity to meet First Nations food, social and ceremonial needs and, if possible, opportunity for commercial and recreational harvest.⁷

Limit Reference Points are in place for some (but not all) target stocks. Interim target Reference Points are in place for all target stocks.⁸

Fishing opportunities may have to be constrained due to conservation concerns for species, stocks or stock aggregates encountered during directed fisheries. Fishing plans are designed

² IFMP 2003, Section 3, pages 16-22.

³ IFMP 2002, Section 3.1, page 21, third paragraph, first sentence.

⁴ IFMP 2002, Sections 3.1.1 - 3.1.5, pages 22-23. IFMP 2003, Sections 3.1.1-3.1.9, pages 16-20.

⁵ IFMP 2002, Section 4.1.2, page 27, last paragraph.

⁶ IFMP 2003, Table 4b, page 43; Table 5, page 44.

⁷ Bert Ionson, Fisheries and Oceans Canada, pers comm.

⁸ Bert Ionson, Fisheries and Oceans Canada, pers comm. comm. and Fraser River Sockeye Salmon, Fraser River Action Plan, 1995.

to keep exploitation rates on stocks of concern within the limits described under Conservation Objectives (Section 3.1).⁹

Conservation constraints on stocks of concern are described in Section 4.2 of the 2002 IFMP.¹⁰

Decision Guidelines that make conservation objectives operational for Fraser River sockeye stocks are presented in Section 4.3 of the 2002 IFMP.¹¹

Management objectives for catch of non-target stocks and species are described in section 3 of the 2003 IFMP.¹²

Revival tanks conforming to the conditions of licence are required for all vessels participating in commercial salmon fisheries. All prohibited species captured incidentally must be either revived in the revival tank and released, or released directly to the water in a manner that causes the least harm. If in-season indicators show a deterioration of expected stock levels, additional measures may be implemented.

The use of weedlines is prescribed where required to minimize incidental harvest of steelhead. Construction of gillnets is described in the IFMP and conditions of licence.¹³

Scoring Summary

The information presented demonstrates that the management system has clear and defensible objectives for escapement and harvest of target stocks and accounts for non-target species fished concurrently with target stocks.

All three of the 60 Scoring Guideposts are in effect.

All four 80 Scoring Guideposts have been achieved.

Four of five 100 Scoring Guideposts are true and other guidepost being partially true.

Future Changes

Fisheries and Oceans Canada is planning implementation of fishing gear designed to reduce impacts on Thompson River coho in Juan de Fuca fisheries (eg, seine grids and knotless bunts).¹⁴

In 2004, DFO plans to engage environmental groups much earlier in the process.

⁹ IFMP 2002, Section 4.1.11, page 33, middle of the page.

¹⁰ IFMP 2002, Section 4.2, pages 33-35.

¹¹ IFMP 2002, Section 4.3, pages 35-44.

¹² IFMP 2003, sections 3.1.1 - 3.1.9, pages 16-20.

¹³ IFMP 2003, Section 7.5, pages 86-87.

¹⁴ Bert Ionson, Fisheries and Oceans Canada, pers comm.

100 Scoring Guidepost

- Management objectives are clearly defined for all of the target stocks and are consistent with the MSC criteria for a well-managed fishery.
- Harvest rates and escapement goals are precisely set for each target stock unit in the fishery, as qualified by relevant environmental factors.
- Target Reference Points and Limit Reference Points are clearly defined and documented for each target stock unit in the fishery.
- Harvest controls are effective with respect to the attainment of management objectives for each target stock unit in the fishery.
- The management system provides estimates for all catches, landings and bycatch.

80 Scoring Guidepost

- Management objectives are clearly defined for most of the target stocks and are consistent with the MSC criteria for a well-managed fishery.
- Harvest rates and escapement goals are set for target stocks or target species in the fishery, as qualified by relevant environmental factors.
- Harvest controls are precise and effective for major target stocks or target species in the fishery.
- The management system provides estimates for all major catches, landings, and bycatch.

60 Scoring Guidepost

- Management objectives are clearly defined and consistent with MSC criteria for a well-managed fishery for the majority of target stocks.
- Harvest controls are effective for the majority of the fisheries on target stocks.
- The management system provides for the estimation of catch, landing, and bycatch for the majority of the fisheries.

Indicator 3.1.2

The management system provides for periodic assessment of the biological status of the target species and the impact of fishing.

DFO Response

Current Situation

The management system provides for periodic assessment of the biological status of the target species by undertaking test fisheries, effective catch monitoring in all fisheries and spawning ground assessments. More information is included in Scoring Guidepost 1.1.2.4

Test Fisheries

Test fisheries are undertaken in a number of geographic locations (marine areas - both Johnstone Straits, Juan de Fuca, Strait of Georgia and the Fraser River) using seine, gillnet and troll gear. Fishing occurs on a daily basis (subject to specific conservation concerns) and the information is assessed by the Pacific Salmon Commission staff in the determination of in-season run size, stock composition, age composition, and other biological characteristics.

Catch Monitoring

Extensive catch monitoring is undertaken in First Nations, recreational and commercial fisheries. In addition to an estimate of harvest, biological information is taken to identify salmon populations.

Spawning Ground Assessment

Until recently, all stocks were assessed, although many of the smaller stocks, received sporadic inspections and the final estimates for these streams were subject to a wide or unknown variance. In recent years, the department has begun rotating assessment effort and focusing resources on stocks of concern. Less effort is directed at assessing stocks consistently returning at high abundance.

Assessment methodology depends on abundance. For abundant stocks, mark-recapture programs are in place, while smaller populations are surveyed by stream walks.

Methodologies and results are reported in the Escapement Reports which are available at the following website:

www.pac.dfo-mpo.gc.ca/fraserriver/escapeupdate.htm

Summary

Annual assessments of the target stocks are undertaken to determine the biological status and the impact of fishing. Following are some of the further analysis and reporting that is undertaken.

Stock Status Assessment

Fisheries and Oceans Canada Science Directorate includes the Stock Assessment Division and the Pacific Scientific Advice Review Committee (PSARC). The Science Directorate home page can be found at the following web address.

http://www-sci.pac.dfo-mpo.gc.ca/sci/default_e.htm

The Fisheries and Oceans Canada stock assessment process includes rigorous peer review by the Pacific Scientific Advice Review Committee. PSARC provides advice about fish stock and

habitat status as well as potential biological consequences of fisheries management actions and natural events. The PSARC home page can be found at the following web address.

http://www-sci.pac.dfo-mpo.gc.ca/sci/psarc/default_e.htm

Salmon Stock Status Reports can be found at the following web address. Further information on cycle years is available in Pacific Salmon Commission Annual Reports¹⁵ and especially in Reports of the Fraser River Panel to the Pacific Salmon Commission on Fraser River sockeye and pink salmon fishing seasons¹⁶.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/SSRs/diadromous_ssrs_e.htm

Stock status reports available at the above-referenced web site are shown in the following table.

No.	Title	Year
D6-01	1998 Fraser River Sockeye	1999

Research papers on salmon can be found at the following web address.

¹⁵ For example, Pacific Salmon Commission. Annual Report #17 (2001/02). Preliminary 1992 to 2001 Catches in Canadian Treaty Limit Fisheries are shown in a table on page 92. A similar table is shown on page 37 of Pacific Salmon Commission. Annual Report #16 (2000/01). Preliminary 1985 to 1999 catches in Canadian Treaty Limit Fisheries are shown in Table 4 (page 39) of Pacific Salmon Commission, Annual Report #15 (1999/2000).

¹⁶ Report of the Fraser River Panel to the Pacific Salmon Commission on the Fraser River Sockeye and Pink Salmon Fishing Season (see references to 1997, 1998, 1999 and 2000 volumes following).

1997: Figure 4 (page 7) Mean round weight (kg) of Fraser River sockeye and pink salmon for 1959-1997. Figure 7 (page 12) Total run sizes of Fraser River sockeye salmon between 1893-1997. Returns on the 1997 cycle are emphasized. Table 11 (page 33) Adult sockeye salmon escapements by run on the 1997 cycle for 1981-1997. See also Appendix C, Tables 1-14 (pages 40-46).

1998: Figure 3 (page 9) Total run sizes of Fraser River sockeye salmon between 1893-1998. Returns on the 1998 cycle are emphasized. Table 4 (page 17) Comparison of recent run sizes, harvests and spawning escapements for Fraser River sockeye salmon on the 1998 cycle. Table 11 (page 30) Adult sockeye escapements by run-timing group on the 1998 cycle for 1982-1998. See also Appendix E, Tables 1-7 (pages 62-65).

1999: Figure 2 (page 6) Total run sizes of Fraser River sockeye salmon, 1893-1999. Returns on the 1999 cycle are emphasized. Figure 3 (page 7) Survival rate of age 1 smolts to age 4₂ adult returns for Chilko sockeye for return years 1952-1999. Table 12 (page 33) Adult sockeye salmon escapements by run on the 1999 cycle for years 1983-1999. See also Appendix D, Tables 1-14 (pages 47-54).

2000: Figure 2 (page 8) Upper Adams River spawning escapement in dominant cycle years. Figure 5 (page 19) Total run sizes of Fraser River sockeye, 1893-2000. Table 5 (page 19) Comparison of run sizes, harvests and spawning escapements (2000 cycle), 1972-2000. Table 11 (page 30). Sockeye escapements by run timing group (2000 cycle), 1984-2000. Table 7 (page 48) Escapements of sockeye salmon to Fraser River spawning areas (2000 cycle), 1984-2000.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/ResDocs/diadrom_02_e.htm

We also are supplying an electronic copy of the *Status of Cultus Lake Sockeye Salmon (Oncorhynchus nerka)* which is not currently available at the above-referenced web site.

The *Pre-Season Run Size Forecast for Fraser River sockeye and pink salmon in 2003* by Al Cass is available at the following web site.

http://www.dfo-mpo.gc.ca/csas/Csas/DocREC/2002/RES2002_116e.pdf

Research papers available at the above-referenced web site for 2002 are shown in the following table.

Title	Authors	Res Doc#
Status of Cultus Lake sockeye salmon (<i>Oncorhynchus nerka</i>)	N. Schubert A. Cass T. Cone B. Fanos M. Foy J. Gable J. Grout J. Hume M. Johnson M. Morton K. Shortreed M. Staley	2002/064
Pre-season run size forecasts for Fraser River sockeye and pink salmon in 2003	A. Cass	2002/116

The following web site includes links to tables similar to the preceding one showing PSARC Research Papers for the years 1997-2002 inclusive.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/ResDocs/res_docs_e.htm

PSARC's series of Proceedings Papers can be found at the following web site.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/proceedings_e.htm

Proceedings papers for 2003 available at the above-referenced web site are shown in the following table. The web site includes similar tables for 1997-2003 inclusive.

Number	Title	Region
2003/005	Proceedings of the PSARC Salmon Subcommittee Meeting, March 4-5, 2003.	Pacific PDF 45 p. (201K)

The status of Fraser River sockeye stocks is presented annually in annual *Report of the Fraser River Panel to the Pacific Salmon Commission on Fraser River Sockeye and Pink Salmon Fishing Season*. The 1999 Report is available at the following web site.

<http://www.psc.org/Pubs/PUBFORM.HTM>

The 2000 report is available in electronic form but not on the web (attached). The 2001 report should be available in late 2003. While the Pacific Salmon Commission normally publishes these reports with a lag of approximately one year (ie, the 2002 report would be available late in 2003), the process is temporarily behind schedule.¹⁷

Catch Statistics

The Regional Data Unit reports through the Corporate Services group. The main role of the Regional Data Unit is to compile, produce, maintain and provide official catch statistics for the Region, according to Regional standards and procedures. The Unit also:

- provides information about the statistics such as the methods used to collect catch data and derive catch estimates.
- is responsible for producing monthly, in-season as well as annual, post-season reports of commercial, recreational and aboriginal fisheries.
- is responsible for obtaining landed price information to estimate landed value for all commercial fisheries.
- is responsible for making all the catch data it manages available on-line for users inside the DFO.
- proposes minimum data requirements for landing records (eg, fish slips, dockside monitoring validation records).

The Regional Data Unit home page can be found at the following web address.

http://www-sci.pac.dfo-mpo.gc.ca/sa/default_e.htm

Stock Assessment Coordinating Committee & Development of Research Plans

The Stock Assessment Coordination Committee—a departmental committee comprised of Stock Assessment biologists and fishery managers—reviews and provides advice/-recommendations to the Director of Stock Assessment or Chair, Salmon Working Group regarding stock assessment priorities (eg, PSARC papers to be developed, stock status assessments and advice regarding prioritizing of stock assessment programs (escapement enumeration and fishery monitoring)).¹⁸ In making a decision regarding research plans, the Stock Assessment Coordination Committee considers the knowledge base, level of threat of extinction, and known and likely harvest and ecosystem impacts.

Scoring Summary

The information presented describes the management system's provisions for assessing the biological status of the target species and the impact of fishing.

All of the three 60 Scoring Guideposts have been met.

¹⁷ Don Kowal, Executive Secretary, Pacific Salmon Commission, pers comm.

¹⁸ Bert Ionson, Fisheries and Oceans Canada, pers comm.

All three of the 80 Scoring Guideposts have been met.

All three 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- There is an annual assessment or update of the status of stocks for each major target stock unit in the fishery.
- When results of the assessments or updates indicate that there has been a substantial change in the status of the stocks, this new information is made available to stakeholders in conjunction with the implementation of changes to management measures.
- Reports on the methodologies used for the assessments are published on a regular basis in peer-reviewed journals and PSARC, and/or the appropriate PSC committee regularly reviews the technical analyses for the assessments.

80 Scoring Guidepost

- Assessments or updates of the status of the stocks for the major target stock units are made on a periodic basis, dependent upon the level of exploitation.
- Results of assessment and updates of the status of the stocks are made available to stakeholders in a timely fashion.
- Reports on the methodologies used for the assessments are published in non-peer reviewed reports, and PSARC or the appropriate PSC committee reviews the technical analyses for the assessments.

60 Scoring Guidepost

- Assessments or updates of the status of the stocks for the majority of the target species are made for major fishing regions within the fishery.
- Results of assessment or updates of the status of the stocks are made available to stakeholders.
- Technical analysis and methodologies used for the assessments are published or distributed to stakeholders.

Indicator 3.1.3

The management system includes a mechanism to identify and manage the impact of fishing on the ecosystem.

DFO Response

Current Situation

The management system provides for observers, charter patrol and enforcement officers to inspect for, among other things, impacts on the ecosystem (eg, damage to habitat, impact on food sources, impacts on other species in the ecosystem). To date, no damage to the ecosystem has been reported by the management system. This appears to be supported by an ever-vigilant public comprised of harvesters and stewardship groups who have not reported or alleged damage to the ecosystem.

Spawning escapements of target and most non-target stocks have been either stable or increasing over the last 5 decades (see P.I. 2.1.2). Therefore it is likely that contributions of spawners to nutrient loads in watersheds and to food for predators and scavengers are improving and unlikely an impact on the current ecosystem. However, this whole area needs further study to define impacts that could and should be ameliorated by manipulating escapement. As there are no operational guidelines for ecosystem management in place (for any major salmon fishery that we are aware of) it is next to impossible at this time to explicitly manage the impact of fishing on the ecosystem. DFO Stock Assessment Division is monitoring research in the PNW¹⁹ on ecosystem impacts of salmon escapement levels and is carrying out its own research (see DFO Response to PI 2.2.1). Canadian research and operational guidelines will be developed when clear impacts have been identified.

Scoring Summary

The information presented establishes that the management system investigates and monitors impacts of fishing on the ecosystem.

Since none has been reported or alleged, several of the Scoring Guideposts are not applicable (they remain coloured black rather than red or green).

The sole 60 Scoring Guideposts has been met.

One of two 80 Scoring Guideposts have been met and the other is not applicable.

¹⁹For example:

Chaloner, D.T., Martin, K.M., Wipfli, M.S., Ostrom, P.H. and G.A. Lamberta. 2002. Marine carbon and nitrogen in south-eastern Alaska stream food webs: evidence from artificial and natural streams. *Can. J. Fish. Aquat. Sci.* 59(8):1257-1265.

Link, J.S. 2002a. Ecological considerations in fisheries management: when does it matter. *Fisheries*. Vol. 27(4): 10-17.

Link, J.S. 2002b. What does ecosystem-based fisheries management mean? *Fisheries*. Vol. 27(4): 18-21.

Mobrand, L.E., Lichatowich, J.A., Lestelle, L.C. and Vogel, T.S. 1997. An approach to describing ecosystem performance "through the eyes of salmon". *Can. J. Fish. Aquat. Sci.* 54(8):2964-2973

Three 100 Scoring Guideposts do not appear to be applicable. The remaining one has been partially met.

100 Scoring Guidepost

- **Monitoring systems are in place to detect the impact of fishing on the ecosystem.**
- Where potential impacts of fishing on the ecosystem have been identified, the management system has clear and well-defined objectives for evaluating and managing the impact of the fishery on the ecosystem.
- Control mechanisms are used to minimize impacts of fishing on the ecosystem.
- There is sufficient evidence to indicate that when used, control mechanisms are adequate for meeting the management objectives.

80 Scoring Guidepost

- **The management system includes mechanisms to identify and evaluate the impact of fishing on the ecosystem.**
- Control mechanisms are used to minimize impacts of fishing on the ecosystem.

60 Scoring Guidepost

- **The management system takes measures to control the impacts of the fishery on the ecosystem in the majority of cases where impacts have been verified.**

Indicator 3.1.4

When dealing with uncertainty, the management system provides for utilizing the best scientific information available to manage the fishery, while employing a precautionary approach.

Uncertainty always exists in estimates of the status of a stock, and technically it is not generally possible to determine the accuracy of the assessments. This uncertainty results from sampling and measurement error, limited understanding of the biology of the fish being modeled, error in model assumptions, and an inability to model all of the important processes that affect the dynamics of the stock. It can also arise as a result of changing fishing technology. However, some idea of the uncertainty can be detected or measured through sampling theory, by lack of fit of the model being used, or by sensitivity analysis.

DFO Response

Current Situation

Best Scientific Information

The Pacific Salmon Commission and DFO consider uncertainty in undertaking in-season run size estimation while DFO considers uncertainty in development of a pre-season forecast. To

minimize error and bring as much scientific evidence to bear as possible, different estimation processes are used and compared in forecasting the run size of Fraser River sockeye. When early entry (and increased pre-spawn and en-route mortalities) of Late Run Fraser sockeye were observed, for example, dramatic reductions in exploitation rates were implemented. A number of scientific investigations were commenced.

The management system quantitatively evaluates the impact of management actions by annually comparing the results of objectives set preseason with the final results.

In circumstances where there has not been an opportunity for a full assessment, DFO scientists consider all the information and make a recommendation. For example, when environmental conditions were adverse (ie, high water in one year, elevated water temperatures in another year), Dr. S. MacDonald considered the available information and made a prediction of the mortality of migrating Fraser sockeye. The mortality rates were used to revise escapement goals to account for the mortality.²⁰

There is a formal process for ensuring that all scientific information is considered and that research results are incorporated into the management plan.

The management system identifies the need for areas of increased research effort. This is done by the Stock Assessment Coordination Committee consisting of stock assessment biologists and fisheries management staff who identify priority areas for research and make recommendations to the Salmon Working Group. DFO then makes decisions based on regional priorities and available funding.

Faced with problems with late-run Fraser River sockeye, DFO re-focused some of its research efforts to address these problems. Management agencies spent \$1 million in 2002 and \$700k in 2003 to research late run Fraser River sockeye issues and implement appropriate measures.

Precautionary Approach

Fisheries and Oceans Canada has adopted the precautionary approach to fisheries management.²¹

The federal government is developing guiding principles for consistent application of the precautionary approach. These are summarized in *A Canadian Perspective on the Precautionary Approach/Principle and Canada's Framework for the Application of Precaution in Science-based Decision Making about Risk* available at the following web sites.

www.dfo-mpo.gc.ca/cppa/menu.htm

www.dfait-maeci.gc.ca/tna-nac/social-en.asp

The run forecast assessments provide for the routine assessment of the level of uncertainty in the information collected for management and establishes management controls to address these uncertainties using the best available scientific information and a precautionary approach.

²⁰ Bert Ineson, Fisheries and Oceans Canada, pers comm.

²¹ IFMP 2002, Section 2.1, page 14.

There are routine assessments of the level of uncertainty in the information collected for management of the fishery. In-season, test fishing information is compared between test fishing locations, Mission, upstream observations and during post-season comparisons of escapements and in-season estimates. Where there is an increased level of uncertainty in the information being provided, management measures include delaying fisheries, providing the first opportunities to lower fleet impact reduced effort (vessel and/or gear limitation).

Scoring Summary

The information presented describes the management system's approach to dealing with uncertainty. Since Fraser River sockeye marine net fisheries are well established (ie, there are no newly developing fisheries among them), some of the Scoring Guideposts are not applicable (these remain coloured in black rather than red or green).

All applicable 60 Scoring Guideposts have been met.

Three of three applicable 80 Scoring Guideposts have been met.

Three of three applicable 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system provides for the routine assessment of the level of uncertainty in the information collected for management and establishes management controls to address these uncertainties using the best available scientific information and a precautionary approach.
- The management system implements research efforts to address data gaps.
- For newly developing fisheries for which there is very limited data and information, the management system implements controls on the development of the fishery that are precautionary in nature.
- The management system always quantitatively evaluates the effect of implementation uncertainty (the tendency for actual harvest rates or escapements to differ from those intended by the management regulations) on the effectiveness of the proposed management actions.

80 Scoring Guidepost

- The management system provides for some assessment of the level of uncertainty in the information collected for management and establishes management controls which take into account these uncertainties, using the best available scientific information and a precautionary approach.
- In situations when precautionary measures are necessary to manage the fishery, the management system calls for increasing research efforts in order to fill data and information gaps.

- In most cases where there are newly developing fisheries, the management system implements controls on the development of the fishery that are precautionary in nature.
- The management system considers the effect of implementation uncertainty on the effectiveness of most of the proposed management actions.

60 Scoring Guidepost

- The management system for the majority of newly developing fisheries is consistent with a precautionary approach.
- The management system considers the effect of implementation uncertainty on the effectiveness of the majority of the proposed management actions.

Indicator 3.1.5

Management response to new information on the fishery and the fish populations is timely and adaptive.

Intent: The management system should be timely and adaptive i.e., new information used by the management system to initiate new management measures or to update and/or improve current management measures in a timely fashion, because characteristics of the fishery can change and/or the natural system can show reduced or increased productivity over time.

DFO Response

Current Situation

Post-season review and evaluation, and pre-season planning and consultation (ie, the development of the IFMP), are two primary points at which new information can be, and is, incorporated into the fishery management system.

Since 2002, IFMP's have included Decision Guidelines that allow for different management measures depending on circumstances as they evolve during the fishery.²²

Implementation and applicability of Decision Guidelines and preseason plans can be influenced in-season by a number of factors. These include unanticipated differences between preseason forecasts and in-season run size estimates, unexpected differences in the strength and timing of co-migrating stocks, unusual migratory conditions and the availability and timeliness of in-season information.²³

²² IFMP 2002, Section 1, page 13, sixth paragraph.

²³ IFMP 2003, Section 4.1.2, second paragraph, page 23.

For Fraser River sockeye, the Fraser River Panel is responsible for making in-season adjustments to the fishing plan.²⁴ In 2003, the Fraser River Panel will meet regularly from early July to mid-September. As new information becomes available over the course of the sockeye migration, run size estimates will be regularly updated through the FRP process. In-season run size estimates are then used to set spawning escapement objectives, set gross escapement objectives, calculate available TAC, and determine opportunities for fishery openings. The TAC will depend on run size and escapement objectives; the ability of harvesters to access this TAC will depend on a number of factors, including conservation concerns for other stocks or species.²⁵

In-season information provides the basis for the final decisions regarding the exact time, area, and regulatory conditions for each fishery opening. For example:

Target escapements and target exploitation rates for Fraser River sockeye are adjusted in response to changing in-season run-size information (see decision guidelines described in Section 3.2).

Late Run exploitation rates have been reduced from about 65% to 15-25% in response to high en-route and pre-spawn mortality. When in-season estimates in 2002 indicated that the 15% ceiling had been reached, fisheries were closed until revised run-size estimates indicated additional available catch. Similarly, fishing opportunities were adjusted based on in-season indications of increased overlap between Summer Run and Late Run migration timing. A detailed chronology of the decision rationales during the 2002 fisheries is included in the *Review of the 2002 Fraser River Sockeye Fishery*.

Fisheries in Panel Area waters are managed in-season by the Fraser River Panel, which meets at least twice a week.

In 2002, test fisheries indicated high migration around the outside of Vancouver Island, and effort was redirected from Johnston Strait to the mouth of the Fraser and in-river fisheries. These fish could not be accessed along the West coast of Vancouver Island due to concerns for local chinook populations.

Environmental management adjustments to gross escapement targets (past the Mission hydro-acoustic site) have been implemented for the past several years to correct for the likely impact of up-stream migration conditions. A research document is currently being reviewed by PSARC and is expected to be publicly available by July 2003²⁶. When it does, it should be available at the following web site.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/ResDocs/res_docs_e.htm

²⁴ IFMP 2002, Section 2.8, page 18, last paragraph. Section 4.3.4, page 41, first paragraph: "Run Size Estimation", lines 4-7. Section 4.3.4, page 42, second paragraph, second sentence.

²⁵ IFMP 2003, Section 4.4.4, first paragraph "Run Size Estimation and TAC Calculations", page 39.

²⁶ J. Stevenson Macdonald, Ian C. Guthrie and David A. Patterson. 2003 (Draft: Not for citation). Models to adjust spawning escapement targets for Fraser River sockeye salmon (*Oncorhynchus nerka*) to compensate for the influence of environmental conditions on migration success. An electronic copy is available.

Some fisheries are driven by ceilings on by-catch levels and managed based on real-time monitoring. For example, the Juan de Fuca seine fisheries are managed based on coho by-catches, which are monitored by high observer coverage.

If stocks of concern cannot be monitored or selectively protected, broader area and time closures are specified pre-season.

Scoring Summary

The information presented establishes that DFO performs well against this indicator.

The lone 60 Scoring Guidepost is met.

Both 80 Scoring Guideposts have been met.

Both 100 Scoring Guideposts have been met.

Future Changes

Elements of the precautionary approach (listed above) have started to appear in Fisheries and Oceans Canada's fishery management plans and processes, and will become more prominent as the precautionary approach is fully developed.

100 Scoring Guidepost

- The management system provides a mechanism for rapid adjustments to be made to its management programs.
- When new information or findings support altering the management and conservation programs (such as stock recovery plans), there is evidence to demonstrate that such adjustments are made within 6 months of obtaining the new information.

80 Scoring Guidepost

- The management system provides a mechanism for responding to unexpected changes in the fishery.
- When new information or findings support altering the management and conservation programs, adjustments are made within 12 months of obtaining the new information.

60 Scoring Guidepost

- For the majority of cases there are provisions for making timely adjustments to the management program, and when they are made the lag time is not so great as to result in the adjustments being ineffectual.

Indicator 3.1.6

The management system provides a process for considering the social and economic impacts of the fishery.

DFO Response

Current Situation

Social and economic impacts of the fishery are largely enmeshed in harvest allocations.

An Allocation Policy for Pacific Salmon was finalized in October, 1999. The Allocation Policy is available at the following web site.

<http://www-comm.pac.dfo-mpo.gc.ca/publications/allocation/AllocationPolicyoct201.htm>

The Allocation Policy is made operational each year in the form of an annual Allocation Plan. The 2003 Pacific Salmon Allocation Plan appears in the 2003 IFMP as Appendix 1.²⁷

Based on the Allocation Policy and Plan, fishing opportunities allocated to different fishing sectors at different abundance levels are described in the Decision Guidelines of the IFMP.²⁸

First Nations

The Constitution of Canada protects aboriginal rights (section 35) including the right to fish for food, social and ceremonial purposes as established in the *Sparrow Decision* of the Supreme Court of Canada.²⁹

The Allocation Policy for Pacific Salmon provides that, after requirements for conservation, the first priority for salmon allocation is to provide harvest opportunities for First Nations for food, social and ceremonial purposes under communal FSC licences issued to First Nations and treaty rights to harvest opportunities for domestic purposes (consistent with Treaty Final Agreements).³⁰

While this opportunity is given priority over all other allocations (except conservation), it does not mean that fishery targets for First Nations will be fully achieved before other fisheries can proceed. Many First Nations conduct their fisheries in terminal areas while other fisheries are undertaken in marine or approach areas. The fishing plan must adequately provide for the First Nations food, social and ceremonial harvests over a reasonable range of potential run sizes.³¹

DFO field staff engage in consultations with First Nations. There has been a history of interaction between DFO and First Nations. The Aboriginal Fisheries Strategy (AFS) has been developed/implemented to foster positive working relationships with First Nations. Part of this is the negotiation regarding communal licences where the views and customs of the First

²⁷ IFMP 2003, Appendix 1, page 102.

²⁸ IFMP 2003, Section 4.1.3, page 23 and Table 1, page 24.

²⁹ IFMP 2003, Section 2.5, first paragraph, first sentence, page 14.

³⁰ IFMP 2003, section 4.1.4, first paragraph, page 24.

³¹ IFMP 2003, section 4.1.4, second paragraph, page 24.

Nation are considered. This process follows the Policy for the Management of Aboriginal Fisheries³².

Coastal Communities

The Allocation Policy establishes allocations for the commercial sector and the recreational sector and for commercial gear groups (eg, seine, gillnet, troll).

The Allocation Policy addresses harvest share arrangements in both fishing sectors and gear groups. Coastal communities are not specifically addressed in the Allocation Policy. However, fishing fleets are centered in coastal communities.

Fisheries and Oceans Canada has area and sub-division offices in many coastal communities. DFO employees are well aware of the dependence of many coastal communities on the fishery.

Coastal communities frequently make representation to Fisheries and Oceans Canada concerning social and economic issues related to fisheries and their impact on those communities.

Subsidies to the Fishery

The Canadian Fisheries Adjustment and Restructuring Program (CFAR) was a set of conservation, adjustment and restructuring measures announced in June, 1998 under the *Fisheries Development Act* to put harvesting capacity in balance with resource availability and ensure the long-term sustainability of the fishing sector on both the Atlantic and Pacific coasts.

In Pacific Region, where the Pacific Salmon Commercial Licence Retirement Program had previously concluded, expenditures in 2001-2002 amounted to \$12.4M. Resources were used for the Pacific Salmon Resource Rebuilding Program (\$9.8M), selective fishing (\$2.2M) and fisheries diversification (\$0.4M).

Information on the *Fisheries Development Act* is available at the following web address.

http://www.dfo-mpo.gc.ca/communic/reports/fda/fda2001_e.htm

The *Fisheries Improvement Loans Act* came into force in December 1955, for an initial period of three years, and was amended from time to time in later years to authorize additional lending periods. The last of these lending periods expired on June 30, 1987, and no further lending under the Act has been authorized.

The *Small Businesses Loans Act* was amended on June 30, 1987, to include fishing as an eligible business enterprise under the terms of that Act. The Department of Fisheries and Oceans continues to administer outstanding guaranteed loans made in the past under the *Fisheries Improvement Loans Act*.

No new loans have been registered since 1986/87.

³² Bert Ionson, Fisheries and Oceans Canada, pers comm.

No claims were paid in 2001-2002. Guaranteed loans outstanding at the beginning of the fiscal year totalled \$14,811. In the same period, \$4,598.01 in recoveries has been received on subrogated debts.

In fiscal year 2001-2002, no accounts were written-off pursuant to the Bankruptcy and Insolvency Act and the Debt Write-off Regulations.

Appended to this Report are tables showing a summary of operations from inception to March 31, 2002 (see the following web site).

http://www.dfo-mpo.gc.ca/communic/reports/fila/fila2001_e.htm#A

Socio-Economic Issues

Fisheries and Oceans Canada has an extensive consultations process to address all fisheries issues including socio-economic ones.

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/default_e.htm

Fisheries and Oceans Canada employs analyses of social and economic impacts in determining its policies. Recent examples include Pacific Fisheries Adjustment and Restructuring (PFAR) and the Salmon Allocation Policy. Under PFAR, the number of salmon vessels in the fleet was reduced by one-half. Socio-economic factors were included among considerations underlying the Salmon Allocation Policy (and the many processes leading up to it).

The management system receives advice on socio-economic issues formally (eg, post season reviews) and informally (eg, phone calls, general conversations) that is considered in the development of fishing plans. As well, DFO managers regularly consult with DFO and PSC advisory bodies (South Coast Advisory Committee, Fraser Panel) where the different commercial gear groups and other commercial interests (processors, UFAWU, communities) can raise and discuss social and economic impacts of the fishery.³³

Socio-economic issues are also raised in a number of consultation arenas. The Canadian Section of the Fraser Panel is comprised of members of the commercial, recreational and First Nations fishing community who identify socio-economic issues to be considered in the management of the fishery. In addition, representatives of the Province of B.C. raise socio-economic issues that have been identified by the industry and communities.

Scoring Summary

The information presented establishes that DFO performs well against this indicator.

All four of the 60 Scoring Guideposts have been met.

All four of the 80 Scoring Guideposts have been met.

Three of four 100 Scoring Guideposts have been met and the remaining scoring guidepost has been partially met.

³³ Bert Ionson, Fisheries and Oceans Canada, pers comm.

A new process for salmon harvest planning has been developed in consultation with commercial and recreational fishers, conservation groups and First Nations. The department is in the process of implementing this new process.

http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/consultations/salmon/sap_e.htm

100 Scoring Guidepost

- There exists a formal and well-defined process to consider, over the short and long term, the views, customs, and interests of indigenous peoples who depend on fishing for their food or livelihood.
- There is a formal and well-defined process to consider, over the short and long term, the impact of the fishery on coastal communities that are closely tied to the fishery.
- There are no direct subsidies to the fishing industry.
- The management system regularly seeks and considers input from stakeholders in an effort to understand and address socioeconomic issues related to the fishery.

80 Scoring Guidepost

- The management system regularly undertakes to consider the views, customs and interests of indigenous peoples whose livelihood or food are dependent on the fishery.
- The management system regularly takes into consideration the impact of the fishery on coastal communities that are closely tied to the fishery.
- There are no subsidies to the fishing industry that would lead to unsustainable fishing or ecosystem degradation.
- The management system regularly undertakes measures to understand the socioeconomic impacts resulting from the management of the fishery.

60 Scoring Guidepost

- The management system more often than not considers the views, customs, and interests of indigenous peoples who depend on fishing for a livelihood or food.
- More often than not the management system considers the impact of the fishery on coastal communities that are closely tied to the fishery.
- For the majority of the fisheries there are no subsidies that threaten sustainable fishing.
- More often than not, the input of stakeholders is sought by the management system.

Indicator 3.1.7

The management system provides decision makers with useful and relevant information and advice for managing the fishery.

DFO Response

Current Situation

Departmental decision making incorporates and responds to information about sources of uncertainty and stakeholder concerns. Decision guidelines are developed and refined during pre-season planning, and map out management actions to be taken under different circumstances, and describe the major considerations that affect the choice of management actions. Through on-going revisions, these decision guidelines are becoming both more comprehensive and more detailed.

The decision-making processes and management approach for Fraser sockeye is summarized in the decision guidelines.³⁴

An in-depth review of the decision-making process during the 2002 season was conducted, and is summarized in the *Review of the 2002 Sockeye Fishery: Report of the External Steering Committee*, available at the following web site.

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/fisheriesmgmt/2002FraserRiverSockeyeReview_e.htm

An action plan for implementing the recommendations has being developed.³⁵ It is anticipated that the recommendations will be incorporated into future management plans (some are planned to be implemented in 2003; others will be implemented in subsequent management plans).

Decision-making in fisheries targeting Fraser River sockeye occurs in two phases. Pre-season planning is based on expectations and forecasts, which are derived using data from previous years; in-season decision-making is driven by data collected weekly, daily or for each set.

The main sources of uncertainty are:

- Abundance of adults returning in each aggregate
- Contribution of stocks to the aggregate abundance, and age composition of each stock
- Peak timing and spread of the run
- Migration route, specifically diversion rate through Johnston Strait

Pre-season forecasts are developed for major stocks within each aggregate, reviewed through PSARC in December, and publicly distributed on the PSARC website.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/ResDocs/res_docs_e.htm

³⁴ IFMP 2003, section 4.4, pages 37-46.

³⁵ Bert Ionson, Fisheries and Oceans Canada, pers comm.

For each unit, the forecasts provide not only a best estimate, but percentiles of the cumulative probability distributions and age compositions (see Tables 1 and 2 in the 2003 Forecast, available at the following web site).

http://www.dfo-mpo.gc.ca/csas/Csas/DocREC/2002/RES2002_116e.pdf

Forecasts of run timing³⁶, spread, and diversion rate³⁷ are developed pre-season. The methods have been approved by PSARC. Annual forecasts using PSARC-approved methodologies are scrutinized by PSARC but are not sent out for assessment by external reviewers.

In-season information is collected from test and assessment fisheries, and during regular fisheries when they are open.

Test fishery information is compiled daily, and made publicly available immediately at

<http://www.psc.org/TestFish/OutOfSeason.htm>

Descriptions and daily catch summaries for test fisheries are also available at

<http://www.pac.dfo-mpo.gc.ca/ops/fm/Salmon/testfish/Sockeye/default.htm>

Environmental conditions on the Fraser River affect sockeye migration behaviour, en-route mortality, and spawning success. They are closely monitored through the Environmental Watch Program, which provides weekly summaries to the public at

http://www-sci.pac.dfo-mpo.gc.ca/fwh/index_e.htm

DNA and scale samples collected in the test fisheries provide information about age composition of stocks, and stock composition of run timing aggregates.

All information is considered in making a decision regarding exploitation rates and fishery management decisions. The Cultus Lake Sockeye Salmon Status Report³⁸ outlines specific risks of achieving escapements over the longer term given a range of pre-spawn mortalities and exploitation rates. DFO specifically considered this table in developing the 2003 IFMP. DFO does not agree with the opinion that escapements to Cultus Lake in 2003 should be maximised at all costs.

Scoring Summary

The information presented establishes that the indicator has been well met.

Two of two 60 Scoring Guideposts have been met.

³⁶ Blackbourn, D. J. 1987. Sea Surface Temperature and Pre-Season Prediction of Return Timing in Fraser River Sockeye Salmon (*Oncorhynchus nerka*). In H.D. Smith, L. Margolis, and C.C. Wood [eds] Sockeye Salmon (*Oncorhynchus nerka*) Population Biology and Future Management. Can. Spec. Publ. Fish. Aquat. Sci. 96. pages 296-306.

³⁷ McKinnel S. and R. Freeman. 199x. published a report that reviewed diversion rate methodology for Fraser River sockeye. J. Fish. Aquat. Sci.

³⁸ Schubert, N. D. 2003. Status of Cultus Lake Sockeye Salmon (*Oncorhynchus nerka*). Table 7 (page 66) and Table 8 (page 67).

Two of two 80 Scoring Guideposts have been met.

Two of three 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system provides decision makers with a range of alternatives for achieving the objectives of management, including risk assessments for each alternative.
- All management decisions are based on useful and relevant information and advice that is provided through the management system.
- The management system, whenever possible, provides information to decision makers within a time frame that permits management controls to be determined before they need to be taken.

80 Scoring Guidepost

- The management system provides managers with a range of alternatives for management.
- Management decisions consistently rely on useful and relevant information provided within the system and there is not a record of decisions going against the information provided.

60 Scoring Guidepost

- The majority of management decisions rely on data, useful and relevant information, or advice provided through the management system.
- Risk assessments are considered in formulating important management decisions.

Indicator 3.1.8

The management system provides for socioeconomic incentives for sustainable fishing.

DFO Response

Current Situation

Selective Fishing, and co-management are two examples of significant programs that provide socio-economic incentives for sustainable fishing.

Selective Fishing

In 1998, when selective fishing was introduced into the salmon fishery to protect threatened stocks of coho, considerable effort was expended to assess the socio-economic impacts of the proposed changes. A contract was let solely for the purpose of assessing the socio-economic

impacts of the proposed fishing plan. \$200 million was subsequently spent on licence retirements.

The Selective Fisheries Program was designed to facilitate the transition to new, more selective fishing gear and techniques. The Selective Fisheries Program is described in the Final Report, available at the following web site.

http://www-comm.pac.dfo-mpo.gc.ca/publications/SFFinalReport_e.pdf

The Selective Fisheries Program included five components.

1. Experimental Pilots.
2. First Nations' Gear Purchase.
3. Research Projects.
4. Education, Training and Communication.
5. Compliance.

New selective fishing technologies were evaluated in experimental fisheries. Modified traditional fisheries were used to evaluate the effectiveness of full-scale commercial operations. Scientific design of experiments combined with intensive monitoring and evaluation were necessary to demonstrate that alternative approaches are more selective than historical practices. New knowledge was transferred to harvesters and anglers through training and communications.

In the four years that the Selective Fisheries Program operated (1998-2001), \$21.5 million was expended on the five program components, including 122 selective fishing experimental projects.³⁹

Selective fishing gear and methods are now widely used and required in all fisheries.⁴⁰

Since the inception of the selective fishing policy, up to 5% of the annual TAC is available to support selective fishing experiments. The TAC is made available to individuals who have identified a gear modification that will permit the escape of non-target species or their release with no or very low rates of mortality.

DFO publicly announces that proposals are being solicited and has an evaluation process to rank projects. DFO involves area organizations in the selection and considers their views but does, on occasion, over-rule their input.

DFO advised that improved measures involving selective fishing methods would be required in the Straits of Juan de Fuca to protect coho in the harvest of Fraser sockeye. Commercial fishers worked out an extraordinary arrangement to slow the pace of the fishery and live-release coho by moving from a competitive to a co-operative fishing model, and limiting fleet size and effort so that coho could be handled and released in order to minimize mortality.

³⁹ Selective Fisheries Program Final Report, page 12, left hand column, last paragraph.

⁴⁰ IFMP 2003, section 4.1.9, second paragraph, line 4, page 26.

There is evidence this approach has contributed to conservation. There has been an increase in coho escapements throughout the southern Gulf and in the Fraser River.⁴¹

Co-Management

Co-management is implemented by means of a collaborative agreement. A collaborative agreement is a formal co-management arrangement with a legally constituted, representative industry organization and allows for meaningful involvement of stakeholders in fisheries research incremental to that of the department, and in the co-operative development and implementation of fisheries management and stewardship. When an industry organization can demonstrate that it is representative (greater than 66% membership) of the licence holders in a licence area, the department may enter into a collaborative agreement with that group. A stakeholder organization may access a small portion of their annual TAC to fund projects (eg, selective fishing, test fishing, special harvesting initiatives) and cover co-management costs.

Co-management arrangements have existed for the past decade in Pacific fisheries (sablefish, for example, has had a co-management agreement since 1993). Co-management arrangements have been used to foster improved compliance with fisheries regulations, safer fishing practices and to put in place joint scientific, monitoring and enforcement programs. The experience gained from co-managed fisheries such as black cod, halibut and geoduck has been very valuable and has provided direction for the development of co-management in other fisheries.⁴²

The Status Report on Co-Managed Fisheries is available at the following web site.

http://www.bcseafoodalliance.com/BCSA/BCSA_BLEWETT.html

Industry representatives canvassed regarding co-management cited the following as key elements of co-management.:

- Shared purpose of sustainable, viable fisheries.
- Defined roles and responsibilities.
- Shared responsibilities.
- Shared accountabilities.
- Shared decision-making.
- Shared costs.

The dominant themes that emerged from interviews with industry representatives regarding co-management are listed below.

- Economic/financial viability.
- Greater certainty.
- Greater stability.
- Long-term sustainability.

⁴¹ Bert Inson, Fisheries and Oceans Canada, pers comm.

⁴² Status Report on Co-Managed Fisheries, page 1, fourth paragraph.

- Greater control over economic well-being.
- Security of access.

A more subtle theme that emerged from the research conducted for the Status Report on Co-Management concerns the effect of co-management upon licence holders and fishery participants: co-management fosters an enhanced attitude towards resource stewardship. Under co-management, licence holders tend to take a longer-term view of the fishery, focusing less on annual catches and values and more on the long-term value of the fishery as an asset. As one industry representative put it: "the more involved licence holders are and the more they have invested, the more interested they become in ensuring the efforts and investments are productive and beneficial."⁴³

Examples of co-management arrangements in the Fraser sockeye fishery include arrangements with Area H (inside trollers) are testing Individual Quota (IQ) options, Area B pool and test fisheries to either slow the pace of the fishery or provide additional stock assessment information and with Area D (Johnstone Strait/WCVI gillnetters) where a small number of vessels fish to provide additional stock assessment information and the fleet is afforded some economic opportunity.

Incentives to limit exploitation on stocks of concern include prohibiting fishing and taking enforcement action against individuals in possession of prohibited species. When coho conservation measures were announced, all fisheries that could impact on coho were closed. Since then only fisheries that can demonstrate an ability to avoid coho have been permitted. In the case of Fraser sockeye, seine fisheries in Juan de Fuca are now characterized by selective gear, extensive observer coverage, and hailing after every set with the objective of closing areas of high coho abundance. These operating guidelines were developed by seine fishermen with input from DFO. The incentive to operate within these guidelines is that the fishery will be closed if the rules are not followed. One result of these actions (and others) has been an increased environment of co-operation on the fishing grounds between fishermen and DFO and more importantly, increased escapements of coho.

There are however circumstances where incentives to not exceed exploitation rate targets are less apparent.

Scoring Summary

The information presented describes two programs that provide socioeconomic incentives for sustainable fishing.

Both 60 Scoring Guideposts have been met.

Three of four 80 Scoring Guideposts have been met and one has partially been met.

Four of five 100 Scoring Guideposts have been met and one has partially been met.

Future Changes

In the future, priority will be given to those who have demonstrated the ability to meet or exceed selective fishing standards. Fisheries & Oceans Canada encourages the incorporation

⁴³ Status Report on Co-Management, section entitled "Benefits to Licence Holders", last paragraph.

of selective fishing experiments into regular fisheries, where appropriate, to realize cost savings.⁴⁴

The salmon fishery is relatively well-developed (compared to other fisheries) in terms of selective fishing but relatively less-developed in terms of co-management.

Co-management can be expected to increase in all fisheries, including salmon, in the future.

100 Scoring Guidepost

- The management system has formal procedure for providing social and economic incentives to stakeholders in the fishery to develop and utilize sustainable fishing practices, particularly the development of selective fishing gear and practices that lead to improved conservation.
- The management system creates strong incentives for harvesters not to exceed target catches or exploitation rates
- The stakeholders in the fishery regularly avail themselves of the opportunity to utilize these incentives.
- Evidence provided by the management system demonstrates that such incentives have contributed to improved conservation.
- The management system continually attempts to understand the impact of their decisions on social and economic factors affecting the stakeholders in the fishery and regularly takes action to mitigate the impacts on stakeholders.

80 Scoring Guidepost

- The management system regularly considers the use of social and economic incentives to the stakeholders in the fishery, which are designed to facilitate the development of fishing gear and practices that can lead to sustainable fishing.
- The management system includes a program to create incentives for harvesters to not exceed target catches or exploitation rates.
- Evidence demonstrates that the stakeholders in the fishery have used such incentives.
- The management system attempts to understand the impact of their management decisions on social and economic factors affecting the major stakeholders in the fishery and takes action to lessen the major impacts on stakeholders.

⁴⁴ IFMP 2003, section 4.1.9, third paragraph, line 2, page 26.

60 Scoring Guidepost

- The management system provides for the use of social or economic incentives to ensure sustainable fishing.
- The management system attempts to understand the impact of its decisions on social and economic factors affecting the stakeholders in the fishery and is responsive to requests to reduce these impacts.

Indicator 3.2.1

The research plan covers the scope of the fishery, includes all target species, accounts for the non-target species captured in association with, or as a consequence of, fishing for target species, and considers the impact of fishing on the ecosystem and socio-economic factors affected by the management program.

DFO Response

Current Situation

Licence holders are required to report catches, landings and discards of target and non-target species (see response to indicators 1.1.2.1 and 2.1.1).

Fisheries and Oceans Canada annually collects data on escapements of target salmon stocks (see response to indicator 1.1.2.2).

The response to indicator 2.1.2 establishes that DFO considers the impact of fishing on the ecosystem as those impacts are defined for the BC salmon fishery in the "Intent" statement following indicator 2.1.2 (ie, the primary concerns are related to the bycatch of non-salmon species and the removal of large numbers of the target salmon species).

Consideration of socio-economic impacts is not as formalized as the impacts considered in the preceding paragraphs (see response to Indicator 3.1.6).

Regular funding is available for research. Within DFO's stock assessment division, the current budget for monitoring and assessment research on all species of salmon is \$14 million. DFO is reviewing its salmon stock assessment and monitoring programs, and funding requirements. Additional resources have been allocated to deal with specific issues such as late-run sockeye research.

Two examples of DFO's response to changes are (1) late run sockeye and (2) information required to estimate run size.

1. DFO response to the late run sockeye stocks was to reduce harvest rates and allocate research funds to study the problem.
2. In the 2002 External Steering Committee Post-Season Review, lack of information was identified as a problem. The Pacific Salmon Commission is not getting the information it needs because of reduced "full fleet" commercial fishing. DFO is not of the view that commercial fisheries should be resurrected so that Fraser River run sizes can be estimated. When faced with deficiencies in information to estimate in-season run sizes

of Fraser River sockeye (due to reduced commercial fisheries) DFO and the fishing fleet responded by embarking on a new approach that provided increased levels of information by reduced effort opportunities involving only a few vessels and increased levels of test fishing.

The process to ensure that research results are utilized in forming management strategies is as follows. The IFMP development process provides for drafts of the IFMP to be circulated first within DFO and then externally. At these stages, available information from research is considered in the development of management responses.

Research on target and non-target stocks is regularly published in journals and is peer reviewed at PSARC.⁴⁵

Scoring Summary

The information presented establishes that DFO performs very well against this indicator.

Both 60 Scoring Guideposts have been met.

Seven of eight 80 Scoring Guideposts have been met.

Five of seven 100 Scoring Guideposts have been met, one has been partially met and one has not been met.

Future Changes

Work has just commenced regarding the development of a risk assessment framework to increase the transparency regarding decision making around complex and often conflicting objectives regarding salmon management. Socio-economic considerations will be a part of the risk assessment framework.⁴⁶

⁴⁵ Examples are:

Buchanan, S., Farrell, A.P., Fraser, J., Gallagher, P. Joy, R., and R. Routledge. 2002. Reducing gillnet mortality of incidentally caught coho salmon. *N. Amer. J. Fish. Mgmt.* 22(4):1270-1275.

Cass, A.j., and Wood. C.C. 1994. Evaluation of the depensatory fishing hypothesis as an explanation for population cycles in Fraser River sockeye salmon (*Oncorhynchus nerka*) *Can. J. Fish. Aquat. Sci.* 51(8): 1839-1854.

Cass, A.J., Schnute, J.T., Richards, L.J. and MacDonald, A. 2000. Stock status of Fraser River sockeye. Canadian Stock Assessment Secretariat Research Document 2000/068. 52p.

Hargreaves, N.B. and Tovey, C. 2001. Mortality rates of coho salmon caught by commercial salmon gillnets and the effectiveness of revival tanks and reduced soak time for decreasing coho mortality rates. PSARC Working Paper S2001-10. 47p.

Simpson, K, Dobson, D, Semple, R, Lehmann, S., Baillie, S, and Matthews, I. 2001. Status in 2000 of coho stocks adjacent to the Strait of Georgia. PSARC Working Paper S2001-11. 90p.

⁴⁶ Bert Ionson, Fisheries and Oceans Canada, pers comm.

100 Scoring Guidepost

- The management system incorporates a research component that considers relevant data and information needs for formulating management strategies for all target species, and also information leading to an understanding of the dynamics of the ecosystem including data on the catch, landings and discards of non-target species.
- The framework for research includes investigations dealing with socio-economic impacts of the fishery.
- The research plan responds in a timely fashion to unexpected changes in the fishery.
- Funding is secure and sufficient to meet long-term research needs.
- There is significant continuing progress in understanding the impact of the fishery on target and non-target species, and the ecosystem in general.
- Research results form the basis for formulating management strategies and decisions.
- Research is regularly published in peer review journals and/or is reviewed by PSARC or the PSC.

80 Scoring Guidepost

- The management system incorporates a research component that provides for the collection and analysis of information necessary for formulating management strategies and decisions for both target and non-target species.
- The research plan addresses concerns related to the impact of the fishery on the ecosystem.
- The research plan addresses socio-economic issues that result from the implementation of management.
- The research plan is responsive to changes in the fishery.
- Funding is adequate to support short-term research needs.
- There is progress in understanding the impact of the fishery on target and non-target species.
- Research results are utilized in forming management strategies.
- Research is reviewed by PSARC or PSC, or other appropriate and technically qualified entities.

60 Scoring Guidepost

- Research provides for the collection of catch statistical and biological data for the target species.
- There has been useful research on the impact of fishing on target and non-target species taken in the fishery, and on the ecosystem in general.

Indicator 3.2.2

Research results are available in a timely fashion to interested parties, and there is a mechanism for periodic review of the content, scope and results of the research plan.

DFO Response

Current Situation

Availability of Information

The department has accumulated an extensive library of web-based information. Print-outs can be requested from any DFO office.

An index of web-based research materials is available at

http://www.pac.dfo-mpo.gc.ca/sci/psarc/ResDocs/res_docs_e.htm

Daily test fishery information is available at

<http://www.psc.org/TestFish/OutofSeason.htm>

Frequent in-season escapement updates are available at

<http://www.pac.dfo-mpo.gc.ca/fraserriver/Reports/Escapement/SkPkupdate.htm>

Descriptions and daily catch summaries for test fisheries are also available at

<http://www.pac.dfo-mpo.gc.ca/ops/fm/Salmon/testfish/Sockeye/default.htm>

Frequent summaries of test fisheries, biological data and further fishing plans are made public as Salmon Bulletins at

<http://www.pac.dfo-mpo.gc.ca/ops/fm/Salmon/bulletins/bulletin.htm>

For a more general audience, Salmon Updates are regularly released. These describe the outlook for the season, provide in-season updates, and a post-season wrap-up.

http://www.pac.dfo-mpo.gc.ca/comm/pages/mediacentre/salmon_updates_e.htm

Weekly summaries of Fraser River discharge are provided at

http://www-sci.pac.dfo-mpo.gc.ca/fwh/index_e.htm

Weekly news releases and regulatory announcements of the Fraser River Panel are available at

<http://www.psc.org/NewsRel/Index.htm>

PSARC research documents are available at

http://www.pac.dfo-mpo.gc.ca/sci/psarc/Default_e.htm

Review of the content, scope and results of the research plan

Unlike the fishing plan, there is no explicit review of the research plan; rather the research plan is developed collaboratively by Chiefs of Stock Assessment, Core Stock Assessment, and fishery management staff.

Advice from external and internal reviews is implicitly incorporated but not expressly reported on.

PSARC

A description of PSARC, steps in the PSARC Review Process, organizational structure, meeting schedule and PSARC documents are described in full at the following web site.

http://www.pac.dfo-mpo.gc.ca/sci/psarc/whatis_e.htm

PSARC research documents that have been through the process described at the web site above are available at the following web site

http://www.pac.dfo-mpo.gc.ca/sci/psarc/ResDocs/diadrom_02_e.htm

Relevant examples include:

- Murray and Wood. Status of Sakinaw Lake sockeye salmon (*Oncorhynchus nerka*)
- N. Schubert et al. Status of Cultus Lake sockeye salmon (*Oncorhynchus nerka*).
- A. Cass. Pre-season run size forecasts for Fraser River sockeye and pink salmon in 2003.

The first and last are available at the above-referenced web site. The second is available in electronic form.

Research documents are peer reviewed by individuals that are both internal and external to the management system. Forecasts of run timing⁴⁷, spread, and diversion rate⁴⁸ are developed pre-season. The methods have been approved by PSARC. Annual forecasts using PSARC-approved methodologies are scrutinized by PSARC but are not sent out for assessment by external reviewers.

⁴⁷ Blackburn, D. J. 1987. Sea Surface Temperature and Pre-Season Prediction of Return Timing in Fraser River Sockeye Salmon (*Oncorhynchus nerka*). In H.D. Smith, L. Margolis, and C.C. Wood [eds] Sockeye Salmon (*Oncorhynchus nerka*) Population Biology and Future Management. Can. Spec. Publ. Fish. Aquat. Sci. 96. pages 296-306.

⁴⁸ McKinnel S. and R. Freeman. 199x. published a report that reviewed diversion rate methodology for Fraser River sockeye. J. Fish. Aquat. Sci.

Pacific Salmon Commission

The Pacific Salmon Commission is responsible for providing DFO with in-season run size estimates. Their methodologies for deriving those in-season estimates have been reviewed and reports are available.

The Pacific Salmon Commission has evaluated run assessment methodologies. Examples of these reports are available at the following web site. See section E: TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION at that web site.

<http://www.psc.org/Pubs/PUBFORM.HTM#E.%20TECHNICAL%20REPORT%20SERIES%20OF%20THE%20PACIFIC%20SALMON%20COMMISSION>

- Levy, D.A., B. Ransom and J. Burczynski. *Hydroacoustic Estimation of Sockeye Salmon Abundance and Distribution in the Strait of Georgia, 1986*. PSC Tech. Rep. No. 2, October, 1991.
- Levy, D.A., P.A. Neilson, and P. Cheng. *Fixed-Aspect Hydroacoustic Estimation of Fraser River Sockeye Salmon Abundance and Distribution at Mission, B.C. in 1986*. PSC Tech. Rep. No. 4, October, 1991.
- Gable, J., and S. Cox-Rogers. *Stock Identification of Fraser River Sockeye Salmon: Methodology and Management Application*. PSC Tech. Rep. No. 5, October, 1993. Out of print.
- Pacific Salmon Commission. *Pacific Salmon Commission Run-size Estimation Procedures: An Analysis of the 1994 Shortfall in Escapement of Late-run Fraser River Sockeye Salmon*. PSC Tech. Rep. No. 6, May, 1995.
- Xie, Y., G. Cronkite, and T.J. Mulligan. *A Split-Beam Echosounder Perspective on Migratory Salmon in the Fraser River: A Progress Report on the Split-Beam Experiment at Mission, B.C., in 1995*. PSC Tech. Rep. No. 8, December, 1997.
- Xie, Y., T.J. Mulligan, J.M.W. Cronkite, and A. P. Gray. *Assessment of potential bias in hydroacoustic estimation of Fraser River sockeye and pink salmon at Mission, B.C.* [PSC Tech. Rep. No. 11, 2002.](#)

The last report is available at the following web site.

<http://www.psc.org/Pubs/psctr11.pdf>

Copies of Pacific Salmon Commission Technical Reports No's 5 and 6 are available in hard copy from the Pacific Salmon Commission. Neither is available in electronic format.

Scoring Summary

The information presented establishes that research results are easily available and describes the processes for peer and stakeholder reviews of research.

All three 60 Scoring Guideposts have been met.

All four 80 Scoring Guideposts have been met.

Three of four 100 Scoring Guideposts have been met.

Future Changes

Results from consultations will be reported on the DFO web site. This will include advice that was received and how it was considered.

100 Scoring Guidepost

- There is a formal and codified arrangement for annual stakeholder review of the content and scope of research plans and results, including matters related to its funding, which is open and transparent.
- There is a formal and codified arrangement for peer review of ongoing research
- The management system regularly incorporates into the research plan recommendations emanating from these reviews.
- Research results are made available to all interested stakeholders on a regular basis and in a timely manner.

80 Scoring Guidepost

- The management system provides for periodic reviews by stakeholders in the fishery, of the content and scope of research, including funding requirements.
- There are periodic peer reviews of ongoing research.
- Inputs from these reviews are used by the management system to modify research plans.
- Research results are available to interested parties on a regular basis.

60 Scoring Guidepost

- While there are no formal arrangements for stakeholder research review, such reviews are held on a periodic basis for the majority of the research plans and/or results.
- While there are no formal arrangements for peer review of ongoing research, such reviews are periodically conducted for the majority of ongoing research plans and/or results.
- The majority of research results are available to interested parties.

Indicator 3.3.1

The management system provides for a consultative process that is open to all interested and affected stakeholders, which allows for their input on a regular basis into the management process.

DFO Response

Current Situation

The interests of First Nations and stakeholders are integrated into pre-season planning and development of decision guidelines through the extensive consultative process. This process is described for the 2002 IFMP in the *Review of the 2002 Fraser River Sockeye Fishery* (Report by the External Steering Committee).⁴⁹ The process as described in the Review for the 2002 IFMP is similar to what happens annually during the development of IFMPs.⁵⁰

DFO's consultation schedule/calendar is available to the public on the web at the following site.

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/calendar/calender_e.htm

During the rapid responses to in-season information, stakeholder interests are represented by the members of the Fraser River Panel and other in-season local advisory process.

General Consultation Process

The general consultation process involves two main elements; the post season review and IFMP development. The post season review occurs in December to January depending on the availability of post season information. Issues and concerns raised by the department and stakeholders during the season are reviewed and discussed. Further analysis is undertaken to address issues and a draft IFMP is released in mid-to-late March for consultation with stakeholders and those with an interest in the management of the fishery.

Meetings with individual gear groups (eg, southern seines) and multi-licence area meetings (eg, South Coast Advisory) are held to review the provisions of the draft IFMP. Notices of the meetings are available on the website and the meetings are open to those with an interest in the management of southern B.C. salmon. DFO emails notices of meetings to individuals identified by each fleet in a licenced area as its representative. The Department attempts to accommodate views being advanced and where they cannot be accommodated, reasons are provided.

In addition to broad input into the IFMP, the fleet is consulted through "work groups" consisting of fleet representatives to provide input into specific issues. For example, one such work group provides recommendations regarding the allocation of salmon between commercial gear types. DFO facilitates another group made up of commercial and recreational representatives to address allocation issues between the commercial and recreational sectors.

Similar processes are in place for the recreational sector through the Sport Fishing Advisory Board, and with First Nations through established consultation processes with those communities at the band, tribal council or watershed level.

⁴⁹ Review of the 2002 Fraser River Sockeye Fishery, section 3.3, page 13, entire section (two paragraphs).

⁵⁰ Bert Ionson, A/Resource Management Coordinator—Salmon, Fisheries and Oceans Canada, pers comm.

First Nations Consultation Process

The management system operates in accordance with the Policy for the Management of Aboriginal Fisheries, which establishes priority for fisheries for food, social and ceremonial purposes and prescribes consultation on the fishing plan for individual First Nations as well as the fishing plan for other sectors that might affect First Nations fisheries.

On a consistent basis Fisheries and Oceans Canada meets with individual bands and tribal councils with representatives from several bands to discuss local issues. The department also supports meetings at the watershed level attended by representatives of bands and tribal councils to review broad policy approaches and other initiatives of equal importance to all bands on the Fraser River (eg, setting of escapement goals).

The consultation process for First Nations mirrors that of the commercial fishery. Post season review meetings are held to review management actions, the performance of the fisheries and final escapements. Concerns and issues are identified and discussed. This process culminates in a draft IFMP that serves as a basis for further discussion prior to finalisation of the annual IFMP which is signed by the Minister and released in late May or early June.

Consultations on Policy Development

Policy development consultation is undertaken in several steps;

1. Release of a discussion document to First Nations, industry and those with an interest in the management of salmon.
2. Series of meetings with representatives, and public meetings to explain and receive feedback on the discussion document.
3. Release of a final policy.

The timeframe for this process can range from one year (Selective Fishing Policy) to several years (Improved Decision Making). The objective is to consult as widely as possible.

The discussion document is made available in hardcopy in departmental offices and in electronic version on the Web. There is opportunity to provide feedback in person at public meetings or electronically.

On occasion, technical experts from outside DFO are engaged in the development of the discussion document.

Following are some examples of policy initiatives for which consultations have been required:

Wild Salmon Policy process

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/wsp-sep/default_e.htm

Improved Decision Making Initiative

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/decision_e.htm

Selective fishing initiative

<http://www.pac.dfo-mpo.gc.ca/ops/fm/selective/4archive/sfarchives.htm>

Fishery Monitoring feedback elicitation

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/fisheriesmgmt/reportingframework/default_e.htm

Fraser Sockeye Spawning Initiative

The Fraser Sockeye Spawning Initiative is developing a method for estimating harvest rules and escapement plans for Fraser River sockeye management units that is:

- objective-based
- explicitly linked to assumptions about population dynamics
- within a consistent and transparent risk-assessment framework that allows stakeholders and decision-makers to evaluate consequence of alternative choices.

The Spawning Initiative is still in technical development. A discussion paper has not been widely circulated at this point. Due to its complexity and high-profile, stakeholder representatives have been involved from the very beginning.

The Spawning Initiative is directed by a multi-sector steering committee with senior representatives from First Nations, commercial harvesters and processors, and environmental interests. During the past year, two workshops were held in which a larger group of stakeholder representatives provided input and direction regarding management priorities and details of the analytical approach. In response, the analytical approach was modified and expanded by the technical team, and subjected to PSARC review⁵¹. Three main modifications were called for during the last workshop:

1. Given that the details require a certain amount of technical understanding, stakeholder representative requested a PSARC review. They didn't feel qualified to discuss the nuances of fitting priors and optimizing harvest rules.
2. DFO explored a new stock-recruitment model that treats Dominant-Subdominant and Off-Cycle years as independent entities, with different capacities, because some representatives felt that assumptions around rebuilding potential of off-years could be crucial.
3. DFO changed the optimization calculations and based the harvest rule fitting on a previously published method⁵².

The next workshop is planned for September, where stakeholder representatives will have an opportunity to comment on the revised method and specific examples. A discussion paper will be developed based on the feedback, and released for consultation in the fall.

⁵¹ Cass, Folkes, and Pestal (2003, in prep) Methods for Assessing Harvest Rules for Fraser River Sockeye Salmon PSARC Working Paper S2003-14. Once finalised, this document will be available on the CSAS web site. A PowerPoint presentation by the same authors is available in electronic form.

⁵² Schnute & Richards. 1989. A unified approach to the analysis of fish growth, maturity, and survivorship data. Can. J. Fish. Aquat. Sci. 47.

Scoring Summary

The information presented establishes that DFO fully conforms with this Indicator and all of its Scoring Guideposts.

The lone 60 Scoring Guideposts has been met.

Four of four 80 Scoring Guideposts have been met.

All four 100 Scoring Guideposts have been met.

Future Changes

The environmental organisations will be a part of the consultation process in 2004 and beyond.

100 Scoring Guidepost

- The management system provides a formal arrangement for the direct participation of all interested and affected stakeholders from both the public and private sectors, on matters of a social, cultural, economic and scientific nature.
- The management system provides timely, advanced notice of meetings at which there can be stakeholder participation.
- The management system does not exclude any interested and affected stakeholder from the consultative process.
- The management system addresses the interests of all interested and affected stakeholders.

80 Scoring Guidepost

- The management system provides for the regular participation of most interested and affected stakeholders on matters of a social, cultural, economic and scientific nature.
- The management system generally provides notice of meetings at which there can be stakeholder participation.
- The management system does not usually exclude involvement of any interested and affected stakeholder.
- The views of most interested and affected stakeholders are regularly considered in the formulation of management strategies.

60 Scoring Guidepost

- The majority of interested and affected stakeholders are provided with a forum for input into the formulation of management plans and measures.

Indicator 3.4.1.1

The management system utilizes methods to limit or close fisheries in order to achieve harvest and/or escapement goals, including the establishment of closed areas, no-take zones, and closed dates and times when appropriate.

DFO Response

Current Situation

The IFMP states that management of Fraser River sockeye by Fisheries and Oceans Canada is achieved primarily by opening and closing fisheries by time and area and secondarily by limiting the amount and type of gear permitted in a fishery.⁵³ The Pacific Salmon Commission established under the Pacific Salmon Treaty, provides regulatory and policy advice as well as recommendations to Canada and the United States with respect to interception fisheries. Under terms of the treaty, the responsibility for in-season management of all species rests with the Parties to the agreement, except for the in-season management of Fraser River sockeye and pink salmon, where the Fraser River Panel is specifically delegated responsibility for in-season management within Fraser River Panel waters with assistance from Pacific Salmon Commission staff.

Fishery notices often describe methods to limit fishing⁵⁴

There are numerous references throughout the IFMP to closing fisheries as the primary means of management to achieve harvest/escapement objectives. Some examples relevant to Fraser River sockeye and marine net fisheries are provided below.

- Window closures and other fishing restrictions have been necessary in commercial, recreational and First Nations fisheries to allow escapement objectives for the early summer stock aggregate to be met.⁵⁵
- Management actions, such as openings and closures, for commercial, recreational and First Nations fisheries are posted on the Internet regularly throughout the fishing season by the Department and the Project Steering Committee.⁵⁶
- Planned closures, based on pre-season information, are summarised in Table 5 of the 2003 IFMP.⁵⁷
- Closures on the Fraser River below Mission will be implemented from September 3 to October 8 to protect Thompson and upper Fraser River coho.⁵⁸

⁵³ IFMP 2003, section 4.1.2, first paragraph, second sentence, page 23.

⁵⁴ See FN 0511 at http://www-ops2.pac.dfo-mpo.gc.ca/fnsreports/BrowseNotices_Detail.cfm?ID=5241

⁵⁵ IFMP 2003, page 38, third paragraph "Early Summer Stock Aggregate", first sentence.

⁵⁶ IFMP 2003, page 39, penultimate paragraph, first sentence.

⁵⁷ IFMP 2003, Table 5, page 44.

⁵⁸ IFMP 2003, section 7.6, first paragraph, second sentence, page 87.

- A closure to protect holding Late Run Fraser sockeye stocks in Subareas 29-1 to 29-6 and portions of 29-7, 29-9 and 29-10 is anticipated.⁵⁹
- Except for carefully controlled seine pool and assessment fisheries, Area 20 remains closed to protect Interior Fraser River coho and Late Run sockeye stocks including Cultus Lake sockeye.⁶⁰

Many more in addition to the ones cited above can be found in the IFMP (eg, search for “clos” in the IFMP document).

Exploitation rates and escapements are set to sustain high productivity of the stocks.

Scoring Summary

The information presented establishes that the Scoring Guideposts have all been met.

Both 60 Scoring Guideposts have been met.

All four 80 Scoring Guideposts have been met.

All five 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system provides a formal and codified system to achieve harvest and/or escapement goals for target stock units and, as appropriate, non-target species of fish.
- The management system provides a formal and codified mechanism for establishing closed areas, no-take zones, and closed dates and times for any areas of the fishery.
- Management sets exploitation and escapement levels designed to maintain the target stock units at levels of abundance that can sustain high productivity.
- There is no evidence provided by the management system to indicate that, as a result of fishing, target stock units are in serious decline or degradation of the ecosystem is occurring.
- Measures are currently implemented to achieve these objectives.

80 Scoring Guidepost

- Harvest rates and/or escapement levels designed to achieve target goals are regularly implemented.

⁵⁹ IFMP 2003, section 7.9, sub-heading “Early August to Late August - Area 29”, second bullet, second sentence, page 90.

⁶⁰ IFMP 2003, section 7.9.1, sub-heading “Mid-September to Mid-October - Areas 20 and 20”, first bullet.

- The management system provides for the establishment of closed areas, no-take zones and closed dates and times.
- Controls are set to maintain or restore target species to high productivity levels, and in a manner that does not contribute significantly to ecosystem degradation.
- Measures that limit harvest rates and set escapement goals are implemented when necessary.

60 Scoring Guidepost

- Harvest rates and/or escapement goals for the majority of the target stocks are effective in halting declines in stock abundance caused by the fishery.
- Established harvest and/or escapement goals for target stocks consider the impact of the fishery on the majority of the non-target species, and on the ecosystem generally.

Indicator 3.4.1.2

The management system provides for restoring depleted target species to specified levels within specified time frames.

DFO Response

Current Situation

Decision-making processes and the management approach for Fraser River sockeye are summarized in the Decision Guidelines.⁶¹

COSEWIC-designated stocks are discussed at the end of section 4.4.3 in the 2003 IFMP.⁶²

Other salmon stocks/species of concern are also discussed at the end of section 4.4.3 in the 2003 IFMP.⁶³

The management system does not set specific timelines for restoring stocks to specified levels within specified time frames. Through development of recovery plans specified times frames are identified, for example, the time frame identified for Interior Fraser coho was 2-3 cycles.

Scoring Summary

The information presented establishes that DFO “provides for restoring depleted target species to specified levels within specified time frames.”

The sole 60 Scoring Guideposts is true.

⁶¹ IFMP 2002, section 4.3, pages 35-44. IFMP 2003, section 4.4, page 37-47.

⁶² IFMP 2003, page 39, second paragraph: “COSEWIC Designated Stocks”.

⁶³ IFMP 2003, page 39, third paragraph: “Other salmon stocks/species”.

One of two 80 Scoring Guideposts have been met.

One of the 100 Scoring Guideposts has been partially met.

Future Changes

The Wild Salmon Policy, under development will identify reference points of abundance as benchmarks of conservation unit performance. The status of the conservation units in relation to these benchmarks will be assessed on a regular basis. This status will then inform the development of fishing strategies and fishing plans that reflect appropriate time lines for restoring stocks to specified levels that balance conservation risks and concerns with the social and economic importance of the fisheries.

100 Scoring Guidepost

- The management system has a formal and codified mechanism, which is adequate for restoring depleted target stocks to the TRP or equivalent high level of abundance, as qualified by relevant environmental factors.
- The mechanism includes strict guidelines for restoring these depleted populations within a certain time frame are formalized by the management system.

80 Scoring Guidepost

- The management system includes measures that are adequate to restore depleted populations of target stock to the TRP or equivalent high level of abundance as qualified by relevant environmental factors.
- A time schedule for restoration, which considers environmental variability, is determined by the management system.

60 Scoring Guidepost

- The management system includes measures for restoring the majority of depleted populations of target stock to the TRP or equivalent high level of abundance.

Indicator 3.4.2.1

The management system includes compliance provisions.

DFO Response

Current Situation

Section 3.5 of the 2003 IFMP lays out the enforcement objectives for the Fraser River sockeye marine net fisheries.⁶⁴

⁶⁴ IFMP 2003, section 3.5, pages 21-22.

The Conservation & Protection Directorate (within Fisheries Management) currently deploys 170 Fisheries Officers plus Marine Enforcement Officers and Aboriginal Fishery Guardians. Further details are available at the following web site.

http://www.pac.dfo-mpo.gc.ca/ops/CP/default_e.htm

Main Conservation & Protection Program Activities are described at

http://www.pac.dfo-mpo.gc.ca/ops/cp/programs_e.htm

Licence conditions require observers in some fisheries. For example, licence conditions for Area B (southern seine) require vessels to take an observer on board when requested to do so by the Regional Director General of the Pacific Region.⁶⁵

There are no specific guidelines in place to indicate the number of observers. The level of observer coverage depends on the severity of the conservation issue.

- If there is no conservation issue, the level of observers is low (0 to 2 in each of the fisheries).
- If there is potential to have an impact on stocks of concern, the number of observers can increase to 6 to 10 per fishery (30-100 vessels operating in the fishery).
- Where experimentation is being undertaken, there is usually a high rate of observer coverage (100% of the vessels would carry an observer).

Charter patrolmen employed under a vessel charter contract are designated as "fishery inspectors". Their primary duty is to carry out observe, record and report activities.

At the end of each season, statistics are compiled on the numbers of checks conducted from various platforms (at-sea, vehicle and foot) and the number of charges resulting from these checks. Using this information, staff can evaluate whether enforcement priorities were met and whether various enforcement activities were effective. Overall compliance rates for each area and fishery are calculated to identify priority areas for enforcement in subsequent seasons.

Post-season review meetings with C&P and resource management staff are held annually. From these sessions, staff identify key enforcement issues and recommend strategies for addressing these issues.

Conservation & Protection Issues and Strategies are described at

http://www.pac.dfo-mpo.gc.ca/ops/Cp/issues_e.htm

Education and training were a key component of the selective fisheries program. Salmon fishers are well-versed in selective fishing methods and gear, and are aware of the need for such provisions.

⁶⁵ Conditions of Licence, Area B, Part 1, section 10, page 7. The same provision for gillnets in Areas D and E are found in part 1, section 9 of their licence conditions. <http://www.ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/MPlans.htm>

There have been approximately six protest fisheries in the past two years. They are generally staged as media events and to date have not been a significant conservation concern. Examples include trollers fishing with sport fishing gear and trollers using commercial gear but without hooks. DFO regularly indicates that protest fishing is an inappropriate form of lodging complaints about fishing plans. Fishing activity ceases when DFO requests that it be stopped. Information is taken and charges are laid against those participating in the fishery.

Scoring Summary

The information presented establishes that DFO has a comprehensive, multi-faceted compliance system in place.

The lone 60 Scoring Guideposts has been met.

Both 80 Scoring Guideposts have been met.

All four 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system provides for a formal arrangement, such as a compliance committee or a staff review team on compliance, to review the effectiveness of enforcement.
- Education and enforcement procedures are implemented and applicable rules are consistently applied.
- Enforcement actions are effective in achieving the objectives of management.
- There are no infractions being consistently committed in the fishery.

80 Scoring Guidepost

- The management system includes compliance provisions that are effective for the fisheries.
- Infractions, which result in adverse impacts on the status of the stocks or on the ecosystem, are rare.

60 Scoring Guidepost

- The management system includes compliance provisions that are effective for the majority of the fisheries.

Indicator 3.4.2.2

The management system includes monitoring provisions.

DFO Response

Current Situation

*Policy*⁶⁶

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).
- 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."

Implementation

Conservation & Protection Directorate is responsible for monitoring fisheries. See response to Indicator 3.4.2.1 above.

Licence conditions stipulate species that may be taken, fishing areas, permissible fishing gear and fishing times. Licence conditions also stipulate catch sorting and species segregation requirements, information that the vessel master is required to report to DFO, harvest operations records, in-season and post-season catch reporting requirements, and requirements regarding observers and fish slips.⁶⁷

The department is in the process of consulting on a new Monitoring and Reporting Framework. The text of the Monitoring and Reporting Framework is available at the following web site.

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/fisheriesmgmt/reportingframework/monitoringpaper_e.htm#1.%20OVERVIEW

The Monitoring and Reporting Framework is intended to facilitate a review by Fisheries and Oceans Canada, in cooperation with First Nations and stakeholders, of fishery monitoring and catch reporting systems in Pacific Region. The objective of this review is to identify necessary

⁶⁶ This section drawn from Fishery Monitoring and Reporting Framework (see web address below), section 5 (no page numbers in web document).

⁶⁷ See Conditions of Licence.

improvements in these systems to better meet the needs of the resource, the government, stakeholders, the general public and the international community.

All Fraser sockeye fisheries are monitored for purposes related to the estimation of catch as well as compliance with regulations. The monitoring activities (particularly catch estimation) in combination with escapement information derived from the Mission echo-sounder and spawning ground surveys provides ongoing feedback as to whether harvest rate and escapement objectives are being achieved. In addition impacts to the ecosystem are monitored during spawning ground surveys and during ongoing habitat monitoring.

Scoring Summary

The information presented addresses policy and practice of fishery monitoring and addresses the Scoring Guideposts. Fisheries and Oceans Canada has recognised shortcomings with its fishery monitoring and catch reporting systems and is addressing issues and concerns in a structured, consultative fashion.

The single 60 Scoring Guideposts has been met.

Both 80 Scoring Guideposts have been met.

All of the three 100 Scoring Guideposts have been met.

Future Changes

Fisheries and Oceans Canada is undertaking a detailed review of its monitoring and reporting programs in all fisheries and is consulting with stakeholders on necessary improvements to these programs.

Principles for the fishery monitoring and reporting review are presented in sections 6 of the document (see web document; web address above).

100 Scoring Guidepost

- The management system incorporates a formal, effective program for monitoring the fishery, which fully evaluates the performance in terms of whether the regulations are resulting in the intended harvest rates and/or escapements, and achievement of objectives regarding impacts on the ecosystem caused by the fishery.
- Monitoring is comprehensive, and includes all relevant components of the fishery
- Results are reported widely on a regular and timely basis.

80 Scoring Guidepost

- The management system incorporates an effective monitoring program, which evaluates the performance of the fishery relative to management goals and policies.
- Monitoring is broad in scope, and results are available to the majority of the stakeholders.

60 Scoring Guidepost

- The management system includes provisions for a monitoring program to evaluate the performance of the majority of the fisheries against its policies and objectives.

Indicator 3.5.1

There is an effective and timely system for internal review of the management system.

DFO Response

Current Situation

Post season reviews are undertaken on a broad spectrum of fisheries. Preseason forecasts and plans are compared with in-season estimates of run-size, management actions and final catches and escapements. Implementation issues are also identified. Internal post season reviews are undertaken and written up by the local manager with input from the local Chief of Resource Management and Regional Resource Manager - Salmon. These documents are released prior to the post season review meetings with First Nations and stakeholders.

Each year, the bilateral Fraser Panel undertakes a comprehensive post-season review. The report of the 1999 year can be found at:

<http://www.psc.org/Pubs/Frp99ar-screen.pdf>

Each Party to the Pacific Salmon Treaty (Canada & the United States) is required to provide, before the January Post Season Review meeting of the Pacific Salmon Commission, a post season report for all fisheries. This report is included in the PSC Annual report. The most recent report published is 2001/2002. It is available at the following web site.

<http://www.psc.org/Pubs/17thAnnualReport.pdf>

Special circumstances in 2002 resulted in much more extensive review of decision-making processes and rationales, which is available at the following web site.

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/fisheriesmgmt/Report_e.pdf

Scoring Summary

The information presented demonstrates the DFO performs well against this indicator.

The 60 Scoring Guideposts is true.

Both 80 Scoring Guideposts have been met.

Both 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system provides for continuing internal review that is broad in scope, effective, and timely.
- The review process and results are made available to all stakeholders.

80 Scoring Guidepost

- The management system includes provision for an internal review that is conducted periodically as the need arises.
- The results of the review are made available to interested stakeholders.

60 Scoring Guidepost

- The management system provides for internal review of its performance, and when available, review results are made available to the majority of interested stakeholders.

Indicator 3.5.2

There is an effective and timely system for external review of the management system.

DFO Response

Current Situation

External reviews of the management system have been performed from time to time in the past. These have usually taken one of two forms:

- Reviews by external agencies such as the Pacific Fisheries Resource Conservation Council or the Auditor-General of Canada.
- Program evaluations mandated by the federal government.

The response to Indicator 3.4.2.2 (above) mentions reviews by the Pacific Fisheries Resource Conservation Council and the Auditor-General of Canada.

The latest *Policy and Standards for Evaluation* (April 1, 2001) are available at the following web site.

http://www.tbs-sct.gc.ca/eval/common/policies-politiques_e.asp

Among other things, they require each federal government department to have a senior head of evaluation, an evaluation committee and an evaluation plan. See the *Policy Requirements* section at the following web site.

http://www.tbs-sct.gc.ca/pubs_pol/dcgpubs/tbm_161/ep-pe_e.asp

Following are examples of evaluations that have been completed under Fisheries and Oceans Canada's Evaluation Plan.

- Terms of Reference have recently been completed for summative evaluations of the Selective Fisheries Program and the Resource Rebuilding component of the Pacific Fisheries Adjustment and Restructuring Program.
- The fleet component of PFAR was evaluated in 2001.

- DFO's Response to the Recommendations of the Fraser River Sockeye Public Review Board were evaluated in 1995/96.
- The (then) pilot IQ programs for halibut and sablefish were evaluated in 1992.
- DFO Resource Management was evaluated in 1991/92.

DFO evaluations of the Pacific fishery management system would include external reviewers (ie, they would be included among the individuals and organisations canvassed during the conduct of an evaluation). The Pacific fishery management system is open to external review in that (1) it would be so reviewed by means of an Evaluation and a number of these that have been performed in the past decade are cited, and (2) an external agency such as the Pacific Fisheries Resource Conservation Council or the Auditor-General of Canada can conduct such external reviews when they choose.

DFO's Pacific fishery management system itself includes no requirement for external evaluations. However, there have been regular reviews of the Fraser River sockeye management (e.g. 2002 Fraser River Ministerial Review, 1994 John Fraser Public Review, 1992 Pearse/Larkin Review, OAG 1999, etc.)

Scoring Summary

The information presented established a requirement for regular external evaluation of DFO programs including Pacific fishery management, although that requirement is part of the department's responsibilities and not built into the Pacific fishery management system itself.

The 60 Scoring Guideposts is met.

The 80 Scoring Guideposts are not literally met, but their spirit is captured in the federal Treasury Board stipulations regarding program evaluation in federal government departments and of departmental programs.

Two of the three 100 Scoring Guideposts have been met.

This score would be higher if the Treasury Board requirements for DFO regarding program evaluation were construed as being part of the "management system" as referred to in the Scoring Guideposts.

100 Scoring Guidepost

- The management system provides for one or more independent experts to review at least bi-annually all of the important components of management performance.
- The format and standards of the review are established with input from outside the management system.
- Provision is made for making public the review results.

80 Scoring Guidepost

- The management system provides for a review of management performance by one or more independent experts at least once every five years.

- The format and standards of the review are established within the management system.
- Review results are made available to the public.

60 Scoring Guidepost

- The management system is open to external review at least once every 10 years.

Indicator 3.5.3

There is a mechanism for incorporating into the management system recommendations resulting from the review process.

DFO Response

Current Situation

DFO has a series of annual advisory meetings with stakeholder representative groups (See Indicator 3.3.1) that facilitate incorporation of stakeholder recommendations. In commercial fishery advisory meetings, Licence Area breakout sessions are held in which issues are tabled and recommendations prepared and submitted for incorporation into the annual IFMP⁶⁸. Similar advisory processes are conducted with other stakeholder groups.

The post-season review and the development of the IFMP pre-season, and associated consultations, are the mechanisms by which management system recommendations resulting from review processes are incorporated into the management system.

Recommendations from internal and external reviews are acted upon and incorporated into the management process when appropriate. A recent example is the steps taken to date by DFO responding to the 2002 Review of the Fraser River sockeye fishery. These steps include a report documenting DFO's response to each recommendation in the 2002 Post-Season review⁶⁹.

Scoring Summary

The information presented establishes the Indicator has been fully achieved.

The 60 Scoring Guideposts has been met.

The 80 Scoring Guideposts has been met.

Both 100 Scoring Guideposts have been met.

⁶⁸ Listing of Agendas from the Commercial and Area Harvest Committees can be found at:

http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/consultations/salmon/CSAB/default_e.htm

⁶⁹ Bert Ionson, Fisheries and Oceans Canada, pers comm.

100 Scoring Guidepost

- The recommendations from internal and external reviews are always acted upon and, where appropriate, incorporated into the management system.
- The management system provides for a report to all interested stakeholders describing how it acted on the recommendations of these reviews.

80 Scoring Guidepost

- The recommendations from internal and external reviews are usually, but not always, used to make changes to the management system.

60 Scoring Guidepost

- Recommendations from internal and external reviews are considered by the management agency and an explanation is provided for the actions or lack of action associated with the majority of these recommendations.

Indicator 3.5.4

There is an appropriate mechanism for resolving disputes.

DFO Response

Current Situation

The mechanism for resolving disputes is in a state of flux as Fisheries and Oceans Canada revamps its consultations structures and processes and the organisations and mechanisms for decision making.

Fisheries and Oceans Canada issued its New Directions Series Discussion Paper on Improved Decision Making in June 2000. There is a link to Microsoft Word and Adobe PDF versions of the Improved Decision Making Discussion Paper, and related publications (eg, the recommendations of the Institute for Dispute Resolution) at the following web site.

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/decision_e.htm

A consultative process ensued, led by the Institute for Dispute Resolution at the University of Victoria.

The Discussion Paper and the Independent Review focused specifically on three key aspects of salmon consultation processes in the Pacific Region:

- Annual salmon harvest management planning;
- Implementation issues associated with the Pacific Allocation and Licensing Board; and
- The policy development process for issues related to salmon fisheries management.

Among the 67 recommendations made by the Institute for Dispute Resolution in its Final Report are the following:

- Establish a Policy Advisory Committee and a public Policy Forum process for discussion of key policy issues among all sectors (Recommendation 6).
- Establish a Commercial Harvest Planning Committee (Recommendation 28D).

The Institute for Dispute Resolution Final Report also made the following recommendation.

- Create a Consultation Secretariat (Recommendation 20).

A DFO Pacific Region Consultation Secretariat was formed in January 2001 to develop a long-term strategy for consultation for the Pacific region, which is congruent with national policies. The Consultation Secretariat is an internal departmental function within the Pacific region, working with all sectors to ensure that consultations with stakeholders, First Nations and the public are well-documented, avoid unnecessary duplication, and are conducted in a transparent manner, including providing feedback on why decisions are made. The Consultation Secretariat web page is at:

http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/consult_e.htm

Fisheries and Oceans Canada currently embraces the following principles for decision making. These principles have been incorporated into the Terms of Reference of some fishery advisory committees.⁷⁰

Transparency: There will be transparency throughout the process based on open lines of communication and the provision of timely, accurate, clear and objective information.

Accountability: Members of the advisory processes are expected to bring to the discussions the views, knowledge and experience of those whom they represent, while promoting awareness and understanding within their constituencies about deliberations of the Committee and reasons for the outcomes of their deliberations.

Consensus: Advisory committees will be encouraged to provide consensus advice on issues under discussion. Consensus is a process for making decisions, in this case decisions on what recommendations to put forward, without the power of voting. Its main feature is that no action is taken unless all members of the group can support the action, or agree not to obstruct it. Consensus does not require that everyone be in complete agreement, but only that all will be willing to accept - consent to - a decision. In reaching a decision no one should feel that her/his position on the matter was misunderstood or that it wasn't given a proper hearing.

Effective and Efficient: The size of the advisory committee must be kept to a number that facilitates consensus-based decision making. Once established, the committee will work on an annual planning cycle that will identify issues/priorities in advance, and assign realistic timeframes. Consultations will be organized with appropriate timeframes and deadlines so that participants are provided reasonable time to prepare and provide their input. Wherever

⁷⁰ Jay Hartling, Fisheries and Oceans Canada, pers comm.

possible, links to other departmental processes will be made to realize efficiencies in consultation.

Currently, domestic disputes continue to be resolved by the Minister of Fisheries and Oceans. Internationally, the dispute resolution process is identified in the Pacific Salmon Treaty⁷¹. Parties use the process to resolve significant disputes.

Scoring Summary

The information presented establishes that there is a dispute resolution mechanism in place—Ministerial decision—but that it is not likely to be viewed as acceptable by stakeholders or dispute resolution experts.

The lone 60 Scoring Guideposts is met.

Three of three 80 Scoring Guideposts have been met.

None of the three 100 Scoring Guideposts have been met.

Future Changes

The Pacific Allocation and Licensing Board, the Policy Advisory Committee and the Commercial Harvest Planning Committee are intended to provide fair and accountable decision making on issues of importance to stakeholders in the Pacific salmon fishery. In this manner, disputes would be minimized and, where not resolvable, decisions would be made by the appropriate body.

Fisheries and Oceans Canada does not envision that the Minister's discretion in matters pertaining to the Pacific salmon fishery would ever be fettered.

100 Scoring Guidepost

- The management system has a formal and codified mechanisms for resolution of disputes arising as a result of the fishery.
- Affected parties routinely use the dispute resolution mechanism.
- The dispute resolution mechanism is unbiased and fair respecting all disputing parties.

80 Scoring Guidepost

- The management system has a dispute-resolution process for resolving significant disputes.
- The dispute resolution mechanism is available for use by affected parties, but is not routinely used.
- The dispute resolution mechanism does not discriminate against any disputing party.

⁷¹ Article 12, Pacific Salmon Treaty

60 Scoring Guidepost

- There is a mechanism for resolving disputes that is provided for by the management system.

Indicator 3.6.1

The fishery is not operated in a unilateral manner in contravention to international agreements.

For the purposes of this Indicator, only treaties and conventions which the government of Canada has signed, ratified or otherwise is a High Contracting Party to, shall apply.

DFO Response

Current Situation

International Treaties and conventions considered include:

- UN Convention on the Law of the Sea.
- Convention on Biological Diversity.
- The Pacific Salmon Treaty.

UN Convention on the Law of the Sea

As a signatory to the UN Convention on the Law of the Sea, the Agreement relating to Part XI of the Convention, and the Agreement for the Implementation of the Convention relating to the conservation and management of straddling fish stocks and highly migratory fish stocks, Canada, including the management of Fraser River sockeye stocks and fisheries, operates in accord with all aspects of the Convention on the Law of the Sea.

The UN Convention on the law of the sea can be found at the following web site.

http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf

The Agreement for the Implementation of the Convention relating to the conservation and management of straddling fish stocks and highly migratory fish stocks can be found at the following web address.

http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm

The Pacific Salmon Treaty

The Fraser River sockeye fishery is operated under the terms of the Pacific Salmon Treaty, specifically the Annex dealing with Fraser sockeye and pink salmon. Annual reports are available on the Pacific Salmon Commission Website.

www.psc.org

Canada operates within the Treaty provisions and as such, complies with the principles of UNCLOS under which the Treaty was negotiated.

Review and performance of the Pacific Salmon Treaty provisions occurs annually at bilateral meetings of the Pacific Salmon Treaty. These results are published and available from the Pacific Salmon Commission. Obligations within the Pacific Salmon Treaty were met in 2002 for sockeye, chinook, coho, and chum salmon.⁷²

If Canada were not operating in accordance with the Pacific Salmon Treaty, there would be allegations from the other Party (ie, the United States). There have been disagreements between the Parties from time to time (eg, 2002 objections to a late season fishery on Late Run Fraser River sockeye that the US could not participate in because of the timing) and ongoing allegations of actions contrary to the Treaty have been dealt with at the Panel and Commission.

Scoring Summary

The information presented establishes that DFO performs very well against this indicator.

The one 60 Scoring Guideposts is true.

All three 80 Scoring Guideposts have been met.

All three 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- When the stocks of fish under the authority of the management system are also under the authority of an international treaty to which the Government of Canada is a party, treaty obligations are respected, and actions by the management system are coordinated with the recommendations of the treaty organization.
- All measures taken within the management system are in compliance with relevant international treaty obligations.
- The management system does not undertake unilateral exemption from any treaty obligation pertaining to the fishery.

80 Scoring Guidepost

- The management system does not willingly act in contravention to any international treaty obligations pertaining to the fishery.
- The management system does not knowingly undertake unilateral exemption from any treaty obligation pertaining to the fishery.
- Evidence indicates any inadvertent action with regard to the contravention of any international treaty obligations by the management system is rare.

⁷² IFMP 2003, section 8.3, page 100.

60 Scoring Guidepost

- The management system is in compliance with the majority of international treaty recommendations dealing with the fishery.

Indicator 3.6.2

The fishery is carried out in a manner consistent with all relevant domestic laws and regulations relevant to the fishery.

DFO Response

Current Situation

Domestic laws being considered include

- The Fisheries Act.
- Coastal Fisheries Protection Act.
- The Oceans Act.

Full texts of acts and regulations governing Pacific salmon management are available at

http://www.dfo-mpo.gc.ca/communic/policy/dnload_e.htm

The Fisheries Act is used to manage the fishery. To ensure compliance, DFO enforcement officers monitor complaints and conduct patrols of Fraser sockeye fisheries. When non-compliance is noted, enforcement action is taken. The general view from enforcement officers is that compliance rates are very high.

The fishery does not contravene provisions of Acts that are in place to address other policy objectives.

The Conservation & Protection Directorate conducts an Evaluation of Enforcement and Compliance annually as part of the department's post season review and evaluation of the fishery.

With regard to the 100 Scoring Guidepost, DFO does conduct an annual assessment of fisheries compliance but we are not aware of any management systems that can claim full compliance with laws and regulations. It is simply too costly to enforce 100% compliance in any regulatory system.

Scoring Summary

The information presented establishes that the Fraser River sockeye fishery is carried out in a manner consistent with all relevant domestic laws and regulations relevant to the fishery.

The single 60 Scoring Guidepost has been met.

The lone 80 Scoring Guidepost has been met.

The sole 100 Scoring Guidepost has been met as fully as possible.

100 Scoring Guidepost

- The management system conducts annual assessments of the fisheries compliance with relevant domestic laws and regulations, and these assessments have confirmed full compliance with these laws and regulations.

80 Scoring Guidepost

- The management system conducts at least bi-annual assessments of the fisheries compliance with relevant domestic laws and regulations, and these assessments have confirmed that none of the violations that have occurred would result in failure to achieve the objectives of the management plan.

60 Scoring Guidepost

- The management system conducts periodic assessments of the fisheries compliance with relevant domestic laws and regulations, and these assessments have not identified any violations that would result in failure to achieve the objectives of the management plan.

Indicator 3.6.3

The management system provides for the observation of legal and customary rights of First Nation peoples.

DFO Response

Current Situation

The Government of Canada's legal and policy frameworks identify a special obligation to provide First Nations a priority opportunity to harvest fish for food, social and ceremonial purposes. The Aboriginal Fisheries Strategy (AFS) was implemented in 1992 to address several objectives related to First Nations and their access to the resource, including:

- Improving relations with First Nations.
- Providing a framework for the management of the First Nations fishery in a manner that is consistent with the 1990 Supreme Court of Canada Sparrow decision.
- Greater involvement of First Nations in the management of fisheries.
- Increased economic returns from First Nations fisheries (Allocation Transfer Program).⁷³

⁷³ IFMP 2003, section 2.5, page 14.

Fisheries & Oceans Canada First Nations' objective is "to manage fisheries to ensure that, subject to conservation needs, first priority is accorded to First Nations for opportunities to harvest fish for food, social, ceremonial (FSC) purposes and any treaty obligations."⁷⁴

Feedback from consultation sessions is relied on to measure the performance of providing first priority to First Nations for opportunities to catch fish for FSC purposes and any treaty obligations.

DFO's performance on its First Nations' objective in 2002, assessed in the Post-Season Review, indicates that the department met its First Nations' objective.⁷⁵

The department's consultation process with First Nations is described in the response to Indicator 3.3.1.

Scoring Summary

The information presented describes how the management system provides for the observation of legal and customary rights of First Nation peoples.

The lone 60 Scoring Guidepost has been met.

Both 80 Scoring Guideposts have been met.

Both 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system is in compliance with all major legal and customary rights of First Nation peoples that are impacted by the fishery.
- The management system includes processes for consultation with First Nations peoples on the impact of the commercial fishery on their food, social and ceremonial fisheries.

80 Scoring Guidepost

- The management system is found to be in compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery.
- The management system includes processes for providing information to First Nations peoples on the major impacts of the commercial fishery on their food, social and ceremonial fisheries.

60 Scoring Guidepost

- The management system is in compliance with the legal rights of First Nation peoples that are impacted by the fishery.

⁷⁴ IFMP 2003, section 3.2, page 20.

⁷⁵ IFMP 2003, section 8.2, page 100.

Indicator 3.7.1

Utilization of gear and fishing practices that minimize both the catch of non-target species and the mortality of this catch.

DFO Response**Current Situation**

The management system provides incentives to those who can fish selectively by providing enhanced opportunities. In Juan de Fuca, opportunities are provided to the seine fleet that can avoid and release non-target coho while gillnet encounters and resultant mortalities are thought to be too high.

IFMP

In January 2001, the Department released *A Policy for Selective Fishing in Canada's Pacific Fisheries*. Under the Department's selective fishing initiative, harvester groups have experimented with a variety of methods to reduce the impact of fisheries on non-target species, with a number of measures reaching implementation in fisheries. Experiments will be undertaken in 2003 to explore additional options for improving selective harvesting practices.⁷⁶

The Selective Fisheries Program included an Education, Training and Communications component. The Selective Fisheries Program is described in the Final Report, available at the following web site.

http://www-comm.pac.dfo-mpo.gc.ca/publications/SFFinalReport_e.pdf

See the response to Indicator 3.1.8.

The Department will be reviewing current management measures in the salmon fishery to assess impacts on listed species under SARA. Research in this area is ongoing and management measures may have to be changed based on the conditions described in section 2.4 of the 2003 IFMP.⁷⁷ For more information on SARA please see the Public Registry at:

www.sararegistry.gc.ca

The IFMP includes:

- Conservation objectives for non-target stocks.⁷⁸
- Use of selective fishing gear and methods, and development of the Canadian Code of Conduct for Responsible Fishing Operations.⁷⁹

⁷⁶ IFMP 2003, section 2.2, fourth paragraph, page 12.

⁷⁷ IFMP 2003, section 2.4, pages 13-14.

⁷⁸ IFMP 2003, section 3.1, pages 16-20.

⁷⁹ IFMP 2003, section 4.1.9, page 26.

- Gear restrictions to help avoid stocks of concern and non-target stocks/species or release them with minimal harm (eg, revival tanks, gillnet construction and selective fishing).⁸⁰

Conditions of Licence

Management objectives for catch of non-target stocks and species are reflected in the *Conditions of Licence* for each of the licence areas.⁸¹

Revival tanks conforming to the conditions of licence are required for all vessels participating in commercial salmon fisheries. All prohibited species captured incidentally must be revived in the revival tank and released, or released directly to the water in a manner that causes the least harm. If in-season indicators show a deterioration of expected stock levels, additional measures may be implemented.⁸²

Gillnets can be made of Alaska twist, multi-strand or a combination of the two.⁸³

Scoring Summary

The information presented demonstrates that the management agency is well along in requiring the use of gear and fishing practices that minimize the catch of non-target species and the mortality of this catch.

The lone 60 Scoring Guidepost is met.

All three 80 Scoring Guideposts have been met.

All three 100 Scoring Guideposts (one with three sub-parts) have been met.

Future Changes

Beginning in 2002, Fisheries and Oceans Canada put in place conservation measures to protect late run sockeye (including Cultus Lake sockeye) and in 2003 for Sakinaw Lake sockeye, both of which are currently at very low levels. Because of the continued low abundance of these populations, additional measures will be introduced in 2004 to further protect these populations. These additional conservation measures aim at providing these populations with significant new opportunities to begin rebuilding.

- Managing commercial, Aboriginal and recreational fisheries in 2004 to a maximum exploitation rate of 10 to 12 per cent on Cultus and Sakinaw Lake sockeye populations.

⁸⁰ IFMP 2003, sections 7-3 to 7-6, pages 86-87.

⁸¹ Conditions of 2003/2004 Salmon Area B Licence, part 2, section 1 (no page numbers in Licence Conditions).

⁸² Conditions of 2003/2004 Salmon Area B Licence, part 1, section 3, sub-section 8 (no page numbers in Licence Conditions).

⁸³ Conditions Of 2003/2004 Salmon Area D Licence, part 1, section 3, sub-section 1 (no page numbers in Licence Conditions).

Fishing plans will be developed to harvest Fraser River sockeye while ensuring the exploitation rate limit for Cultus and Sakinaw Lake sockeye is not exceeded.

100 Scoring Guidepost

- There are requirements in the management system to reduce the capture of non-target species, which include:
 - Controlling the use of gear types and fishing practices that result in significant catches of non-target species or undersized individuals of target species, and/or
 - Implementing closed seasons and no-fishing zones during times and in areas where the probability of making significant catches of non-target species or undersized individuals of target species is high, and
 - Holding education programs for the fishing industry and other relevant stakeholders to make them aware of the benefits of using fishing techniques and gear that minimize the catch of non-target species or undersized individuals of target species.
- Taking into consideration natural variability in population abundance and the possibility of declining abundance resulting from heavy exploitation, the management system can demonstrate the effective use of these methods by fishers by the existence of downward trends in the catches of non-target species.
- The management system creates incentives to decrease the catch of non-target species (eg, by providing more fishing time for vessels achieving certain standards for reducing such catches).

80 Scoring Guidepost

- Through educational programs for members of the fishing industry and other relevant stakeholders, the management system discourages the use of gear types and fishing practices that result in high catches of non-target species or undersized individuals of target species, and encourages them to avoid fishing in areas identified to have high concentrations of non-target species or undersized individuals of target species.
- Taking into consideration natural variability in population abundance, there is evidence that the capture and discard of non-target species or undersized individuals of target species is trending downward, or is at a level of exploitation that has been determined by management to be acceptable.
- Fishers generally conduct their fishing activity in a manner that is consistent with the goal of reducing the catch of non-target species or undersized individuals of target species.

60 Scoring Guidepost

- The majority of fisheries are conducted in a manner that is consistent with the goal of reducing the catch of non-target species or undersized individuals of target species.

Indicator 3.7.2

Prohibits the use of destructive fishing practices such as poisons and explosives.

DFO Response

Current Situation

The use of explosives is prohibited by section 28 of the *Fisheries Act*. The text of the *Fisheries Act* may be viewed at the following web site.

<http://laws.justice.gc.ca/en/f-14/59326.html>

The type, size and quantity of fishing gear and equipment that is permitted to be used and the manner in which it may be used are specified in the Conditions of Licence.⁸⁴ Neither explosives nor poisons is included in the list of permitted gear and equipment.

Scoring Summary

The information presented establishes that the indicator is fully achieved in the Pacific salmon fishery.

The single 60 Scoring Guidepost is met.

The single 80 Scoring Guidepost is met.

Both 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system prohibits fishing practices that utilize poisons or explosives, or other such devices that damage or destroy physical, chemical, and/or biological features or characteristics of the areas where such practices are prosecuted.
- Evidence can be provided by the management system that such destructive practices are not currently being employed in the fishery.

80 Scoring Guidepost

- The management system can demonstrate that destructive fishing practices, such as poisons or explosives, are not currently being used in the fishery.

⁸⁴ Eg, Conditions of 2003/2004 Salmon Area B Licence, part 1, section 3 (no page numbers in Licence Conditions).

60 Scoring Guidepost

- The management system prohibits or discourages the use of destructive fishing practices.

Indicator 3.7.3

Minimizes operational waste such as lost fishing gear, oil spills, on-board spoilage of catch, etc.

DFO Response

Current Situation

The *Fisheries Act* states that: "...no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water."⁸⁵

The *Fisheries Act* may be viewed at the following web address.

<http://laws.justice.gc.ca/en/f-14/59326.html>

The Canadian commercial fishing sector has responded positively to the growing conservation consciousness by developing its own *Canadian Code of Conduct for Responsible Fishing Operations*. Over 80 percent of Canada's fishing organizations have signed on and ratified the Code that is overseen by a Responsible Fishing Board.⁸⁶

The Code can be viewed at the following web site.

http://www.dfo-mpo.gc.ca/communic/fish_man/code/cccrfo-cccpr_e.htm

Principle 6 of the Canadian Code of Conduct for Responsible Fishing Operations states: "Reduce waste and adverse impacts on the freshwater and marine ecosystems and habitats..."

Guideline 1.2 of the Code states: "Practice environmentally sound waste management in all aspects of harvesting operations."

Guideline 5.7 states: "Cooperate with appropriate regulatory authorities to establish sound waste management policies and procedures."

Guideline 2.6 states: "Employ fishing practices that minimize the risk of gear loss."

Guideline 2.7 states: "Establish jointly with regulatory agencies protocols for the marking, retrieving and reporting of lost gear."

⁸⁵ *Fisheries Act*, section 36, sub-section 3. See body of report for web link to text of *Fisheries Act*.

⁸⁶ IFMP 2003, section 4.1.9, fourth paragraph, first two sentences, page 26.

Guideline 2.8 states: "Make every reasonable effort to retrieve lost fishing gear, reporting all lost gear."

Conditions of licence require salmon harvesters to release fish whose possession or retention is prohibited back to the water "in a manner which causes them the least harm" which may include the use of a revival tank.⁸⁷

As part of the licencing scheme, vessels have to be inspected to ensure, among other things that operational waste is not released into holding areas. Similarly inspection programs are in place in fish plants to ensure that operational waste is minimized and disposed of properly.

The BC Institute of Technology (BCIT) in partnership with the Provincial Ministry of Agriculture, Fisheries and Food (MAFF) carries out fish handling/ freezing workshops to promote proper fish killing, bleeding, freezing etc, encourages strategic planning for HR capacity building, etc.⁸⁸ The BC Salmon Marketing Council prepares and distributes materials on fish handling and quality.⁸⁹ BC industry and government participate in initiatives to improve the seafood value chain.⁹⁰ Also, MAFF is funding the BCIT Food Technology Section to do research aimed at expanding and diversifying fish product forms.

Scoring Summary

The information presented demonstrates that fish harvesters have recognised the importance of fishing sustainably and avoiding/minimising the deleterious effects of their operations.

The single 60 Scoring Guidepost have been met.

Both 80 Scoring Guideposts have been met.

All three 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system has a formal program to reduce operational waste in the fishery, with the long-term goal of eliminating such waste.
- The program is effective, as reflected by reduced incidents of operational waste.
- The management system has a formal program in which they work with the fishing industry and other relevant stakeholders to promote the proper handling of catch.

⁸⁷ Eg, Conditions of 2003/2004 Salmon Area B Licence, part 1, section 5, sub-section 2 (no page numbers in Licence Conditions).

⁸⁸ Workshop on Development of HR Training Capacity for the BC Seafood Harvesting, Culture and Processing Sector. May 21, 2003. BCIT Burnaby.

⁸⁹ BC Salmon Marketing, various publications, videos, posters

⁹⁰ Seafood Value Chain Roundtable. June 17-18, 2003. Agrifood Canada. Aylmer Quebec

80 Scoring Guidepost

- The management system has a program that sets guidelines for reducing operational waste.
- The management system encourages the fishing industry and other relevant stakeholders to promote programs for the proper handling of catch.

60 Scoring Guidepost

- There is a program to reduce operational waste.

Indicator 3.7.4

The management system solicits the cooperation of the fishing industry and other relevant stakeholders in the collection of data on the catch and discard of non-target species and undersized individuals of target species.

DFO Response

Current Situation

Conditions of licence require licence holders to report all fish caught whether landed or discarded.⁹¹

DFO has documented compliance with catch monitoring provisions. These documents show that compliance with log book requirements range from 67% to 89% of the fleet⁹².

Scoring Summary

The information presented describes the department's progress on this indicator.

The lone 60 Scoring Guidepost is met.

The sole 80 Scoring Guidepost has been met.

Both 100 Scoring Guideposts have been met.

Future Changes

The Fishery Monitoring and Catch Reporting Discussion Document will provide a base for continuing improvements in these areas once consultations are complete.

⁹¹ Conditions Of 2003/2004 Salmon Area B Licence, Part 2 (no page numbers in Conditions of Licence).

⁹² Bert Ionson, Fisheries and Oceans Canada, pers comm.

100 Scoring Guidepost

- The majority of fish harvesters and processors is in compliance with management requests for the collection of data on catches and discards of non-target species and undersized individuals of target species.
- Continued improvement in the quality and quantity of catch and discard data is evident.

80 Scoring Guidepost

- Sufficient numbers of fish harvesters and processors comply with requests for data on catches and discards of non-target species and undersized individuals of target species to ensure that reliable estimates of total catches and discards for the fishery can be obtained.

60 Scoring Guidepost

- Catch and discard data provided by the fishing industry and other relevant stakeholders are sufficient to manage the harvests from the majority of the non-target species and undersized individuals from the majority of the target species.

Indicator 3.7.5

Implements fishing methods that minimize adverse impacts on habitat, especially in critical zones.

DFO Response

Current Situation

Section 35 of the *Fisheries Act* prohibits "any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat."

The *Fisheries Act* may be viewed at the following web address. See section 35 re: harmful alteration, disruption or destruction of fish habitat.

<http://laws.justice.gc.ca/en/f-14/59326.html>

The management system provides for monitors, charter patrol and enforcement officers to inspect for, among other things, impacts on the ecosystem (eg, damage to habitat, impact on food sources, impacts on other species in the ecosystem). To date, no damage to the ecosystem has been reported by the management system. This appears to be supported by an ever-vigilant public comprised of harvesters and stewardship groups who have not reported or alleged damage to the ecosystem.⁹³

⁹³ Bert Ionson, Fisheries and Oceans Canada, pers comm.

Scoring Summary

The information presented establishes that the indicator is fully achieved in the Fraser River sockeye commercial fishery.

The one 60 Scoring Guidepost has been met.

Both 80 Scoring Guideposts have been met.

All three 100 Scoring Guideposts have been met.

100 Scoring Guidepost

- The management system has a formal program to identify and document the impact of the fishery on habitat, and implements measures to restrict gear and fishing practices that have been shown to adversely affect habitat.
- The crews of fishing vessels comply with such measures and thereby avoid damaging the habitat.
- There is no evidence of continued impacts of fishing on habitat.

80 Scoring Guidepost

- The management system undertakes measures to identify and document the impact of the fishery on habitat and to set guidelines for reducing habitat impacts.
- Fish harvesters are encouraged to follow the guidelines for reducing habitat impacts.

60 Scoring Guidepost

- The management system has a program for assessing the impact of the fishery on habitat, and for making fishers aware of suitable fishing gear and practices that are known to reduce adverse impacts on habitat.