

**Review of MSC Certification Evaluation of Skeena Sockeye
Stocks**

**Prepared by: Robert Bocking, LGL Limited, environmental
research associates**

Prepared for: Sierra Club of Canada, BC Chapter

Date: April 21, 2005

General Comments:

Since the MSC certification process focuses on performance indicators which are then rolled up to the Criterion level, I have focused my review on the performance indicators. I do not see my role as deciding whether the MSC criteria and Scoring Guideposts are too stringent or not stringent enough. I have done my best to interpret the criteria and Scoring Guideposts, but some are ambiguous and open to different interpretations. Clearly some subjectivity is evident in the BCSMC application and my review. The MSC Review Committee will need to deliberate on this.

The DFO defines stock units in a number of different ways. For the purpose of international fisheries management, Skeena sockeye are managed as a single stock unit; for the purposes of domestic fisheries, Skeena sockeye are managed as lake or run timing units. In my review, I used the 'domestic' stock groupings, and when conservation is the issue being addressed, I used lake units rather than run timing groupings.

In general, the most significant weaknesses with the Skeena sockeye fishery relate to non-target stock management and recovery of depleted stocks and effects of the fishery on the ecosystem; as well as research and management processes intended to address these two issues, including funding. It is widely recognized that the primary concern with management of Skeena sockeye is in protection and recovery of weak sockeye and non-sockeye stocks.

There is no mention of chum as a non-target stocks or species, yet the IFMP (2004) speaks to the significance of impacts on chum as a constraint to the fishery (page 36). These are taken in significant numbers in fisheries directed at Skeena sockeye in August. In particular, Skeena chum have been in low abundance without any recovery for over a decade. The assessment does not address this issue, or the lack of reliable stock assessment information for Skeena chum. While, not specifically a conservation concern related to sockeye fisheries, pink and chinook are also non-target species taken in these fisheries.

The MSC performance indicators as stated are sometimes open to interpretation, making this review somewhat difficult. I believe that the BCSMC scoring of 100 has been overly generous in a number of cases. The concept of 'partially met' was difficult. For example if escapements are available for target stocks but not non-target stocks, the performance criterion was described as partially met regardless of the significance of the information gap. I do not know how the MSC Review Committee will respond to performance indicators that have been 'partially met'. Will they receive a score of 90? It seems to me that to achieve the 100 Scoring Guidepost, a specific performance criterion must be fully met.

In some cases, the performance indicators and the Scoring Guideposts are not hierarchical (or nested) and so a similar performance indicator may fail the 60 Scoring Guidepost, but pass the 100 Scoring Guidepost. (Unless I am interpreting them wrongly).

A number of the performance indicators refer to stakeholder involvement in the management process. I cannot speak to this and have given the benefit of the doubt to DFO. I know that

north coast has taken great strides to accommodate stakeholder concerns. I presume the fishing associations will respond to this opportunity for public comment as well.

I have an overarching concern that much of the information needs that are currently being met (e.g. DNA sampling of fisheries, indicator stocks, stock production comparisons every 3-5 years) will not be sustained by the DFO with cutbacks.

Another major deficiency is the virtual complete lack of freshwater ecosystem research to support the definition of escapement goals (See Indicator 2.1.4 for example).

Finally, mechanisms for external review of the management system and dispute resolution are either non-existent or weak (See Indicator 3.5).

MSC PRINCIPLE 1

Criterion 1.1

The fishery shall be conducted at catch levels that continually maintain the high productivity of the target population(s) and associated ecological community relative to its potential productivity.

Indicator 1.1.1.1

The stock units are well defined for the purposes of conservation, fisheries management and stock assessment.

BCSMC: 60, 80, and 100 Scoring Guideposts have all been met.

Bocking: To achieve the 100 Scoring Guidepost (SC), descriptions of each stock unit, including its geographic location, run timing, details on all component stocks, and rationale for the stock unit definition must be unambiguous. I believe this to be the case for Skeena sockeye. DFO has done a good job of identifying the numerous (29) wild sockeye stocks within the Skeena watershed aggregate, their location and approximate run timing (which may vary slightly from year to year) (see Cox-Rogers et al. 2003). The rationale for the various stock groupings for stock assessment, fishery management and conservation purposes are well understood and documented. **I concur with the BCSMC scoring.**

Indicator 1.1.1.2

There is general scientific agreement that the stock units are appropriate.

BCSMC: 60, 80, and 100 Scoring Guideposts have all been met.

Bocking: I concur that the 60 and 80 Scoring Guideposts have been met. I also concur that the stock units for target species have been reviewed and found to be scientifically defensible and appropriate by PSARC (100 SG.1) and that there is general agreement among regional fisheries scientists outside DFO that the stock units are appropriate for stock assessment (100 SG.2). However, it is unclear to

me why only steelhead and coho are mentioned as being the main non-target species (top of Page 7 of Principle 1 document) and there is no explanation of why chum, chinook and pink are not considered significant non-target species (100 SG.3). These species are also taken incidentally in gillnet and seine fisheries targeting Skeena sockeye (TCNB (05)-1. Stock units for Skeena chum are not well defined. So I am left wondering if performance indicator 100 SG.3 is met (that there is general scientific agreement regarding the stock units for Skeena chum, pink, and chinook). I expect this to be the case for pink and chinook. I am not sure that it is the case for Skeena chum. DNA baseline samples for northcoast chum are only now being collected as are stock composition analyses in the commercial fisheries.

In my view, only two of the three 100 Scoring Guideposts have been met. **100 SG.3 is only partially met.**

Indicator 1.1.1.3

The geographic range for harvest of each stock unit in the fishery is known.

BCSMC: 60, 80, and 100 Scoring Guideposts have all been met.

Bocking: Reference 32 for steelhead is not in the document. In my opinion (and confirmed by Dana Atagi, MWLAP, Smithers), the geographic distribution of steelhead harvests is not well understood because of problems with disclosure from First Nation fisheries in river and commercial fisheries. As for Indicator 1.1.1.3, there is no mention of pink, chum or chinook non-target stocks. **Scoring Guideposts 60 SG.1, 80 SG.3 and 100 SG.1 have only been partially been met.**

Indicator 1.1.1.4

Where indicator stocks are used as the primary source of information for making management decisions on a larger group of stocks in a region, the status of the indicator stocks reflects the status of other stocks within the management unit.

BCSMC: 60, 80, and 100 Scoring Guideposts have all been met.

Bocking: DFO correctly states that sockeye are not managed using indicators stocks. However, Skeena coho and chinook are managed using indicator stocks and there are no wild coho indicators remaining within the watershed (it is my understanding that coded-wire tagging of Sustut coho has been terminated). The Toboggan Creek is the only coho indicator for the Skeena stock grouping and is located in the headwaters of the Skeena and most likely not representative of lower Skeena, or even mid-Skeena watersheds. It is unreasonable to assume that Toboggan is representative of the entire Skeena watershed that covers many different bio-geoclimatic zones. However, this thesis has not been evaluated. The only coastal (Area 4) indicator for coho (Lachmach) has been discontinued by DFO.

Indicator stocks for steelhead are Sustut and Kitwanga but these are only useful for post season review of escapements.

I disagree with the contention that “for coho the 60, 80 and 100 Scoring Guideposts have been met”. I would conclude that only the 60 and 80 Scoring Guideposts have been met for coho. The relationships between Lachmach and other stocks of interest, what ever those may be, are not assessed every three to five years. It also remains to be seen if the indicator stocks for coho are well correlated with the stocks that are most at risk from a conservation point.

Skeena chinook are also managed to an indicator stock (Kitsumkalum), despite them not occurring in ‘significant’ numbers as stated in the submission. Chinook may not be as abundant as coho or sockeye, but they certainly are a critically important species in the Skeena watershed.

However, since this criterion seems to only apply to the target stock sockeye, the concerns for coho and chinook may not be relevant to this criterion. The 100 Scoring Guidepost has been met for sockeye, provided DNA sampling of the fisheries continues on an annual basis.

Indicator 1.1.1.5

Where stock units are composed of significant numbers of fish from enhancement activities, the management system provides for identification of the enhanced fish and their harvest without adversely impacting the diversity, ecological function or viability of un-enhanced stocks.

BCSMC: 60 and 80 Scoring Guideposts have been met. 100 SG.1 has been partially met; 100 SG.2 has been met, and 100 SG.3 has not been met.

Bocking: I concur with the BCSMC evaluation that the 60 and 80 Scoring Guideposts have been met for this indicator. However, I believe it is a bit of an overstatement to say that the first 100 SG.1 has been partially met when the very commercial fisheries seeking certification are clearly mixed-stock fisheries with, as DFO states, “no opportunity to isolate component stocks spatially in ocean fisheries. I believe the intent of this performance indicator is that mixed-stock fisheries have been moved to terminal areas. **Hence, I would argue that 100 SG.1 has not been met.**

Indicator 1.1.2.1

Estimates exist of the removals for each stock unit.

BCSMC: 60, 80, and 100 Scoring Guideposts have all been met.

Bocking: I generally concur that the 60 and 80 Scoring Guideposts have been met. It is important to note that the accuracy and precision of catch estimates is not known for all fisheries and recreational fisheries are not monitored annually, nor with sufficient accuracy and precision to describe those fisheries as sustainable. However, these fisheries account for a negligible amount of the target and non-target stocks of Skeena sockeye and are directed more at non-target species such as chinook, coho, and steelhead. First Nation catch information is available for the most significant of the fisheries.

Although DFO is aware of the problem, I disagree that mortality rates for the fish released or discarded during the fishery are available. This is particularly true for in-river fisheries, but also ocean fisheries. To my knowledge, release mortalities are not currently accounted for in calculating total removals.

Therefore, in my opinion, the first two 100 Scoring Guideposts (100 SG.1 and 100 SG.2) have not been met.

Indicator 1.1.2.2

Estimates exist of the spawning escapement for each stock unit.

BCSMC: 60 and 80 Scoring Guideposts have been met. 100 Scoring Guideposts have been partially met.

Bocking: 60 SG.2 is only partially met. Although the Tye test fishery provides indices of watershed aggregate abundance for all species, it does not provide stock specific information for all species. To my knowledge, stock-specific abundance indication is only available for sockeye and steelhead.

80 SG.1 is met if one does not factor in whether or not the escapement estimates are reliable. Also, 5% of the Skeena sockeye production (as measured by lake surface area; Cox-Rogers et al. 2003) and 16 of the 29 sockeye stocks are not monitored for escapement). If non-target species are included in the 100 Scoring Guideposts, then there are innumerable stock units for which annual escapement estimates are not available (e.g. coho). **So, on strict interpretation, 100 SG.1 and 100 SG.2 are only partially met.** It would be very difficult for the 100 SG performance criteria to ever be met at the stock unit level, particularly for coho and chum.

Indicator 1.1.2.3

The age and size of catch and escapement have been considered, especially for the target stocks.

BCSMC: 60 and 80 Scoring Guideposts have been met. 100 Scoring Guidepost has been partially met.

Bocking: **I generally concur with the scoring of this performance indicator.** However, I don't believe that the age data collected for non-target species is stock-specific; rather it is likely for known and sometimes unknown stock aggregates (e.g. coho and chum). Matched DNA/scale sampling would be required to get stock-specific age data for non-target stocks. It is not likely this could ever occur on an annual basis. Age data is seldom collected during escapement monitoring for non-target species.

Indicator 1.1.2.4

The information collected from catch monitoring and stock assessment programs is used to compute productivity estimates for the target stocks and management guidelines for both target and non-target stocks.

BCSMC: 60 and 80 Scoring Guideposts have been met. 100 Scoring Guidepost has been partially met.

Bocking: **I concur with the scoring of this performance indicator.** Cox-Rogers et al. (2003) state that “many lakes still require evaluation and production parameter estimates are still under review”. However, given that 80 SG.1 refers only to ‘relative’ productivity, the estimates of production based on the Photosynthetic Rate Model satisfy this performance criterion.

Indicator 1.1.3.1

Limit Reference Points or operational equivalents have been set and are appropriate to protect the stocks harvested in the fishery.

BCSMC: 60 and 80 Scoring Guideposts have been met. 100 Scoring Guideposts have been partially met.

Bocking: To my knowledge, there are no Limit Reference Points established for Skeena coho or chum salmon. **Therefore, 100 SG.3 cannot be met. I concur with the other scorings.**

Indicator 1.1.3.2

Target Reference Points or operational equivalent has been set.

BCSMC: 60 Scoring Guidepost has been met. 80 and 100 Scoring Guideposts have been partially met.

Bocking: It is not clear to me how 60 SG.2 can be met, if **100 SG.2 cannot be met.** They both are asking the same question, namely are the suggest TRPs for Skeena sockeye accepted scientifically outside the management agency. **If 100 SG.2 is not met, then 60 SG.2 is also not met.**

Criterion 1.2

Where the exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level consistent with the precautionary approach and the ability of the populations to produce long-term potential yields within a specified time frame.

Indicator 1.2.1

There is a well-defined and effective strategy, and a specific recovery plan in place, to promote recovery of the target stock within reasonable time frames.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: **60 SG.2 and 80 SG.2 cannot be met if statement by DFO on page 23 is correct:** “First Nation’s harvests to resume once the interim LRP is reached. However, presumably DFO can accommodate these performance criteria to meet

MSC requirements. **It is curious that performance criterion 80 SG.2 is not repeated as a 100 Scoring Guidepost.**

60 SG.1 is difficult to evaluate because the rebuilding strategy employed over the last two cycles is not well documented. However, I believe that a conscious recovery planning effort was implemented and the Babine stocks are increasing in response. Certainly, a recovery plan was put in place for Skeena coho.

I concur that the three 100 Scoring Guideposts have been met.

Indicator 1.2.2

Target stocks are not depleted and recent stock sizes are assessed to be above appropriate limit reference points for the target stocks.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: **I concur with this scoring.**

Criterion 1.3

Fishing is conducted in a manner that does not alter the age or genetic structure or sex composition to a degree that impairs reproductive capacity.

Indicator 1.3.1

Information on biological characteristics such as the age, size, sex and genetic structure of the target stocks is considered prior to making management decisions and management actions are consistent with maintaining healthy age, size, sex and genetic structure of the target stocks.

BCSMC: All 60 Scoring Guideposts have been met. Two of the three 80 Scoring Guideposts have been met. Two of the three 100 Scoring Guideposts have been met.

Bocking: 60 SG.3 speaks to weak stock management. While management provisions are in place to minimize adverse impacts on un-enhanced stocks, they may not be adequate with respect to non-Babine stocks. Cox-Rogers et al. (2003) identified 7 non-Babine sockeye stocks risking escapement decline rates of 30-50% under continuous high fisheries exploitation. Indeed, only Babine sockeye stocks (both enhanced and unenhanced) appear to be showing evidence of increasing escapements. So, yes the management system includes provisions. Are they sufficiently implemented? It would appear not. **I would say that 60 SG.3 is only partially met. I concur with the 80 and 100 Scoring Guideposts.**

MSC PRINCIPLE 2

Criterion 2.1

The fishery is conducted in a way that maintains natural functional relationships among species and should not lead to trophic cascades or ecosystem state changes.

Indicator 2.1.1

The management plan for the prosecution of the marine fisheries provides a high confidence that direct impacts on non-target species are identified.

BCSMC: 60 and 80 Scoring Guideposts have been met. Two of the three 100 Scoring Guideposts have been met. The other 100 Guidepost is not applicable.

Bocking: I concur with the 60 and 80 Scoring Guidepost assessment. However, I am not sure how readily available data are. Does DFO regularly analyze the by-catch data recorded in fisherman log books? Is there an independent validation program?

I do not agree 100 SG.3 is not applicable. Because it is in the MSC requirements and since fishermen use fishing gear, it must be applicable. Because gear is seldom lost, and DFO has patrols on water, I would say that 100 SG.3 has been met. However, note that much of the lost gear likely occurs in the lower and middle reaches of the river from set or drift nets. The effect of these losses on the ecosystem has not been evaluated to my knowledge. **Perhaps the appropriate scoring is partial meeting of the requirement.**

Indicator 2.1.2

The management system includes measures to reduce marine ecosystem impacts.

BCSMC: 60 and 80 Scoring Guideposts have been met. Two of the three 100 Scoring Guideposts have been met. One of five 100 Guidepost has been met, three have been partially met, and one has not been met.

Bocking: **I concur with this scoring.**

Indicator 2.1.3

Research efforts are ongoing to identify new problems and define the magnitude of existing problems, and fisheries managers have a process to incorporate this understanding into their management decisions.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: With the exception of 100 SG.1, I concur with the scoring. I don't believe that there is detailed knowledge of the relationship between the fishery and the marine ecosystem impacts. **DFO states that there is ongoing research which is enough to have 100 SG.3 only partially met.**

Indicator 2.1.4

The management system supports research efforts to understand the adequacy of existing escapement goals for meeting freshwater ecosystem needs.

BCSMC: The single 60 Scoring Guidepost is true. Both 80 Scoring Guideposts are in effect. Both 100 Scoring Guideposts are true.

Bocking: MSC certification requires that Scoring Guideposts be met or partially met. Being 'true' or 'in effect' are not acceptable measures. I would state that very little has been done by DFO (in comparison to research in Washington State for example), to advance our understanding of freshwater ecosystem needs as they relate to salmon escapement requirements. Current Target Reference Points are based on maximizing yield for fisheries and Limit Reference Points are supposedly set to avoid extinction. It is notionally accepted that escapements, at least occasionally, above MSY are required for proper ecosystem function. Although DFO supports research in this area, very little is occurring. DFO does not have sufficient annual funding to address this research need. **So yes, 60 SG.1 is met (notionally). I would argue that 80 SG.1 is not met, 80 SG.2 is partially met. 100 SG.1 is not met, and 100 SG.2 is partially met.**

Indicator 2.2.1

The management of the fishery includes provisions for integrating and synthesizing new scientific information on biological diversity at the genetic, species or population level of all species harvested in the fishery and impacts on endangered, threatened, protected or icon species.

BCMSM: 60 and 80 Scoring Guideposts have been met. Two of four 100 Scoring Guideposts have been met. Two of 100 Scoring Guideposts have been partially met.

Bocking: First, note that the evaluation guideline does not define biodiversity. For the purposes of this review, I presume we are primarily talking about diversity among sockeye stocks within the Skeena drainage (i.e. maintenance of stock diversity) and species diversity (but not including non-salmon species). If this is indeed the case, then I concur with scoring of the 60, 80 and 100 Scoring Guideposts.

Indicator 2.3.1

Management strategies include provision for restrictions to the fishery to enable recovery of non-target stocks to levels above established LRPs (Limit Reference Points).

BCSMC: 60 and 80 Scoring Guideposts have been met. Three of five 100 Scoring Guideposts have been met. One is not applicable.

Bocking: While DFO is admirably making strides to develop a management system that is responsive and proactive towards the protection of weak stocks, I think the

department is 'seeking the benefit of the doubt' in responses to the performance criteria for this indicator.

I suggest that 60 SG.1 and 60 SG.3 are only partially met. I am not at all clear on what basis DFO thinks that the system has a 50% probability of achieving long term recovery of depleted non-target stocks. They have provided no supporting evidence of this. **I suggest that 60 SG.2 is also only partially met.**

I have also seen little evidence of incorporating non-fishing human impacts in the development of recovery plans. Recovery plans for Skeena sockeye are primarily driven by stock assessment and fishery management actions, not habitat actions. As there are no comprehensive recovery plans, it is hard to agree that the 80 Scoring Guideposts have been met. **I believe, with the exception of 80 SG.2, they have only been partially met. 80 SG.2 has been fully met.**

Interestingly, the 100 Scoring Guideposts have, for the most part, been met. However, there is no evidence for assessing the probability of success; hence 100 SG.1 is not met. 100 SG.2 is met as considerable analysis of historical data has occurred. **100 SG.3 has been partially met** because I am not sure that there is a high degree of confidence. I would argue that both 100 SG.4 and 100 SG.5 have been met. I am not sure why DFO would consider 100 SG.4 irrelevant.

MSC PRINCIPLE 3

Criterion 3.1

The management system has a strategy for management that clearly defines long-term objectives for managing the impact of fishing on target species, non-target species and the ecosystem; the objectives are consistent with a well- managed fishery and MSC principles and criteria; and the management strategy includes provision for the effective implementation of measures to attain these objectives.

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.

BCSMC: 60 Scoring Guideposts are in effect. 80 Scoring Guideposts have been met. Four of five 100 Scoring Guideposts have been met. One is partially true.

Bocking: All 60 Scoring Guideposts have been met. Only 80 SG.1 and 80 SG.2 have been met. 80 SG.2 requires that harvest rates and escapement goals consider environmental factors. To my knowledge these are not accounted for when setting goals for Skeena sockeye, so **80 SG.2 is only partially met.** 80 SG.3 is not met because of the requirement for precision in the harvest controls. There remains considerable uncertainty each year as to whether the Target Reference

Point will be achieved with precision. This is, however, the nature of the business of salmon management. I would suggest that **80 SG.3 is partially met**. Because the ratings are hierarchical, only 100 SG.1 and 100 SG.5 are met in my opinion. **The remaining three 100 Scoring Guideposts are partially met** for the reasons stated above: limited accountability for environmental factors, TRP and LRP are only partially defined; and harvest controls are effective but not necessarily precise enough.

Indicator 3.1.2

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring.

Indicator 3.1.3

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

BCSMC: 60 and 80 Scoring Guideposts have been met with one 80 SG not applicable. One 100 Scoring Guidepost is met and the others are not applicable.

Bocking: I concur with the scoring of the 60 and 80 Scoring Guideposts. However, I remain troubled by the ‘inapplicability’ of some of the indicators. There are many environmental consequences of fishing for Skeena sockeye including: discharge of deleterious substances into the water (oil, human waste, food waste, etc.), loss of nets in river, marinas, construction of access points resulting in impacts to river banks or marine foreshores, etc. While these remain small, I know of few industries that do not have significant regulatory requirements around the conduct of their business. It seems inappropriate for DFO to say that such controls are not applicable. For this reason **80 SG.2 is not met or at least only partially met** (I suspect some controls do exist).

For this same reason, I would suggest that **all of the 100 Scoring Guideposts are not met, or only partially met**.

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.

BCSMC: All applicable 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring. DFO north coast Fisheries Managers are very well appraised of management uncertainty and incorporate it into management decisions for Skeena sockeye. In general, the precautionary approach is being applied more and more for this fishery.

Indicator 3.1.5

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring.

Indicator 3.1.6

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

BCSMC: 60 and 80 Scoring Guideposts have been met. All but one of the 100 Scoring Guideposts has been met. One has been partially met.

Bocking: I concur with the scoring. Note, however, that some consider the entire salmon fishery to be subsidized by Canadian taxpayers as the fishery does not fund its own management requirements. I tend to agree.

Indicator 3.1.7

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

BCSMC: 60 and 80 Scoring Guideposts have been met. Two of three 100 Scoring Guideposts have been met. One 100 Scoring Guidepost has not been met.

Bocking: I could not find any documentation that risk assessments are considered in formulating management decisions. Perhaps these are done inherently during the decision making process. **I would say that 60 SG.2 is only partially met.** I could not find documentation of decisions going against the information provided to managers, but I suspect the frequency of this has diminished. I give the benefit of the doubt to DFO on 80 SG.2. I concur with the 100 Scoring Guideposts.

Indicator 3.1.8

The management system provides for socioeconomic incentives for sustainable fishing.

BCSMC: All 60 Scoring Guideposts have been met. Three of four 80 Scoring Guideposts have been met and one has been partially met. Four of five 100 Scoring Guideposts have been met and one has been partially met.

Bocking: I concur with the 60 Scoring Guideposts. 80 SG.1 is only met if one interprets the word 'regularly' as whenever feasible, fundable, or crisis demands it. While the DFO is certainly an advocate of selective fishing for salmon fisheries in the north coast, I am not sure that incentives are actively explored on a regular basis. The selective fishing program was short-lived. I would say that **80 SG.1 is**

partially met. By the same reasoning, **100 SG.1 is only partially met** as to my knowledge there is no formal process to provide selective fishing incentives. These are funding dependent. I concur with the remaining scoring.

Criterion 3.2

The management system provides for a framework for research, the results of which are pertinent to achieving the objectives of management.

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 socioeconomic factors affected by the management program.

BCSMC: 60 and 80 Scoring Guideposts have been met with one 80 Scoring Guidepost being not relevant. Five of seven 100 Scoring Guideposts have been met; one has been partially met and one has not been met.

Bocking: I concur that the 60 Scoring Guideposts have been met. **80 SG.2 has not been met** as I don't believe the research plan adequately addresses impact of the fishery on the ecosystem. While DFO considers 80 SG.3 as not applicable, I would argue that it is very much applicable and **80 SG.3 is also not met**. MSC evaluation criteria make mention of socio-economic implications of the fishery and sustainability many times. **80 SG.5 has only been partially met**. It is pretty clear with the substantial cutbacks occurring in DFO that funding is not adequate to address all of the short-term research needs, certainly not for the non-target stocks and species. For example, a significant research need is to conduct further research into non-Babine sockeye stocks. Funding is not secured for this research on a sufficient time frame. **100 SG.5 has been partially met**. I would contend that the progress in understanding the impact of the fishery on the ecosystem in general is slow or non-existent.

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.

BCSMC: 60 and 80 Scoring Guideposts have been met. Three of four 100 Scoring Guideposts have been met, one has not been met.

Bocking: I concur with the scoring.

Criterion 3.3

The management system allows for transparency with respect to its operational details, including a consultative process that provides for the incorporation of information and data from stakeholders in the fishery related to matters of a social, cultural, economic and scientific nature.

Indicator 3.3.1

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.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring. Although I am not well versed in how well the stakeholder process is working. As an interested party to the Nass River salmon fisheries, I am satisfied with the process for those fisheries.

Criterion 3.4

The management system implements measures to control levels of exploitation in the fishery.

Indicator 3.4.1.1

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.

BCSMC: 60, 80, and 100 Scoring Guideposts have been met.

Bocking: **60 SG.2 is only partially met** as established escapement goals do not implicitly consider the impact of the fishery on the ecosystem generally. I concur with all other scorings.

Indicator 3.4.1.2

Provides for restoring depleted target species to specified levels within specified time frames.

BCSMC: 60 Scoring Guidepost is met. One of two 80 Scoring Guideposts is met, one is not met. One of two 100 Scoring Guideposts has been partially met, one is not met.

Bocking: This indicator speaks to the management and recovery of target stocks. I am confused with DFO's response to this performance indicator. It would appear that DFO is recognizing the concerns with depleted *non-target* stocks in their response. However, it is clear through the majority of the BCSMC submission that the target stock for this fishery is Babine sockeye. Babine sockeye are not in decline and the management system provides for restoring (aka managing) these stocks to specified levels (Target Reference Points are established and generally accepted). **I would have scored all of the Guideposts as met or at least partially met.**

Indicator 3.4.2.1

The management system includes compliance provisions.

BCSMC: 60, 80 and 100 Guideposts have been met.

Bocking: As this indicator deals with compliance with enforcement measures, it is difficult for me to review. For example, I have no way of verifying if infractions are being consistently committed.

Indicator 3.4.2.2

The management system includes monitoring provisions.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring except that **100 SG.1 is only partially met** in my opinion. As stated earlier, I don't believe the management system fully evaluates impacts on the ecosystem caused by the fishery.

Criterion 3.5

The management system provides for regular and timely review and evaluation of its performance, and for appropriate adjustments based on the findings of these reviews and evaluations that are consistent with the objectives of the program.

Indicator 3.5.1

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring.

Indicator 3.5.2

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

BCSMC: 60 Scoring Guidepost is met. 80 Scoring Guideposts are met 'in spirit'. Two of three 100 Scoring Guideposts are met, one is not.

Bocking: The scoring by DFO appears to be an attempt to make a bad situation look OK. The fact is that there is not an effective and timely system for external review of the management system either bi-annually or once every five years. Reviews are typically done opportunistically when an external body deems it desirable (Pacific Fisheries Resource Conservation Council). However, to my knowledge, there has not been an external review specific to the Management System for Skeena sockeye. Reviews are generally made public. **I would say that 80 SG.1 and 100 SG.1 have not been met.**

Indicator 3.5.3

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: Because of the general lack of external reviews, **these Scoring Guideposts can only be partially met**. As well, I have little doubt that 100 SG.2 is met for specific stakeholder recommendations and reporting to those stakeholders (e.g. fishing advisory boards and committees). I am not convinced that the same standard is upheld for First Nations and other NGOs. **Therefore, 100 SG.2 is likely only partially met.**

Indicator 3.5.4

There is an appropriate mechanism for resolving disputes.

BCSMC: 60 and 80 Scoring Guideposts have been met. 100 Scoring Guideposts have not been met.

Bocking: I would suggest that only the 60 Scoring Guidepost has been met. Yes there is a dispute mechanism available – the Minister of Fisheries’ decision-making authority. However, DFO correctly points out that this is not acceptable to many stakeholders. On this basis alone, **the remaining 80 and 100 Scoring Guideposts cannot be met.**

Criterion 3.6

The management system provides for the operation of the fishery to be in compliance with all relevant legal and administrative requirements.

Indicator 3.6.1

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur with the scoring. Canada’s actions with respect to the Pacific Salmon Treaty are exemplary in most cases and disputes are readily resolved by the Northern Panel. However, Canada’s commitment to the precautionary approach and species biodiversity remains to be seen.

Indicator 3.6.2

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

BCSMC: 60, 80 and 100 Scoring Guideposts are met.

Bocking: I concur with the scoring.

Indicator 3.6.3

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur that the management system includes processes for consulting with First Nations regarding impacts to their fisheries. I am not sure, however, that these are adequate or accepted as adequate by Skeena First Nations. Also, DFO allocates 150,000 sockeye to First Nations for FSC purposes. Some Skeena First Nations may not feel that this is adequate. **For these reasons, 100 SG.1 is only partially met.**

Criterion 3.7

Fishing operations make use of gear and fishing practices that limit ecosystem impacts.

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.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I concur that the 60 Scoring Guidepost is met. I also concur that 80 SG.1 and 80 SG.3 are met. I do not believe there is evidence that the capture and discard of non-target species is trending down or that the level of exploitation is acceptable, particularly for steelhead and chum - **80 SG.2 is only partially met.** I concur that 100 SG.1 is met. I don't believe that the management system can demonstrate the existence of a downward trend in the catches of non-target species mainly because of the absence of stock-specific catch information for coho, steelhead and chum (perhaps over more time this can happen). The statement is perhaps true for non-target sockeye stock units. **100 SG.2 is only partially met.** 100 SG.3 is met, but as a result of harvest restrictions, and not so much an incentive program.

Indicator 3.7.2

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

BCSMC: 60, 80 and 100 Guideposts have been met.

Bocking: I concur with the scoring.

Indicator 3.7.3

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

BCSMC: 60, 80 and 100 Guideposts have been met.

Bocking: When I attempted to locate the Code of Conduct for Responsible Fishing I was directed to the website for ResponsibleFishing”. I was unable to locate it. I could also not find any web-based location for a Canadian Responsible Fishing Board. Therefore, it remains unclear as to what BC salmon fishing sectors have adopted as the ‘code’. The true test of this indicator is evidence that the fishing associations specific to the Skeena fishery have adopted the code and have a system in place to educate their members and require compliance. If this is to be the ‘program’ to reduce operational waste, then it is not clear to me in what form it exists. For this reason, **60 SG.1 is only partially met**. Similarly, 80 SG.1 is only met if this program is indeed adopted and ratified by the member fishing associations fishing the Skeena. I was unable to verify this, so **80 SG.1 is only partially met**.

I would argue that the management system does not have a formal system for reducing operational waste or a system for monitoring its effectiveness. For these reasons, **100 SG.1 and 100SG.2 are not met**.

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.

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: I generally concur. However, **80 SG.1 and 100 SG.2 are only partially met** for the following reasons. There is insufficient monitoring to show continued improvement in the quality and quantity of catch and discard data, at least for steelhead and chum. Reliable estimates of discards of steelhead are certainly not obtained (Dana Atagi, pers. comm.).

Indicator 3.7.5

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

BCSMC: 60, 80 and 100 Scoring Guideposts have been met.

Bocking: Without a specific program to assess and monitor impacts on habitat (e.g. oil dispersions, waste littering, net loss (in river and in ocean), all Scoring Guideposts cannot be met for this indicator. In my opinion **100 SG.1 is not met** because of the lack of a formal program to identify and document impacts. The system is only reactive to problems as they are encountered. I am unable to evaluate the level of compliance by crews. Similarly 80 SG.1 and 60 SG.1 are only partially met because of the lack of documentation of impacts.