Surveillance Report
British Columbia Commercial Sockeye Salmon Fisheries

Certificate Nos.:
MML-F-066 Barkley Sound
MML-F-067 Nass
MML-F-068 Skeena
MML-F-069 Fraser

Intertek Moody Marine
November 2011

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1.0 GENERAL INFORMATION

Scope against which the surveillance is undertaken: MSC Principles and Criteria for Sustainable Fishing as applied to the British Columbia Commercial Sockeye Salmon Fisheries managed by Fisheries and Oceans Canada within the follow 4 units of certification:

1. Nass
2. Skeena
3. Barkley Sound
4. Fraser

Species: Sockeye Salmon (*Oncorhynchus nerka*)

Area: British Columbia, Canada

Method of capture: Seine, gillnet, troll, beach seine, fish wheels, weirs, dip nets

Date of Surveillance Visit:	**9 – 13 May 2011**			
Initial Certification	**Date: July 2010**		**Certificate Ref: MML-F-066, MML-F-067, MML-F-068, MML-F-069**	
Surveillance stage	**1st**	**2nd**	**3rd**	**4th**
Surveillance team:	**Lead Assessor:** **Steve Devitt** **Assessor(s):** **Karl English** **Greg Ruggerone**			
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2.0 SUMMARY OF THE 2010 SALMON FISHING SEASON

The units of certification for the British Columbia sockeye salmon are the non-First Nation commercial sockeye fisheries and the First Nation Excess Salmon to Spawning Requirement (FN ESSR) fisheries and FN Economic Opportunity (EO) fisheries targeting sockeye returning to the four following watershed systems:

1) Skeena Watershed - Skeena and Nass sockeye are currently harvested in marine portions of Areas 3, 4 and 5 and freshwater areas within Area 4.
2) Nass Watershed - Nass sockeye are currently harvested in marine portions of Areas 3, 4 and 5 and freshwater areas within Area 3.
3) Barkley Sound - Barkley Sound sockeye are only targeted in Area 23.
4) Fraser River Watershed - Fraser Sockeye are primarily harvested in marine Areas 11, 12, 13, 20 and 29 and freshwater areas within Area 29

These fisheries are defined by geographic area and gear targeting sockeye however management measures are in place to distribute the harvest on stocks that can better withstand higher rates of harvest or distribute the harvest amongst different users. These fisheries represent the majority of the BC commercial fisheries that harvested sockeye salmon in recent years. Fishery openings and closings are managed and reported based on defined management areas A – H for the three primary harvest methods, seine (Areas A, B), gillnet (Areas C, D, E) and troll (Areas F, G, H), as displayed below. Management summaries are provided within the context of these management areas.

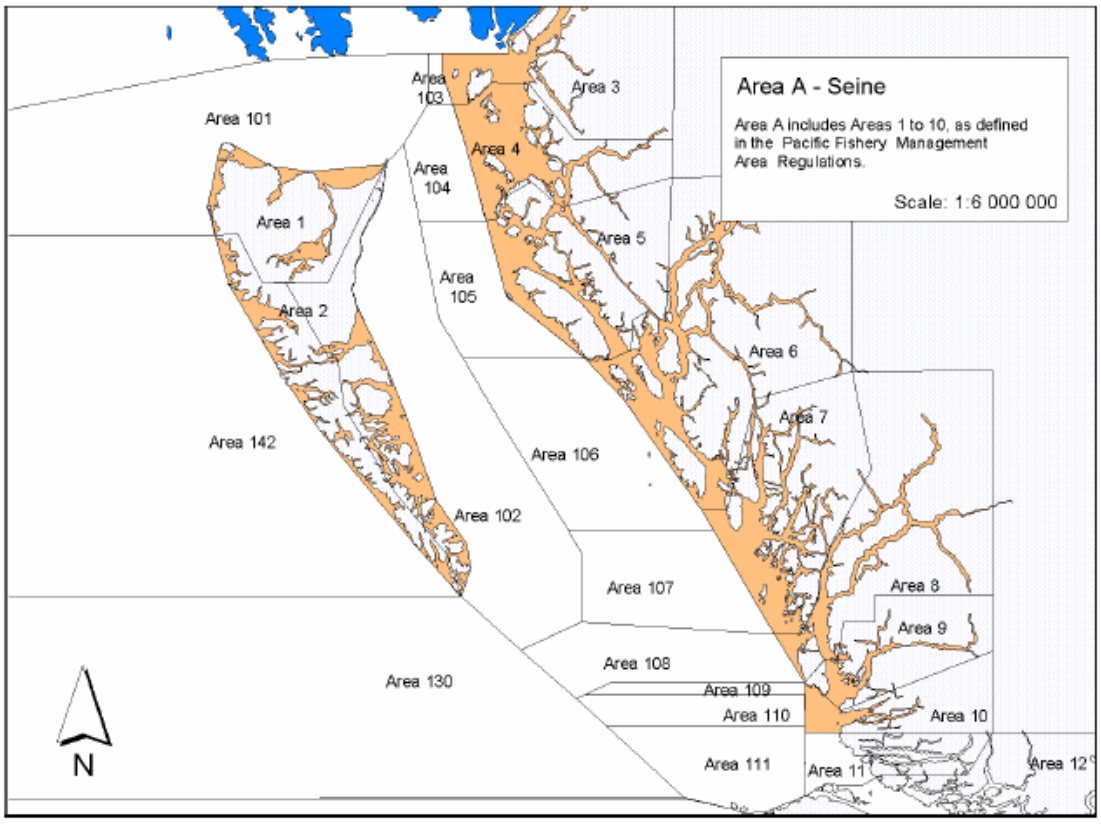


Figure 1: Area A, northern seine fishing management area for salmon

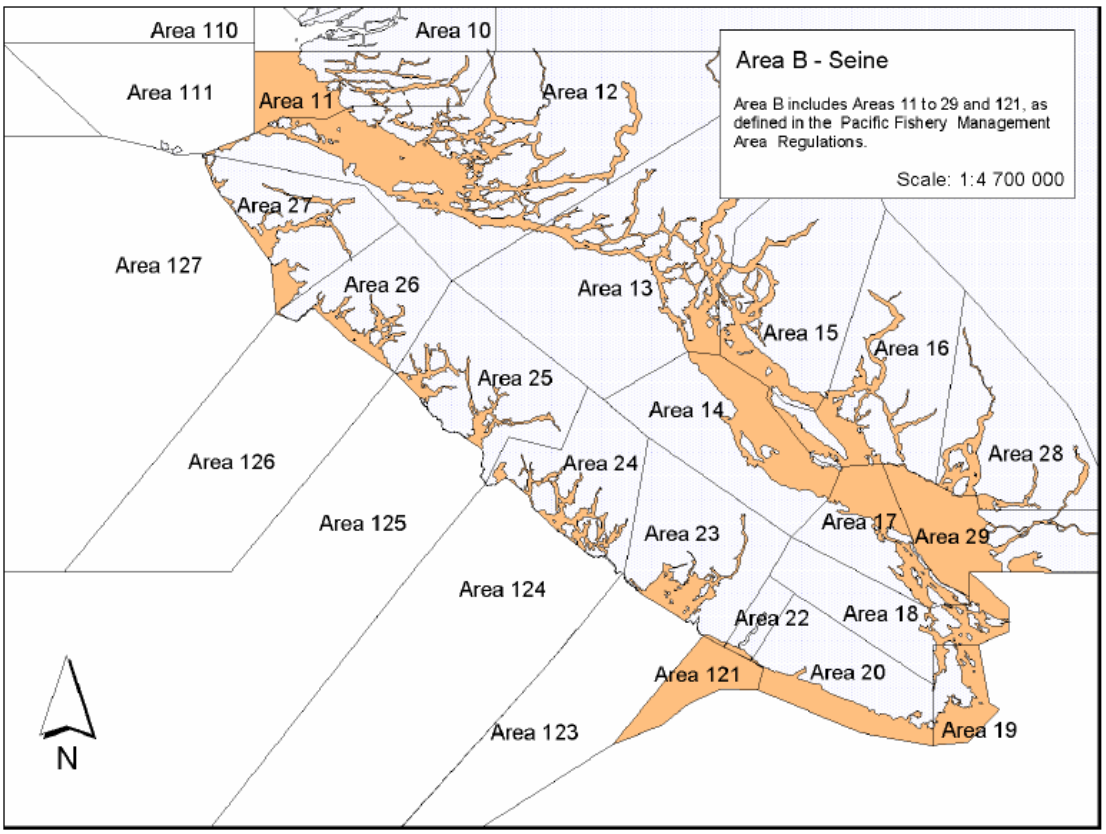


Figure 2: Area B, southern seine fishing management areas for salmon

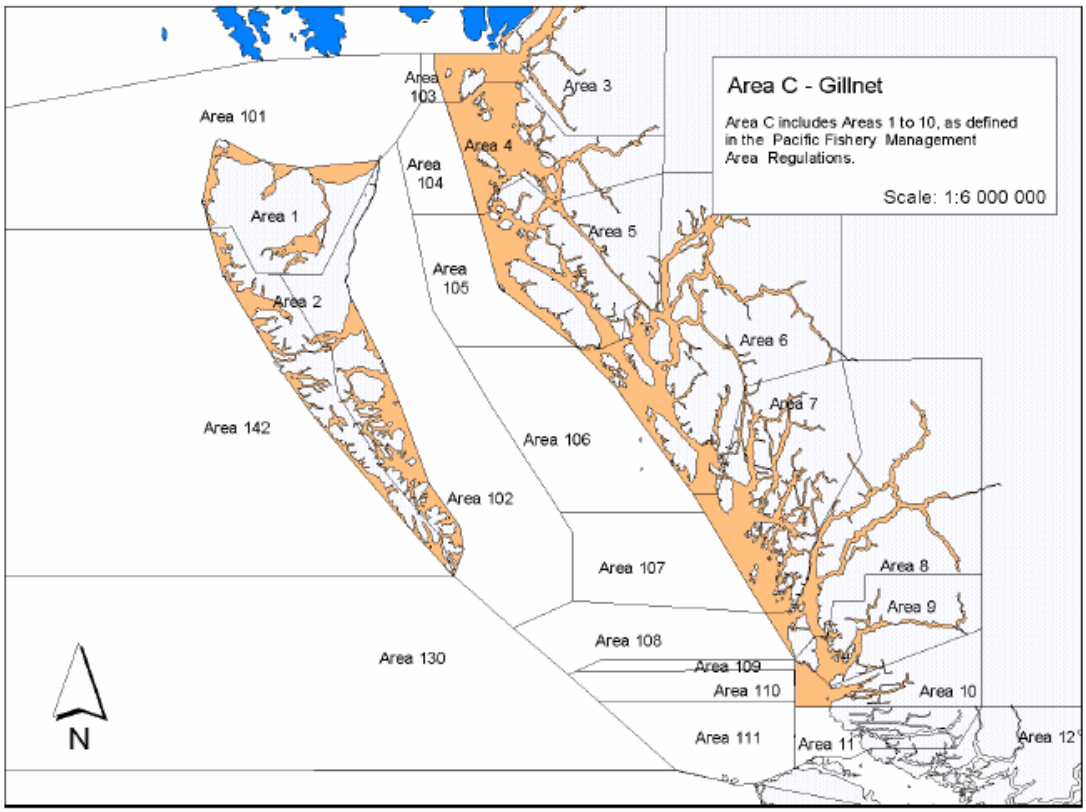


Figure 3: Area C, northern gillnet salmon fishing management areas.

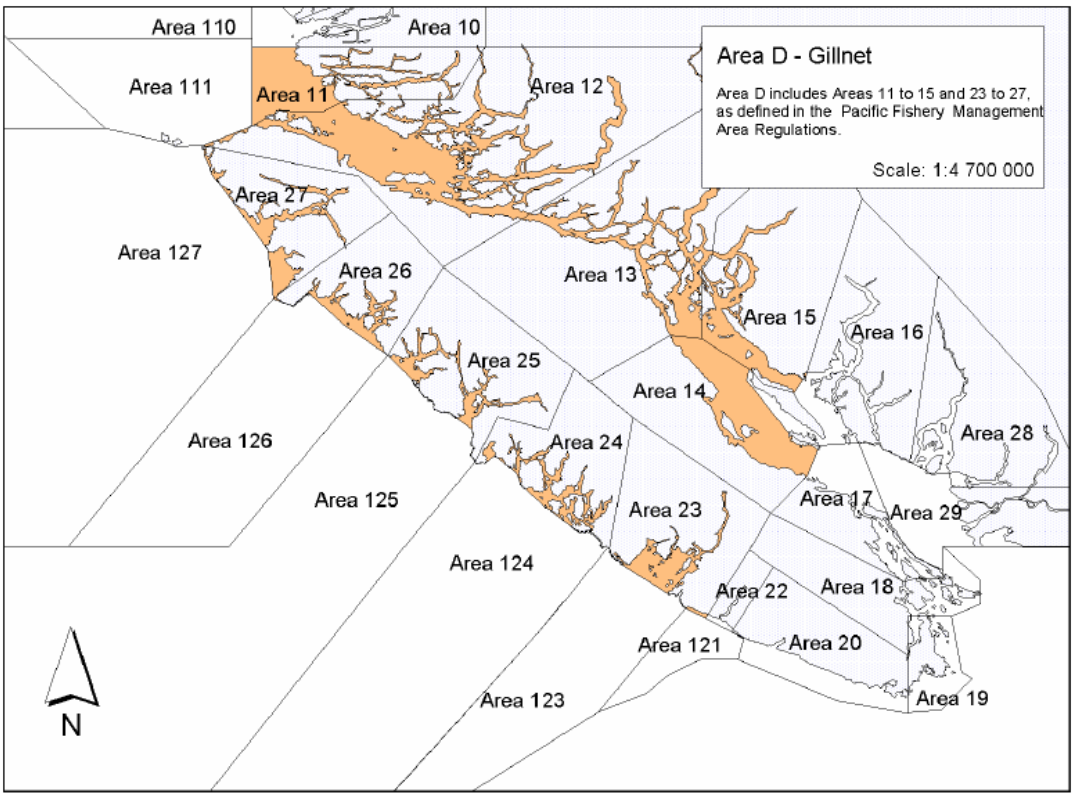


Figure 4: Area D, southern gillnet salmon fishing management areas.

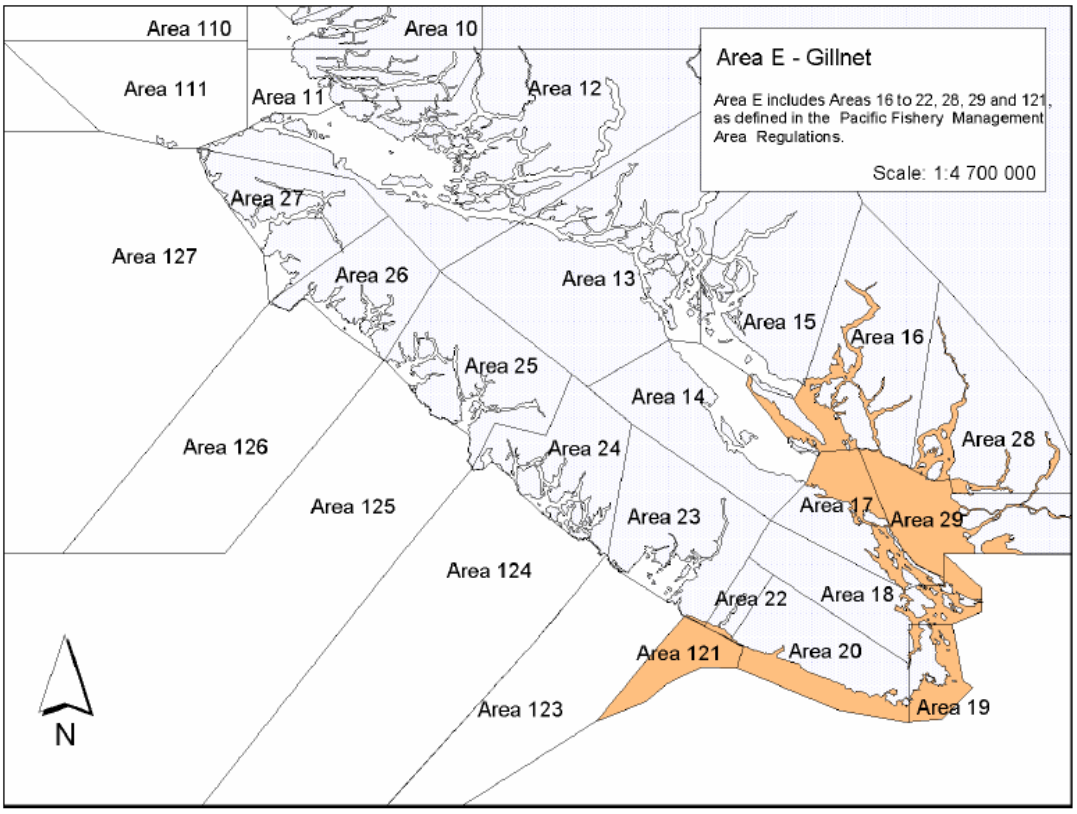


Figure 5: Area E, southern gillnet salmon fishing management areas.

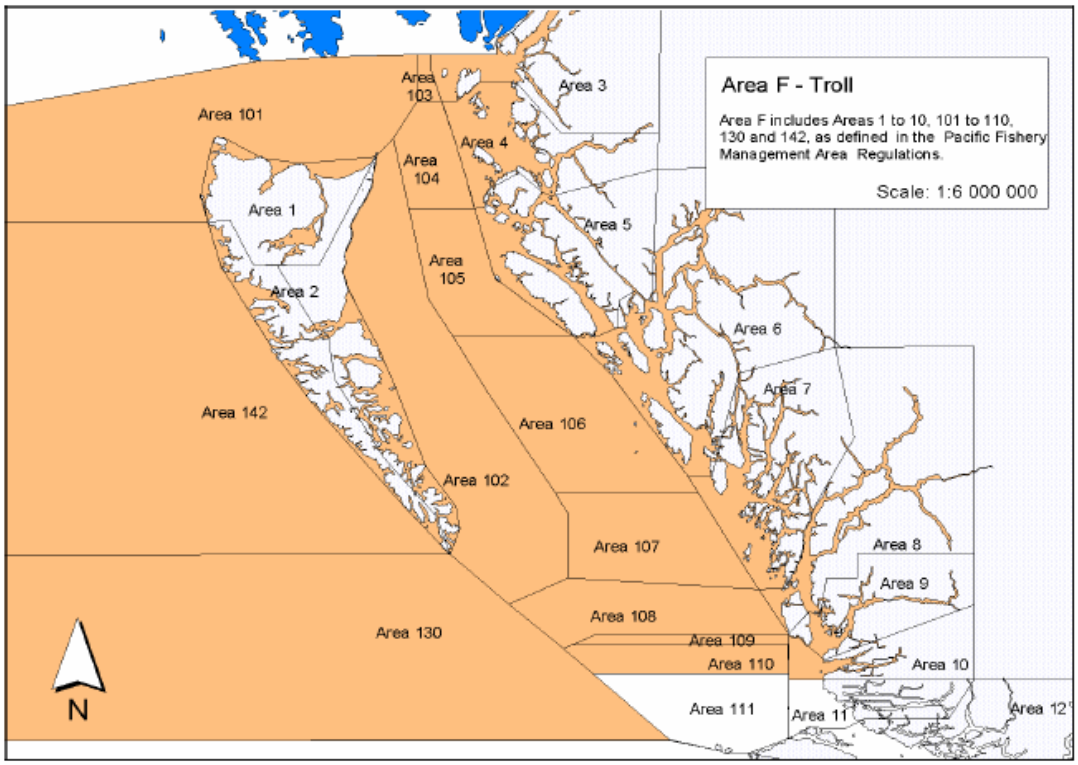


Figure 6: Area F, northern troll salmon fishing management areas.

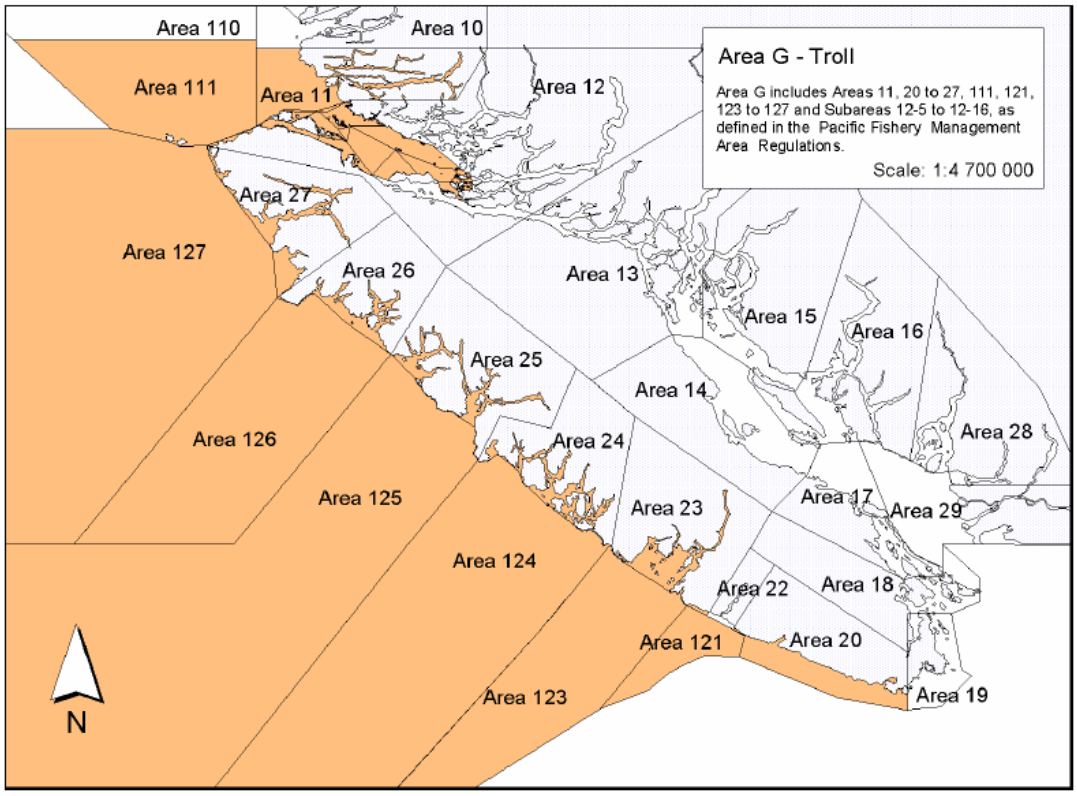


Figure 7: Area G, West coast Vancouver Island troll fishing management areas.

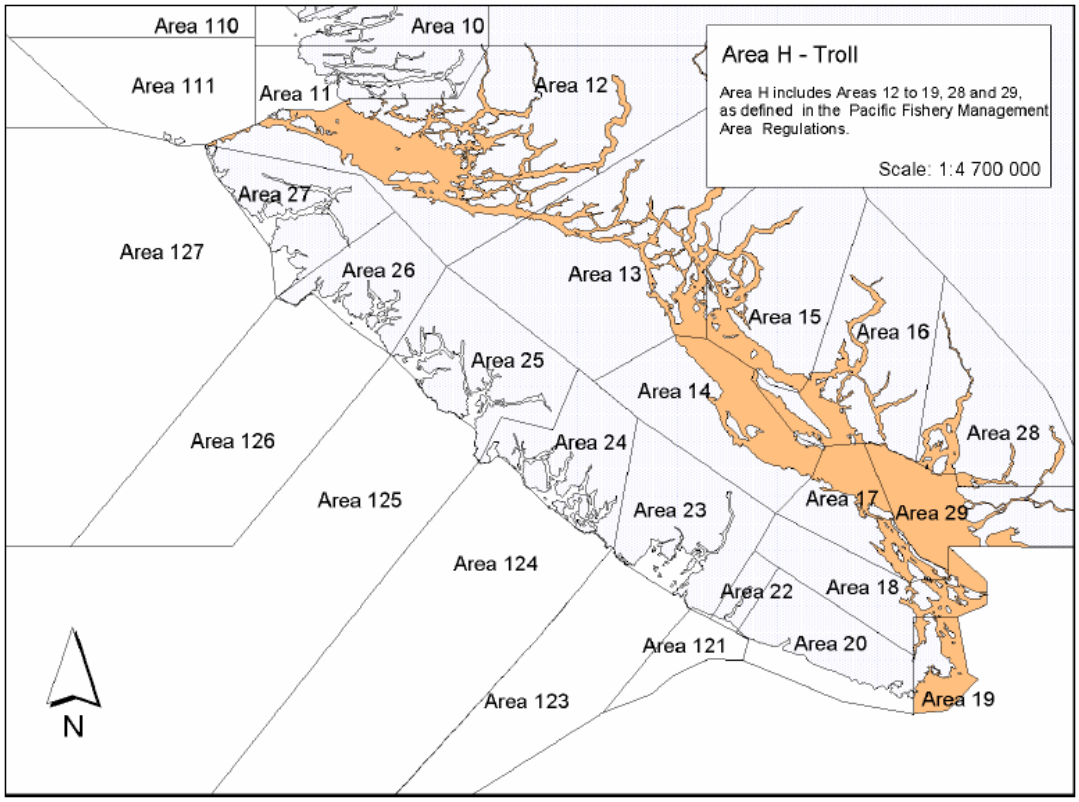


Figure 8: Inside troll salmon fishing management areas.

Table 1: 2010 British Columbia commercial sockeye salmon retained catch to date (pieces), April 1, 2010 - March 30, 2011.

Area	Commercial Sockeye Catch	Estimates
Seine		
Area A	5 278	Complete
Area B	6 302 503	Complete
	Seine Total – 6 307 781	
Gill Net		
Area C	131 431	Complete
Area D	1 246 226	Complete
Area E	2 120 369	Complete
	Gill Net Total – 3 498 026	
Troll		
Area F	523	Complete
Area G	0	Incomplete
Area H	381 665	Complete
	Troll Total – 382 188	
Total Commercial Sockeye Harvest – 10 187 995		

Notes
1. Data does not include testfishing, recreational or First Nations data
2. Data considered preliminary
3. All catch estimates are reported in pieces and included both adults and jacks
4. Estimates column includes either “complete”, meaning catch estimates are available for all days fished, or “incomplete” means that at least one catch estimate is missing.

Source: Fisheries and Oceans Canada Fisheries Operations System Report.

2.1 Nass and Skeena – Salmon Fishing Areas 3 - 5

AREA 3 (As summarized from the 2010 Salmon Post Season Review)

There are three First Nations groups that fish for Food, Social and Ceremonial purposes in Area 3 or the Nass River. These are:

a) Lax Kw'alaams (Port Simpson).
b) The Nisga'a Lisims Government - Kincolith, Greenville, Canyon City and Aiyansh.
c) The Gitanyow - Member band Kitwancool. (Nass River Harvest)

Preliminary harvest estimates of Nass salmon in Nisga'a fisheries from May to September 2010 were 67,691 sockeye. The domestic FSC salmon fishery which was monitored from 2 May to 30 August as part of the Nisga'a Fisheries salmon catch monitoring program. Incidental salmon catches in September were added from the non-salmon catch monitoring program. Individual-sale fishery totals included 27,795 sockeye. Selective (communal-sale) harvesting at the Grease Harbour fishwheels occurred for sockeye (5-24 July) and totalled 6023. Nisga'a catch harvests in 2010 were below average for sockeye.

Preliminary harvest estimates of Nass sockeye salmon in Gitanyow fisheries in the Upper Nass River were reported by the Gitanyow Fisheries Authority to week ending 11 September as 9,154 adult sockeye. The total adult sockeye harvested includes a commercial harvest of sockeye (3,000) by the Gitanyow below the Meziadin Fishway as part of DFO's Inland Demonstration Fishery that occurred from 13-18 August. The Gitanyow did receive a limited economic opportunity to harvest sockeye for sale on the Nass River at Meziadin.

Alaskan Harvests

The preliminary in-season harvest estimates of salmon in southeast Alaskan gillnet and seine fisheries in Districts 101 to 104 for 2010 for sockeye was 252,000. Catches were below average for sockeye (00-09 avg.: 613,000. Alaskan gillnet fisheries in Districts 101 (Tree Point) and 106 (Sumner and Upper Clarence) in 2010 were conducted from 20 June to 28 September, and 20 June to 10 October, respectively. Alaskan seine fisheries opening dates were: District 101 (Revilla & Lower Clarence) – 4 July; District 102 (Middle Clarence) – 21 June; District 103 (Cordova) – 25 July; and District 104 (Noyes and Dall) - 4 July. Source of data is from the Alaskan Department of Fish and Game's website. Of the total in-season sockeye catch reported in Alaskan fisheries in 2010, approximately 64,000 (25%) were estimated as Nass origin based on mean stock composition estimates from 1982 to 2007.

Preliminary harvest estimates of Nass salmon in Canadian Areas 1-5 commercial fisheries for 2010 are approximately: 71,000 sockeye based on in-season commercial catch data from DFO Prince Rupert and methods developed by the Nass Joint Technical Committee.

The total in-season commercial harvest estimates by gillnets and seines in Area 3 sockeye for 2010 was 67,757 sockeye. Estimates of releases of steelhead in the Area 3 commercial fisheries in 2010 were 185 from gillnet and 11 from seine fisheries. Areas 3 and 4 were closed to sockeye fisheries after 26 July due to low returns of both Nass and Skeena sockeye in 2010.

The preliminary total return to Canada (TRTC) estimates used by the Nisga'a Fisheries and Wildlife Department for tracking Nisga'a salmon entitlements for 2010 were 377,000 sockeye, substantially lower than the pre-season estimates for sockeye (377,000 vs. 648,000).

Area 3 Commercial Net Fishery Summary

The Area 3 commercial net fishery was planned in anticipation of harvesting a surplus of 300,000 Nass sockeye. These commitments included managing in accordance to the Nisga'a Treaty, the Pacific Salmon Treaty, allocation issues, chum and Chinook rebuilding, Coho exploitation rates and limiting impacts on steelhead. Some of the restrictions put into place to deal with these commitments were, closed areas, daylight only fisheries, non-retention steelhead for both gear types, mandatory brailing for seines, non-retention Chinook for seines and a request for gill nets to release all live Chinook. In addition the Area 3

fishery started the year with non-retention chums for seines and a request for gill nets to release all live chums.

The first Area 3 Nass commercial gill net sockeye opening of the season took place June 15 with 150 vessels participating in the fishery. High incidental chum catches were of concern throughout the season, in addition to the Wales (1 mile) and Pearse Island (.5 mile) shore boundaries, sub area 3-12 was closed to the retention of Chum salmon throughout the season to lower the interception of chums migrating to Area 3. The outside of Area 3 was initially closed early in the season due to the poor forecast of sockeye returning to the Area 4. Outside of Area 3 was opened on July 12 in conjunction with area 4 to gill nets due to improved sockeye escapement past the Skeena River Tyee Test fishery. Areas 3 and 4 were closed July 12 to the retention of chums for the rest of the season. The lead waters into the Khutzeymateen through Steamer Pass were also closed off to Gill nets to protect chums returning to this system.

Gill net sockeye catches in area 3 were modest throughout the season. Reports of medium to high local gill net sockeye catches outside of Gingolx (Kincolith) suggest fish milling outside the Nass River throughout the season due to low water conditions. Nass sockeye escapements past the Gitwinksihlkw fish wheels were gradual throughout the season and began to level off late July / early August.

The maximum number of gill nets operating in Area 3 occurred in early July (5 &6) with a count of 228 gill nets actively fishing. The total number of openings was 9 for 1,394 vessel operating days compared to the 10 year average of 18.3 openings and 3,248.6 vessel operating days.

The first seine opening in Area 3 occurred July 12 with 9 vessels participating in the fishery. Sockeye and pink fishing started off poor and carried on that way throughout the season. Seine fishing was restricted to the lower portion of Area 3 due to average pink escapement to mid coastal systems. The peak seine fleet operating in Area 3 took place on July 12 & 13 with 9 vessels fishing. The total number of openings for 2010 was 3 for 26 vessel operating days compared to the 10 year average of 17.7 openings and 395.2 vessel operating days.

The total Area 3 hailed commercial net catch for 2010 was 68,309 sockeye and 57,126 pink. This compares to the 10 year average catch of 262,648 sockeye and the five even year average of 717,796 pink.

Sufficient coho abundance and escapements allowed for portions of Areas 3 and 103 troll fisheries to open on August 9th and remain open until September 30th. A total of 395 boat days were utilized in Area 3 with a catch of 13,228 coho and 1,299 pink salmon. There were also reported catches of 90 sockeye and 16 Chinook harvested in these areas which were closed for these salmon species.

Escapement monitoring

Nass River salmon stock assessment updates as provided by the Nisga'a Fisheries and Wildlife Department of Nisga'a Lisims Governement are available at the following web link (ftp://ftp.lgl.com/Nass%20Stock%20Assessment%20Updates/) .

Nass Fishwheel sockeye catches were well below average for adult sockeye in 2010, 25,703 versus an average of 36,270. 1367 sockeye jacks were caught at the fishwheels in 2010. The fishwheel operated from June 1 to September 22.

At the Meziadin fishway operated from June 28 to October 23. 159,120 adult sockeyes and 4,568 jacks were counted. The escapement target for sockeye at the Meziadin is 160,000.

The Kwinageese weir net operated from July 9 to October 19 and counted a total of 48 adult sockeye, well below the average of past years. Ground surveys above the weir were also conducted on August 30 and October 4, 13 sockeye were observed.

The Gingit Creek sockeye escapement estimate as 2,070, based on area-under-curve (AUC) calculations. This is based on eight surveys conducted in July (3), August (3) and September (2). The estimate is below the 2000-2010 average.

The Seaskinnish weir counts for sockeye was 17 adult sockeye and 2 jacks, over the period of July 17 to November 17.

Damdochax Creek surveys were conducted, with approximately 900 adult sockeye observed from September 7 to 16.

The preliminary escapement estimates to Gitwinksihlkw fishwheels in 2010 were 262,000 sockeye.

Based on the preliminary results, all net escapement goals were reached in 2010 for Upper Nass salmon (~229,000 vs. 200,000 for sockeye; 19,300 vs. 15,000 for Chinook; 67,000 vs. 65,000 for coho) and summer-run steelhead (17,000 vs. 4,000 (min. esc. goal) & 10,000 (preliminary esc. target). Meziadin escapement goals in 2010 were reached for coho (4138 vs. ~3500), nearly reached for adult sockeye (159,120 vs. 160,000), and fell short for adult Chinook (315 vs. ~475). It should be noted that in 2010, the low water levels experienced on the Meziadin River would permit more salmon to jump the Meziadin falls (in particular Chinook) and would not be accounted for in the Meziadin fishway counts. Below is a summary of return estimates to Gitwinksihlkw and net escapement estimates to all areas from 2000 to 2010.

AREA 4 (As summarized from the 2010 Salmon Post Season Review)

A number of First Nations harvest fish for Food, Social and Ceremonial purposes in Area 4 and the Skeena River Watershed. These are:

a) The Tsimshian Communities of Lax Kw'alaams (Port Simpson), Metlakatla, Kitkatla, Kitsumkalum, Kitselas: Skeena River Watershed and approach waters.
b) Gitksan First Nation: Mid-Skeena River area.
c) Wet'suwet'en First Nation: Bulkley River watershed, but mainly at Moricetown.
d) Lake Babine First Nation including the communities of Tachete, Fort Babine and Burns Lake: Upper Skeena, Babine River and Babine Lake.
e) Takla Lake and Yekooche First Nations – Upper Skeena waters including Babine Lake.

Fishing activities were conducted in much the same fashion and locations as in past years. As in recent years, all the bands were licensed to fish through a communal fishing license and specific allocations of each salmon species were mutually agreed to where possible. Table XX presents the FCS sockeye catch for the Skeena and Nass systems.

Table 2: 2010 Nass & Skeena Food, Social and Cerimonial (FSC) Sockeye Catch.

Area	Number Caught
Lower Skeena	16,803
Mid Skeena	76,937
Upper Skeena	38,000
Skeena Total	132,540
Nass	6,154

Economic opportunity fisheries were conducted by First Nations on the Nass and Skeena in August 2010 using selective harvest means. The Gitanyow FN harvested their entire allocation of 3,000 sockeye at the Meziadin fishway. Similarly, the Lake Babine FN harvested their allocation of 1,611 sockeye at the Babine counting fence. This same FN also conducted a jack sockeye fishery at the same location, during roughly the same period, capturing 5,182 of their 10,000 allocation. Gitkan FN harvested 1,427 of their allocation of 1,611 sockeye in the Skeena Kitwanga area.

The Area 4 net fishery was planned in anticipation of a 663,450 sockeye return and a below average pink return. The fishing plan had to be consistent with goals for rebuilding Coho, chum & wild sockeye stocks, limited steelhead exploitation, Chinook escapements and sector allocation issues. Some of the restrictions in place to attain these goals were non-retention chum & steelhead for seines and gill nets, time and area closures, harvest rate limitations, daylight only fisheries, mandatory brailing for seines, non-retention Chinook for seines, half-length gill nets and 20 minute sets.

Openings were based on Skeena salmon returns, as measured at the Tyee test fishery.

Peak gill net fleet in Area 4 for 2010 occurred July 26 with 253 vessels actively fishing. Area 4 gill nets fished for a total of 3 openings (1 Chinook and 2 sockeye openings) with 581 vessel operating days compared to the ten year average of 13 openings and 4,025 vessel operating days. Total sockeye catch was

recorded at 62,798 sockeye compared to the ten year average of 498,838. Area 4 did not open to seines due low escapement figures of sockeye and pinks past the Skeena River Tyee test fishery.

Area 104 Troll Fishery

The area was closed for the retention of sockeye. A total of 67 sockeye were reported as harvested.

Escapement is monitored throughout the Skeena watershed and in 2010, a total of 659,900 sockeye were estimated to have escaped up the Skeena. The vast majority of the escapement is in the Babine system, where 600,186 sockeye were estimated to have returned. Within the Babine system, there are enhanced spawning channels in Fulton River and Pinkut Creek.

AREA 5 (As summarized from the 2010 Salmon Post Season Review)

The Tsimshian First Nation Communities harvest fish for Food, Social and Ceremonial purposes in Area 5 and the Skeena River approach waters. FSC catch estimates are still preliminary and not currently available.

Area 5 was opened to gill nets in conjunction with Area 4 to harvest Skeena River sockeye migrating through Ogden channel. Peak gill net fleet in Area 5 occurred July 12 with 18 vessels participating in the fishery. Area 5 gill nets fished for a total of 2 openings with 21 vessel operating days compared to the ten year average of 10.4 openings and 77.1 vessel operating days. Area 5 opened to seines to harvest Skeena River sockeye for one opening on July 26 with 2 vessels participating compared to the ten year average of 14.4 openings and 58.4 vessel operating days.
Due to low pink returns from a poor 2008 brood year Area 5 was not opened to seines for 2010.
Total sockeye catch for 2010 in area 5 was recorded at 2,655 sockeye and 469 pinks.

The troll fishery in Area 105 did not harvest any sockeye.

2.2 Fraser River Salmon Fishing Areas

The following information was summarized or copied from the "*Post-Season Report for 2010 Canadian Treaty Limit Fisheries",* dated January 6, 2011, prepared for the Pacific Salmon Commission by Fisheries and Oceans Canada.

The majority of First Nation FSC harvesting occurred from late July to early September with significant catches in most areas in relation to target harvest levels.

There were considerable directed sockeye harvest opportunities for First Nations (FSC), commercial (including First Nations demonstration and economic opportunities), and recreational sockeye retention fisheries. Initially, sockeye harvest opportunities were restricted for all harvest groups based on the requirement for a four week moving window closure to protect Early Stuart sockeye and the early-timed Early Miscellaneous component of the Early Summer-run stock group. This moving window closure in the marine areas was lifted as of July 22 for First Nations harvesting and FSC harvest opportunity dates were identified as these stocks moved up river.

First Nations economic opportunity and demonstration fisheries occurred at various locations in the Fraser watershed in 2010.

Commercial fisheries occurred from early August to mid September. Area B Seine and Area H troll fisheries were managed as individual transferable quota (ITQ) fisheries. Area D and E Gillnet fisheries were both managed as competitive, derby-style fisheries. Commercial fisheries occurred in Johnstone Strait, Juan de Fuca Strait, Strait of Georgia, and in the lower Fraser River.

Table 3 provides estimates of the Fraser River sockeye catch by run timing group, while Table 4 provides the final in-season TAC and preliminary post season catch estimates for the Fraser River.

Table 3: Final in-season estimates of Fraser River sockeye catch in Canada and US, based on last FRP in-seasons meeting on September 17, 2010.

	Pre-season total TAC*	Final In-season total TAC*	Final In-season Catch
Early Stuart	0	0	6,000
Early Summer	260,720	1,710,800	1,225,000
Summer-run	1,522,760	2,789,500	2,310,000
Lates	3,659,880	11,673,860	9,548,000
Total	**5,443,360**	**16,174,160**	**13,088,000**

*** TAC in this table includes the Canadian Aboriginal Fisheries Exemption amount of 400,000 fish.**

Table 4: Final Fraser in-season TAC and preliminary post season Catch as of October 28, 2010.
(Recreational fisheries catch numbers updated December 10. FSC catch numbers updated January 6, 2011.)

	Early Stuart	Early Summer	Summer	Late	Total
Test Fisheries[a]	2,400	22,000	18,000	29,000	72,000
U.S. Catch					
Commercial	260	224,000	384,000	1,356,000	1,964,000
C&S	20	3,300	3,700	3,000	10,000
U.S. Total	280	227,000	387,000	1,359,000	1,974,000
U.S. TAC [b]	0	274,970	421,870	1,902,280	2,599,120
CDN Catch					
Commercial	650	735,000	1,575,000	8,140,000	10,450,000
Recreational [d]	0	41,000	60,000	188,000	289,000
Other [c]	60	1,900	1,900	2,800	6,600
FSC [e]	2,700	220,000	333,000	290,000	845,700
CDN Total	3,400	998,000	1,970,000	8,621,000	11,591,000
CDN TAC	0	1,435,830	2,367,630	9,771,580	13,575,040

[a] Panel approved test fisheries
[b] 16.5% TAC – payback (4,300)
[c] Other catch is sockeye captured in multi-species non-Panel approved test fisheries (Albion and Qualark)
[d] Not yet corrected for Fraser/non-Fraser stock ID in marine recreational catches. Does not yet include estimates from the recreational fisheries in the Chilliwack/Vedder River, Stave River or Nicomen Slough.
[e] Preliminary stock ID only.

Table 5 below, outlines potential exploitation rates based on 2010 TAM rules and pre-season and in-season information as well as the actual observed preliminary postseason estimate of exploitation rates by aggregate and for Cultus Lake sockeye.

Table 5: Potential exploitation rates for Fraser run timing groups

	Pre-season	In-season TAM+MA*	Prelim. Post-season
EStu	0%	0%	6%
ESum	34%	45%	33%
Sum	58%	54%	45%
Late	46%	46%	40%
Cultus	20-30%	30%**	37%

* In-season allowable exploitation rates are based on the final in-season run size, MA and the 2010 TAM rules.

** Based on a large return of Late-run sockeye and the expectation of meeting or exceeding Cultus rebuilding objectives, a decision was made in-season to increase the exploitation rate above 30%.

Conservation concerns for other sockeye stocks and species continued to impact the planning of sockeye fisheries in 2010. The stocks and species of concern in 2010 were: Early Stuart sockeye, Early Miscellaneous Early Summer-run sockeye, Cultus Lake sockeye, Nimpkish sockeye, Sakinaw Lake sockeye, Interior Fraser River coho and Interior Fraser River steelhead.

Fraser River water temperatures were above average for the majority of the sockeye migration, but did not become extreme or appear to create significant en-route mortality. Even though the Fraser River temperatures exceeded levels that are thought to have impacts on fish health and migration (>18.0 °C) for almost a month, conditions on the spawning grounds were generally reported as good. Early in the migration, there was some increased pre-spawn mortalities noted at the Nadina River which has been an issue for a number of years. Overall, stock assessment staff indicated that fish condition on the spawning grounds was good.

The table below outlines projected escapement information relative to the escapement goals at the final in-season run sizes. Due to the late timing and large abundance of Fraser sockeye in 2010, the summary of spawning ground assessments is considered preliminary.

Table 6: Preliminary Fraser sockeye escapement information to dates

Management Group	Escapement Goal (at final in-season run size)	Potential Spawning Escapement Target [a]	Projected Escapement [b]
Early Stuart	105,000	98,920	91,590
Early Summer-run	1,520,000	2,559,480	1,881,970
Summer-run	2,080,000	2,852,480	2,480,420
Late-run	10,176,400	15,388,660	11,399,010
Total	**13,881,400**	**20,899,540**	**15,852,990**

[a] Potential spawning escapement = total run size minus catch-to-date.
[b] Projected Escapements = (run size- catch)*(1-projected DBE)

2.3 Barkley Sound Salmon Fishing Areas

Somass River and inner Alberni Inlet First Nations catch to August 11th was estimated at 86,200 sockeye. Barkley Sound First Nations catch is estimated at 20,915. Final preliminary First Nation catch can be seen in Table 7 below.

Area B seine vessels fished August 2, 3, 4, 5, and 10 to 13. Total seine catch to date as of August 11th for 2010 is 380,184. Area D gill-net vessels fished July 31, August 1 - 7 and 9 - 13. Total to date as of August 11th for gill-net fishing is 233,957. Total commercial catch to date is 614,141 sockeye. Gill-net and seine fisheries concluded for the season on Friday, August 13 at 6:00 p.m. Preliminary total commercial catch for Area 23 is presented below in Table 7.

Scale sampling for age determination continued from escapement samples, indicating a continuing high proportion of age 42 fish from the 2006 brood (i.e. about 70% of the adult return to date). This is a higher than expected proportion of age 4 fish. This age class corresponds to the 2008 sea-entry year. The pre-season forecast of 600,000 was based on expectations for high survival rate of this sea-entry year. Current observations suggest these expectations are greatly exceeded and there was exceptionally high ocean survival of this component of the sockeye population. DNA sampling of commercially caught fish indicated approximately 11-12% Henderson Lake sockeye in catches near the upper end of Alberni Inlet in early August.

Total adjusted Somass sockeye escapement through August 11 is 465,000 adults; Great Central Lake has received approximately 239,100 adults and the Sproat Lake escapement estimate remains at approximately 225,900 adults. (these totals are adjusted weekly to account for jacks (age 3-2 and 4-3 fish), and have been adjusted for calibration and age-sample results over the last week). Daily counts ranged from 1,000 to 2,000 through Great Central fishway and from 400 to 1,500 through Sproat fishway over the last week.

Table 7: Preliminary Area 23 (Barkley Sound) sockeye returns.

FIRST NATIONS CATCH	Tseshaht / Hupacasath	87,650
	Outside Bands (FSC)	21,000
	Total First Nations	**108,650**
COMMERCIAL CATCH	Gillnet	236,372
	Seine Net	496,539
	Troll	-
	Total Comm Catch	**732,911**
RECREATIONAL	Inlet + River	**80,300**
TOTAL CATCH		**921,861**
ESCAPEMENT	GCL adults	278,000
	SPR adults	312,000
	HED adults	50,000
	Ttl Adult Esc	**640,000**
TOTAL RETURN		**1,561,861**

Changes in the Fishery and Fishery Management

The following summary is adapted from the 2010 Integrated Fisheries Management Plan for Salmon in Southern B.C.

Salmon management programs in 2010 were guided by policy and operational initiatives adopted over the past several years. These include; *Canada's Policy for Conservation of Wild Pacific Salmon* (WSP), *An Allocation Policy for Pacific Salmon,* Pacific Fisheries Reform, *A Policy for Selective Fishing*, *A Framework for Improved Decision Making in the Pacific Salmon Fishery*, the Integrated Harvest Planning Committee and Pacific Region Fishery Monitoring and Reporting Framework.

Canada's Policy for Conservation of Wild Pacific Salmon (also called the Wild Salmon Policy) sets out the vision regarding the importance and role of Pacific Wild salmon as well as a strategy for their protection.

An Allocation Policy for Pacific Salmon, announced in 1999, contains principles to guide the management and allocation of the Pacific salmon resource between First Nations, commercial and recreational harvesters, and forms the basis for general decision guidelines outlined in the IFM plan.

Pacific Fisheries Reform, announced by the Department in April of 2005, provides a vision of a sustainable fishery where the full potential of the resource is realized, Aboriginal rights and title are respected, there is certainty and stability for all, and fishery participants share in the responsibility of management. Future treaties with First Nations are contemplated, as is the need to be adaptive and responsive to change. This policy direction provides a framework for improving the economic viability of commercial fisheries, and to addressing First Nations aspirations with respect to FSC and commercial access and involvement in management.

In February 2009, the British Columbia Supreme Court (BCSC) ruled that the activity of aquaculture is a fishery which falls under exclusive federal jurisdiction pursuant to sub-section 91(12) of the Constitution Act, 1867 - Sea Coast and Inland Fisheries and, in effect, struck down substantial portions of the provincial regulatory regime governing aquaculture.

In light of the BCSC decision, it was clear that only the federal government has the authority to establish the comprehensive regulatory regime needed to ensure that the industry in British Columbia is appropriately regulated and managed.

In response to the BCSC decision, the Minister of Fisheries and Oceans has confirmed the commitment of the Government of Canada to establish a federal regulatory regime governing aquaculture pursuant to the Fisheries Act in the geographic area of British Columbia. As part of developing a new regulation, there will be consultations with sector stakeholders and, following pre-publication in Canada Gazette Part I, a 30 to 60-day review period during which further feedback from stakeholders will be taken into account. The BCSC gave DFO until December 18, 2010 to develop and implement a federal aquaculture regulation for BC.

Identified changed to fishery operations for the 2010 season are identified in the Integrated Fishery Management plans. Key changes affecting the Nass and Skeena units were as follows.

1. Area 3 gill net – Subarea 3-12 was closed to the retention and possession of chum salmon. Any vessel that having chum on board from another area must have unloaded these from their vessel prior to fishing in subarea 3-12.
2. Skeena River recreational sockeye fishery – rules changed for this fishery, including starting the season with the fishery closed, then basing any opening decision on run size and projection.
3. North and Central Coast coho saw good returns in 2009. If it becomes evident that returns in 2010 are similar to 2009, then some management restrictions may be eased, including possible retention of coho by nets, and the re-opening of some troll areas in the Central Coast.
4. The Nass River demonstration commercial sockeye inland fishery was included in the Area 3. This fishery took place by the Gitanyow for 1500 sockeye in 2009.
5. Sockeye will be non-retention and non-possession in the troll fishery for 2010, unless the Skeena River sockeye returns in commercially harvestable numbers.

Identified management changes 2010 Southern Salmon IFMP included a number of changes related to other salmon fisheries, pertinent sockeye changes are as follows.

1. The 2010 objective for Cultus Lake sockeye is to limit the exploitation rate to a maximum of 20% to 30%, depending on in-season information. Management at the start of the season will be based on a maximum 20% exploitation rate limit for Cultus Lake sockeye. The exploitation rate limit may increase to a maximum of 30% if in-season information on the Late run sockeye stock aggregate, which includes Cultus Lake sockeye, indicates a strong return and sufficient numbers will reach the spawning grounds. If in-season information indicates a poor return of Late run sockeye or that low numbers may reach the spawning grounds, then the actual exploitation rate for Cultus Lake sockeye could be lower than 20%, and will depend on the exploitation rate implemented for the Late run sockeye management aggregate. For the Late run sockeye management aggregate stock group, abundance based TAM rules will be implemented. (refer to escapement tables 13(a) and 13(b) in Section 5.5).
2. The objective for Sakinaw Lake sockeye is to stop their decline and re-establish a selfsustaining, naturally spawning population. This objective will not be achieved until spawner abundance relative to previous brood years increases for at least 3 out of 4 consecutive years and there are no fewer than 500 natural spawners annually.
3. DFO plans to conduct a review of the post-release mortality rates currently used for salmon fisheries in Canadian waters. The results from the DFO review of mortality rates will be used to inform any additional revisions to the post-release mortality rates that are required to address these issues in the development of salmon IFMPs in future years

3.0 RESULTS, CONCLUSIONS AND RECOMMENDATIONS

This report contains the findings of the first surveillance cycle in relation to these fisheries.

Intertek Moody Marine conducted this surveillance audit in accordance with the MSC Fisheries Certification Methodology, version 6. Specifically, Section 6 Post Certification Requirements was the directive used in conducting the audit.

The client's response to the Conditions of Certification was set out in an Action Plan, which was appended to the final certification report (FCR). Auditors confirmed the progress of all client defined or alternative actions in relation to fulfilling all conditions identified in the FCR. For each condition, the report sets out progress to date. This progress has now been evaluated by the Moody Marine assessment team against the commitments made. This assessment includes a re-evaluation of the scoring allocated to the relevant Performance Indicators in the original MSC assessment where a condition has been completed. Where the requirements of a condition are met, the Performance Indicators are re-scored and if the score is 80 or more, then the condition is closed. Table 8 provides a summary of the status of conditions at the conclusion of the first annual surveillance audit.

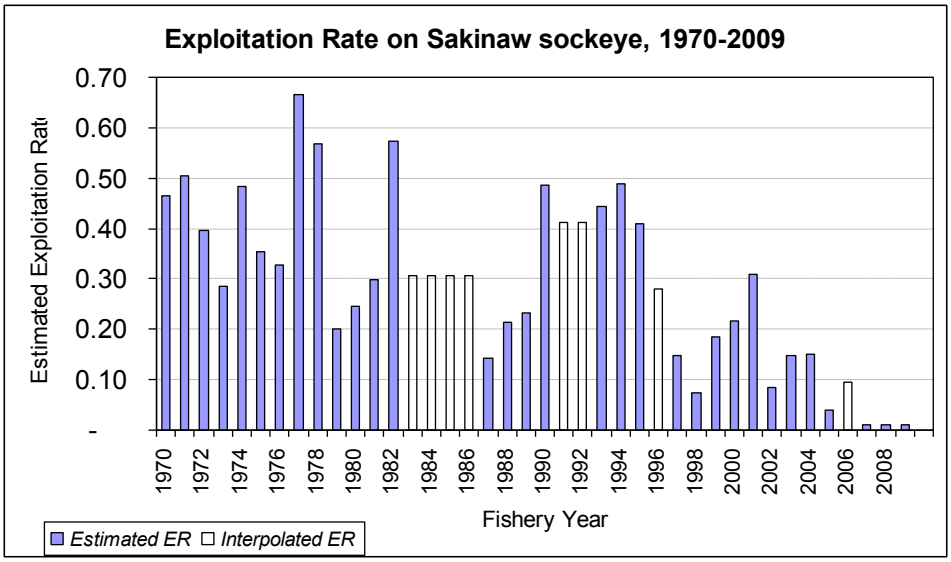
Table 8: Summary of First Annual Surveillance Audit

Condition	Deliverable Due (Surveillance Audit No.)	Interim Milestones Prescribed?	Progress Evaluation	Status
1 Fraser P1	1	None	Progress observed	Postposed by team to 2nd SA
2	1	None	Completed	Closed out
3	1	None	Progress observed	Postposed by team to 2nd SA
4	1	None	Completed	Closed out
5	2	None	Progress observed	Due at 2nd SA
6	2	None	Progress observed	Due at 2nd SA
7	1	None	Completed	Closed out
8	2	None	Progress observed	Due at 2nd SA
17 – Fraser P2	2	None	No progress evidence	Due at 2nd SA
18	1	None	Progress observed	Postposed by team to 2nd SA
19	2	None	Progress observed	Due at 2nd SA
24 Fraser P3	2	None	No progress evidence	Due at 2nd SA
25	1	None	Completed	Closed out
26	2	None	Progress observed	Due at 2nd SA
27	2	None	Progress observed	Due at 2nd SA
28	1	None	Progress observed	Postponed by team to 2nd SA
29	3	None	Completed	Closed out
30	2	None	No progress evidence	Due at 2nd SA
9 - Barkley P1	1	None	Progress observed	Postposed by team to 2nd SA
10	1	None	Progress observed	Postposed by team to 2nd SA
11	2	None	Progress observed	Due at 2nd SA
12	2	None	Progress observed	Due at 2nd SA
20 – Barkley P2	2	None	Progress observed	Due at 2nd SA
31 – Barkley P3	2	None	Progress observed	Due at 2nd SA
32	2	None	Progress observed	Due at 2nd SA
33	3	None	Progress observed	Due at 3rd SA
34	3	None	Completed	Closed out
13 Skeena – P1	2	None	Progress observed	Due at 2nd SA
13a	2	None	Progress observed	Due at 2nd SA
13b	2	None	Progress observed	Due at 2nd SA
13c	2	None	Progress observed	Due at 2nd SA
14	1	None	Completed	Closed out
21a - Skeena P2	2	None	Progress observed	Due at 2nd SA
21b	1	None	Progress observed	Postposed by team to 2nd SA

22	2	None	Progress observed	Due at 2nd SA
35a – Skeena P3	2	None	Progress observed	Due at 2nd SA
35b	2	None	Progress observed	Due at 2nd SA
35c	1	None	Progress observed	Postposed by team to 2nd SA
35d	2	None	Progress observed	Due at 2nd SA
36a	3	None	Completed	Closed out
36b	2	None	Progress observed	Due at 2nd SA
36c	2	None	Progress observed	Due at 2nd SA
15 – Nass-P1	1	None	Completed	Closed Out
16	2	None	Progress observed	Due at 2nd SA
23 – Nass P2	2	None	Progress observed	Due at 2nd SA

3.1 Fraser Conditions – Principle 1

Condition 1	Certification is conditional until a review of the run timing and harvest rates for Sakinaw sockeye has been completed and the fisheries management plan is consistent with the goal of minimizing the harvest rate on Sakinaw sockeye, within one year (**Fraser Condition #1.1**).
Assessed Activity	This Condition relates to Indicator 1.1.1.3. PI: The geographic range for harvest of each stock management unit in the fishery is known. 100 Scoring Guidepost • The geographic range for harvests of each stock management unit in the fishery is estimated and documented each year. • The information on the geographic range of harvests is monitored during the fishing season and used when making in-season management decisions. 80 Scoring Guidepost • The geographic range for harvests of target stocks is defined. • The information on the geographic range of the harvests of target stocks is monitored during the fishing season and is sufficient to prevent the over harvesting of these stocks. • The information available on the geographic range for harvest of non-target stocks is sufficient to prevent the over harvesting of these stocks. 60 Scoring Guidepost • The information available on the geographic range for harvests of target or non-target stocks is sufficient to prevent the over harvesting for the majority of the stocks within each stock management unit. **SCORE 77** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.12) suggested that a score of 100 was appropriate for this indicator. An independent review of the DFO submission for Fraser sockeye (Wilson 2005) suggested that the 60 scoring guidepost was not met "due to the over harvesting of and decline of inside non-Fraser sockeye stocks. The Team found that the information on the geographic range of harvests is probably adequate to prevent the over harvesting of Sakinaw sockeye; however, deficiencies in the information and analysis on run timing through Johnstone Strait have likely resulted in some over harvesting of Sakinaw sockeye. References to Sakinaw sockeye include other inside south coast non-Fraser sockeye stocks with similar marine distributions and run-timing. The Team's score was 77 for this indicator.
DFO Action Plan	The assessment of timing and harvest rates based on run reconstruction techniques has been completed. Advice for fisheries management has been provided and the fisheries management plan is consistent with the advice as documented in 2007& 2008 South Coast Salmon IFMP. In particular the guidepost 80 "information available on the geographic range for harvest of non-target stocks is sufficient to prevent the over harvesting of these stocks" is met. For this reason we believe that we have met or exceeded the 80 scoring guidepost and therefore this condition should be removed. A report summarizing this information will be made available to the appropriate MSC certifying body for their review by September, 2010.
Observations from 1st Surveillance	In July 2006, DFO provided a several brief reports which included estimates of exploitation rates for Sakinaw sockeye. "Assessment of Sakinaw Exploitation Probabilities" prepared by Michael Folkes dated June 7, 2004 provided a detailed analysis of the effect of different run timing assumptions on the exploitation rates for Sakinaw sockeye. However, these run timing analyses have relied on fence count data which DFO has acknowledged is likely biased towards earlier run timing: *"these timing curves have not undergone run reconstruction. As mentioned in Wood and Parken (2004), historical fishing impacts on this stock likely removed*

	the back half of the run, which leads to a biased representation of run timing at the fence." A subsequent report entitled "Estimation of the 2005 Sakinaw Sockeye Exploitation Rate" prepared by Michael Folkes dated 25 October 2005" stated that: *"Until better marine timing information become available for the Sakinaw sockeye population, more precise estimates of ER not likely be available. The POST project (http://www.postcoml.org/research) applied 100 archival tags to Sakinaw sockeye smolts in 2004. Thus migration timing data may become available from the returns in 2006."* Unfortunately, these archival tags did not provide any new information on the run-timing for Sakinaw sockeye, thus recent harvest rate analyses have been based on the same assumptions as previous analyses. The results of these analysis were provided in the DFO submission entitled: "Update on Sakinaw Sockeye Recovery" dated 9 May 2011. The exploitation rate estimates for 2007-09 have been added to the follow figure originally reported in Folkes et al. 2006.  **Figure 9: Reconstructed exploitation rate on Sakinaw Lake sockeye for years where there is sufficient escapement information to support the reconstruction.** **Exploitation in years where escapement information is not sufficient is interpolated as average of two estimated ER immediately before and two estimated ER after. 2007, 2008, 2009 estimated to be less than 1% ER since no commercial fisheries. Test fishing and FSC only. Adapted from Folkes et al. 2006.** Under recent and current IFMPs for Southern BC Salmon, Johnstone Strait fishery openings targeting Fraser sockeye are delayed until end of July to minimize exploitation of Sakinaw sockeye.
Conclusion from 1st Surveillance Report	**DFO has reviewed the run timing and harvest rates for Sakinaw sockeye and the best available estimates indicate that exploitation rate for Sakinaw sockeye in Fraser sockeye fisheries have been very low in recent years. The 2010 IFMP clearly stated that the potential fisheries which could intercept Sakinaw sockeye continue to be delayed to allow those fish to pass.** **Given the almost complete closure of commercial fisheries for Fraser sockeye from 2007-09 and the substantial fisheries for Fraser sockeye in 2010, the evaluation of this indicator is differed until the 2nd surveillance audit when exploitation rates for 2010 Fraser sockeye fisheries will be available.** **During the next surveillance audit, the team will verify whether the fishery management plan has been successful at minimizing the exploitation rate on Sakinaw sockeye.**

Condition 2	Certification will be conditional until a rigorous review has been completed to confirm that the indicator stocks reflect the status of the other stocks within each management unit, within one year (**Fraser Condition #1.2**).
Assessed Activity	This Condition relates to Indicator 1.1.1.4. PI: 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. 100 Scoring Guidepost • The status of the indicator stocks is well correlated with the stocks that are most at risk from a conservation point of view, not just correlated with the most productive stocks in the region. • The indicator stocks used have been reviewed and found to be scientifically defensible and appropriate by the Pacific Stock Assessment Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientists outside the management agency that the indicator stocks are appropriate. • The relationships between indicator stocks and stocks of interest are assessed every three to five years. 80 Scoring Guidepost • There is general agreement among regional fisheries scientists within the management agency that the status of indicator stocks reflects the status of other stocks within the management unit. • There is no significant scientific disagreement regarding the indicator stocks used by the management agency to formulate management decisions for the fishery. 60 Scoring Guidepost • There is no significant scientific disagreement regarding the indicator stocks used by the management agency to formulate management decisions for the fishery. • There is a scientific basis for the indicator stocks used in the management of the fishery. **SCORE 70** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.14) suggested that a score of 90 was appropriate for this indicator. Wilson (2005) suggested that one of the 80 guide posts was not met. While there is not complete agreement among regional fisheries scientists outside the management agency regarding the adequacy of the indicator stocks for formulating management decision, there does not appear to be significant disagreement regarding the stocks used. However, there remains a need to assess the degree to which these stocks represent the status of the other stocks within each management unit (i.e. run timing group). Hence, the two evaluation criteria under SG 80 have not been fully met and the Team's score was 70.
DFO Action Plan	Canada's Wild Salmon Policy (June 2005) and its implementation over the next few years requires the identification of Conservation Units (CUs), conservation benchmarks and monitoring systems to assess status of individual CUs. The current state of each CU within management units will be evaluated to assess status in order to meet the WSP objective of maintaining biodiversity. The management of Fraser River sockeye now routinely uses state-of-the-art DNA stock identification techniques. This reduces the uncertainty in stock composition estimates of CUs in each management unit. For example, Cultus Lake sockeye are severely depressed and cannot be sampled representatively in mixed stock fisheries. The choice of indicator stocks to represent the Cultus Lake sockeye has been agreed upon by the Pacific Salmon Commission and the Fraser River Panel Technical Committee. To satisfy this condition DFO in conjunction with Pacific Salmon Commission staff will summarize existing information on choice of indicator stocks used to reflect the status of other stocks within each management unit. This information will be provided in a written review to

	the MSC certifying body by June, 2010.
Observations from 1st Surveillance	In 2010, Fisheries and Oceans published "*Guidelines for applying updated methods for assessing harvest rules for Fraser River sockeye salmon (Oncorhynchus nerka)*." This Science Advisory Report resulted from a Fisheries and Oceans Canada, Canadian Science Advisory Secretariat Pacific Regional Advisory Meeting. The Fraser River Sockeye Spawning Initiative (FRSSI) has been an eight-year process to develop guidelines for setting annual escapement and exploitation targets for Fraser Sockeye Salmon stocks. The initiative began in early 2002, and has since evolved through a series of workshops and on-going feedback from stakeholders. A quantitative modeling tool used to support the planning process was developed and reviewed by the Pacific Science Advice Review Committee (PSARC) in 2003. The model has evolved substantially since that time. The simulation model supports the evaluation of alternative management strategies, such as target levels of total allowable mortality that change with run size. These management strategies shape preseason fishing plans, guide in-season management decisions, and provide a reference point for postseason review. (DFO, 2010). Among other conclusions, the report states: Simulating spawners and recruits for 19 stocks is the most detailed practical level of biological resolution in the population dynamics. While additional life history stages (e.g. smolts) or additional mechanisms (e.g. ocean conditions during first entry) could be incorporated for some stocks, this could not be consistently applied across all stocks. Estimating population dynamics for smaller population groups (e.g. conservation units) is not currently feasible, because recruitment estimates are not available at that resolution. DFO contends that the status assessment and management of Fraser sockeye are not based on indicator stocks: • Estimates of spawner abundance form the basis for any status assessment, and are available from over 250 distinct sampling sites throughout the watershed (nuSEDS). • These sites are grouped for different management purposes (forecasting, harvest planning) • 19 intensively monitored stocks with Spawner-Recruit data are distributed geographically throughout the region and they span a broad range of abundances, productivities (R/S), and patterns over time. • These 19 "intensively monitored stocks" usually represent more 95% of the total spawner abundance for Fraser sockeye. • Harvest decisions consider all the stocks, not just the 19 stocks with spawner-recruit models. The AT recognizes that DFO monitors virtually all of the spawning locations for Fraser sockeye and thus has information on escapement trends for most Fraser sockeye CUs. However, fishing plans and fisheries are managed using run timing, in-season abundance estimates and productivity estimates for the 19 intensively monitored "indicator" or "modeled" stocks. The most important point is that these "modeled" stocks represent the vast majority of Fraser sockeye and include both small and large stocks from all portions of the Fraser watershed.
Conclusion from 1st Surveillance Report	**The recent CSAS working report on Fraser Sockeye (Grant et al. 2010) and CSAS peer review process has provided evidence that the two scoring guideposts at the 80 level have been met. Thus, the scoring for this indicator has been raised to 80 and the condition closed out.**

Condition 3	Certification is conditional until the harvest rate analysis for Sakinaw sockeye has been updated using the best available data from the Pacific Salmon Commission sockeye run reconstruction analyses and appropriate fisheries management actions are consistent with the goal of reducing harvest rates for Sakinaw sockeye and rebuilding this depleted stock, within one year. (**Fraser Condition #1.3**)
Assessed Activity	This Condition relates to Indicator 1.1.2.1 PI: Estimates exist of the removals for each stock unit. 100 Scoring Guidepost • Catch estimates are available for all fisheries in Canadian waters that harvest the target and non-target stocks harvested in the fishery being evaluated. • Mortality rates are available for the fish released or discarded during the fishery. • Catch estimates are available for fisheries outside Canadian waters that harvest the stocks that are the target of the fishery being evaluated. 80 Scoring Guidepost • Catch estimates are available for all target stocks harvested in the fishery. • Catch estimates are available for non-target stocks where the catch of the non-target stock may represent a significant component of the harvest of that stock. • Mechanisms exist to ensure accurate catch reporting and these mechanisms are evaluated at least once every 5 years. 60 Scoring Guidepost • Catch estimates for the majority of target stocks are available. • Catch estimates are available for non-target stocks where the catch of the non-target stocks may represent a significant component of that stock. • Mechanisms exist to ensure accurate catch reporting and these mechanisms are evaluated at least once every 10 years. **SCORE 73** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.18) suggested that a score of 100 was appropriate for this indicator. Wilson (2005) suggested that one of the 60 scoring guidepost was not met because harvests of non-Fraser sockeye stocks "are not directly estimated". The Team found that current catch estimates and fisheries management guidelines for Sakinaw sockeye are based on preliminary analyses that require further review and refinement. Two of the 80 guideposts were not met so the Team's score was 73.
DFO Action Plan	Reconstructed estimates of recent harvest rates on Sakinaw sockeye have been completed. Actions have been taken to protect Sakinaw sockeye and estimates of harvest rates have declined substantially in recent years. This information will be made available to the appropriate MSC certifying body for their review by September, 2010.
Observations from 1st Surveillance	See stated observations for Condition 1.
Conclusion from 1st Surveillance Report	**DFO has reviewed the run timing and harvest rates for Sakinaw sockeye and the best available estimates indicate that exploitation rate for Sakinaw sockeye in Fraser sockeye fisheries have been very low in recent years. Given the almost complete closure of commercial fisheries for Fraser sockeye from 2007-09 and the substantial fisheries for Fraser sockeye in 2010, the evaluation of this indicator is differed until the 2nd surveillance audit when exploitation rates for 2010 Fraser sockeye fisheries will be available.** **During the next surveillance audit, the team will verify whether the fishery management plan has been successful at minimizing the rate on Sakinaw sockeye.**

Condition 4	Certification is conditional until a review of the relative productivity of Sakinaw sockeye has been completed and the fisheries management plan is consistent with the estimated productivity and goal of rebuilding the Sakinaw sockeye stock, within one year (**Fraser Condition #1.4**).
Assessed Activity	This Condition relates to Indicator 1.1.2.4 PI: 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. 100 Scoring Guidepost • Scientifically defensible productivity estimates (e.g. stock/recruitment relationships) have been derived for all target stocks and the relative productivity of non-target stocks is known. • Risk assessment has been conducted to determine the impact of alternative harvest strategies on non-target stocks. The risk assessment should include an assessment of the uncertainties with estimates of stock productivity for both the target and non-target stocks. 80 Scoring Guidepost • There is adequate information to identify the harvest limitations and production strategies required to maintain the high productivity of the target stocks. • There is adequate information to estimate the relative productivity of the non-target stocks where the fishery harvests may represent a significant component of those non-target stocks. • The harvest limitations for target stocks take into consideration the impacts on non-target stocks and the uncertainty of the productivity for these stocks. 60 Scoring Guidepost • The available information and analyses are adequate to identify the harvest limitations and production strategies required to maintain the productivity of the majority of target stocks. • The relative productivity of the non-target stocks is considered in the management strategy, where the fishery harvests may represent a significant component of those non-target stocks. **SCORE 73** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.25) suggested that a score of 90 was appropriate for this indicator. Wilson (2005) suggested that one of the 60 scoring guidepost was not met because there are "no harvest guidelines in place to protect the 13 non-target stocks that are harvested during fisheries for Fraser sockeye". The Team found that were harvest guidelines in the IFMP that were developed for the protection of these non-target stocks but information on the productivity of the Sakinaw stock relative to co-migrating Fraser sockeye stocks needs to be assess and harvest rates adjusted accordingly. The Team's score was 73.
DFO Action Plan	Estimates of relative productivity for Sakinaw sockeye have been completed. Estimates of marine survival rates in recent years have been very low. Harvest rate reductions in conjunction with enhancement and habitat improvements have been implemented by DFO in an attempt rebuild Sakinaw sockeye. This information will be made available to the appropriate MSC certifying body for their review by September, 2010.
Observations from 1st Surveillance	It is clear from the returns to Sakinaw Lake in recent years that the natural productivity of this sockeye stock is very low. Concerns regarding Sakinaw sockeye and other inner south coasts non-Fraser sockeye stocks have been taken into account in the management plans for fisheries targeting the more productive and abundant Fraser sockeye stocks. DFO's update on Sakinaw sockeye recovery dated 9 May 2011 provides information on each of the approaches and actions to achieve the goals and objectives of Sakinaw sockeye.

	A conservation strategy for Sakinaw sockeye was completed in 2005 and is available on the DFO website at the following address (http://www.pac.dfo-mpo.gc.ca/species/salmon/sakinaw_sockeye_cs/default_e.htm). The 2010 Integrated Fisheries Management Plan Salmon: Southern B.C defines the specific measures used to control fisheries impacts on returning Sakinaw sockeye. In particular, the IFMP states: Most fisheries that have potential to intercept Sakinaw Lake sockeye will continue to be delayed prior to the last week of July to ensure a significant portion of the return has passed through major fisheries in Johnstone Strait. The plan will provide for: · Restrictions in First Nations FSC fisheries prior to the last week of July. · Recreational fisheries in Queen Charlotte Strait, Johnstone Strait, and upper Strait of Georgia will be closed to sockeye retention prior to the last week of July. The waters near the mouth of Sakinaw Creek in Area 16 will be closed to fishing all season. In addition, there will be sockeye non-retention restrictions in Area 16 until early to mid August at which time sockeye retention opportunities are expected to be available in Sabine Channel. · Commercial fisheries in Queen Charlotte Strait and Johnstone Strait will be closed prior to the last week of July, and upper Strait of Georgia (including Sabine Channel) until early to mid August.
Conclusion from 1st Surveillance Report	**Based on the information provided by DFO in their Sakinaw sockeye update and recent IFMPs, all three of the 80 level scoring guideposts have been met and the score for this indicator has been raised to 80 and Condition closed out.**

Condition 5	Certification is conditional until the Conservation Units have been defined for Fraser sockeye using the methods described in Holtby and Ciruna (2007) and LRP's for each Fraser sockeye conservation unit are defined and peer reviewed, within two years. (**Fraser Condition #1.5**).
Assessed Activity	This Condition relates to Indicator 1.1.31. PI: Limit Reference Points or operational equivalents have been set and are appropriate to protect the stocks harvested in the fishery. 100 Scoring Guidepost • The Limit Reference Point for target species have been reviewed and found to be scientifically defensive and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientist outside the management agency that the LRP's are appropriate. • There is general scientific agreement regarding the LRP's for non-target species. 80 Scoring Guidepost • There is some scientific basis for the LRP's for target stocks and these LRP's are defined to protect the stocks harvested by the fisheries. • There is no significant scientific disagreement regarding the LRP's used by the management agency to formulate management decision for the fishery. 60 Scoring Guidepost • There is general agreement among regional fisheries scientist within the management agency that the LRP's or equivalent are appropriate to achieve the management goals for target stocks. **SCORE 70** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.27-28) suggested that a score of 80 was appropriate for this indicator. Wilson (2005) questioned

	if the 60 scoring guidepost was met because "conservation units can decline within an aggregate even though the aggregate is meeting or exceeding the escapement goal". The Team found that the management agency has operational LRPs for the 19 Fraser sockeye indicator stocks and is in the process of defining LRPs for Fraser sockeye stocks in order to implement the WSP. Bradford and Wood (2004) provide the scientific basis for setting minimum population sizes and recovery objectives for Cultus and Sakinaw sockeye stocks. The Team's score was 70.
DFO Action Plan	To satisfy these conditions DFO will fully implement 'Strategy 1' of our WSP. 'Strategy 1' of the WSP requires standardized monitoring of wild salmon status, including identification of upper and lower benchmarks to represent biological status and guide harvest decisions. Implementing this strategy requires identification of Conservation Units (CUs)6 for salmon: the scale at which the WSP aims to maintain biodiversity and at which benchmarks (LRPs and TRPs) will be defined. There are various definitions of lower and target reference points in relation to resource management. In the context of the WSP, The lower benchmark (LRP) will be established at a level high enough to ensure there is a substantial buffer between it and being considered at risk of extinction by COSEWIC. As defined in the WSP: "the buffer will account for uncertainty in data and control of harvest management. There is no single rule to use for determination of the lower benchmark. Rather, it will be determined on a case by-case basis, and depend on available information, and the risk tolerance applied…." The upper benchmark (TRP) will be established to identify whether harvests are greater or less than the level expected to provide, on an average annual basis, the maximum annual catch for a CU, given existing environmental conditions.
Observations from 1st Surveillance	Progress has been made. Working Paper 2010/P14 for CSAS (Fraser Sockeye (*Oncorhynchus* nerka) Wild Salmon Policy Evaluation of Stock Status: State and Rate by Grant et al. 2010) has provided the first key steps towards clarification to the CUs for Fraser sockeye. Further work is required both within and outside DFO to reach consensus on the CUs and LRPs for Fraser sockeye.
Conclusion from 1st Surveillance Report	**Given progress to date, the Assessment Team (AT) expected that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

Condition 6	Certification is conditional until the Management Units have been defined for Fraser sockeye and the management agency defines the TRP's for each Fraser sockeye management unit taking into account the productivity of target and non-target stocks within each management unit, by May 2012. (**Fraser Condition #1.6**).
Assessed Activity	This Condition relates to Indicator 1.1.3.2. PI: Target Reference Points or operational equivalent have been set. 100 Scoring Guidepost • The Target Reference Point (TRP) for target species have been reviewed and found to be scientifically defensive and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientist outside the management agency that the TRP's are appropriate. • The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and productivity of non-target stocks. 80 Scoring Guidepost • There is no significant scientific disagreement regarding the TRP's used by the management agency to formulate management decision for the fishery. • The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and the productivity of non-target stocks. 60 Scoring Guidepost

	• There is general agreement among fisheries scientist within the management agency that the TRP's are appropriate for the target stocks. • Target reference points have been defined for the majority of target stocks harvested in the fishery and these target reference points are not scientifically disputed. • The management agency has taken into account the relative productivity of non-target stocks when setting the TRP's for the majority of target stocks. **SCORE 70** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.29) suggested that a score of 100 was appropriate for this indicator. Wilson (2005) indicated that two of the 60 scoring guidepost were not met because he questioned if "the escapement goals set for the four timing aggregates of Fraser sockeye are the operational equivalent of TRPs". The Team found that the fixed escapement goals at low run size set for each of the four run-timing aggregates qualified as operational equivalents of TRPs that have been set relatively low because of concerns regarding the differential productivity of stocks within these timing groups. The Team recognizes that there continues to be considerable scientific debate regarding the TRP's for both target and non-target stocks. It is anticipated that the implementation of the WSP will provide a clear definition of the TRP's for Fraser sockeye. A score of 70 was awarded.
DFO Action Plan	To satisfy these conditions DFO will fully implement 'Strategy 1' of our WSP. 'Strategy 1' of the WSP requires standardized monitoring of wild salmon status, including identification of upper and lower benchmarks to represent biological status and guide harvest decisions. Implementing this strategy requires identification of Conservation Units (CUs)6 for salmon: the scale at which the WSP aims to maintain biodiversity and at which benchmarks (LRPs and TRPs) will be defined. There are various definitions of lower and target reference points in relation to resource management. In the context of the WSP, The lower benchmark (LRP) will be established at a level high enough to ensure there is a substantial buffer between it and being considered at risk of extinction by COSEWIC. As defined in the WSP: "the buffer will account for uncertainty in data and control of harvest management. There is no single rule to use for determination of the lower benchmark. Rather, it will be determined on a case by-case basis, and depend on available information, and the risk tolerance applied…." The upper benchmark (TRP) will be established to identify whether harvests are greater or less than the level expected to provide, on an average annual basis, the maximum annual catch for a CU, given existing environmental conditions.
Observations from 1st Surveillance	Progress has been made. Working Paper 2010/P14 for CSAS (Fraser Sockeye (*Oncorhynchus* nerka) Wild Salmon Policy Evaluation of Stock Status: State and Rate by Grant et al. 2010) has provided the first key steps towards clarification to the CUs for Fraser sockeye. Further work is required both within and outside DFO to reach consensus on the CUs and TRPs for Fraser sockeye.
Conclusion from 1st Surveillance Report	**Given progress to date, the AT expected that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

Condition 7	Certification is conditional until the management agency provides a clear commitment to implement the recovery plan for Cultus sockeye and evidence that fisheries management actions are consistent with the recovery goals for Cultus sockeye, within one year. (**Fraser Condition #1.7**).
Assessed Activity	This Condition relates to Indicator 1.2.1. PI: 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. 100 Scoring Guidepost • There are comprehensive and pre-agreed responses to low stock size that utilize a range of management measures to ensure rapid recovery.

	• Stocks are allowed to recover to the TRP before commercial fisheries are permitted that target these stocks. • The management agency does not use artificial propagation as a substitute for maintaining or recovering wild stocks. 80 Scoring Guidepost • In the event of severe depletion, recovery plans are developed and implemented to facilitate the recovery of the depleted stocks with 3 reproductive cycles. (*SCS Intent – Although this indicator was set for use in salmon fisheries, the cyclic nature of the runs within the Fraser River system require that this statement is interpreted within the context of the cyclic aspects of the Fraser, and not just as 3 reproductive cycles of the species.*) • Stocks are allowed to recover to more than 150% of the LRP for abundance before any fisheries are permitted that target these stocks. 60 Scoring Guidepost • In the event of severe depletion, recovery plans are developed and implemented to facilitate the recovery of the depleted stocks within 5 reproductive cycles • Stocks are allowed to recover to more than 125% of the LRP for abundance before any fisheries are permitted that target these stocks. **SCORE 70** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.31) suggested that a score of 75 was appropriate for this indicator. Wilson (2005) indicated that one of the 60 scoring guidepost was not met because "DFO has no clear strategy for protecting and rebuilding individual stocks or CU's that decline consistently within an aggregate where the aggregate goals are still being met". Cultus sockeye is an example of a severely depleted target Fraser sockeye stock within one of the run-timing aggregates where DFO does have a strategy for protecting and rebuilding the stock. However, the Team found that there were significant concerns regarding the implementation of the recovery plan for Cultus sockeye. The Team's score was 70.
DFO Action Plan	A conservation strategy has been completed for Cultus Lake sockeye (http://www.pac.dfompo.gc.ca/species/salmon/cultus_sockeye_cs/documents/Cultus_Conservation_Strategy_Feb08_e.pdf.). Specific actions are already underway to recover Cultus sockeye Lake sockeye. They include control of exploitation through conservation-oriented fishing plans, population assessment, a captive breeding project, research on the cause of early migration and high pre-spawn mortality, assessment of littoral habitat and the Columbia Valley aquifer, an investigation of adult migratory timing using acoustic tag, studies on the impact of predation and control projects for pike minnow and Eurasian water milfoil, and awareness materials including a brochure for the general public. DFO has already demonstrated a clear commitment to implement a rebuilding plan for Cultus Lake sockeye with fishery management actions that are consistent with the rebuilding goals for Cultus Lake sockeye that are identified in the conservation strategy. A report summarizing how DFO actions are consistent with the rebuilding goals for Cultus sockeye will be developed. This report will be made available to the appropriate MSC certifying body for their review by December, 2010.
Observations from 1st Surveillance	DFO has confirmed their commitment to implementing the recovery plan for Cultus sockeye, as evidenced on the Cultus Lake Sockeye Recovery Program website (http://www.pac.dfo-mpo.gc.ca/science/habitat/cultus/sockeye-rouge-eng.htm). Fishery management actions regarding protection of Cultus sockeye are clearly defined in the IFMPs. Fishery restrictions are defined to protect Cultus and Late Run sockeye. The Cultus exploitation rate in 2010 will likely higher than the 20-30% ER target range proposed for 2010, however, the escapement from fisheries exceeded the short-term Cultus escapement objective. Suspected high pre-spawn mortality in 2010 may have substantially reduced the number of effective female spawners. The degree of spawning success will not be known until the smolts are enumerated as their leave Cultus Lake in the spring of 2012. Fraser

	sockeye fisheries conducted in 2010 during the migration period for Cultus sockeye were targeting the late-run Shuswap sockeye and any Cultus sockeye caught during these fisheries were considered to be bycatch (i.e. harvest of a non-target stock) for the 2010 Fraser sockeye fishery.
Conclusion from 1st Surveillance Report	**Given DFO's progress towards the recovery objectives for Cultus sockeye and protection of Cultus fish within the IFP, the team considers that both of the 80 level scoring guideposts have been met and the score for this indicator has been raised to 80. The condition is closed out.**

Condition 8	Certification is conditional until the management agency defines the LRP's for the target stocks and the management agency provides documentation that fisheries have not resulted in escapements that approach or are below the LRP in more than one year in a period of the most recent 5 cycle years, for any of the target sockeye stocks. The intent for this condition is to resolve the effects of fisheries, not other factors, on the stock and to recognize that the Fraser River sockeye undergo cycles so that these cycles must also be taken into account when examining whether the stocks are being maintained above LRPs. This condition should be addressed within two years (**Fraser Condition #1.8**).
Assessed Activity	This Condition relates to Indicator 1.2.2. PI: Target stocks are not depleted and recent stock sizes are assessed to be above appropriate limit reference points for the target stocks. In contrast to Indicator 1.2.1, which evaluates the strategy for stock recovery, this indicator evaluates the current status of the target species or stocks, and the basis for being reasonably certain about their status. The Scoring Guideposts are arranged hierarchically, so that evaluation of the current status depends on the assessment, which in turn depends on data and knowledge about the stocks and the fishery. 100 Scoring Guidepost • There is general agreement among regional fisheries scientist outside the management agency that the methods of estimating escapements and exploitation rates for the target stocks are scientifically defensible. • Management actions have reduced fishing as the target stocks approach the LRP and fisheries have only resulted in escapements that approach or are below the LRP escapement goal in one year in a period of the most recent 10 consecutive years, for any of the target stocks. 80 Scoring Guidepost • There is general agreement among regional fisheries scientist inside the management agency that the methods of estimating escapements and exploitation rates for the target stocks are scientifically defensible. • Management actions have reduced fishing as the target stocks approach the LRP and fisheries have only resulted in escapements that approach or are below the LRP escapement goal in one year in a period of the most recent 5 consecutive years, for any of the target stocks. 60 Scoring Guidepost • There is general agreement among regional fisheries scientist inside the management agency that the methods of estimating escapements and exploitation rates for the majority of target stocks are scientifically defensible. • Management actions have reduced fishing as the target stocks approach the LRP and fisheries have only resulted in escapements that approach or are below the LRP escapement goal in no more than two years in a period of the most recent 5 consecutive years, for the majority of the target stocks. **SCORE 75** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003a, p.33) suggested that a score of 90 was appropriate for this indicator. Wilson (2005) indicated that one of the 80 scoring guidepost was not met because of the concerns regarding the "health of

	component CUs or stocks" within a run timing group. In 2009, concerns were raised regarding the current status of Fraser sockeye relative to the interim LRPs defined for the target stock groups. Consequently, the new section on "Stock Status and Trends was added to the report (Section 8). The trend plots for Fraser sockeye show that the 4yr average escapement has been above the Low Escapement Benchmark (LEB) for all run-timing groups except Early Stuart sockeye. The 4yr average escapement for Early Stuart sockeye has been below its LEB of 108,000 in four of the past five years. While this LEB is believed to be a relatively high LRP, management actions have reduced fishing in years when returns for the Early Stuart target stock approach the LEB and no commercial fisheries have been permited to target Early Stuart sockeye in each of the four recent years where the 4 yr average escapement has dropped below the LEB line. A few First Nation's have been allowed to harvest Early Stuart sockeye for FSC purposes in these years and these harvests have been factored into the LEB for this run-timing group. Since commercial fisheries have not resulted in escapements that approach or are below the LEB escapement goal in any years in a period of the most recent 5 consecutive years, the Fraser sockeye fishery passed the 60 guideposts for Early Stuart and other run-timing groups. The new Stock Status and Trends Section 8 provides some of the information required for Condition 8, however, formal LRPs have not been defined for each of the target stocks for the Fraser sockeye fishery. The management agency has made considerable progress towards the definition of LRPs over the past few years so it should be possible to address Condition 8 within one year of the certification date. The Team's score was 75 for this indicator.
DFO Action Plan	To satisfy these conditions DFO will fully implement 'Strategy 1' of our WSP. 'Strategy 1' of the WSP requires standardized monitoring of wild salmon status, including identification of upper and lower benchmarks to represent biological status and guide harvest decisions. Implementing this strategy requires identification of Conservation Units (CUs)6 for salmon: the scale at which the WSP aims to maintain biodiversity and at which benchmarks (LRPs and TRPs) will be defined. There are various definitions of lower and target reference points in relation to resource management. In the context of the WSP, The lower benchmark (LRP) will be established at a level high enough to ensure there is a substantial buffer between it and being considered at risk of extinction by COSEWIC. As defined in the WSP: "the buffer will account for uncertainty in data and control of harvest management. There is no single rule to use for determination of the lower benchmark. Rather, it will be determined on a case by-case basis, and depend on available information, and the risk tolerance applied…." The upper benchmark (TRP) will be established to identify whether harvests are greater or less than the level expected to provide, on an average annual basis, the maximum annual catch for a CU, given existing environmental conditions.
Observations from 1st Surveillance	Clearly, LRPs or their operational equivalent (Lower Benchmarks) must be defined before the management of Fraser sockeye fisheries can be evaluated against these LRPs. Working Paper 2010/ P14 for CSAS (Grant et al. 2010) has provided the first key steps towards clarification to the CUs and LRPs for Fraser sockeye. Further work is required both within and outside DFO to reach consensus on the CUs and LRPs for Fraser sockeye.
Conclusion from 1st Surveillance Report	**Given progress to date, the AT expects that the management agency will meet the requirements of the 80 guideposts within the required time frame of 2 years.**

3.2 Fraser Conditions – Principle 2

Condition 17	Continued certification of the Fraser sockeye salmon fishery is contingent upon providing reasonable, reliable, and defensible estimates of the harvest of white sturgeon and steelhead within a reasonable time frame. See also Condition 1, 3, and 4 regarding Sakinaw sockeye, and the need to be able to identify and understand the impact of fish released from a supplementation program to assist in the recovery plan of Sakinaw sockeye and to be able to detect impacts on natural spawning produced returning adults. To be completed by May 2012.

	(**Fraser Condition 2.1**)
Assessed Activity	This Condition relates to Indicator 2.2.1. PI: 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. The intent of this measure is to ensure that the management system incorporates available knowledge and considers the impacts of the fishery on biodiversity issues. This indicator includes the impacts of enhanced fishery harvests on these issues. 100 Scoring Guidepost • A risk assessment has been conducted, based on current knowledge of direct and incidental mortalities from the fishery, to ensure the fishery does not pose a significant threat to the biodiversity of the target or non-target species. • Stock composition including enhanced component, is known within Fishery Management Units with the likelihood of harvest of endangered, threatened, protected, or icon species has been estimated. • Time and area of migrations of weak year classes, sub-stock or population components are known. • The management system contains provisions to reduce harvests based on biodiversity concerns of affected endangered, threatened, protected or icon species, or weak year classes, of stocks, including the enhanced components, of the targeted species. 80 Scoring Guidepost • The fishery has been monitored and the stock composition is assessed with a special effort to determine presence of rare, endangered, protected, or icon species. • The management agency has a history of incorporating new research into management as new research data on impacts of fisheries on biodiversity become available. • The fisheries management system includes provisions for harvest reduction when biodiversity concerns are identified for target or non-target species. 60 Scoring Guidepost • Efforts are being made to assess the impacts of the fishery on the biodiversity of the endangered, threatened, and protected or icon species. • The impact of the fishery on endangered, threatened, and protected or icon species is identified and is considered in the management of fisheries. • There are provisions in the management system to reduce the impacts of the fishery on the biodiversity of the endangered, threatened, and protected or icon species. The DFO detailed submission for Fraser sockeye (DFO Fraser 2003b, p.16-22) suggested that a score of 95 was appropriate for this indicator, with partial scores on scoring elements 1 and 2 at the 100 scoring guidepost. At the 100 SG, we found no evidence of any risk assessment regarding steelhead, sturgeon and Sakinaw sockeye, nor was there evidence provided of stock composition of these species in the directed harvest that was credible. Evidence was provided that Sakinaw time and area historic harvests were known and an attempt was made to provide an estimate of the impact of the fishery on their harvests. The management system did contain provisions for limiting their harvests. We addressed the impacts on Cultus sockeye as a depleted target stock under Principle 1. Ken Wilson (2005) argued that Fraser sockeye fisheries are a dominant factor in the general decline and poor stock status of inside sockeye populations, with the Sakinaw stock now listed and prospect for recovery very poor. He maintains that Cultus remains at considerable risk, and harvest objectives are higher than desirable for the recovery of Cultus sockeye, and in every case in the last four years (2002 – 2005) these harvest limits set by DFO for harvest of Cultus sockeye were exceeded. He further argues that Fraser sockeye fisheries pose a significant risk to the biodiversity of both target and non-target socks. DFO's understanding of the impacts of Fraser fisheries on inside sockeye stocks is marginal, and limits the effective regulation of these fisheries. He also states that sockeye fisheries impact on endangered white sturgeon, but

	impacts have not been assessed. We agreed with DFO assessments at the 60 scoring guidepost, based on the work completed and submitted on Sakinaw and Cultus, along with the general provisions of the Wild Salmon Policy, that reasonable efforts were being made to assess impact on endangered, threatened, and protected or icon species, that the impacts were being considered in management and that there are provisions in the management plan to reduce impacts on these species. **SCORE 77** At the 80 scoring guidepost, we were provided with substantial evidence that the agency has a history of responding to information where biodiversity may be impacted and there are provisions in the management plan to limit the impact of the fisheries on non-target species of special interest. The first scoring guidepost at the 80SG was considered partially met because stock composition analysis is generally assessed and efforts have been made to identify the presence of depleted stocks in the fishery, including Cultus Lake sockeye. However the team did find deficiencies with regard to Sakinaw sockeye, sturgeon, and steelhead in that little or no direct action had been taken to provide data indicating the impact of the fishery on these species. There has apparently been no special effort to identify Sakinaw sockeye salmon in the fishery or to monitor white sturgeon bycatch, a species currently undergoing SARA review. Steelhead catches are also not well documented and many of the steelhead stocks in the region have been highly depleted. This resulted in a score of 77, primarily because of the deficiency in the monitoring of the fishery on Sakinaw sockeye, sturgeon, and steelhead.
DFO Action Plan	Programs are in place to estimate the number of sturgeon and steelhead encountered in fisheries directed at Fraser River sockeye. A mandatory release requirement for both of these species is in effect, therefore, estimates of releases are currently based on unverified reports of releases from fishery participants. In addition, several test-fisheries are conducted in the fishery area, which provide independent data on the presence and scope of any sturgeon and steelhead by-catch issues. Improving estimates of fishery impacts on these species would require the implementation of an on-board observer program to provide direct, validated, observations of encounters of steelhead and sturgeon. With sufficient funding, implementing an observer program would be feasible for fisheries with larger vessels. However, fisheries using smaller vessels (e.g. FN Economic Opportunity fisheries and approximately a third of the commercial fleet)) could not accommodate onboard observers. These fisheries could potentially be monitored with on water roving observers an approach which was piloted in the 2007 Area E chum fishery. New in 2007 Area E commercial fisheries also had census-based catch reporting programs, which should meet the 100% reporting requirement for sturgeon releases. Monitoring data to estimate the impact of Fraser River sockeye fisheries on sturgeon was not available in 2009 because there was no Area E Commercial Sockeye Fishery. Delayed delivery of a May 2012 report based on 2010 and 2011 fisheries monitoring is contingent on having commercial fisheries in 2010 and 2011. For consideration, to address the potential impacts on sockeye fisheries on sturgeon, an alternative approach could be to use Albion, Cottonwood and Whonnock sturgeon encounters as a proxy. To satisfy this condition DFO will develop a two year program (e.g. modelling, test fishery expansion, census based and/or observer based) to estimate the impact of Fraser River sockeye fisheries on steelhead and sturgeon beginning in 2010. The need for further work will be assessed according to the results of this program. A report summarizing the work will be completed in May 2012 and provided to the Certifier.
Observations from 1st Surveillance	The AT has not been provided any evidence of improvements to the catch monitoring systems for Fraser sockeye that would ensure that "reasonable, reliable, and defensible estimates of the harvest of white sturgeon and steelhead" are available within a reasonable time frame. For Sakinaw sockeye evaluations, see conditions 1, 3, 4 and 18.

Conclusion from 1st Surveillance Report	**This condition will be evaluated at the next surveillance audit.**

Condition 18	Fraser Sockeye Salmon Condition #2. Certification of the Fraser sockeye salmon fishery is contingent upon developing and implementing a risk assessment of the Sakinaw Lake recovery strategy that will include the following items: 1) Examination of the risk of differing temporal harvest rates on returning run and its implication on the probability of the recovery of the stock; and 2) Refinement and peer review of run reconstruction analyses for Sakinaw sockeye, both tasks to be completed within one year (**Fraser Condition 2.2)**
Condition 19	Fraser Sockeye Salmon Condition #3. Certification will be conditional until Limit Reference Points or their equivalent have been defined for Fraser sockeye salmon stocks, and recovery plans have been developed and implemented for stocks harvested in Fraser sockeye fisheries that are below their LRP. The proposed recovery plans must provide information regarding the probability of recovery and the timing for recovery. To be completed by May 2012. (**Fraser Condition 2.3)**
Assessed Activity	This Condition relates to Indicator 2.3.1. PI: Management strategies include provision for restrictions to the fishery to enable recovery of non-target stocks to levels above established LRPs (Limit Reference Points). 100 Scoring Guidepost • The management plans and escapement goals have been shown to have a high (>80%) probability of achieving a long-term recovery of depleted non-target stocks using risk analysis. • Historic data have been thoroughly examined to ensure fisheries restoration objectives are based on the likely habitat capacity, rather than on trends that cover only the most recent decades, thus avoiding the "moving baseline" syndrome. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Proposed management strategies have been reviewed and found to be scientifically defensible and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • The management system supports the collection of data on non-fishing related human activity in the development of recovery plans for non-target stocks. 80 Scoring Guidepost • The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. • Objectives for recovery have at least some consideration of historic documents on stock abundance. • The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans. • The management system considers the impact of non-fishing related human activity in the development of recovery plans for non-target stocks 60 Scoring Guidepost • The management system attempts to prevent extirpation of non-target stocks and does have rebuilding strategies for the majority of the stocks. • The management system has at least a 50% probability of achieving long-term recovery of depleted non-target stocks. • The management system has a strategy for periodic revisiting escapement goals to respond to new data on recovery success or failure for the majority of the stocks.

	SCORE 73 The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003b, p.22-25) suggested that a score of 95 was appropriate for this indicator. Ken Wilson (2005) argued that LRP's for non–target stocks have generally not been established. He also stated that recovery of non-target inside sockeye stocks has never been addressed except for Sakinaw sockeye and that in the case of Sakinaw sockeye the impact of Fraser sockeye fisheries is not well understood. Further, he argues that DFO has not made provisions for restrictions to Fraser sockeye fisheries to enable the recovery of this stock, or other depleted inside sockeye stocks and that PSARC'S recommendations concerning the timing of Sakinaw sockeye through Fraser sockeye fisheries in Johnstone Strait have not been fully implemented. He also pointed out that recovery of both Sakinaw and Cultus sockeye remains highly uncertain particularly in light of Canada's decision not to protect these stocks under SARA. We agreed with many of Wilson's comments but agree with DFO scoring assessments at the 60 scoring guidepost, based on the work completed and submitted on Sakinaw and Cultus, along with the general provisions of the Wild Salmon policy. The exploitation rate of 10-12% that is currently used as a harvest limit to ensure the fishery does not impair recovery of the Sakinaw stock. Run reconstruction results were provided as evidence that exploitation rates have been below the harvest goal in 2004-05, however, we have concerns regarding the assumptions made and the appropriateness of these harvest rate estimates. Exploitation rates based on the observed escapement timing could be biased low but the very few fish that escape during the later portion of the run. Estimates of the exploitation rates should be based on average historical run-timing and harvest rates of the more abundant Fraser stocks that occur in the same fishery. In the absence of a risk analysis, low harvest rates should be imposed over a high proportion of the historical run timing to eliminate the possibility of the fishery inadvertently reducing returns or preventing the recovery of the later timed component of the run. It appears from the escapement timing information that the latter portion of the run has been reduced the most and consequently should receive at least equal conservation efforts. This is also of concern that because of the low numbers of fish returning, it is nearly impossible to directly measure exploitation rates specific to this stock and as a consequence there remains a high uncertainty as to what harvest rates actually are on the Sakinaw stock. The MSC scoring guidelines established for this indicator requires that to meet the 80 scoring guidepost, there should be at least a 60% probability that depleted stocks will recover. Based on the information provided to date for the Sakinaw sockeye stock, we believe that the fishery may still be a factor in the recovery of at least the latter half of the run. Although the recovery plan goes a long way in providing goals and procedures to ensure freshwater productivity is increased, in the absence of further risk analysis of the recovery strategy, we remain unconvinced that the current harvest policies and commercial closures have been adequately examined for their impact on the recovery of Sakinaw sockeye. Beyond Cultus and Sakinaw sockeye, there are other small salmon stocks in the area of targeted Fraser River sockeye stocks that have recently had reduced returns. Although we had limited information as to what role harvests have had on these reductions, their recent reductions parallel those of the Sakinaw and may have a common cause. The management entities as part of meeting the Wild Salmon Policy guidelines are expected to develop the functional equivalent of Limit Reference Points for these stocks and if necessary, develop similar analysis and recovery strategies as those developed for Cultus and Sakinaw. Although sockeye salmon stocks are of primary concern, depleted stocks of other species that are a significant bycatch in the sockeye salmon directed fishery also must be addressed. The Team found that all of the 60 scoring guideposts were met because DFO has taken measures to prevent the extirpation of non-target stocks and recovery plans have been developed for Sakinaw and Cultus sockeye that should promote the recovery of the majority of the depleted non-target stocks. While it is difficult to distinguish between a 50% probability of achieving long-term recovery at the 60 scoring level and a 60% at the 80 scoring level, the Team found that the management system has substantially reduced the impact of fisheries on non-target stocks in recent years and the fishery is no longer the major factor determining the recovery of these stocks.

	At the 80 scoring level, we found scoring elements 1,3,4 and 5 partially deficient because LRPs have not been defined for all non-target stocks, the probability of achieving long-term recovery of depleted non-target stocks is likely less than 60%; monitoring and assessment programs used to estimate harvest rates for Sakinaw sockeye must be improved; and escapement goals have yet to be defined for most non-target stocks. At the 100 level, we found that the agency used historic information for determining recovery objectives, scientific review from PSARC was used for development of management plans and evidence that non-fisheries information was used in the development of the recovery plans for Sakinaw and Cultus. There was no risk analysis of the recovery program for Sakinaw and the recovery plan did not provide sufficient detail to determine if the monitoring programs were to be sufficiently robust to determine if recovery was occurring or if commercial fishing impacts were minimal (partial score). Cultus was treated as a depleted target stock and has been addressed under Principle 1. This resulted in a score of 73, primarily because of an action plan for both implementation and monitoring to ensure the recovery plan was successful for Sakinaw sockeye.
DFO Action Plan	**Action Plan 18 -** Generic run reconstruction techniques are well developed and have been peer review by DFO's Pacific Scientific Advice Review Committee (PSARC). Uncertainty in the output of run reconstruction depends on the quality of input data and parameters. Refinement of key data inputs in the run reconstruction of Sakinaw sockeye have been completed (see Condition 1). The WSP also requires monitoring systems of CUs to assess status. Annual monitoring of the spawning escapements to Sakinaw sockeye is continuing to assess current rebuilding progress. Rebuilding has been severely impacted by prevailing low marine survival rates. DFO will complete a risk assessment of the Sakinaw Lake sockeye rebuilding plan and will assess implementation options within two years. **Action Plan 19** - The 80% scoring guidepost for Indicator 2.3.1 under the sockeye assessment tree requires that the management system "has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks." All BC sockeye fisheries received conditions related to this guidepost. However, it is our opinion that this scoring guidepost does not reflect the intent of the MSC standard. The newly standardized MSC assessment trees (2008) provide much needed guidance regarding the assessment of species fished as stock complexes, such as Pacific salmon. Specifically, species fished as stock complexes "may be considered analogous to multispecies target species considered under the guidance of performance indicator 2.1.1." This distinction is important because it allows for a pragmatic approach to the central problem of weak stock management, recognizing that factors other than harvest may cause a stock to decline. A non-target stock within the fishery may be below the point at which recruitment is impaired. *The critical factor for certification is whether or not the fishery is 'hindering' recovery of the stock.* Our WSP prescribes a systematic approach to salmon management, essentially moving DFO from a reactive to a pro-active approach for maintaining the biodiversity of salmon populations within Canada. To ensure that fisheries have acceptable harvest limits on non-target stocks and that the management system allows for rebuilding of non-target stocks, DFO will: • Implement 'Strategy 1' of the WSP: Define LRPs and TRPs for non-target stocks (CUs) and monitor their status. The objective for fishery management shall be to maintain CUs above their LRPs unless otherwise determined by the Minister. Not meeting this objective would occur only in exceptional circumstances where management actions are assessed to be ineffective, or the social and economic costs will be extreme (p.29 WSP). • Implement 'Strategy 4' of the WSP: Create a regional framework for integrated planning that will be used to articulate salmon management choices that consider social, economic and biological consequences. Consensus based advisory processes will be used to assist in defining these trade-offs and also to assist in developing strategic plans for the management of salmon conservation units; including harvest

	strategies designed to maintain the biodiversity of stocks within the CU. • Benchmarks will be used to guide management response. For example, if a CU is below its lower benchmark and in the 'Red Zone' this will trigger consideration for ways to protect the fish, increase their abundance and reduce the risk for loss. Biological considerations will be the primary consideration for CU below the lower benchmark and in the 'Red Zone'. Page 17 of the WSP identifies additional guidance on how response would be taken for CU between the lower and upper benchmark. • Implement Strategy 5 of the WSP. Review annual performance against measurable objectives, particularly with regards to stock status and rebuilding objectives. Specifically, DFO will also define LRPs or their equivalent for Fraser River, Barkley Sound, Skeena and Nass sockeye CUs. A rebuilding plan consistent with the WSP will have been developed and implementation underway within 2 years for stocks harvested in fisheries targeting Fraser River, Barkley, Nass and Skeena sockeye that are below their LRPs. For Barkley Sound this will include consideration for Henderson sockeye. On the Skeena and Nass Rivers the proposed rebuilding plan will include measures to recover chum salmon stocks that are below their LRP contingent upon determining whether harvest pressure is found to have a significant risk for chum rebuilding. The rebuilding plan will include a stated objective and rebuilding target and timeline for rebuilding. This rebuilding plan will demonstrate how the fisheries management strategy will assist in ensuring rebuilding objectives are met. Fishery actions may only be one component of a rebuilding plan and could include enhancement, habitat and other measures to enable rebuilding objectives being met. It must recognized though, that there will be instances that rebuilding is not possible even where the appropriate management actions are implemented. Rebuilding may not be possible due to a variety of events that are beyond our control (e.g. low marine survival, habitat changes, environmental conditions, etc.)
Observations from 1st Surveillance	**Summary** (from DFO Submission for Sakinaw Sockeye – 11 May 2011) Rebuilding of Sakinaw Lake sockeye remains a priority for Fisheries and Oceans Canada, in collaboration with the Sechelt First Nation, British Columbia, local government, and the local community (see Pacific Integrated Fishery Management Plan – Southern BC Salmon, 2010, page 27). Starting in 2003, a number of actions were initiated to address the most pressing threats identified in the draft National Recovery Strategy for Sockeye Salmon, Sakinaw Lake Population, in British Columbia (Sakinaw Sockeye Recovery Team 2005). These actions are summarized in this report. Highlights include a significant reduction in exploitation rate, captive breeding program, and restoration of spawning beaches. In the period 2006-2009 a total of 2 adult sockeye returned to Sakinaw Lake. Available evidence suggests that factors outside the Strait of Georgia have caused poor marine survival (mean <0.2% since 2003) that is preventing recovery of Sakinaw sockeye in the timeline proposed (Wood et al 2011). Evaluation of results of actions taken, relevant to the overall rebuilding goal, will be undertaken after 2012, once adult returns from the current captive breeding program are complete. Rebuilding efforts will continue, including stewardship, enhancement through conventional supplementation and captive brood, reduced fishing mortality, and monitoring of smolts and adults. **Update on Recovery Actions** The Recovery Team proposed the following approaches and actions to achieve the goal and objectives of Sakinaw sockeye. A brief update for each is provided below: *a. Engage and consult stakeholders using the appropriate consultative and media process.* • In the beginning the agencies, the community and First Nations were actively engaged but little has occurred since 2008. An adhoc recovery team is being formed to continue to address local threats to recovery.

b. Study water quality within intra-gravel flow found on spawning beaches.

- Reports were completed by G3 Consulting etitled: Sakinaw Lake Underwater Substrate Profiling of Sockeye spawning Area(2002), Sakinaw Lake Intra-gravel Dissolved Oxygen Assessment (2003)

c. Determine utilization of lake resources by juvenile sockeye and the identification of limiting factors.

- Godbout et al. 2004. Acoustically tagged kokanee, a proxy of sockeye, were used to identify which basins (lower, main and upper) of the lake was used for spawning. Tracking of the tagged kokanee showed that spawning occurred predominantly and almost exclusively in the upper basin of the lake. Only 1 -2 out of the 24 tagged were not observed in the upper basin, and these may not have spawn.
- Godbout et al. (2004) found that spawning habitat does not appear limiting as there appears to be capacity for 410 female in the upper basin alone.
- Although the spawning carrying capacity was found sufficient to achieve at least 250 females every year, the smolt carrying capacity may limit the recovery to previous historical highs (5000 spawners) if the lake nursery was limited to the upper basin alone.

d. Develop and implement watershed stewardship initiatives.

- Both the Sakinaw Land Owners Association and the Iris Griffith Center are active in stewardship in the area and have an interest in being part of the rebuilding effort. The local DFO Community Advisor has a support role in this regard with some resources originating from the Community Involvement Program (Cindy Harlow, DFO, pers. comm.).

e. Collect hydrometric data on the main watershed lake basins and tributaries focusing on surface water volume.

- A Water Balance Study for Sakinaw Lake was completed and provided to the Regional District and local community for implementation. Reference? (Grant McBain pers. comm.).

f. Reduce natural and fishing mortality on Sakinaw sockeye.

- See Salmon IFMP regarding fishery objectives. Johnstone Strait fishery openings targeting Fraser sockeye are delayed until end of July to minimize exploitation of Sakinaw sockeye.

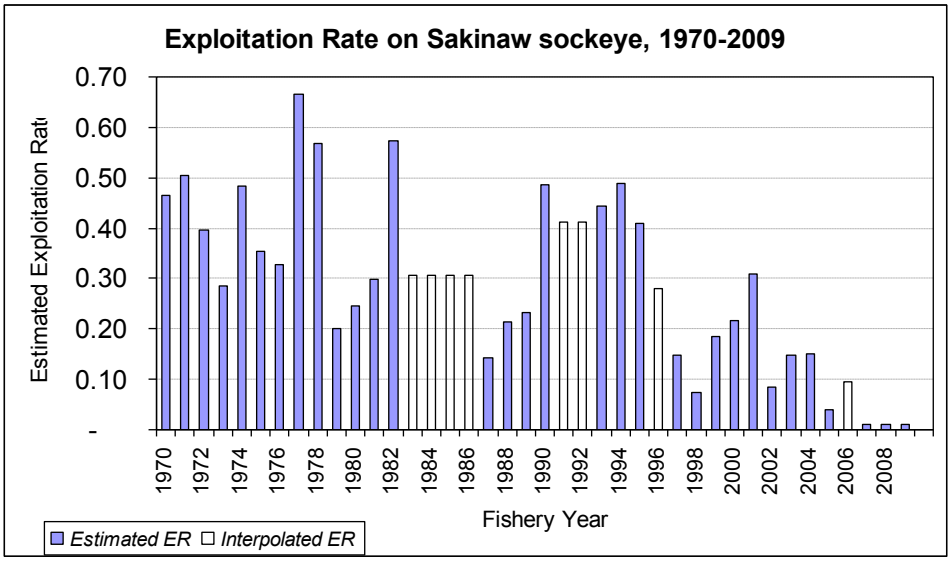


Figure 10: Reconstructed exploitation rate on Sakinaw Lake sockeye for years where there is sufficient escapement information to support the reconstruction. Exploitation in years where escapement information is not sufficient is interpolated as average of two estimated ER immediately before and two estimated ER after. 2007, 2008, 2009 estimated to be less than 1% ER since no commercial fisheries. Test fishing and FSC only. Adapted from Folkes et al. 2006.

- Local efforts include daily patrols, during peak migration period, at entrance

to lake to monitor marine mammal activity and deter predation where possible.

g. Implement a captive brood and fry stocking program with marking of hatchery fry.

- Both captive brood and conventional supplementation since 2001 (see figure 2). Initial release of fry into lake from captive brood in 2007. Both methods are ongoing.

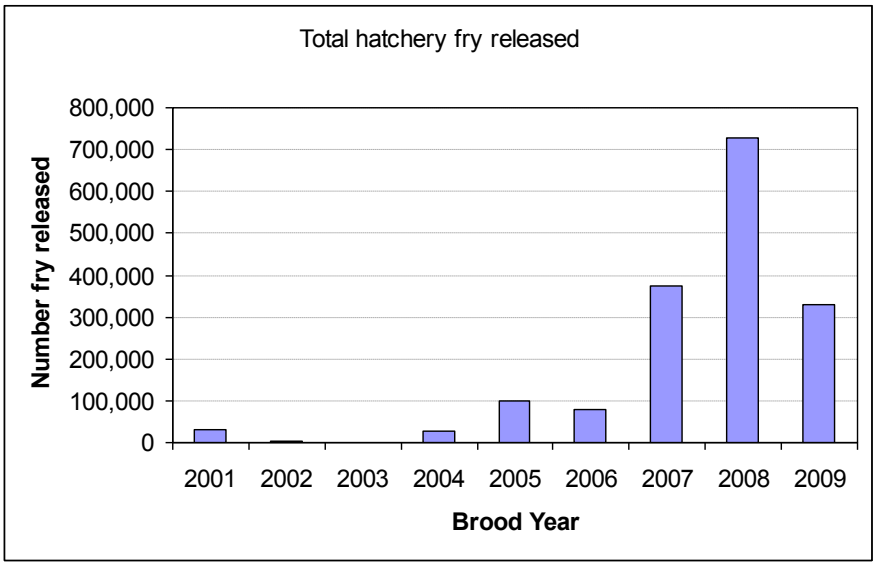


Figure 11: Total hatchery origin sockeye fry released into Sakinaw Lake.

h. Enumerate and collect biological information on smolts migrating out of the Sakinaw Lake.

- Monitoring of smolt emigration out of Sakinaw Lake was initiated by DFO in 2003 and continues. A downstream trap is incorporated into the flow control weir that is located at the outlet of the lake, at the upper tidal influence of Sakinaw Creek. The trap is installed during the early part of April and maintained through to early June. The trap is attended daily during shoulder periods and twice daily during the peak migration period in early May. Field work is conducted by fisheries staff of the Sechelt Indian Band, who control the Reserve Land in and around Sakinaw Lake. Total live smolt count is presented in Table 1.

Table 9. Adult returns to Sakinaw Lake, associated hatchery origin fry releases, and subsequent counts of live smolts emigrating out of Sakinaw Lake. From Steve Baillie 2011.

BroodYear	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adult return Hatchery AFC	0	0	0	0	7	0	0		1	27
Adult return not AFC	60	78	3	99	17	1	0	0	0	2
Total Adult Return	60	78	3	99	24	1	0	0	1	29
Fry released AFC wild parents	31922	2784	0	0	0	0	0	0	0	
Fry released AFC captive brood	0	0	0	25927	92035	80576	374188	727376	328928	
Fry released AFC mixed	0	0	0	0	7588	0	0	0	0	
Fry released NOT-AFC	0	0	0	0	0	0	0	0	0	
Total hatchery fry released	31922	2784	0	25927	99623	80576	374188	727376	328928	
Hatchery smolts released-AFC					5485					
Total live smolts out - AFC	8080	39	2	8357	3739	11982	62370	404		
Total live smolts out - not AFC	4334	103	11	2926	272	182	222	69540		
Total live smolts counted out	12414	142	13	11283	4011	12164	62592	69944		
Inlake fry to smolt survival	25.3%	1.4%		32.2%	3.6%	14.9%	16.7%	9.6%		

These calculations assume that all sockeye migrate to marine waters as sub2 age smolt and return as age 4sub2 adult
Marine survival is calculated as smolts out / adult return and assumes zero exploitation rate
need to check 2008 hatchery AFC application. Most out migrants were NOT AFC

	i. Tag Sakinaw smolts to estimate routes and timing of juveniles and adults. • Summarized from Wood et al. 2011. Wood determined sockeye and kokanee were two genetically distinct sympatric ecotypes inhabiting Sakinaw Lake. POST tagging of both sockeye smolts and juvenile kokanee was conducted. Seaward migration of juvenile sockeye was primarily northward through Johnstone Strait in 2 of 3 years studied (92% of migratory fish in 2004 and 84% in 2006). The number of tagged fish detected as returning adults with operational tags was low (3 sockeye at the release site), but none of these fish had been detected crossing seaward POST lines as juveniles and thus appeared to be non-migratory. None of the fish passing the POST lines returned. This suggests factors outside the Strait of Georgia have caused the poor marine survival that is preventing recovery of Sakinaw sockeye. *j. Develop and implement selective fishing strategies that would reduce commercial and food fishing impact on Sakinaw sockeye.* **See item f above on reduced fishing mortality.** *k. Monitor adult sockeye when they enter the lake and when they spawn (abundance, size, age and other biological (characters).* • Adult sockeye enter the freshwater system through a fishway that bypasses the flow control weir. During the summer months when these salmon are returning the water flow is restricted by gates on the weir to maintain a consistent water level within Sakinaw Lake, and the only water released goes through the fishway. A structure is installed within the fishway during June that allows passage through a narrow Plexiglas tunnel. A mirror is installed alongside the tunnel to allow an overhead video camera to record both an overhead view and a side view of the tunnel. Thus all sockeye entering the fishway are recorded in a digital video format. The images are clear enough to discern whether the salmon has an intact adipose fin or a clip. Results are presented in Table 1. (from Baillie 2011) *l. Rehabilitate spawning, rearing and migration habitat in the lake and outlet stream.* • There were numerous projects conducted in the 2002-2006 period. One project had the objective to ensure access into the lake through the fish way at the Sakinaw Creek mouth. These projects included installation of Newbury weirs to create back water rifles, the rebuilding of the spill-way, and improvements to fish ladder. From Harlow, Cindy (pers comm.). • Two of the spawning beaches were restored via a scuba diving team who removed logs and debris from the spawning beds and then conducted further improvements to the identified Redds. These areas were then raked and enhanced with clean gavel. Gravel was also placed at the mouth and shoreline fronting Haskins Creek which has historically been an active spawning area. • Ongoing work is through the efforts of Stewardship groups such as the Sakinaw Landowners Association in consultation with the Community Involvement Program, including maintenance of access for adults and that tributary streams are available for spawning and rearing. *m. Identify critical habitat for each life stage by modeling impacts of habitat loss/improvement along with other management actions on population viability.* • Godbout et al. 2004. A model was developed which suggested that spawning habitat for 280 to 360 female spawners is required (depending on scenario) for Sakinaw sockeye to have <10% probability of quasi-extinction and 95% probability of meeting the recovery goal assuming no fishing exploitation. To offset 15% exploitation, spawning habitat for an additional 7-110 female spawners (depending on scenario) would be needed. All

	scenarios include artificial propagation. n. *Identify potential spawning locations in Sakinaw Lake other than the 5 beaches listed in the recovery plan.* • See Godbout et al. 2004 in item 'c' above. **Outlook.** Given lack of wild spawners in contributing brood years, poor marine survival, and limited smolt abundance, returns in 2011 and 2012 are not expected to exceed 100 adult returns.
Conclusion from 1st Surveillance Report	**The above assessment of the Sakinaw Lake sockeye recovery strategy provides clear evidence that Fraser sockeye fisheries have had minimal effect on the recovery of Sakinaw sockeye from 2007-09. It is also clear from recent low numbers of sockeye returning to Sakinaw Lake that the recovery of this stock primary depends on returns from hatchery fry releases and improvements in marine survival returns.** **The part of this condition related to "Refinement and peer review of run reconstruction analyses for Sakinaw sockeye" was not address for 2007-09 because of the minimal amount of fishing for Fraser sockeye that was permitted in these years in areas where Sakinaw sockeye could be harvested. The evaluation of this condition is differed until the 2nd surveillance audit when exploitation rates for 2010 Fraser sockeye fisheries will be available.**

3.3 Fraser Conditions – Principle 3

Condition 24	Certification will be conditional until a clear set of management objectives has been defined and found to be consistent with MSC criteria and measures are taken to reduce the bycatch of sturgeon and improve the monitoring systems used to estimates sturgeon bycatch. Both of these tasks should be completed within two years. (**Fraser Condition #3.1**).
Assessed Activity	This Condition relates to Indicator 3.1.1 PI: 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. 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. **SCORE 75** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.4) suggested that a score of 98 was appropriate for this indicator. Wilson (2005) indicated that one of the 80 scoring guidepost was not met because "within the Fraser and outside of the Fraser there are persistent concerns regarding the quality of catch monitoring in First Nations food social and ceremonial fisheries". In addition to these concerns regarding catch monitoring, the Team has concerns regarding the results from the ongoing processes to define the conservation units and management objectives for Fraser sockeye stocks under the Fraser River Sockeye Spawning Initiative and the WSP. These processes need to be completed before we can assess whether these objectives are consistent with MSC criteria. On a separate issue, there are significant concerns regarding the data on the bycatch and mortality of sturgeon in Fraser River sockeye fisheries. The Team's score was 75.
DFO Action Plan	Measures are already in place to reduce sturgeon impacts in the commercial, recreational, and First Nation fisheries in the Fraser River. All commercial Area E, recreational, and First Nations commercial fisheries are mandatory non-retention, and sturgeon releases are included in catch reports from fishery participants. For the First Nation FSC fishery, catch is reported either through a census-based program (which should have 100% reporting), or a creel survey, which will generate a sturgeon release estimate within +/- 20%. New for 2007 Area E commercial fisheries also had a census-based catch reporting program, which should meet the 100% reporting requirement for sturgeon releases. Sturgeon releases from the recreational fisheries are estimated with a creel survey, which will have some error associated with it. As mentioned previously, several test-fisheries are conducted in the area providing an independent indicator of the presence and scope of any by-catch issues. Monitoring data to estimate the impact of Fraser River sockeye fisheries on sturgeon was not available in 2009 because there was no Area E Commercial Sockeye Fishery. Delayed delivery of a May 2012 report based on 2010 and 2011 fisheries monitoring is contingent on having commercial fisheries in 2010 and 2011. For consideration, to address the potential impacts on sockeye fisheries on sturgeon, an alternative approach could be to use Albion, Cottonwood and Whonnock sturgeon encounters as a proxy. To satisfy this condition DFO will develop a two year program (e.g. modelling, test fishery expansion, census based and/or observer based) to estimate the impact of Fraser River sockeye fisheries on steelhead and sturgeon beginning in 2010. The need for further work will be assessed according to the results of this program. A report summarizing the work will be completed in May 2012 and provided to the Certifier.
Observations from 1st Surveillance	The AT has not been provided any evidence of improvements to the catch monitoring systems for Fraser sockeye that would ensure that "reasonable, reliable, and defensible estimates of the harvest of white sturgeon and steelhead" are available within a reasonable time frame. In addition, the AT has not been provided any evidence that measures have been taken to reduce the bycatch of sturgeon.
Conclusion from 1st Surveillance Report	**This condition will be evaluated at the next surveillance audit.**

Condition 25	Certification will be conditional until the management agency provides a clear commitment to implement recovery action plans for Cultus and Sakinaw sockeye, within one year (**Fraser Condition #3.2**).
Assessed Activity	This Condition relates to Indicator 3.1.4

	PI: When dealing with uncertainty, the management system provides for utilizing the best scientific information available to manage the fishery, while employing a precautionary approach. 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. **SCORE 77** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.13) suggested that a score of 100 was appropriate for this indicator. Wilson (2005) indicated that one of the 80 scoring guidepost was not met because "DFO does not always manage in a precautionary manner, or use the best scientific advice". The Team agreed that DFO has not always managed in a precautionary manner and has not shown a clear commitment to define and implement action plans for two sockeye stocks (Cultus and Sakinaw) where precautionary measures are necessary to manage Fraser sockeye fisheries. The Team's score was 77.
DFO Action Plan	These conditions will be met in part through implementation of the WSP, particularly Strategy 4, as described above. Strategy 4 requires development of an integrated strategic plan for salmon management that clearly states conservation, habitat and ecosystem objectives. Moreover, strategy 5 requires annual review of the plan's ability to meet these objectives. For Barkley and Skeena sockeye fisheries, Strategy 4 and 5 will be implemented over the next 3 years. For Fraser sockeye fisheries, Strategy 5 will be implemented over the next 3 years. In addition, over the next two years, DFO will be revising the format for Integrated Fisheries Management Plans (IFMPs). The new IFMP template is much more fishery specific and requires elements not included in past IFMPs, such as stock status, a socioeconomic overview and summary of management issues. Development of these IFMPs will require many of the gaps identified in the conditions to be addressed.

Observations from 1st Surveillance	As indicated under Condition 7 for Cultus sockeye and Condition 18 for Sakinaw sockeye, the management agency has provides a clear commitment to implement recovery action plans for Cultus and Sakinaw sockeye. This commitment is included in the 2011-12 IFMP for Southern BC salmon.
Conclusion from 1st Surveillance Report	**Based on the information provided by DFO for Cultus and Sakinaw sockeye and the recent IFMPs, the management system has implemented new research efforts in order to fill data and information gaps under the current conditions where precautionary measures are necessary to manage the harvests of these stocks in Fraser sockeye fisheries. Therefore, the second 80 level scoring guideposts has been met and the score for this indicator has been raised to 80.**

Condition 26	Certification will be conditional until the management agency provides a clear evidence that measures are being implemented to encourage harvesters not to exceed catch targets or exploitation rate limits, within two years. (**Fraser Condition #3.3**).
Assessed Activity	This Condition relates to Indicator 3.1.8 PI: The management system provides for socioeconomic incentives for sustainable fishing. 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 to not 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. 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. **SCORE 77** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.20) suggested that a score of 97 was appropriate for this indicator. Wilson (2005) agreed with DFO's assessment that all scoring guideposts were met except one at the 100SG. The Team found that the second guidepost at the 80SG was only partially met because DFO has not implemented management approaches, such as defined allocations, that create incentives for

	harvesters to not exceed target catches. First Nation treaties provide an avenue for defining salmon allocations and penalizing those that exceed these limits by reducing their harvest opportunities in future years. The Team's score was 77.
DFO Action Plan	These conditions will be met in part through implementation of the WSP, particularly Strategy 4, as described above. Strategy 4 requires development of an integrated strategic plan for salmon management that clearly states conservation, habitat and ecosystem objectives. Moreover, strategy 5 requires annual review of the plan's ability to meet these objectives. For Barkley and Skeena sockeye fisheries, Strategy 4 and 5 will be implemented over the next 3 years. For Fraser sockeye fisheries, Strategy 5 will be implemented over the next 3 years. In addition, over the next two years, DFO will be revising the format for Integrated Fisheries Management Plans (IFMPs). The new IFMP template is much more fishery specific and requires elements not included in past IFMPs, such as stock status, a socioeconomic overview and summary of management issues. Development of these IFMPs will require many of the gaps identified in the conditions to be addressed.
Observations from 1st Surveillance	There have been several developments with regard to First Nation Treaty negotiations (e.g. Tsawwassen Treaty implementation in 2009, Maanulth Treaty implementation in 2010, and demonstration ITQ seine and troll fisheries for Fraser sockeye) that clearly create incentives for harvesters to not exceed target catches or exploitation rates.
Conclusion from 1st Surveillance Report	**Given progress to date, the AT expect that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

Condition 27	Certification will be conditional until the management agency provides a research plan that addresses identified concerns related to the impact of the fishery on the ecosystem, with emphasis on non-target stocks, and takes into consideration socioeconomic factors and anticipated changes to fisheries, within two years. (**Fraser Condition #3.4**).
Assessed Activity	This Condition relates to Indicator 3.2.1. PI: 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. 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 socioeconomic 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 socioeconomic 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. **SCORE 73** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.30) suggested that a score of 95 was appropriate for this indicator. Wilson (2005) indicated that one of the 80 scoring guidepost was not met because "DFO's assessment of non Fraser non-target stocks harvested primarily in Fraser sockeye fisheries (inside sockeye) is inadequate by DFO's own admission." The Team found that three of the 80 scoring guideposts were not met because the lack of any research plan for Fraser sockeye makes it difficult to assess whether the plan addresses concerns related to the impact of the fishery on the ecosystem, socioeconomic issues that result from the implementation of management plans, or if the research plan is responsive to changes in the fishery. The Team's score was 73.

DFO Action Plan	The requirement to include ecosystem values and objectives in planning process is an element of the WSP. It is also an element of the new IFMP template described above that will be implemented for salmon fisheries starting in 2012. To addresses the need to include other objectives (ecosystem, socio-economic) in the planning process and assess performance against these objectives, we will need to re-align our current reporting and/or re-allocate research resources. DFO has developed a Resource Assessment Framework for Fraser River sockeye (PSARC review in May 2008) to help guide assessment priorities based on the biological status and knowledge gaps for each CU. Once LRPs are developed for each CU, they will be integrated into the assessment framework. The Fraser sockeye assessment framework will serve as a template for other CUs.
Observations from 1st Surveillance	The progress on defining CUs, developing WSP benchmarks and the draft Fraser sockeye assessment framework indicate that significant progress has been made with regard to this condition.
Conclusion from 1st Surveillance Report	**Given progress to date, the AT expect that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

Condition 28	Certification will be conditional until the management agency provides TRP's for the Cultus sockeye salmon stock, a clear indication of the commitment to implement the Cultus Sockeye Recovery Plan, and an assessment of the probability of recovery and the timing for recovery for Cultus sockeye, within one year. (**Fraser Condition #3.5**).
Assessed Activity	This Condition relates to Indicator 3.4.1.2. PI: Provides for restoring depleted target species to specified levels within specified time frames. 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, which 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. **SCORE 70** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.42) suggested that a score of 70 was appropriate for this indicator. Wilson (2005) indicated that the 80 scoring guideposts were only partially met because "the status of individual target stocks or CUs are not assessed now, and may not be assessed under the new Wild Salmon Policy". The lack of TRP or equivalent for the depleted Cultus sockeye stock and the lack of a time schedule for recovery suggests that the two 80 guideposts have not been fully met. The recovery plan needs credibility by providing clear restoration guidelines, time frames, and a strategy for incremental changes to management and incremental increases in funding when the time schedule for achieving the TRP is not met. The Team's score was 70.

DFO Action Plan	These conditions will be met in part through implementation of the WSP, particularly Strategy 4, as described above. Strategy 4 requires development of an integrated strategic plan for salmon management that clearly states conservation, habitat and ecosystem objectives. Moreover, strategy 5 requires annual review of the plan's ability to meet these objectives. For Barkley and Skeena sockeye fisheries, Strategy 4 and 5 will be implemented over the next 3 years. For Fraser sockeye fisheries, Strategy 5 will be implemented over the next 3 years. In addition, over the next two years, DFO will be revising the format for Integrated Fisheries Management Plans (IFMPs). The new IFMP template is much more fishery specific and requires elements not included in past IFMPs, such as stock status, a socioeconomic overview and summary of management issues. Development of these IFMPs will require many of the gaps identified in the conditions to be addressed.
Observations from 1st Surveillance	Prior to 2010, the implementation of the Cultus sockeye recovery plan was consistent with the requirements for this condition. However, concerns have been raised regarding the impact of the 2010 fishery on the recovery of Cultus sockeye.
Conclusion from 1st Surveillance Report	**Given the above concerns and the need to finalize the 2010 exploitation rates prior to assessing the potential impact of the Fraser sockeye fishery on Cultus sockeye, the evaluation of this condition is differed until the 2nd surveillance audit when exploitation rates for 2010 Fraser sockeye fisheries will be available.**

Condition 29	Certification will be conditional until the management agency provides evidence that First Nation issues regarding aboriginal and treaty rights have been identified and these issues are being addressed through an effective consultation or negotiation process, within three years. (**Fraser Condition #3.6**).
Assessed Activity	This Condition relates to Indicator 3.6.3 PI: The management system provides for the observation of legal and customary rights of First Nation peoples. The DFO submissions were essentially identical for all fisheries and suggested that all guideposts were met for each fishery (DFO Fraser 2004c, p. 57-59; DFO Barkley Sound 2004c, p. 47-49; DFO Skeena 2004c, p. 54-55; DFO Nass 2004c, p. 54-55). The Team found that the Fraser, Barkley Sound and Skeena fisheries did not pass one of the guideposts at the 80SG because of concerns expressed by First Nation representatives regarding their access to sockeye for food, social and ceremonial purposes (see section on scores below 80). It was surprising that the submission for the Nass did not make any reference to the Nisga'a Treaty (a comprehensive land claims treaty which included fishing rights for salmon) which has been in effect since 11 May 2000. The Team found that the successful negotiation and implementation of the Nisga'a Treaty was sound evidence that all guideposts have been met and thus the score for this indicator was 100 for the Nass fishery. 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.

	SCORE 75 The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.58) suggested that a score of 100 was appropriate for this indicator. This submission indicates that DFO believes it has met its First Nations obligations to protect and manage for food, social, and ceremonial harvest by First Nations. However, in consultation with First Nations and conservations groups, the assessment team was provided with information indicating that several of the First Nations that harvest Fraser sockeye expressed clear concerns that the management system for Fraser sockeye has not adequately addressed their legal priority rights for FSC fisheries (Wilson 2005) and "is not a transparent process, thus it does not comply with Principle 3 criteria" (see Vol 2: Appendix 4 - Letter from Secwepemc Fisheries Commission dated August 3, 2005). Similar views were expressed by representatives of the BCAFC and Cowichan Tribes. A letter from Chief Kelly of the Soowahlie Band of the Sto:lo First Nation to Minister Thibault of Fisheries and Oceans clearly stated disagreements with the management approach for protection for Cultus and Sakinaw sockeye. The Team's score was 75.
DFO Action Plan	Treaty-making with aboriginal peoples has a long history in Canada. The Crown began entering into treaties with aboriginal groups in the early 1700's, which continued until the 1920's. These are referred to as "historic treaties". In the 1970's, treaty-making resumed resulting in "modern treaties" which are generally more complex and detailed than "historic treaties". "Modern treaties" continue to be negotiated in various parts of Canada. In 1982, section 35 was added to the Constitution of Canada. Section 35 provides "constitutional protection" to aboriginal rights and rights under both "historic treaties" and "modern treaties". The Supreme Court of Canada has held that the "constitutional protection" of aboriginal rights and treaty rights means that any infringement of such a right must be justified. The Supreme Court of Canada has also held that aboriginal rights to fish for "food, social and ceremonial" purposes have priority, after conservation, over fishing for commercial or recreational purposes. From a Canadian perspective, it is important to distinguish between an aboriginal right to fish for food and an aboriginal right to fish for "livelihood". The proposed Performance Indicators under this category merge these two distinct concepts in the same criteria. In other words, the Government's legal duty to consult with aboriginal groups can arise even where aboriginal rights have only been asserted and not yet legally proven. Whether an aboriginal right exists and the nature, extent and scope of that right is group and fact specific. The existence of aboriginal rights is generally established through litigation involving extensive historical and anthropological evidence or through historic or modern treaties. Determining the nature, extent and scope of "historic treaty" rights can also present challenges. The wording in "historic treaties" can be difficult to interpret. For instance, the wording of the fishing right in the "Douglas Treaties" entered into in the 1850's in British Columbia provides that the aboriginal groups who were signatories have the right "to carry on our fisheries as formerly". Although section 35 of the Constitution of Canada contains a general statement that all existing aboriginal and treaty rights are "recognized and affirmed", the challenges described above can make it difficult to "recognize" what specific aboriginal rights may belong to a particular aboriginal group and or their exact nature and scope. Regardless of this difficulty, as noted above, the Government's duty to consult with an aboriginal group may arise even where aboriginal rights have only been asserted and are not yet legally proven. In order to meet this condition DFO will provide a report summarizing how the management system addresses issues regarding aboriginal and treaty rights related to the sockeye salmon fisheries. This report will be provided by December 2010.
Observations	In response to this condition and similar conditions (29, 34, 36a), DFO submitted a document

from 1st Surveillance	to the assessment describing their commitment to "compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery". DFO's objective is to manage fisheries to ensure that, after conservation needs are met, First Nations' food, social and ceremonial requirements and treaty obligations have first priority in salmon allocation. Aboriginal programs including AFS, ATP, AAROM, Treaties and PICFI provide the policy basis for meeting the objectives of providing opportunities to First Nations to meet their FSC needs. Comprehensive Fisheries Agreements and input into the North Coast and South Coast IFMPs are important components for meeting the objectives for aboriginal fisheries. Opportunities to become involved in the management and planning of the fishery are provided through bilateral, sub-regional and regional consultation processes. Opportunities to share technical information are provided for in the consultation processes.
Conclusion from 1st Surveillance Report	**Given the information provided by DFO regarding their commitment to "compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery", this condition has been met for Fraser sockeye. The score for this indicator has been raised to 80 and the condition has been closed out.**

Condition 30	Same as Condition 17. Certification will be conditional until the management agency provides reasonable estimates of the harvest of white sturgeon and steelhead, by May 2012. (**Fraser Condition #3.7**).
Assessed Activity	This Condition relates to Indicator 3.7.4 PI: 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. 100 Scoring Guidepost • The majority of fish harvesters and processors are 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. **SCORE 70** The management agency's detailed submission for Fraser sockeye (DFO Fraser 2003c, p.42) suggested that a score of 70 was appropriate for this indicator. Wilson (2005) agreed with the DFO assessment for this indicator. However, the Team found that reliable estimates for sturgeon and steelhead bycatch are not available from all harvesters for sockeye fisheries in the lower Fraser River. The Team's opinion is that the catch reporting is sufficient to manage the majority of non-target species harvested. While it is important that the catch reporting be improved for Fraser sturgeon and steelhead caught in Fraser sockeye fisheries, these species do not represent the majority of the non-target species harvested in Fraser sockeye fisheries. The Team's score was 70.
DFO Action Plan	Duplication of Condition 17 and 24 on Sturgeon. With respect to Steelhead, any releases from commercial, recreational, or First Nations fisheries would be accounted for through the same catch estimation process that is used to estimate sturgeon releases. Additionally, observer programs have been utilized in order to estimate the impact upon steelhead of fall commercial chum fisheries, and some chum-directed First Nations Economic Opportunity fisheries (beach seines). The time-frame for generating estimates of sturgeon and steelhead catch (and releases)

	varies by fishery, but all fisheries will have estimates available within a month of the fishery occurring. Most fisheries will have these estimates available within a few days. To satisfy this condition DFO will develop a two year program (e.g. census based and/or observer based) to estimate the impact of Fraser River sockeye fisheries on sturgeon beginning in 2009. The need for further work will be assessed according to the results of this program. A report summarizing the work will be completed in May, 2011.
Observations from 1st Surveillance	The AT has not been provided any evidence of improvements to the catch monitoring systems for Fraser sockeye that would ensure that "reasonable, reliable, and defensible estimates of the harvest of white sturgeon and steelhead" are available within a reasonable time frame. In addition, the AT has not been provided any evidence that "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."
Conclusion from 1st Surveillance Report	**This condition will be evaluated at the next surveillance audit.**

3.4 Barkley Sound Conditions – Principle 1

Condition 9	Certification will be conditional until an assessment is completed regarding the effect of Henderson Lake enhancement efforts on non-enhanced stocks, within one year (**Barkley Sound Condition #1.1**).
Assessed Activity	This Condition relates to Indicator 1.1.1.5 PI: 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 unenhanced stocks. 100 Scoring Guidepost • Fisheries targeting enhanced stocks are geographically removed from unenhanced stocks and separate terminal harvest areas are established for these fisheries. • Times and areas have been identified where the majority of enhanced fish migrate through the general fishery. • There is real time mark recovery program during the prosecution of the fishery that allows determination of harvest rates of the enhanced component of the run and this data is used in regulation of the fishery. 80Scoring Guidepost • In fisheries where both enhanced and un-enhanced stocks are harvested at the same time, the harvest guidelines are based on the goals and objectives established for the un-enhanced stocks. • There are adequate data and analyses to determine that the presence of enhanced fish in the management units do not adversely impact the unenhanced fish stocks. 60 Scoring Guidepost • There is general scientific agreement within the management agency regarding the impacts of enhanced fish on the resultant harvest rates or escapements of un-enhanced fish stocks. • Managers have some scientific basis for assuring that harvest rates for enhanced stocks are not adversely affecting the majority of un-enhanced stocks within each stock unit. **SCORE 75** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003a, p.11) suggested that this indicator was not applicable because the target stocks are not directly enhanced through hatchery releases. Nelson (2005) contended that the annual fertilization of Great Central Lake (GCL) is an enhancement activity. The Team accepted DFO's argument that the fertilization of GCL has reduced the productivity differences between the two target sockeye stocks and thus made the mixed stock fishery easier to manage. At the time of our initial assessment, the Henderson Lake hatchery was the only enhancement activity (200,000 fry released per year) associated with Barkley Sound sockeye. Sockeye fry were marked with strontium, but there has not been any assessment of whether this marking approach will be sufficient to separate hatchery from wild fish. The Team considered that the numbers of sockeye fry produced by the Henderson Lake hatchery were probably too low to have a significant effect on the unenhanced stock. However, the Team concluded that the available data was not adequate to determine the effect of the enhancement initiative on unenhanced stocks. The Team's score was 75.
DFO Action Plan	This 80% scoring guidepost for this indicator was only partially met: "there are adequate data and analyses to determine that the presence of enhanced fish in the management units does not adversely impact the un-enhanced fish stocks." Hatchery operations ceased for Henderson sockeye in brood year 2007. Therefore, this indicator is no longer relevant. Regardless, in the last few years of production, strontium marking and later calcein marking allowed the portion of hatchery production to be estimated.

	These results will be published in a PSARC stock assessment research paper February, 2010. Any future enhancement of this stock will be accompanied by marking and assessment protocols to monitor the impact of enhancement.
Observations from 1st Surveillance	A draft PSARC status report was completed for Henderson Lake sockeye salmon (Dobson and O'Brien 2011). The sockeye hatchery operated from 1988 to 2006; it is now closed. The status report noted that the period of decline for Henderson sockeye corresponded with the inception of the hatchery program and hypothesized that disease documented in the hatchery may have contributed to the decline of the wild population. Production of sockeye smolts in Henderson Lake is strongly density dependent indicating that large releases of subyearling hatchery sockeye salmon could have a negative effect on wild salmon production. The contribution of hatchery salmon to adult returns was highly variable, averaging 20%. Estimated exploitation rates, based on numerous assumptions, averaged 12% since 1997 with peaks in 1997-1998 of about 23% (Labelle et al. 2009). The Labelle et al. report also estimated exploitation rates on Great Central Lake and Sprout Lake sockeye salmon. Dobson and O'Brien concluded that future plans for mitigation or enhancement should include an assessment program so that production benefits (and potential detriments) can be assessed against performance standards. **Table 10: Estimated production statistics for Henderson Lake Sockeye. Total Recruits by brood year are calculated by applying age sample compositions from escapement to the total return. A constant assumption of 10% survival is applied to the hatchery release to estimate the hatchery proportion of smolt production.**
Conclusion from 1st Surveillance Report	**Good progress has been made but the condition may not be closed out until year 2 rather than year 1 as planned. DFO completed a draft status review of Henderson Lake sockeye salmon. A final report is expected in late 2011 after completion of the CSAS review process. As noted above, this draft report contains information required by this condition. This condition can closed out when the final report is produced in late 2011.**

Brood Year	Spawners	Smolt Estimates		Lake Smolts	Proportion Recruits Hatchery**	Wild Recruits	Recruits/ Spawner	ln(Recruits/ Spawner)	Total Recruits
		Hatchery Release	Hatchery Smolts*						
1981	58,000			3,785,000		6,319	0.11	-2.22	6,319
1982	36,700			4,298,000		9,107	0.25	-1.39	9,107
1983	31,000			3,517,000		60,399	1.95	0.67	60,399
1984	73,400			4,255,000		28,890	0.39	-0.93	28,890
1985	18,500			960,000		49,425	2.67	0.98	49,425
1986	3,900			25,000		20,736	5.32	1.67	20,736
1987	30,800			2,067,000		54,857	1.78	0.58	54,857
1988	40,300			2,571,000		200,973	4.99	1.61	200,973
1989	40,600			1,680,000		45,368	1.12	0.11	45,368
1990	31,400			659,000		39,447	1.26	0.23	39,447
1991	38,100			947,000		9,447	0.25	-1.39	9,447
1992	27,700	70,000	7,000	899,000	0.01	107,863	3.89	1.36	108,710
1993	180,500	659,000	65,900	5,462,000	0.01	110,241	0.61	-0.49	111,587
1994	17,400	658,000	65,800	330,000	0.20	17,658	1.01	0.01	22,056
1995	4,400	206,000	20,600	26,000	0.79	1,158	0.26	-1.33	5,578
1996	59,900	862,000	86,200	1,965,000	0.04	38,365	0.64	-0.45	40,126
1997	46,200	1,025,000	102,500	49,000	0.90	1,950	0.04	-3.17	19,502
1998	92,100	860,000	86,000	2,058,000	0.04	8,232	0.09	-2.41	8,591
1999	13,400	1,200,000	120,000	1,066,000	0.11	2,538	0.19	-1.66	2,860
2000	25,100	1,900,000	190,000	2,136,000	0.09	1,751	0.07	-2.66	1,922
2001	19,900	2,100,000	210,000	1,824,000	0.12	2,650	0.13	-2.02	2,994
2002	17,700	2,300,000	230,000	1,367,000	0.17	11,294	0.64	-0.45	13,578
2003	3,300	783,000	78,300	1,227,000	0.06	3,960	1.21	0.19	4,251
2004	2,600	755,300	75,530	830,000	0.09				
2005	1,300	97,750	9,775	634,000	0.02				
2006	3,600	1,558,240	155,824	482,000	0.32				
2007	12,500			1,756,900					
2008	13,100								
Average	33,693	1,002,286	100,229	1,743,552	0.20	36,202	1.3	(0.6)	37,684

* assumes 10% survival from release to smolt.
** assumes proportion is equal to the estimated hatchery smolt by total estimated smolt number. with the exception of brood year 1997, hatchery was assumed to contribute 90% of production.

Condition 10	Certification will be conditional until a more reliable escapement estimates are available for Henderson Lake sockeye, within one year (**Barkley Sound Condition #1.2**).
Assessed Activity	This Condition relates to Indicator 1.1.2.2. PI: Estimates exist of the spawning escapement for each stock unit. 100 Scoring Guidepost • Estimates are available for the annual escapement for each stock unit harvested in the fishery. • In-season escapement data are collected for all stock units and used to regulate the fishery. 80 Scoring Guidepost • Estimates are available for the annual escapement of each target stock harvested in the fishery. • Fishery independent indicators of abundance are available for the non-target species harvested in the fishery. • In-season escapement data are collected for the target stocks and used to regulate the fishery. 60 Scoring Guidepost • Escapement estimates for target stocks are available, where escapement estimates are necessary to protect the target stock from overexploitation. • Fishery independent indicators of abundance are available for non-target stocks where the fishery harvests may represent a significant component of the harvest of that stock. **SCORE 77** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003a, p.16) suggested that a score of 100 was appropriate for this indicator. Nelson (2005) indicated that one of the 60 scoring guidepost was not met because "escapement to Henderson Lake (a non-target stock) is not done regularly. The Team found that annual estimates of escapement were available for the Henderson Lake stock but the reliability of these estimates is questionable. The Team's score was 77.
DFO Action Plan	This 80% scoring guidepost for this indicator was only partially met: "fishery independent indicators of abundance are available for the non-target species harvested in this fishery." Since the MSC 2005 assessment, several upgrades were made to the Henderson Lake sockeye assessment program for both juvenile and adult monitoring. The counting fence structure was upgraded in the summer of 2005; panels were improved and a floating structure was put in place to reduce breach events. As well, the mechanical counters were upgraded to pulsar counters and observer calibrations were conducted regularly to validate the pulsar counts. To back up the fence operation, swim surveys of Clemens Creek were reinstated to estimate escapement through the AUC method. As it turns out, the swim surveys are the more reliable method due to continued breach events of the fence structure. We are now relying on these estimates and annually survey the system about 6 times per year. Details of the assessment program will be reported in a PSARC stock assessment research paper February, 2010. Future efforts at a directed counting operation will likely involve use of hydro-acoustic technology (i.e. a 'DIDSON' counter) as opposed to a counting fence.
Observations from 1st Surveillance	Escapement counts in Henderson Lake began in 1915 but more systematic counts began in 1981 as part of the Lake Enrichment Program (Dobson and O'Brien 2011). Beginning in 1981, peak live counts and area under the curve (AUC) counts of sockeye salmon were generated for Clemens Creek, the major spawning area. AUC estimates typically involved three or more surveys except during 2001-2005, a period when escapement and returns were low. During the period when two or fewer counts were made, a fence count on the outlet river was reportedly used as the best available count (see Table 10 below). However, the best escapement count in Table 10 did not correspond to the fence count in these years. Stream life

	is needed to apply the AUC method, yet there was no mention of stream life information. Furthermore, Hyatt et al. 2003 (www.dfo-mpo.gc.ca/csas/Csas/proceedings/2003/PRO2003_016_E.pdf) reported that stream life was too variable to apply to the escapement counts. Modelling efforts recognize that there is uncertainty in the escapement counts and that the counts underestimate total spawning escapement because beach spawners are not enumerated (Labelle et al. 2009). **Table 11: Summary of escapement observations of Henderson Lake sockeye, 1981 to 2008. Best estimate is identified in the last column.**

Return Year	No. Surveys	Clemens Peak Live	Clemens AUC	Fence Count	Brood Removals	Escapement
1981	4		57,961			58,000
1982	3		36,712			36,700
1983	4		30,992			31,000
1984	4	36,171	73,426			73,400
1985	4	7,640	18,527			18,500
1986	8	1,679	3,894			3,900
1987	6	4,478	30,818			30,800
1988	6	15,652	40,268			40,300
1989	7	17,463	40,611			40,600
1990	8	16,688	31,367			31,400
1991	7	2,747	38,084			38,100
1992	7	16,250	27,669		70	27,700
1993	6	119,188	179,824		659	180,500
1994	5	7,200	16,751		658	17,400
1995	6	1,541	4,223		206	4,400
1996	6	21,503	59,037		862	59,900
1997	3	18,779	45,144		1,025	46,200
1998	4	28,192	91,258	18,178	860	92,100
1999	6	4,412	12,232	3,782	1,200	13,400
2000	4	11,876	23,182	24,165	1,900	25,100
2001	2	3,533	6,020	19,809	2,100	19,900
2002	1	531		17,085	2,300	17,700
2003	1	2,333		2,742	783	3,300
2004	0			2,064	755	2,600
2005	2	809	1,181	1,871	98	1,300
2006	3	1,055	2,065	4,925	1,558	3,600
2007	4	4,735	12,452	1,004		12,500
2008	3	5,690	13,090			13,100

Conclusion from 1st Surveillance Report	**Good progress has been made but this condition may not be closed out until year 2 rather than year 1 as planned. Escapement counts of sockeye salmon in Henderson Lake were documented in the draft status report, as noted above. The report documents the uncertainty (e.g., number of fish counts per year) in the estimates and notes that counts since 2005 are likely more reliable because more counts per year have been made. However, the final status report should describe how stream life was estimated (or assumed) and used in the area under the curve estimates. The final report should also clarify discrepancies in the fence count versus total escapement count during 2001-2005 when the fence count was used as the best available count. This condition will be rescored when the final PSARC report on Henderson Lake sockeye is finalized and details associated with escapement estimates for 2009 and 2010 are provided.**

Condition 11	Certification will be conditional until a LRP has been defined for Henderson Lake and there is no significant scientific disagreement regarding this LRP. These tasks should be completed

	within two years (**Barkley Sound Condition #1.3**).
Assessed Activity	This Condition relates to Indicator 1.1.3.1 PI: Limit Reference Points or operational equivalents have been set and are appropriate to protect the stocks harvested in the fishery. 100 Scoring Guidepost • The Limit Reference Point for target species have been reviewed and found to be scientifically defensive and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientist outside the management agency that the LRP's are appropriate. • There is general scientific agreement regarding the LRP's for non-target species. 80 Scoring Guidepost • There is some scientific basis for the LRP's for target stocks and these LRP's are defined to protect the stocks harvested by the fisheries. • There is no significant scientific disagreement regarding the LRP's used by the management agency to formulate management decision for the fishery. 60 Scoring Guidepost • There is general agreement among regional fisheries scientist within the management agency that the LRP's or equivalent are appropriate to achieve the management goals for target stocks. **SCORE 75** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003a, p.21) suggested that a score of 80 was appropriate for this indicator. Nelson (2005) indicated that none of the scoring guidepost were met because "DFO has not established LRPs for target stock". Nelson clearly did not accept the interim LRP for Somass sockeye as an adequate LRP for management of the target sockeye stocks. The Team did not agree with Nelson's point of view but recognized that there is some scientific disagreement regarding the LRP used by the management agency and thus the second guidepost at the 80 SG was only partially met. The Team's score was 75.
DFO Action Plan	To satisfy these conditions DFO will fully implement 'Strategy 1' of our WSP. 'Strategy 1' of the WSP requires standardized monitoring of wild salmon status, including identification of upper and lower benchmarks to represent biological status and guide harvest decisions. Implementing this strategy requires identification of Conservation Units (CUs)6 for salmon: the scale at which the WSP aims to maintain biodiversity and at which benchmarks (LRPs and TRPs) will be defined. There are various definitions of lower and target reference points in relation to resource management. In the context of the WSP, the lower benchmark (LRP) will be established at a level high enough to ensure there is a substantial buffer between it and being considered at risk of extinction by COSEWIC. As defined in the WSP: "the buffer will account for uncertainty in data and control of harvest management. There is no single rule to use for determination of the lower benchmark. Rather, it will be determined on a case by-case basis, and depend on available information, and the risk tolerance applied…." The upper benchmark (TRP) will be established to identify whether harvests are greater or less than the level expected to provide, on an average annual basis, the maximum annual catch for a CU, given existing environmental conditions.
Observations from 1st Surveillance	Progress has been made and the condition is on target to be closed out in year 2. The Wild Salmon Policy Pilot is underway for Area 23 sockeye salmon. The objective of the pilot is to develop a local area management plan that takes into account the productivity of all stocks. Biological reference points are being developed using previously approved methodologies (Holt et al. 2009, Grant et al. 2010). Further work is required both within and outside DFO to reach consensus on the LRP for Henderson sockeye salmon.
Conclusion from	**Given progress to date, the AT expected that the management agency will meet the**

1st Surveillance Report	**requirements of the 80 level guideposts within the required time frame of 2 years.**

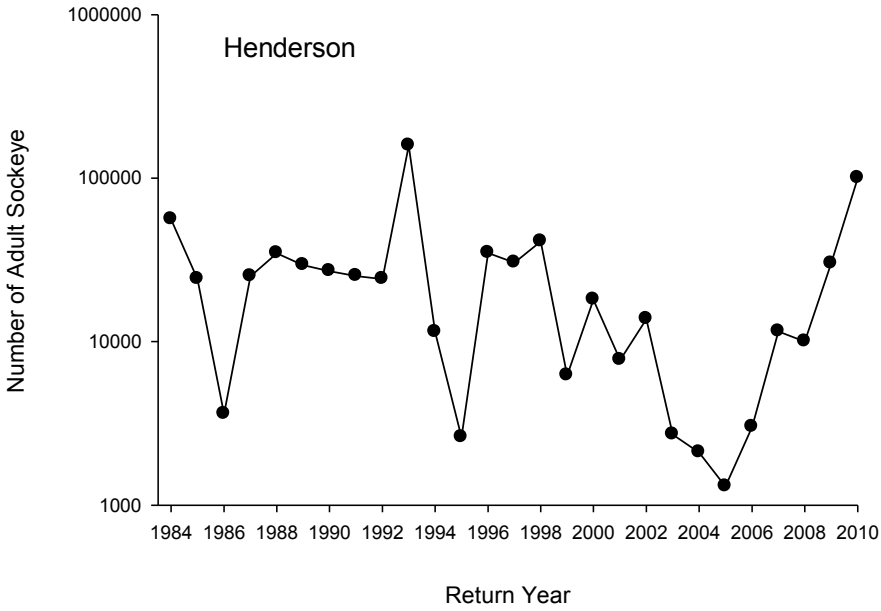
Condition 12	Certification will be conditional until evidence has been provided that the productivity of non-target stocks was considered when the interim TRP was defined for Somass sockeye, by May 2012. (**Barkley Sound Condition #1.4**).
Assessed Activity	This Condition relates to Indicator 1.1.3.2 PI: Target Reference Points or operational equivalent have been set. 100 Scoring Guidepost • The Target Reference Point (TRP) for target species have been reviewed and found to be scientifically defensive and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientist outside the management agency that the TRP's are appropriate. • The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and productivity of non-target stocks. 80 Scoring Guidepost • There is no significant scientific disagreement regarding the TRP's used by the management agency to formulate management decision for the fishery. • The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and the productivity of non-target stocks. 60 Scoring Guidepost • There is general agreement among fisheries scientist within the management agency that the TRP's are appropriate for the target stocks. • Target reference points have been defined for the majority of target stocks harvested in the fishery and these target reference points are not scientifically disputed. • The management agency has taken into account the relative productivity of non-target stocks when setting the TRP's for the majority of target stocks. **SCORE 75** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003a, p.21) suggested that a score of 100 was appropriate for this indicator. Nelson (2005) indicated that none of the scoring guidepost were met because "DFO has not established target reference points for individual target stocks". Nelson clearly did not accept the interim TRP for Somass sockeye as an adequate TRP for management of the target sockeye stocks. The Team did not agree with Nelson's point of view but the management agency has not provided any evidence that the productivity of non-target stocks was considered when the interim TRP was defined for Somass sockeye. Therefore, one of the 80 scoring guideposts was only partially met and the Team's score was 75 for this indicator.
DFO Action Plan	To satisfy these conditions DFO will fully implement 'Strategy 1' of our WSP. 'Strategy 1' of the WSP requires standardized monitoring of wild salmon status, including identification of upper and lower benchmarks to represent biological status and guide harvest decisions. Implementing this strategy requires identification of Conservation Units (CUs) 6 for salmon: the scale at which the WSP aims to maintain biodiversity and at which benchmarks (LRPs and TRPs) will be defined. There are various definitions of lower and target reference points in relation to resource management. In the context of the WSP, The lower benchmark (LRP) will be established at a level high enough to ensure there is a substantial buffer between it and being considered at risk of extinction by COSEWIC. As defined in the WSP: "the buffer will account for uncertainty in data and control of harvest management. There is no single rule to use for determination of the lower benchmark. Rather, it will be determined on a case by-case basis, and depend on available information, and the risk tolerance applied…." The upper benchmark (TRP) will be established to identify whether harvests are greater or less than the

	level expected to provide, on an average annual basis, the maximum annual catch for a CU, given existing environmental conditions.
Observations from 1st Surveillance	Progress has been made. The Wild salmon Policy Pilot is underway for Area 23 sockeye salmon. The objective of the pilot is to develop a local area management plan that takes into account the productivity of all stocks. In addition, implementation of the Maa-Nulth Treaty requires abundance-based allocation of Henderson sockeye salmon. Biological reference points are being developed using previously approved methodologies (Holt et al. 2009, Grant et al. 2010). Labelle et al. (2009) reconstructed sockeye returns to Henderson, Sproat and Great Central lakes and estimated exploitation rates on each stock during 1997-2007. The draft Henderson Lake status report (Dobson and O'Brien 2011) provides productivity estimates of Henderson Lake sockeye salmon.
Conclusion from 1st Surveillance Report	**Given progress to date, the AT expects that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

3.5 Barkley Sound Conditions – Principle 2

Condition 20	Barkley Sound Sockeye Salmon Condition #1. Certification will be conditional until Limit Reference Points or their equivalent have been defined for Barkley Sound sockeye salmon stocks, with particular reference to Henderson Lake sockeye, and recovery plans have been developed and implemented for stocks harvested in Barkley Sound sockeye fisheries that are below their LRP. The proposed recovery plans must provide information regarding the probability of recovery and the timing for recovery. To be completed by May 2012. (**Barkley Sound Condition 2.1**)
Assessed Activity	This Condition relates to Indicator 2.3.1. PI: Management strategies include provision for restrictions to the fishery to enable recovery of non-target stocks to levels above established LRPs (Limit Reference Points). 100 Scoring Guidepost • The management plans and escapement goals have been shown to have a high (>80%) probability of achieving a long-term recovery of depleted non-target stocks using risk analysis. • Historic data have been thoroughly examined to ensure fisheries restoration objectives are based on the likely habitat capacity, rather than on trends that cover only the most recent decades, thus avoiding the "moving baseline" syndrome. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Proposed management strategies have been reviewed and found to be scientifically defensible and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • The management system supports the collection of data on non-fishing related human activity in the development of recovery plans for non-target stocks. 80 Scoring Guidepost • The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. • Objectives for recovery have at least some consideration of historic documents on stock abundance. • The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring.

	• Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans. • The management system considers the impact of non-fishing related human activity in the development of recovery plans for non-target stocks. 60 Scoring Guidepost • The management system attempts to prevent extirpation of non-target stocks and does have rebuilding strategies for the majority of the stocks. • The management system has at least a 50% probability of achieving long-term recovery of depleted non-target stocks. • The management system has a strategy for periodic revisiting escapement goals to respond to new data on recovery success or failure for the majority of the stocks. **SCORE 70** The management agencies detail submission for Barkley Sound sockeye (DFO Barkley Sound 2004b, p.16-19) suggested that a score of 95 was appropriate for this indicator with no score for a risk assessment on the likelihood of recovery of depleted stocks and that the requirement for external review at the 100 guidepost level was not applicable. The Barkley Sound fishery issues center around the recovery of Henderson Lake and the likely impact that current fisheries have on this non-targeted stock. The independent review (Nelson 2005) suggested that DFO failed second guidepost at the 60 level for the Henderson Lake sockeye stock. At the 80 scoring level, the Team agreed with Nelson (2005) that LRPs have not been established for non-target stocks and the available information does not support a high probability of the recovery of the Henderson stock. The first, third, fourth and sixth guideposts at the 80 level were considered partially met, primarily because of the lack of a completed recovery plan for this stock. There was information provided on the previous activities addressing nutrients and trophic status so partial score was given on the latter scoring criteria at the 80 level. In the absence of a recovery plan, the reassessment of escapement goals is not assured (guidepost five). Although there have been a significant number of management actions that have taken place to reduce harvest rates, confidence in the stock reconstruction is lacking and there is no reliable estimate of harvest rates of returning Henderson Lake sockeye. Without a completed recovery plan and reliable interception data of Henderson sockeye salmon, the effectiveness of the current management regime in the recovery of the Henderson stocks is uncertain. Although a formal risk analysis would also be desirable as part of the recovery plan, obtaining information and providing analysis as to the current harvest rates by time and area of Henderson Lake sockeye is of highest priority. The Team found that all of the 60 scoring guideposts were met because DFO has taken measures to prevent the extirpation of non-target stocks. While it is difficult to distinguish between a 50% probability of achieving long-term recovery at the 60 scoring level and a 60% at the 80 scoring level, the Team found that the management system has taken actions to reduced the impact of fisheries on the Henderson Lake sockeye stock in recent years and the fishery is no longer the major factor determining the recovery of this stock. The Team's score for this indicator was 70, primarily based on the lack of a recovery plan and inadequate support for estimation of harvest rates on Henderson stocks.
DFO Action Plan	These 80% scoring guideposts for this indicator were only partially met: "The management system includes assessment of plans for the rebuilding of non-target stocks to levels above established LRPs; The management system has a reasonable (>60%) probability of achieving long-term rebuilding of depleted non-target stocks; Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that rebuilding is occurring." Management actions to meet Condition 20 are discussed in the general section above, including the work plan for developing reference points and decision rules for management of Area 23 sockeye populations. While provisional reference point and decision rules already

	exist, these will be reviewed and potentially revised through implementation of DFO's WSP planned for Area 23 starting late 2008. Notwithstanding WSP implementation, the current stock status of Henderson Lake sockeye is likely not depleted. In each of the last two years (2007, 2008), escapement has been estimated at over 10,000 based on swim surveys. While the biological LRP is not yet defined, it is likely well below 10,000. Moreover, we now know that the counting fence operation is a poor indicator of abundance. Unfortunately, it was the sole source of escapement estimates during the very low period of observations from 2001 to 2005. It was likely escapement was higher than the fence estimates, however anecdotal observations from spawner observations do suggest the abundance was low during this period. We are also working to improve the estimates of harvest rate on Henderson origin sockeye. All fisheries have been sampled for DNA stock composition analysis since 2006. However, even given our catch sampling efforts, it is statistically difficult to estimate harvest rate directly due to the relative rarity of Henderson sockeye in the fishery. In 2004, a deterministic run-reconstruction was submitted to the MSC assessment team. This run reconstruction was based on conservative assumptions and suggested the average harvest rate of Henderson sockeye was less than 15%. Over the last two years, an independent scientific authority was contracted (Dr. Marc Labelle) to estimate harvest rate parameters for Henderson sockeye using an alternative dynamic simulation model. Results from this simulation are similar to those of the run reconstruction and will be reported in the stock assessment research paper to be submitted to PSARC in October, 2009. LRPs will be defined for Barkley sockeye stocks and a report submitted to Certifier by December, 2011.
Observations from 1st Surveillance	Progress has been made. Provisional reference points exist for Barley Sound sockeye salmon, but these will be reviewed and potentially revised through implementation of DFO's WSP, as noted previously. The status of Henderson Lake sockeye salmon was described by Dobson and O'Brien (2011, in publication) and an updated graph of total adult abundance was provided by DFO (see below). Abundance of Henderson sockeye salmon has increased steadily since exceptionally low abundance in 2005, suggesting the current status is not depleted. Factors contributing to the decline of Henderson sockeye salmon were evaluated in the status report. A dynamic simulation model was developed to estimate exploitation rates of Henderson, Sprout and Great Central Lake sockeye salmon, 1997-2007 (Labelle et al. 2010). This analysis indicated the exploitation rate on Henderson Lake sockeye averaged 12% and peaked at 23% in 1997-1998.  **Figure 12. Henderson Lake sockeye abundance. (Source: DFO Powerpoint Presentation**

	on Barkley Sound Conditions, May 2011.)
Conclusion from 1st Surveillance Report	**Although a formal recovery plan has not been developed for Henderson sockeye salmon, the status of the stock was evaluated and status has improved steadily during the past 5 years. The IFMP describes the stock concerns, fishery objectives and in-season decision points pertaining to the Barkley Sound fishery.** **Evidence now exists showing that exploitation rates have been relatively low (avg. 13%) during recent years. Given progress to date, the AT expects that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

3.6 Barkley Sound Conditions – Principle 3

Condition 31	**Same as Condition 20. (Barkley Sound Condition #3.1).**
Assessed Activity	This Condition relates to Indicator 3.1.4 PI: When dealing with uncertainty, the management system provides for utilizing the best scientific information available to manage the fishery, while employing a precautionary approach. 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. **SCORE 77** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003c, p.8) suggested that a score of 100 was appropriate for this indicator. Nelson (2005) agreed with the DFO scoring for this indicator. However, the Team found that the

	management agency has not shown a clear commitment to define and implement action plans and increase research efforts to fill data gaps for the depleted Henderson Lake sockeye stock. The Team's score was 77.
DFO Action Plan	These conditions will be met in part through implementation of the WSP, particularly Strategy 4, as described above. Strategy 4 requires development of an integrated strategic plan for salmon management that clearly states conservation, habitat and ecosystem objectives. Moreover, strategy 5 requires annual review of the plan's ability to meet these objectives. For Barkley and Skeena sockeye fisheries, Strategy 4 and 5 will be implemented over the next 3 years. For Fraser sockeye fisheries, Strategy 5 will be implemented over the next 3 years. In addition, over the next two years, DFO will be revising the format for Integrated Fisheries Management Plans (IFMPs). The new IFMP template is much more fishery specific and requires elements not included in past IFMPs, such as stock status, a socioeconomic overview and summary of management issues. Development of these IFMPs will require many of the gaps identified in the conditions to be addressed.
Observations from 1st Surveillance	Progress has been made. Provisional reference points exist for Barley Sound sockeye salmon, but these will be reviewed and potentially revised through implementation of DFO's WSP, as noted previously (see 2010/2011 Integrated Fisheries Management Plan –Southern BC Salmon). The status of Henderson Lake sockeye salmon was described by Dobson and O'Brien (2011) and an updated graph of total adult abundance was provided by DFO (see Figure 12 above). Abundance of Henderson sockeye salmon has increased steadily since exceptionally low abundance in 2005, suggesting the current status is not depleted. Factors contributing to the decline of Henderson sockeye salmon were evaluated in the status report. A dynamic simulation model was developed to estimate exploitation rates of Henderson, Sprout and Great Central Lake sockeye salmon, 1997-2007 (Labelle et al. 2010). This analysis indicated the exploitation rate on Henderson Lake sockeye averaged 12% and peaked at 23% in 1997-1998. These recent efforts have enhanced the knowledge of factors affecting Henderson sockeye salmon, including the effects of salmon harvests.
Conclusion from 1st Surveillance Report	**This condition is on target for closing out during year 2, as planned, when a document with limit reference points is provided.**

Condition 32	Certification will be conditional until the management agency provides clear evidence that measures are being implemented to encourage harvesters not to exceed catch targets or exploitation rate limits, within two years. (**Barkley Sound Condition #3.2**).
Assessed Activity	This Condition relates to Indicator 3.1.8 PI: The management system provides for socioeconomic incentives for sustainable fishing. 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 to not 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. 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. **SCORE 77** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003c, p.21) suggested that a score of 97 was appropriate for this indicator. Nelson (2005) suggested that two of the 80 scoring guideposts were not met because "it does not appear as there are incentives developed (penalties exist) to encourage compliance". The Team found that the lack of any defined allocations for Barkley Sound sockeye makes it virtually impossible to discourage harvesters from exceeding catch targets or exploitation rate limits. As indicated for Fraser sockeye, First Nation treaties provide an avenue for defining salmon allocations and penalizing those that exceed these limits by reducing their harvest opportunities in future years. The Team's score was 77.
DFO Action Plan	This 80% scoring guidepost for this indicator was only partially met: "the management system includes a program to create incentives for harvesters not to exceed target catches or exploitation rates." The assessment team incorrectly assumed that there are no defined allocations for Barkley Sound sockeye. The Barkley sockeye management table (attached) defines allocations at

	various run sizes for First Nation, Sport and Commercial fisheries. Incentives are provided to harvesters to discourage over-harvest. Probably the most important incentive is our co-management initiative that allows harvesters flexibility in fishing plans and technical input through participation in the 'Area 23 Harvest Committee'. Because this is a table of peers (fishers from different sectors: First Nation, Sport, Commercial), harvesters are accountable and face pressure from other stakeholders to harvest according to manageable fishing plans. This committee has been in operation since 2005. The Somass Joint Technical Working Group, which also started in 2005, includes local First Nations biologists and fishery managers, who contribute to in-season decision-making regarding run forecasting. Since the inception of these co-management processes, no harvest sector has exceeded their allocation. In 2007 when the return was very low and below forecast, harvesters voluntarily curtailed their fisheries in season. In 2008, when the pre-season forecast was below the fishable abundance, harvesters agreed to delay (and eventually abort) harvest plans. A report describing compliance of harvesters in the Barkley sockeye fishery will be provided to the Certifier by December, 2010.
Observations from 1st Surveillance	The Integrated Fisheries Management Plan summarizes harvest management of Barkley Sound sockeye salmon. Fishing plans are developed at the Area 23 harvest round table meeting in early May; the meeting includes commercial gillnet, set net, recreational fisheries, and First Nations. Each of these sectors is identified with a specific allocation under the harvest strategy, e.g., see Table 11 below. Under the new MaaNulth Final Agreement, allocations are identified as per treaty. Weekly fishery bulletins are published that provide inseason information on escapement, stock composition, test fishing results, inseason forecast, and fishing opportunities for each sector. According to DFO, no harvest sector has exceed their allocation since inception of the co-management processes. For example, in 2007, when the return was very low and below forecast, harvesters voluntarily curtailed their fisheries in-season. In 2008, when the preseason forecast was below fishable abundance, harvesters agreed to delay and eventually abort harvest plans. The variable harvest rate strategy allows for some harvest at escapement below optimal, and the escapement target is met in most years, as shown in figure 13 below. **Table 12: Key decision points for Barkley Sound sockeye.** **Run Size** / First Nations (FSC) Fisheries / **Recreational Fisheries** / **Commercial Fisheries** Less than 200,000 / No harvest / No harvest / No harvest 200-210,000 / Harvest initiated / No harvest / No harvest 210-240,000 / Harvest / No harvest / No harvest 240-400,000 / Harvest / Harvest initiated / No harvest Greater than 400,000 / Harvest / Harvest / Harvest initiated 2010/2011 Integrated Fisheries Management Plan – Southern BC Salmon Page 83 of 160

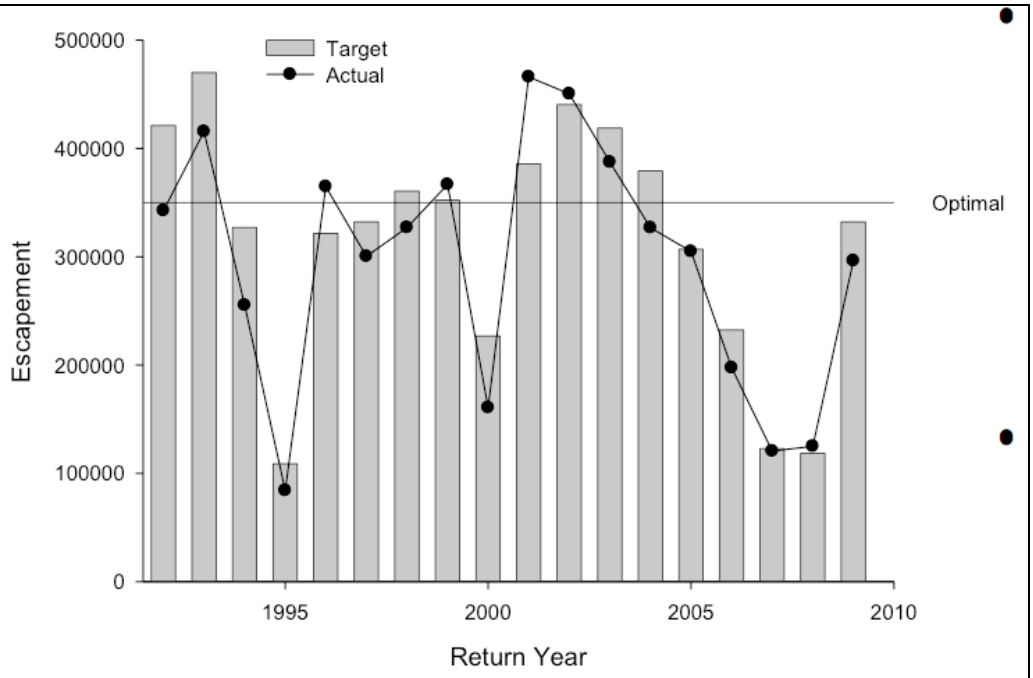


Figure 13: Variable harvest rate strategy used for Barkley Sound sockeye.

Conclusion from 1st Surveillance Report	**Given progress to date, the AT expects that the management agency will meet the requirements of the 80 level guideposts within the required time frame of 2 years.**

Condition 33	Certification will be conditional until the management agency provides a research plan that addresses identified concerns related to the impact of the fishery on the ecosystem, with emphasis on non-target stocks, and takes into consideration socioeconomic factors and anticipated changes to fisheries. These tasks should be completed in three years (**Barkley Sound Sockeye Condition #3.3**).
Assessed Activity	This Condition relates to Indicator 3.2.1. PI: 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. 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 socioeconomic 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 socioeconomic 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. **SCORE 73** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003c, p.23) suggested that a score of 95 was appropriate for this indicator. Nelson (2005) suggested that three of the 80 scoring guideposts were not met because of deficiencies in the research related to fishery impacts on marine mammals and understanding Henderson Lake sockeye. The Team found that the lack of any research plan for Barkley Sound sockeye makes it difficult to assess whether the plan addresses concerns related to the impact of the fishery on the ecosystem, socioeconomic issues that result from the implementation of management plans, or if the research plan is responsive to changes in the fishery. The Team's score was 73.

DFO Action Plan	The requirement to include ecosystem values and objectives in planning process is an element of the WSP. It is also an element of the new IFMP template described above that will be implemented for salmon fisheries starting in 2012. To addresses the need to include other objectives (ecosystem, socio-economic) in the planning process and assess performance against these objectives, we will need to re-align our current reporting and/or re-allocate research resources. DFO has developed a Resource Assessment Framework for Fraser River sockeye (PSARC review in May 2008) to help guide assessment priorities based on the biological status and knowledge gaps for each CU. Once LRPs are developed for each CU, they will be integrated into the assessment framework. The Fraser sockeye assessment framework will serve as a template for other CUs.
Observations from 1st Surveillance	Progress is being made. DFO stated that ecosystem values and objectives will be considered in the planning process as part of WSP implementation. Ecosystem values and research activities were briefly noted in the 2011 IFMP. The 2010 IFMP did consider interactions between fisheries and marine mammals and birds throughout southern BC. The Area 23 harvest round table meets weekly during the season and discusses research programs and management strategies. It was reported that Dr. K. Hyatt is developing a research plan.
Conclusion from 1st Surveillance Report	**Progress is satisfactory for this condition which is expected to be closed out in year 3.**

Condition 34	Same as Condition 29. (**Barkley Sound Condition #3.4**).
Assessed Activity	This Condition relates to Indicator 3.6.3 PI: The management system provides for the observation of legal and customary rights of First Nation peoples. The DFO submissions were essentially identical for all fisheries and suggested that all guideposts were met for each fishery (DFO Fraser 2004c, p. 57-59; DFO Barkley Sound 2004c, p. 47-49; DFO Skeena 2004c, p. 54-55; DFO Nass 2004c, p. 54-55). The Team found that the Fraser, Barkley Sound and Skeena fisheries did not pass one of the guideposts at the 80SG because of concerns expressed by First Nation representatives regarding their access to sockeye for food, social and ceremonial purposes (see section on scores below 80). It was surprising that the submission for the Nass did not make any reference to the Nisga'a Treaty (a comprehensive land claims treaty which included fishing rights for salmon) which has been in effect since 11 May 2000. The Team found that the successful negotiation and implementation of the Nisga'a Treaty was sound evidence that all guideposts have been met and thus the score for this indicator was 100 for the Nass fishery. 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. **SCORE 75** The management agency's detailed submission for Barkley Sound sockeye (DFO Barkley Sound 2003c, p.48-49) suggested that a score of 100 was appropriate for this indicator. The

	submissions by the client indicate that DFO believes it has met its First Nations obligations to protect and manage for food, social, and ceremonial harvest by First Nations. However, in consultation with First Nations and conservations groups, the Team was provided with information suggesting that several of the First Nations that harvest Barkley Sound sockeye would not agree the management system is in compliance with all the legal and most of the customary rights of First Nation peoples that are impacted by the Barkley Sound sockeye fishery. Nelson (2005) did not score this indicator. The Team found that the first guidepost at the 80SG was not met and thus the Team's score was 75.
DFO Action Plan	Treaty-making with aboriginal peoples has a long history in Canada. The Crown began entering into treaties with aboriginal groups in the early 1700's, which continued until the 1920's. These are referred to as "historic treaties". In the 1970's, treaty-making resumed resulting in "modern treaties" which are generally more complex and detailed than "historic treaties". "Modern treaties" continue to be negotiated in various parts of Canada. In 1982, section 35 was added to the Constitution of Canada. Section 35 provides "constitutional protection" to aboriginal rights and rights under both "historic treaties" and "modern treaties". The Supreme Court of Canada has held that the "constitutional protection" of aboriginal rights and treaty rights means that any infringement of such a right must be justified. The Supreme Court of Canada has also held that aboriginal rights to fish for "food, social and ceremonial" purposes have priority, after conservation, over fishing for commercial or recreational purposes. From a Canadian perspective, it is important to distinguish between an aboriginal right to fish for food and an aboriginal right to fish for "livelihood". The proposed Performance Indicators under this category merge these two distinct concepts in the same criteria. In other words, the Government's legal duty to consult with aboriginal groups can arise even where aboriginal rights have only been asserted and not yet legally proven. Whether an aboriginal right exists and the nature, extent and scope of that right is group and fact specific. The existence of aboriginal rights is generally established through litigation involving extensive historical and anthropological evidence or through historic or modern treaties. Determining the nature, extent and scope of "historic treaty" rights can also present challenges. The wording in "historic treaties" can be difficult to interpret. For instance, the wording of the fishing right in the "Douglas Treaties" entered into in the 1850's in British Columbia provides that the aboriginal groups who were signatories have the right "to carry on our fisheries as formerly". Although section 35 of the Constitution of Canada contains a general statement that all existing aboriginal and treaty rights are "recognized and affirmed", the challenges described above can make it difficult to "recognize" what specific aboriginal rights may belong to a particular aboriginal group and or their exact nature and scope. Regardless of this difficulty, as noted above, the Government's duty to consult with an aboriginal group may arise even where aboriginal rights have only been asserted and are not yet legally proven. In order to meet this condition DFO will provide a report summarizing how the management system addresses issues regarding aboriginal and treaty rights related to the sockeye salmon fisheries. This report will be provided by December 2010.
Observations from 1st Surveillance	In response to this condition and similar conditions (29, 34, 36a), DFO submitted a document to the assessment describing their commitment to "compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery". DFO's objective is to manage fisheries to ensure that, after conservation needs are met, First Nations' food, social and ceremonial requirements and treaty obligations have first priority in salmon allocation. Aboriginal programs including AFS, ATP, AAROM, Treaties and PICFI provide the policy basis for meeting the objectives of providing opportunities to First Nations to meet their FSC needs. Comprehensive Fisheries Agreements and input into the North Coast and South Coast IFMPs are important components for meeting the objectives for aboriginal fisheries.

	Opportunities to become involved in the management and planning of the fishery are provided through bilateral, sub-regional and regional consultation processes. Opportunities to share technical information are provided for in the consultation processes.
Conclusion from 1st Surveillance Report	**Given the information provided by DFO regarding their commitment to "compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery", this condition has been met for Barkley Sound sockeye. The score for this indicator has been raised to 80 and the condition has been closed out.**

3.7 Skeena Conditions – Principle 1

Condition 13	Certification will be conditional until a peer reviewed (e.g. PSARC) assessment of the impact of production from Pinkut and Fulton spawning channels on wild sockeye stocks has been completed and the TRPs and LRPs have been clearly defined for the un-enhanced sockeye stocks, within two years (**Skeena Condition #1.1**).
Assessed Activity	This Condition relates to Indicator 1.1.1.5. PI: 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 unenhanced stocks. 100 Scoring Guidepost • Fisheries targeting enhanced stocks are geographically removed from unenhanced stocks and separate terminal harvest areas are established for these fisheries. • Times and areas have been identified where the majority of enhanced fish migrate through the general fishery. • There is real time mark recovery program during the prosecution of the fishery that allows determination of harvest rates of the enhanced component of the run and this data is used in regulation of the fishery. 80 Scoring Guidepost • In fisheries where both enhanced and un-enhanced stocks are harvested at the same time, the harvest guidelines are based on the goals and objectives established for the un-enhanced stocks. • There are adequate data and analyses to determine that the presence of enhanced fish in the management units do not adversely impact the unenhanced fish stocks. 60 Scoring Guidepost • There is general scientific agreement within the management agency regarding the impacts of enhanced fish on the resultant harvest rates or escapements of un-enhanced fish stocks. • Managers have some scientific basis for assuring that harvest rates for enhanced stocks are not adversely affecting the majority of un-enhanced stocks within each stock unit. **SCORE 60** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003a, p.12) suggested that a score of 90 was appropriate for this indicator. Bocking (2005) scoring for this indicator was similar to that provided in the DFO submission. Hill (2007) contended that the two 60 scoring guideposts were not met because he does not believe there is an empirical basis for any internal DFO agreement that may exist regarding the impact of enhancement on un-enhanced fish stocks and he believes that "the majority of weak sockeye stocks are routinely fished at exploitation rates above their estimated MSY". The Team found that there was general scientific agreement within the management agency that the primary target for Skeena sockeye fisheries are the enhanced Babine sockeye produced from the Pinkut and Fulton spawning channels and fisheries targeting these enhanced stocks have had a significant impact on the Skeena's wild sockeye stocks and other co migrating salmon and steelhead. However, recent harvest rates are significantly reduced from historical levels and managers have indicated that the available stock-recruitment data provides a scientific basis that current harvest rates set for the mixed-stock fisheries should not adversely affect the majority of un-enhanced stocks within each stock unit (i.e. Babine and non-Babine sockeye). The Skeena Independent Science Review Panel (ISRP) recommended "a comprehensive assessment of the advantages and disadvantages of either reducing channel production substantially, or eliminating it entirely in favour of sustaining the wild stock fishery." The ISRP identified a number of deficiencies in the information available to assess trends in marine survival and the impact of enhanced stocks on the wild stocks. The reinstatement of the Babine sockeye smolt monitoring program was identified as one of the top priorities. Other scientists

	have proposed provisional LRP's for most of the un-enhanced Skeena sockeye stocks (Wood, 1999) but to date these LRP's have not been formally used in the development of harvest plans for Skeena sockeye. The Team's score was 60.
DFO Action Plan	DFO commits to providing a peer reviewed assessment of the impact of production from the Babine enhanced production on wild Skeena sockeye stocks in a PSARC reviewed stock assessment paper and TRPs and LRPs have been defined for Skeena sockeye CUs (December, 2011).
Observations from 1st Surveillance	Fisheries and Oceans Canada, informed the Assessment team that a Skeena sockeye technical workshop is planned for June, 2011. The proceedings from that meeting will form part of the basis of a report currently in preparation for review by the Canadian Science Advisory Secretariat (CSAS) in December 2011. The report will provide a stock status update for Skeena sockeye, include information from enhanced Babine stocks. Authors will included DFO scientists and at least one First Nation representative. There is a project underway to define benchmarks for all Skeena species, including steelhead. The report from this project was scheduled for review by CSAS in December 2011. DFO is going to provide a backgrounder on escapement & harvest impact info organized by conservation units (CU) to estimate productivity parameters and evaluate potential indicators. One meeting has been conducted to provide methodology and case studies for consideration.
Conclusion from 1st Surveillance Report	**Work is underway and is expected to result in the defined Action Plan deliverable by the second annual surveillance audit.**

Condition 13a	Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries, within two years (**Skeena Condition #1.1a**).
Assessed Activity	This Condition relates to Indicator 1.1.2.1. PI: Estimates exist of the removals for each stock unit. 100 Scoring Guidepost • Catch estimates are available for all fisheries in Canadian waters that harvest the target and non-target stocks harvested in the fishery being evaluated. • Mortality rates are available for the fish released or discarded during the fishery. • Catch estimates are available for fisheries outside Canadian waters that harvest the stocks that are the target of the fishery being evaluated. 80 Scoring Guidepost • Catch estimates are available for all target stocks harvested in the fishery. • Catch estimates are available for non-target stocks where the catch of the non-target stock may represent a significant component of the harvest of that stock. • Mechanisms exist to ensure accurate catch reporting and these mechanisms are evaluated at least once every 5 years. 60 Scoring Guidepost • Catch estimates for the majority of target stocks are available. • Catch estimates are available for non-target stocks where the catch of the non-target stocks may represent a significant component of that stock. • Mechanisms exist to ensure accurate catch reporting and these mechanisms are evaluated at least once every 10 years. **SCORE 77** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003a, p.14) suggested that a score of 100 was appropriate for this indicator. Bocking (2005) indicated that

	two of the 100 scoring guideposts have not been met but all of the 60 and 80 guideposts were met. Hill (2007) contended that one of the 60 scoring guideposts was not met because he believes that "many commercial fishers engage in 'token reporting' and personal retention of non-target bycatch". After a detail review of all the methods used to estimate catch or exploitation rates for Skeena steelhead stocks, the Skeena ISRP concluded that "The state of affairs today is that we actually have no idea how reliable DFO's estimates of steelhead exploitation rates are." While the steelhead bycatch in fisheries targeting Skeena sockeye can represent a significant portion of the harvest of Skeena steelhead, the steelhead harvest rates are believed to be relatively low, and thus a much less significant component of the steelhead stock in most years. However, there is an urgent need to improve the procedures used to estimate the catch for these non-target steelhead stocks. The Team's score was 77.
DFO Action Plan	DFO will develop a program for monitoring the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to develop methods to estimate steelhead impacts from the Skeena sockeye fisheries. A catch monitoring framework will be developed by December, 2011.
Observations from 1st Surveillance	DFO has committed to using the existing data and will prepare a summary of the bycatch in the Fishery Operations System (FOS). Fishery impacts on steelhead are estimated using a model jointly created by DFO and MOE, and initially reviewed by PSARC. There have been changes to the model that merit a fresh evaluation. DFO will use sales slip data from the net fisheries to generate the final volumes for catch and will use the FOS data to generate fishing locations. DFO has requested to the Skeena Watershed Initiative (SWI) that the SWI technical committee support an independent technical review to evaluate the utility of the Skeena model to estimate Steelhead harvest impacts and catch. DFO has reiterated their interest to work with the Province of British Columbia to resolve steelhead issues.
Conclusion from 1st Surveillance Report	**DFO has provided concrete examples of how they intend to use existing information to generate defensible estimates of steelhead bycatch. This condition will be evaluated at the next surveillance audit.** **The CB discussed and agreed with the client that the action plan provided in the Public Certification Report (PCR) is no longer representative of the current fishery management and status. The CB agrees that the client will propose a revised action plan which will be approved by the assessment team prior to next surveillance audit with the intention of evaluating the current condition against a revised action plan.**

Condition 13b	Certification is conditional until the management agencies implement the escapement and fall fry monitoring plans for Skeena sockeye as defined in the Core Stock Assessment Review for North and Central Coast salmon stocks or a similar scientifically defensible program to address this key information gap, within two years (**Skeena Condition #1.1b**).
Assessed Activity	This Condition relates to Indicator 1.1.2.2. PI: Estimates exist of the spawning escapement for each stock unit. 100 Scoring Guidepost • Estimates are available for the annual escapement for each stock unit harvested in the fishery. • In-season escapement data are collected for all stock units and used to regulate the fishery. 80 Scoring Guidepost • Estimates are available for the annual escapement of each target stock harvested in the

	fishery. • Fishery independent indicators of abundance are available for the non-target species harvested in the fishery. • In-season escapement data are collected for the target stocks and used to regulate the fishery. 60 Scoring Guidepost • Escapement estimates for target stocks are available, where escapement estimates are necessary to protect the target stock from overexploitation. • Fishery independent indicators of abundance are available for non-target stocks where the fishery harvests may represent a significant component of the harvest of that stock. **SCORE 77** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003a, p.15-16) suggested that a score of 90 was appropriate for this indicator. Bocking (2005) suggested that the second guidepost at the 60 SG was only partially met because the Tyee fishery does not provide stock specific indicators of abundance for all species. Hill (2007) contended that the first guidepost at the 60 guideposts was not met because he considers "any sockeye stock subject to harvest in the commercial fishery is a *de facto* target stock". The Team found that the fishery passed these guideposts because fishery independent indicators of abundance are not required for all non-target stocks and the Team assessment has always been based on the premise that the Babine sockeye is target stock for the Skeena sockeye fishery. The Team found that escapement estimates for the non-target sockeye stocks (i.e. non-Babine stocks) were less reliable than those for Babine sockeye. The shift towards management by conservation unit (CU), would require more information on the abundance within each CU. The management agency has recently defined 32 sockeye CUs within the Skeena watershed and the ISRP concluded that "the available data are not sufficient to define escapement trends or assess stock status for 15 of the sockeye CUs". This is flagged as a gap in the current annual stock assessment program that could be addressed by the approaches defined in the Core Stock Assessment Review for North and Central Coast salmon stocks. The Team's score was 77.
DFO Action Plan	DFO will use the existing core stock assessment program to develop and implement a plan for monitoring sockeye escapements. The program will be developed in cooperation with the FN interests in the watershed and may include direct visual escapement surveys, weir counts, and mark recapture programs for adults or hydroacoustic lake surveys to identify juvenile abundance. The Skeena Fisheries Commission has been conducting hydro acoustic estimates in recent years, and DFO will continue to cooperate in planning and funding of these surveys. The program will be described in PSARC reviewed stock assessment paper (December, 2011).
Observations from 1st Surveillance	DFO reported they will use the existing core stock assessment program as a base to develop and implement a plan for monitoring sockeye escapements. The program will be developed in cooperation with the FN interests in the Skeena watershed and may include direct visual escapement surveys, weir counts, and mark recapture programs for adults or hydro acoustic lake surveys to identify juvenile abundance. The Skeena Fisheries Commission has been conducting hydro acoustic estimates in recent years, and DFO will continue to cooperate in planning and funding of these surveys. DFO is proposing a Skeena sockeye technical workshop in June 2011. The agenda will include a review and discussion on how to best move forward with designing and implementing the enumeration plan. The recommended enumeration plan will be part of the CSAS report scheduled for completion in December 2011.
Conclusion from 1st Surveillance Report	**A basic approach and workshop were reported as underway. A CSAS peer reviewed report will be produced which should identify the fishery independent indicators of abundance available for the non-target species harvested in the fishery. DFO appear to be on target with meeting their deliverable deadline at the second annual surveillance audit.**

Condition 13c	Certification is conditional until the management agencies have implemented the programs necessary to provide periodic assessments of the relative productivity for each Skeena sockeye CU or justification for the use of currently monitored populations as indicator stocks, within two years (**Skeena Condition #1.1c**).
Assessed Activity	This Condition relates to Indicator 1.1.2.4. PI: 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. 100 Scoring Guidepost • Scientifically defensible productivity estimates (e.g. stock/recruitment relationships) have been derived for all target stocks and the relative productivity of non-target stocks is known. • Risk assessment has been conducted to determine the impact of alternative harvest strategies on non-target stocks. The risk assessment should include an assessment of the uncertainties with estimates of stock productivity for both the target and non-target stocks. 80 Scoring Guidepost • There is adequate information to identify the harvest limitations and production strategies required to maintain the high productivity of the target stocks. • There is adequate information to estimate the relative productivity of the non-target stocks where the fishery harvests may represent a significant component of those non-target stocks. • The harvest limitations for target stocks take into consideration the impacts on non-target stocks and the uncertainty of the productivity for these stocks. 60 Scoring Guidepost • The available information and analyses are adequate to identify the harvest limitations and production strategies required to maintain the productivity of the majority of target stocks. • The relative productivity of the non-target stocks is considered in the management strategy, where the fishery harvests may represent a significant component of those non-target stocks. **SCORE 77** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003a, p.18-19) suggested that a score of 90 was appropriate for this indicator. Bocking (2005) concurred with the DFO scoring for this indicator. As indicated above, there is general scientific agreement that the catch of the non-target sockeye stocks in fisheries that target Babine sockeye can represent a significant component of the harvest of those stocks. The Team found that the second guidepost at the 80 SG was not fully met because the data available for some non-target sockeye stocks is not adequate to estimate the relative productivity for these non-target stocks. The fishery passed the second guidepost at the 60 SG because there is evidence in the annual fishing plans that the likely lower productivity for some non-target stocks has been considered in the management strategy for Skeena sockeye fisheries. The Team's score was 77.
DFO Action Plan	DFO commits to providing periodic assessments of the relative productivity for Skeena sockeye CU's, or representative indicators. Our experience has been that the productivity of the sockeye systems are relatively stable, and will place priority on assessments of systems for stocks of concern, those most susceptible to climate change impacts or subject to recent habitat perturbations. The relative productivity will be reviewed in a PSARC stock assessment paper (December, 2011).
Observations from 1st Surveillance	DFO is proposing a Skeena sockeye technical workshop in June 2011. The agenda will include a review and discussion on how to best move forward with designing and implementing the productivity assessments. The recommended plan for productivity assessments will be part of the CSAP report scheduled for December 2011.

	Measure of productivity will be determined by using lake productivity as the basis and then use as proxy for estimating potential productivity in the lakes. While there is stock recruitment information for Babine Lake, it can not be used in the productivity calculation due to effect of enhancement. There is a lot of scientific data available for the watershed but there is not a strong enough time series to generate a stock recruit curve that is stock specific.
Conclusion from 1st Surveillance Report	**A basic approach and workshop were reported as underway. A CSAS peer reviewed report will be produced which should identify the recommended plan for productivity assessments. DFO appear to be on target with meeting their deliverable deadline at the second annual surveillance audit.**

Condition 14	Certification will be conditional until the management agency provides direct evidence that the productivity of non-target stocks has been taken into account when setting the TRP for the target Babine stock, within one year (**Skeena Condition #1.2**).
Assessed Activity	This Condition relates to Indicator 1.1.3.2. PI: Target Reference Points or operational equivalent have been set. 100 Scoring Guidepost • The Target Reference Point (TRP) for target species have been reviewed and found to be scientifically defensive and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientist outside the management agency that the TRP's are appropriate. • The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and productivity of non-target stocks. 80 Scoring Guidepost • There is no significant scientific disagreement regarding the TRP's used by the management agency to formulate management decision for the fishery. • The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and the productivity of non-target stocks. 60 Scoring Guidepost • There is general agreement among fisheries scientist within the management agency that the TRP's are appropriate for the target stocks. • Target reference points have been defined for the majority of target stocks harvested in the fishery and these target reference points are not scientifically disputed. • The management agency has taken into account the relative productivity of non-target stocks when setting the TRP's for the majority of target stocks. **SCORE 77** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003a, p.22) suggested that a score of 70 was appropriate for this indicator. Bocking (2005) contended that the second scoring guidepost at the 60SG could not be met because it is the same as the second guidepost at the 100 SG, which has not been met. The Team recognizes that these guideposts appear to be redundant because no reference was made to the management agency. Where agreement is required at the 60 guidepost it is generally only required within the management agency. Consequently, the Team agreed with DFO's assessment that they passed the 60 guideposts but did not pass all the 80 and 100 guideposts. The management agency has indicated that historically the TRP for the Babine stock did not take into account the productivity of non-target Skeena stocks. The current TRP for the target Babine sockeye stock is based on the plans to limit harvests in mixed-stock fisheries to levels that take into account the lower productivity of non-target stocks and harvest the surplus production of the Babine stock in areas where only Babine stocks are present (i.e. within the Babine watershed). The WSP calls for the definition of conservations units for each salmon species and the definition of management guidelines for each conservation unit. The Team's score was 70.

DFO Action Plan	As an interim measure for the 2009 fishing season DFO adopted a precautionary management objective of reducing the Canadian commercial exploitation rate on Skeena sockeye to begin rebuilding individual stocks of concern by maintaining on average, a Canadian commercial exploitation rate in the range of 20 to 30%. This represents a reduction of 30 to 50% from recent decade averages. This range was consistent with the advice provided in the Skeena ISRP (Independent Science Review Panel). DFO also supports Recommendation # 1 of the ISRP, "There is a need to confront the major trade-off decisions that are implied by the Wild Salmon policy and the impacts of mixed-stock ocean fisheries on Skeena stocks. There should be an explicit public decision about the loss of biodiversity (number of weak stocks allowed to remain overfished or at risk of extinction) that is deemed acceptable and changes required to fisheries in order to achieve particular harvest objectives." Resolving this issue will be the central focus of the Skeena Watershed Process over the next few years.
Observations from 1st Surveillance	DFO adopted a very precautionary abundance-based management objective beginning in 2009 by significantly reducing the Canadian commercial abundance based exploitation rate targets on Skeena sockeye to begin rebuilding stocks of concern. This management action is consistent with the advice provided in the Skeena ISRP to rebuild weak stocks. Another science activity currently underway is an NSERC grant to conduct an update of the Skeena model. DFO has encouraged inclusion of socioeconomic aspects into this update.
Conclusion from 1st Surveillance Report	**Both the 2010 and 2011 IFMPs for North Coast Salmon define the Skeena River Decision Guidelines and present the abundance-based method to be used to guide fishery openings. This is evidence that there has been consideration of the productivity of non-target stock when setting the TRP proxy (exploitation rate).** **The team considers that this responds to the requirements second 80 scoring guidepost and as such, this performance indicator is rescored to 80 and the condition closed.**

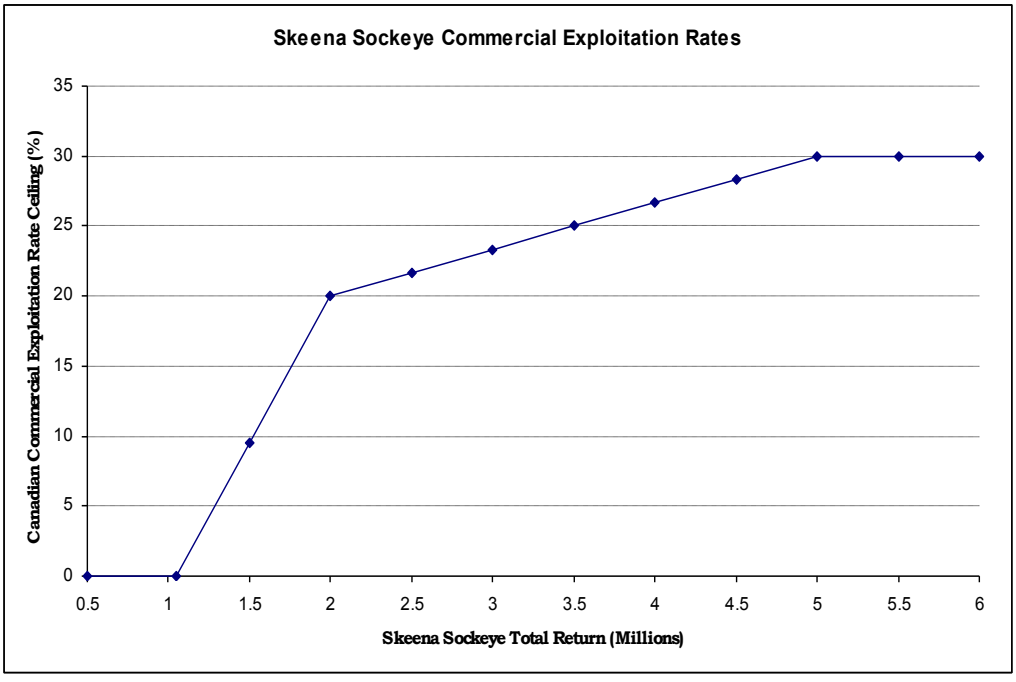
3.8 Skeena Conditions – Principle 2

Condition 21a	Same as new condition 13a. Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries. To be completed within two years. (**Skeena Condition #2.1a**).
Assessed Activity	This Condition relates to Indicator 2.1.1. PI: The management plan for the prosecution of the marine fisheries provides a high confidence that direct impacts on non-target species are identified. 100 Scoring Guidepost • A monitoring program exists that provides estimates of bycatch that meet statistical criteria acceptable to external reviewers. • All historic monitoring data is readily available to stakeholder groups and external reviewers. • Quantities of gear lost are recorded, and the impacts of lost gear on target and non-target species have been researched and accurate projections of impacts have been completed. 80 Scoring Guidepost • A monitoring program exists that provides estimates of bycatch. • In known problem areas of high bycatch, there is an on-going monitoring program. 60 Scoring Guidepost • Data on bycatch in the majority of the fisheries are available to determine impacts on non-target species. **SCORE 70** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2004b, p.1-4) and the independent review (Bocking 2005) suggested that a score of 100 was appropriate for this indicator. However, an independent science review panel (Walters et al. 2008) provided additional analysis that was used by the team to rescore this and all other indicators for Skeena sockeye. Much of the review and information originally provided by DFO was superseded by this document. We agreed specifically with the findings of the ISRP that estimates of DFO of bycatch rates on steelhead have little reliability. The SG60 is passed because there is data on bycatch of steelhead and these data indicated that the Skeena sockeye fisheries represent known high bycatch of steelhead. After a detailed review of all the methods used to estimate catch or exploitation rates for Skeena steelhead stocks, the Skeena ISRP concluded that "The state of affairs today is that we actually have no idea how reliable DFO's estimates of steelhead exploitation rates are." Since there is general scientific agreement that the terminal Skeena sockeye fisheries represent a known area of high bycatch for steelhead, there is an urgent need to improve the procedures used to estimate steelhead bycatch. The condition is necessary because there is a need for an ongoing monitoring program and these types of programs have not been consistently conducted in the past. The Team's score for this indicator was 70 based on the lack of reliability of the steelhead bycatch monitoring program.
DFO Action Plan	DFO in cooperation with the Province of BC will develop a program for evaluating the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to develop a method to estimate steelhead impacts in the Skeena sockeye fisheries. A catch monitoring framework will be presented to PSARC for review in December 2010.
Observations from 1st Surveillance	DFO has committed to using the existing data and will prepare a summary of the bycatch in the Fishery Operations System (FOS). Fishery impacts on steelhead are estimated using a model jointly created by DFO and MOE, and initially reviewed by PSARC. There have been changes to the model that merit a fresh evaluation. DFO will use sales slip data from the net fisheries to generate the final volumes for catch and will use the FOS data to generate fishing

	locations. DFO has requested to the Skeena Watershed Initiative (SWI) that the SWI technical committee support an independent technical review to evaluate the utility of the Skeena model to estimate Steelhead harvest impacts and catch. DFO has reiterated their interest to work with the Province of British Columbia to resolve steelhead issues.
Conclusion from 1st Surveillance Report	**DFO has provided concrete examples of how they intend to use existing information to generate defensible estimates of bycatch. This condition will be evaluated at the next surveillance audit.** **The CB discussed and agreed with the client that the action plan provided in the Public Certification Report (PCR) is no longer representative of the current fishery management and status, specifically, the current fishery management measures and reduced fishing effort over the last three years. The CB agrees that the client will propose a revised action plan which will be approved by the assessment team prior to next surveillance audit with the intention of evaluating the current condition against a revised action plan.**

Condition 21b	Certification will be conditional until Limit Reference Points or their equivalent have been defined for Skeena sockeye salmon stocks, and recovery plans have been developed and implemented for stocks harvested in Skeena sockeye fisheries that are below their LRP. The proposed recovery plans must provide information regarding the probability of recovery and the timing for recovery. To be completed within one year. (**Skeena Condition 2.1b)**
Assessed Activity	This Condition relates to Indicator 2.3.1. PI: Management strategies include provision for restrictions to the fishery to enable recovery of non-target stocks to levels above established LRPs (Limit Reference Points). 100 Scoring Guidepost • The management plans and escapement goals have been shown to have a high (>80%) probability of achieving a long-term recovery of depleted non-target stocks using risk analysis. • Historic data have been thoroughly examined to ensure fisheries restoration objectives are based on the likely habitat capacity, rather than on trends that cover only the most recent decades, thus avoiding the "moving baseline" syndrome. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Proposed management strategies have been reviewed and found to be scientifically defensible and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • The management system supports the collection of data on non-fishing related human activity in the development of recovery plans for non-target stocks. 80 Scoring Guidepost • The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. • Objectives for recovery have at least some consideration of historic documents on stock abundance. • The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans. • The management system considers the impact of non-fishing related human activity in the

	development of recovery plans for non-target stocks 60 Scoring Guidepost • The management system attempts to prevent extirpation of non-target stocks and does have rebuilding strategies for the majority of the stocks. • The management system has at least a 50% probability of achieving long-term recovery of depleted non-target stocks. • The management system has a strategy for periodic revisiting escapement goals to respond to new data on recovery success or failure for the majority of the stocks. **SCORE 74** The management agencies detail submission for Skeena sockeye (DFO Skeena 2004b, p.16-21) suggested that a score of 95 was deserved with no score for guideposts 1 and that guidepost4 was not relevant. The independent review (Bocking 2005) indicated that he did not agree with DFO's assessment and suggested partial failure at all three of the criteria at the 60 level. Further, at the 80 scoring level, this reviewer saw little evidence of incorporating non-fishing human impacts in the development of recovery plans with recovery plans for Skeena sockeye being primarily driven by stock assessment and fishery management actions, not habitat actions and there are no comprehensive recovery plans. DFO contends that recovery plans are only the subject of COSEWIC listed stocks, and not the subject of depleted stocks. DFO also acknowledged that there are no LRP's for these stocks. We agreed with much of what Bocking offered, however, the Team found that DFO has a rebuilding strategy for the majority of the stocks and found that based on historical track records, more likely than not, that the stocks that are depleted would recover in the long-term and DFO responds to new data in adjustment of harvest rates and escapement goals. We generally agreed with Bocking's findings at the 80 scoring level in that there are no LRP's or comprehensive recovery programs for depleted stocks and agreed that depleted stocks (those below an LRP) were covered under this MSC criteria without being listed by COSEWIC. The Skeena sockeye salmon fishery falls short in the area of development of recovery plans for the Damshiquit, Kitwanga, Spawning and Sicintine systems. Given the relatively long term period of low returns to the depressed systems, there is reasonable doubt that these stocks will have at least a 60% probability of recovery. Guideposts 1, 3, 4 and 5 are all deficient for some of the identified depleted stocks. Although these stocks do not appear to be immediately threatened with extirpation, a recovery strategy associated with a risk analysis is needed. In addition, we received information suggesting chum salmon stocks are depleted in this area and are a significant bycatch of the sockeye salmon fishery. A recovery plan for these non-target stocks and associated risk analysis of any modified harvest strategy should be completed. The Team found that all of the 60 scoring guideposts were met because DFO has taken measures to prevent the extirpation of non-target stocks. While it is difficult to distinguish between a 50% probability of achieving long-term recovery at the 60 scoring level and a 60% at the 80 scoring level, the Team found that the management system has taken actions to reduced the impact of fisheries on the depleted non-target sockeye and chum stock in recent years. Based on the deficiencies at the 80 scoring level, the Team's score for this indicator was 74.
DFO Action Plan	**Condition 21b** - As an interim measure for the 2009 fishing season DFO adopted a precautionary management objective of reducing the Canadian commercial exploitation rate on Skeena sockeye to begin rebuilding individual stocks of concern by maintaining on average, A Canadian commercial exploitation rate in the range of 20 to 30%. This represents a reduction of 30 to 50% from recent decade averages. This range was consistent with the advice provided in the Skeena ISRP (Independent Science Review Panel). DFO also supports Recommendation # 1 of the ISRP, "There is a need to confront the major trade-off decisions that are implied by the Wild Salmon policy and the impacts of mixed-stock ocean fisheries on Skeena stocks. There should be an explicit public decision about the loss of biodiversity (number of weak stocks allowed to remain overfished or at risk of extinction) that is deemed acceptable and changes required to fisheries in order to achieve particular harvest

	objectives." Resolving this issue will be the central focus of the Skeena Watershed Process over the next few years.
Observations from 1st Surveillance	DFO provided initial LRP estimates for each sockeye lake system in the Skeena in a PSARC paper in 2004 (Cox-Rogers et al 2004 attached, Appendix Table 7). The LRP total for the non-Babine systems was 46,125. This paper also estimated the exploitation rates required to provide MSY escapement levels for each non-Babine system. These MSY exploitation rates averaged 41% with the lowest 34%. The ISRP also provided similar advice on page 7 of their report: > If the WSP... is interpreted as meaning that overharvesting will not be permitted for any Skeena salmon CU, then DFO needs to make two structural changes in the harvesting system for Skeena salmon… First, to avoid overharvesting of non-Babine sockeye stocks, ocean harvests must be reduced by roughly 50%, and the total Canadian plus Alaskan exploitation rates outside Tyee held at or below 30-40%. The ISRP scientists defined overfishing as any level below MSY. The ISRP report also provides information regarding the probability of recovery and the timing for recovery for 10 Skeena wild sockeye stocks (Figure 8 Page 37). DFO in cooperation with First Nations and other interested parties produced recovery planning documents for Kitwanga (Kitwanga Sockeye Salmon Recovery Plan, May, 2006) and Lakelse sockeye (Lakelse Lake Sockeye Recovery Plan, April 2005). The ISRP report and the sockeye status relative to the PSARC report resulted in DFO introducing a very conservative recovery plan prior to the 2009 season as a precautionary measure. The plan is centered on an abundance based exploitation rate schedule, projected to provide an average total exploitation rate in the order of 40%. This was a very precautionary approach as it was based on advice that would rebuild stocks to MSY levels, not just above the LRP levels. This aggressive approach was taken to provide a high probability for an increase in weak stock abundance in the short term. The mid and long term objectives for Skeena sockeye stocks need to be set through trade-off consultations that are part of WSP strategy 4.  **Figure 14: Skeena Sockeye Commercial Exploitation Rate Harvest Decision Guideline** The PSARC papers on Skeena stock status and the SWI "benchmark" project for all Skeena stocks are to be presented in December 2011. These will inform the next stages of refining the

	LRP's and recovery plans.
Conclusion from 1st Surveillance Report	**DFO has indicated that publications related to Skeena stock status and benchmarks for Skeena stocks is scheduled for release later in 2011.** **The assessment team recognizes that management changes have been made to provide protection for Skeena stocks. Appendix 9 of the 2011 IFMP for Northern Salmon defines the Commercial Fishing Plan for Northern BC salmon including the Skeena.** **DFO has defined interim LRPs for most Skeena sockeye stocks and implemented an exploitation rate ceiling to ensure that the total exploitation rate for Skeena sockeye is less than 40%. This approach is consistent with Independent Science Review Panel (ISRP) recommendations and represents a key component of the recovery plan for Skeena sockeye that are at or below their interim LRPs. These steps show good progress towards the fulfilment of this condition but given this relatively recent implementation of this plan, the assessment team proposes to defer the full evaluation of this condition until the second surveillance audit.**

Condition 22	Continued certification of the Skeena sockeye salmon fishery is contingent upon developing and implementing a recovery plan for chum stocks harvested in Skeena sockeye fisheries that are below their LRP. The proposed recovery plan must include procedures for determining the impact of the existing fishery management system on these stocks and provide for decreasing incidental harvest rates on chum salmon, if harvest pressure is found to have significant risks to chum recovery. To be completed within two years. (**Skeena Condition 2.2)**
Assessed Activity	This Condition relates to Indicator 2.3.1. PI: Management strategies include provision for restrictions to the fishery to enable recovery of non-target stocks to levels above established LRPs (Limit Reference Points). 100 Scoring Guidepost • The management plans and escapement goals have been shown to have a high (>80%) probability of achieving a long-term recovery of depleted non-target stocks using risk analysis. • Historic data have been thoroughly examined to ensure fisheries restoration objectives are based on the likely habitat capacity, rather than on trends that cover only the most recent decades, thus avoiding the "moving baseline" syndrome. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Proposed management strategies have been reviewed and found to be scientifically defensible and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • The management system supports the collection of data on non-fishing related human activity in the development of recovery plans for non-target stocks. 80 Scoring Guidepost • The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. • Objectives for recovery have at least some consideration of historic documents on stock abundance. • The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans. • The management system considers the impact of non-fishing related human activity in the development of recovery plans for non-target stocks

	60 Scoring Guidepost • The management system attempts to prevent extirpation of non-target stocks and does have rebuilding strategies for the majority of the stocks. • The management system has at least a 50% probability of achieving long-term recovery of depleted non-target stocks. • The management system has a strategy for periodic revisiting escapement goals to respond to new data on recovery success or failure for the majority of the stocks. **SCORE 74** The management agencies detail submission for Skeena sockeye (DFO Skeena 2004b, p.16-21) suggested that a score of 95 was deserved with no score for guideposts 1 and that guidepost4 was not relevant. The independent review (Bocking 2005) indicated that he did not agree with DFO's assessment and suggested partial failure at all three of the criteria at the 60 level. Further, at the 80 scoring level, this reviewer saw little evidence of incorporating non-fishing human impacts in the development of recovery plans with recovery plans for Skeena sockeye being primarily driven by stock assessment and fishery management actions, not habitat actions and there are no comprehensive recovery plans. DFO contends that recovery plans are only the subject of COSEWIC listed stocks, and not the subject of depleted stocks. DFO also acknowledged that there are no LRP's for these stocks. We agreed with much of what Bocking offered, however, the Team found that DFO has a rebuilding strategy for the majority of the stocks and found that based on historical track records, more likely than not, that the stocks that are depleted would recover in the long-term and DFO responds to new data in adjustment of harvest rates and escapement goals. We generally agreed with Bocking's findings at the 80 scoring level in that there are no LRP's or comprehensive recovery programs for depleted stocks and agreed that depleted stocks (those below an LRP) were covered under this MSC criteria without being listed by COSEWIC. The Skeena sockeye salmon fishery falls short in the area of development of recovery plans for the Damshiquit, Kitwanga, Spawning and Sicintine systems. Given the relatively long-term period of low returns to the depressed systems, there is reasonable doubt that these stocks will have at least a 60% probability of recovery. Guideposts 1, 3, 4 and 5 are all deficient for some of the identified depleted stocks. Although these stocks do not appear to be immediately threatened with extirpation, a recovery strategy associated with a risk analysis is needed. In addition, we received information suggesting chum salmon stocks are depleted in this area and are a significant bycatch of the sockeye salmon fishery. A recovery plan for these non-target stocks and associated risk analysis of any modified harvest strategy should be completed. The Team found that all of the 60 scoring guideposts were met because DFO has taken measures to prevent the extirpation of non-target stocks. While it is difficult to distinguish between a 50% probability of achieving long-term recovery at the 60 scoring level and a 60% at the 80 scoring level, the Team found that the management system has taken actions to reduced the impact of fisheries on the depleted non-target sockeye and chum stock in recent years. Based on the deficiencies at the 80 scoring level, the Team's score for this indicator was 74.
DFO Action Plan	**Condition 22 -** DFO will develop a chum rebuilding plan for Area 4 chum included chum spawning in the Skeena River and its tributaries. Management measures to reduce the impacts of the Skeena sockeye fishery on chum has been ongoing, and significant changes have been made to the Skeena gillnet and seine fisheries. Time and area closures and selective fishing measures are used to reduce chum impacts. DFO supports the SISRP report recommendation 6: *"Chum salmon stocks appear to be severely depressed and should be protected by avoiding late season ocean fishery openings and targeted fisheries of any kind."* Retention of chum salmon was not permitted by seines or gillnets in Skeena commercial fisheries in 2009. DFO will continue to revise the IFMP to take a more precautionary approach

	to chum concerns in the Skeena sockeye fishery. Monitoring and compliance of these release fisheries will remain an important component of the rebuilding plan for chum. LRPs will be developed for Skeena chum populations and provided for PSARC review by December, 2011.
Observations from 1st Surveillance	The assessment team was provided with a draft stock status working paper for Skeena chum, inclusive of the three Skeena chum conservation units, Middle Skeena, Lower Skeena and Skeena Estuary. These CU's include all of DFO Statistical Area 4, as well as small adjacent portions of Area 3 and Area 5. There are a total of 79 streams in these three CU's with one or more records of spawning chum salmon. The working paper categorically concludes: "In spite of the uncertainty, the overall pattern of Skeena chum spawner abundance is not subtle in nature. There is evidence that some chum spawning groups are gone and others exist in very low abundance. There was a general period of decline of Skeena chum from 1930's through 1960 particularly in the Skeena estuary CU. However, overall abundance has not shown a trend over the last four decades. Perhaps only the more productive elements of the historical Skeena Chum population remains and some of the Skeena chum biodiversity may have been lost, but the existing abundance coupled with the distribution of spawners throughout the "known" historic geographic range of Skeena chum means we still have a strong base from which to work. The historic harvest rates are not very instructive for stock status without a benchmark for comparison. Without knowledge of the Skeena chum productivity we cannot forecast stock responses to different harvest rates. Skeena chum harvest rates have been reduced over the last two decades but there is no evidence of increased escapements. The paucity of the escapement records of the last decade limits our capacity to evaluate the results of these changes in terms of harvest impact. We speculate that Skeena chum abundance has been strongly affected by declines in marine survival in recent years. We cannot calculate this directly for Skeena chum but the dataset for Cumshewa chum (includes Pallant enhancement) illustrates the point (Figure 26). This is a table of brood year production so it includes returns up to 2009. This general pattern decline in marine survival from the mid 1990's is broadly reflected among North Coast chum and sockeye stocks. If this is also occurring for Skeena chum (we believe it is) the benefits of the harvest rate reduction are being countered by the inverse relationship in marine survivals." The 2010 IFMP provided general constraints on commercial fishing activities for Area 4 chum as follows: • Fishing is limited to daylight hours to reduce the by-catch of coho, except during directed chinook gill net fisheries when mesh size and run timing are used to target chinook only. • Non-retention of steelhead is mandatory in all fisheries. • Brailing and sorting, with the mandatory release of chinook, chum and coho will be in place for the seine fishery. • Gill nets have a 137 mm maximum mesh restriction during the sockeye fishery. This restriction is in place so that sockeye is targeted selectively and larger non-target species such as chum and chinook are impacted to a lesser degree. • Gill net fishers are required to release all live chum, coho, and steelhead to the water with the least possible harm. The release of coho will be reviewed in-season to determine if retention is possible. • In-season assessments may change the management measures taken for various stocks.

	Decision guidelines specific to chum state: Chum stocks are expected to return below desired levels in most north coast waters (Areas 3 to 6). Conservation actions such as mandatory release of chum by seine and gill net (in Areas 3-12, 4 & 5) and mesh restrictions of maximum 137mm by gill net are expected to be implemented. Additional measures may be required to meet rebuilding initiatives.
Conclusion from 1st Surveillance Report	**The assessment team was informed that development of recovery plans are underway for Area 4 chum and are expected to be delivered at the next surveillance audit. Based on the baseline stock status work already prepared and the current restrictions in both the 2010 and 2011 fisheries, the assessment team considers that the action plan deliverable is on target for evaluation in 2012.**

3.9 Skeena Conditions – Principle 3

Condition 35a	Same as new condition 13a. Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries, within two years (**Skeena Condition #3.1a**).
Assessed Activity	This Condition relates to Indicator 3.1.1 PI: 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. 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. **SCORE 78** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.4) suggested that a score of 98 was appropriate for this indicator. Bocking (2005) suggested that the two of the 80SG were not met because environment factors have not been considered when

	setting harvest rates and escapement goals for the target stocks and harvest controls are not precise. The Team found that the information provided by DFO was sufficient to pass the first three guideposts at the 80SG but not the fourth guidepost. After a detail review of all the methods used to estimate catch or exploitation rates for Skeena steelhead stocks, the Skeena ISRP concluded that "The state of affairs today is that we actually have no idea how reliable DFO's estimates of steelhead exploitation rates are." Since there is general scientific agreement that the terminal Skeena sockeye fisheries represent a known area of high bycatch for steelhead, there is an urgent need to improve the procedures used to estimate steelhead bycatch. The Team's score was 78.
DFO Action Plan	DFO will develop a program for evaluating the impacts of the Skeena sockeye fisheries on steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and B.C. Ministry of Environment (MOE), and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate commercial harvest impacts. A program to estimate steelhead escapement for the watershed and for major steelhead stocks was initiated by MOE in 2008, in cooperation with DFO. Part of this study is to evaluate components of this estimation procedure to inform a steelhead escapement program planned for 2009. MOE is expected to take the lead in an evaluation of Steelhead stock status, with DFO providing support as required. The MOE initiated pilot studies in 2008 to address Skeena steelhead stock status and escapement (MOE 2008). These studies included funding to: extend DFO's Skeena test fishery past its typical late August ending date; carry out steelhead bio-sampling from the post August test fishery for genetic analysis; conduct acoustic tagging to assess the suitability of acoustic telemetry to monitor the distribution of steelhead spawners within the Skeena River; and hire a full time steelhead management biologist for the Skeena Region Ministry office to assist with steelhead project management, quality control and delivery. A catch monitoring framework will be developed by December 2010.
Observations from 1st Surveillance	DFO has committed to using the existing data and will prepare a summary of the bycatch in the Fishery Operations System (FOS). Fishery impacts on steelhead are estimated using a model jointly created by DFO and MOE, and initially reviewed by PSARC. There have been changes to the model that merit a fresh evaluation. DFO will use sales slip data from the net fisheries to generate the final volumes for catch and will use the FOS data to generate fishing locations. DFO has requested to the Skeena Watershed Initiative (SWI) that the SWI technical committee support an independent technical review to evaluate the utility of the Skeena model to estimate Steelhead harvest impacts and catch. DFO has reiterated their interest to work with the Province of British Columbia to resolve steelhead issues.
Conclusion from 1st Surveillance Report	**DFO has provided concrete examples of how they intend to use existing information to generate defensible estimates of steelhead bycatch. This condition will be evaluated at the next surveillance audit.** **The CB discussed and agreed with the client that the action plan provided in the Public Certification Report (PCR) is no longer representative of the current fishery management and status, specifically, the current fishery management measures and reduced fishing effort over the last three years. The CB agrees that the client will propose a revised action plan which will be approved by the assessment team prior to next surveillance audit with the intention of evaluating the current condition against a revised action plan.**

Condition 35b	Similar to new condition 13a. Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries and escapement and stock status for Skeena steelhead stocks, to be completed within two years. (**Skeena Condition #3.1b**).
Assessed Activity	This Condition relates to Indicator 3.1.4 PI: When dealing with uncertainty, the management system provides for utilizing the best scientific information available to manage the fishery, while employing a precautionary approach. 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. **SCORE 77** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.13) suggested that a score of 100 was appropriate for this indicator. Bocking (2005) concurred with the DFO scoring for this indicator. The Team found that the level of uncertainty associated with steelhead catch, escapement and stock status should have been sufficient for the management system to recognize that precautionary measures were necessary to manage the Skeena sockeye fishery and call for increasing efforts to fill information gaps. However, it took significant pressure and funding from outside the management system to initiate just a review of the fishery and information gaps and at the time of the rescoring there had not been a clear commitment from the management agencies to implement the recommendations of the ISRP regarding improved assessments of steelhead catch, escapement and stock status. The Team's score was 77.
DFO Action Plan	DFO will develop a program for evaluating the impacts of the Skeena sockeye fisheries on

	steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and B.C. Ministry of Environment (MOE), and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate commercial harvest impacts. A program to estimate steelhead escapement for the watershed and for major steelhead stocks was initiated by MOE in 2008, in cooperation with DFO. Part of this study is to evaluate components of this estimation procedure to inform a steelhead escapement program planned for 2009. MOE is expected to take the lead in an evaluation of Steelhead stock status, with DFO providing support as required. The MOE initiated pilot studies in 2008 to address Skeena steelhead stock status and escapement (MOE 2008). These studies included funding to: extend DFO's Skeena test fishery past its typical late August ending date; carry out steelhead bio-sampling from the post August test fishery for genetic analysis; conduct acoustic tagging to assess the suitability of acoustic telemetry to monitor the distribution of steelhead spawners within the Skeena River; and hire a full time steelhead management biologist for the Skeena Region Ministry office to assist with steelhead project management, quality control and delivery. A catch monitoring framework will be developed by December 2010.
Observations from 1st Surveillance	A program to estimate steelhead escapement for the watershed and for major steelhead stocks was initiated by British Columbia Ministry of Environment (MOE) in 2008, in cooperation with DFO. MOE has completed a paper on defining Skeena steelhead CU's (Skeena Steelhead Conservation Units, Tautz *et al*, 2011). MOE has provided a report reviewing the past 11 years of mark/ recapture data from the Bulkley/Morice system (Bulkley/ Morice River Steelhead: Summary Report for Annual Returns from 1999 to 2009, Saimoto, 2010). DNA data from the Skeena test fisheries is being analysed and evaluated for the potential to provide watershed steelhead escapement estimates. The MOE initiated pilot studies in 2008 to address Skeena steelhead stock status and escapement (MOE 2008). These studies included funding to: extend DFO's Skeena test fishery past its typical late August ending date; carry out steelhead bio-sampling from the post August test fishery for genetic analysis; conduct acoustic tagging to assess the suitability of acoustic telemetry to monitor the distribution of steelhead spawners within the Skeena River; and hire a full time steelhead management biologist for the Skeena Region Ministry office to assist with steelhead project management, quality control
Conclusion from 1st Surveillance Report	**Condition 13a above provides the progress regarding implementation of a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries. This condition also requires that escapement and stock status for Skeena steelhead stocks be completed. This condition will be evaluated at the next surveillance audit.** **The CB discussed and agreed with the client that the action plan provided in the Public Certification Report (PCR) is no longer representative of the current fishery management and status, specifically, the current fishery management measures and reduced fishing effort over the last three years. The CB agrees that the client will propose a revised action plan which will be approved by the assessment team prior to next surveillance audit with the intention of evaluating the current condition against a revised action plan.**

Condition 35c	Certification is conditional until the management agencies and the terminal gillnet fisheries demonstrate their commitment to implement selective fishing and handling techniques that have been shown to increase the post-release survival of non-target species, within one year (**Skeena Condition #3.1c**).
Assessed Activity	This Condition relates to Indicator 3.1.7

	PI: The management system provides decision makers with useful and relevant information and advice for managing the fishery 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. **SCORE 77** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.22) suggested that a score of 93 was appropriate for this indicator. Bocking (2005) suggested that the second guidepost at the 60SG was not met because he "could not find any documentation that risk assessments are considered in formulating management decisions". The Team found that the pre-season and in-season analysis of fishing alternative was effectively a basic risk assessment and therefore the fishery passed the 60SG. However, there were clear examples of decisions in 2006 that were not consistent with the information provided. Managers new that there were selective fishing methods that could be used to reduce the impact of the sockeye fishery on steelhead but the management system chose not to require fishers to use these more selective fishing methods and the requirement for functional revival boxes on all gillnet vessels to increase the post-release survival of non-target species was not adequately enforced. The Team's score was 75.
DFO Action Plan	This challenge is expected to be a particular focus of Skeena watershed discussions. There has been extensive research over the last 15 years to evaluate selective harvest approaches. Many of these have been implemented, resulting in very significant changes to commercial fishing seasons, geographical areas fished, daylight only fisheries, changes to gillnet configurations and the length of sets. These programs will continue to be evaluated and implemented. Monitoring and compliance of the selective fishing practices is recognized as an essential component of the management of the Skeena gillnet fishery. A report will be provided to the Certifier by March, 2010 describing selective fishing measures and outcomes.
Observations from 1st Surveillance	The 2010 IFMP provided general constraints on commercial fishing activities for Area 4 chum as follows: - Fishing is limited to daylight hours to reduce the by-catch of coho, except during directed chinook gill net fisheries when mesh size and run timing are used to target chinook only. - Non-retention of steelhead is mandatory in all fisheries. - Brailing and sorting, with the mandatory release of chinook, chum and coho will be in place for the seine fishery.

	- Gill nets have a 137 mm maximum mesh restriction during the sockeye fishery. This restriction is in place so that sockeye is targeted selectively and larger non-target species such as chum and chinook are impacted to a lesser degree. - Gill net fishers are required to release all live chum, coho, and steelhead to the water with the least possible harm. The release of coho will be reviewed in-season to determine if retention is possible. - In-season assessments may change the management measures taken for various stocks. The draft 2011 North Coast IFMP reiterates the points above from the 2010 IFMP and also states: Chum stocks are expected to return below desired levels in most north coast waters (Areas 3to 6). DFO is looking at a a major reduction in chum fishing impacts from historical averages similar to the last few years. DFO will also examine current exploitation rates and evaluation tools. Conservation actions will include mandatory release of chum by seine and gill net (in Areas 3, 4 & 5) and mesh restrictions of maximum 137mm by gill net are expected to be implemented. Additional measures may be required to meet rebuilding initiatives. Section 7.5.4 of the 2011 draft IFMP describes issues which have been identified for the Skeena fisheries and which will guide the decision making process for the 2011 season. The identified issues are: • Co-migrating with strong sockeye stocks are weaker runs of wild sockeye, as well as stocks of all the eastern Pacific salmon species. • Measures are required to taken to reduce harvest impacts on Skeena River coho, chum, steelhead, and some sockeye stocks. • As in recent years, the first sockeye opening will be delayed to reduce impacts on Nanika sockeye and the first sockeye opening will not occur before July 12th. • In recognition of the requirement to protect and rebuild stocks of concern such as late run sockeye and Skeena chum, there will limitations on sockeye harvests in the last week of July and in early August. • Even if there was a late season determination that increased the sockeye harvest allowance, any potential harvest opportunities will still be restricted because of concerns regarding harvest impacts to late run stocks of concern. • These measures include non-retention of some species, gear and fishing modifications, and specific timing closures or sockeye harvest rate reductions when weak stocks are present. • Seine fishery release compliance remains a significant concern, and maintaining harvest opportunities will directly linked to successful live release of the bycatch. • The seine fisheries will in all cases be releasing chum, Chinook and steelhead.
Conclusion from 1st Surveillance Report	**Harvest opportunities for sockeye were low for the 2009 and 2010 seasons. The assessment team accepts that the management agency has demonstrated their commitment to increase selective fishing measures and handling techniques to encourage increase in post-release survival of non-target species. This condition will be evaluated at the next surveillance audit.**

Condition 35d	Certification will be conditional until the management agency provides a research plan that addresses identified concerns related to the impact of the fishery on the ecosystem, with emphasis on non-target stocks (e.g. Skeena summer-run steelhead), and takes into consideration socioeconomic factors and anticipated changes to fisheries. This task should be completed by May 2012 (**Skeena Condition #3.1d**).
Assessed Activity	This Condition relates to Indicator 3.2.1. PI: 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. 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 socioeconomic 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 socioeconomic 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. **SCORE 73** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.29-30) suggested that a score of 95 was appropriate for this indicator. Bocking (2005) suggested that the three of the 80SG were not met because the research plan does not adequately address the impact of the fishery on the ecosystem and socio-economic issues and funding levels are not adequate. The Team's agreed with Mr. Bocking's assessment and found, in addition, that the lack of any research plan for Skeena sockeye fisheries makes it impossible to assess whether the plan addresses concerns related to the impact of the fishery on the ecosystem, socioeconomic issues that result from the implementation of management plans, or if the research plan is responsive to changes in the fishery. The Core Stock Assessment Review for North and Central Coast salmon stocks and the ISRP process identify many of the key elements that should be included in a research plan for Skeena sockeye fisheries. The Team's score was 73.
DFO Action Plan	In addition to the more generic response provided above, the Skeena Watershed Process will provide a forum to help meet this condition. A socio-economic review of Skeena salmon fisheries was released in late October 2008, and is currently being reviewed as will be used to inform the Skeena Watershed Process. A "habitat" subcommittee has been formed and as a first step has initiated a mapping project to be completed by the spring of 2009, intended as a public information tool on salmon habitat, land use and ecosystem factors.

	DFO will develop a program for monitoring the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate steelhead catch in the Skeena sockeye fisheries. Research plans will be incorporated into a revised IFMP for the Skeena fishery by May 2012.
Observations from 1st Surveillance	DFO indicated that there are on-going discussions on how to best develop the management/ assessment framework, which will incorporate the requirements of the condition.
Conclusion from 1st Surveillance Report	**General feedback was provided in regard to this condition. DFO committed that the research plans will be provided in the second surveillance audit in 2012. This condition will be evaluated at the next surveillance audit.**

Condition 36a	Same as Condition 29. (**Skeena Condition #3.2a**).
Assessed Activity	This Condition relates to Indicator 3.6.3 PI: The management system provides for the observation of legal and customary rights of First Nation peoples. The DFO submissions were essentially identical for all fisheries and suggested that all guideposts were met for each fishery (DFO Fraser 2004c, p. 57-59; DFO Barkley Sound 2004c, p. 47-49; DFO Skeena 2004c, p. 54-55; DFO Nass 2004c, p. 54-55). The Team found that the Fraser, Barkley Sound and Skeena fisheries did not pass one of the guideposts at the 80SG because of concerns expressed by First Nation representatives regarding their access to sockeye for food, social and ceremonial purposes (see section on scores below 80). It was surprising that the submission for the Nass did not make any reference to the Nisga'a Treaty (a comprehensive land claims treaty which included fishing rights for salmon) which has been in effect since 11 May 2000. The Team found that the successful negotiation and implementation of the Nisga'a Treaty was sound evidence that all guideposts have been met and thus the score for this indicator was 100 for the Nass fishery. 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. **SCORE 75** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.55) suggested that a score of 100 was appropriate for this indicator. Bocking (2005) suggested that the first guidepost at the 100SG was not met. The submissions by the client indicate that DFO believes it has met its First Nations obligations to protect and manage for food, social, and

	ceremonial harvest by First Nations. However, in consultation with First Nations and conservations groups, the Team was provided with information suggesting that several of the First Nations that harvest Skeena River sockeye would not agree the management system is in compliance with all the legal and most of the customary rights of First Nation peoples that are impacted by the Skeena River sockeye fishery. The Team's score was 75.
DFO Action Plan	Treaty making with aboriginal peoples has a long history in Canada. The Crown began entering into treaties with aboriginal groups in the early 1700's, which continued until the 1920's. These are referred to as "historic treaties". In the 1970's, treaty-making resumed resulting in "modern treaties" which are generally more complex and detailed than "historic treaties". "Modern treaties" continue to be negotiated in various parts of Canada. In 1982, section 35 was added to the Constitution of Canada. Section 35 provides "constitutional protection" to aboriginal rights and rights under both "historic treaties" and "modern treaties". The Supreme Court of Canada has held that the "constitutional protection" of aboriginal rights and treaty rights means that any infringement of such a right must be justified. The Supreme Court of Canada has also held that aboriginal rights to fish for "food, social and ceremonial" purposes have priority, after conservation, over fishing for commercial or recreational purposes. From a Canadian perspective, it is important to distinguish between an aboriginal right to fish for food and an aboriginal right to fish for "livelihood". The proposed Performance Indicators under this category merge these two distinct concepts in the same criteria. In other words, the Government's legal duty to consult with aboriginal groups can arise even where aboriginal rights have only been asserted and not yet legally proven. Whether an aboriginal right exists and the nature, extent and scope of that right is group and fact specific. The existence of aboriginal rights is generally established through litigation involving extensive historical and anthropological evidence or through historic or modern treaties. Determining the nature, extent and scope of "historic treaty" rights can also present challenges. The wording in "historic treaties" can be difficult to interpret. For instance, the wording of the fishing right in the "Douglas Treaties" entered into in the 1850's in British Columbia provides that the aboriginal groups who were signatories have the right "to carry on our fisheries as formerly". Although section 35 of the Constitution of Canada contains a general statement that all existing aboriginal and treaty rights are "recognized and affirmed", the challenges described above can make it difficult to "recognize" what specific aboriginal rights may belong to a particular aboriginal group and or their exact nature and scope. Regardless of this difficulty, as noted above, the Government's duty to consult with an aboriginal group may arise even where aboriginal rights have only been asserted and are not yet legally proven. In order to meet this condition DFO will provide a report summarizing how the management system addresses issues regarding aboriginal and treaty rights related to the sockeye salmon fisheries. This report will be provided by December 2010.
Observations from 1st Surveillance	In response to this condition and similar conditions (29, 34, 36a), DFO submitted a document to the assessment describing their commitment to "compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery". DFO's objective is to manage fisheries to ensure that, after conservation needs are met, First Nations' food, social and ceremonial requirements and treaty obligations have first priority in salmon allocation. Aboriginal programs including AFS, ATP, AAROM, Treaties and PICFI provide the policy basis for meeting the objectives of providing opportunities to First Nations to meet their FSC needs. Comprehensive Fisheries Agreements and input into the North Coast and South Coast IFMPs are important components for meeting the objectives for aboriginal fisheries. Opportunities to become involved in the management and planning of the fishery are provided through bilateral, sub-regional and regional consultation processes. Opportunities to share technical information are provided for in the consultation processes.

Conclusion from 1st Surveillance Report	**Given the information provided by DFO regarding their commitment to "compliance with all legal and most of the customary rights of First Nation peoples that are impacted by the fishery", this condition has been met for Skeena sockeye. The score for this indicator has been raised to 80 and the condition has been closed out.**

Condition 36b	Certification will be conditional until there is a clear commitment from the management agency and fishers to identify and implement selective fishing techniques that are consistent with the goal of reducing the catch of non-target species, especially steelhead. These tasks should be completed within two years (**Skeena Condition #3.2b**).

Assessed Activity	This Condition relates to Indicator 3.7.1
	
	PI: Utilization of gear and fishing practices that minimize both the catch of non-target species, and the mortality of this catch.
	
	100 Scoring Guidepost
	• There are requirements in the management system to reduce the capture of non-target species, which include:
	  o 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
	  o 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
	  o 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 (e.g. 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.
	
	SCORE 73
	The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.57-58) suggested that a score of 100 was appropriate for this indicator. Bocking (2005) suggested that the second guidepost at the 80SG was not met because he does not believe that "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". The Team agreed with Mr. Bocking and found that the uncertainties related to the capture and discard rates for non-target species in Skeena sockeye fisheries make it virtually impossible to determine trends in these rates. The continuing resistance to the use of short nets and short sets or tangle tooth nets in the Skeena sockeye gillnet fishery is strong evidence that this fishery is not conducted in a manner that is consistent with the goal of reducing the catch of non-target species. The Team's score was 73.
DFO Action Plan	There has been extensive research over the last 15 years to evaluate selective harvest approaches. Many of these have been implemented, resulting in very significant changes to commercial fishing seasons, geographical areas fished, daylight only fisheries, changes to gillnet configurations and the length of sets. These programs will continue to be evaluated and implemented. Monitoring and compliance of the selective fishing practices is recognized as an essential component of the management of the Skeena gillnet fishery. A report will be provided to the Certifier by December, 2010 describing selective fishing measures and outcomes.
Observations from 1st Surveillance	The AT heard testimony that seine fishery participants are working to establish a defined share fishery. The 2011 Skeena sockeye seine fishery will be a demonstration ITQ fishery, which is intended to reduce the speed of the fishery, thus allowing sufficient time for proper handling, sorting and live release of non-target bycatch. Discussions with the gillnet fleet have been less successful. While the management agency has mandated shorter set times and shorter nets, industry has responded that this results in higher costs and significantly more work.
Conclusion from 1st Surveillance Report	**As defined in Condition 35c above, DFO has continued to require specific selective fishing requirements for the Skeena sockeye fishery as clearly described in Appendix 9 of the Northern BC salmon IFMP. This condition seeks to confirm commitment from the fishing industry to implement selective fishing techniques that ultimately reduce catch of non-target species. This condition will be evaluated at the next surveillance audit.**

Condition 36c	Certification will be conditional until there is a clear commitment from the fishers participating in Skeena sockeye fisheries to provide sufficient information for managers to derive reliable estimates of the catch and discards of steelhead and other non-target species, within two years (**Skeena Condition #3.2c**).
Assessed Activity	This Condition relates to Indicator 3.7.4 PI: 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. 100 Scoring Guidepost • The majority of fish harvesters and processors are 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. **SCORE 60** The management agency's detailed submission for Skeena sockeye (DFO Skeena 2003c, p.62-63) suggested that a score of 100 was appropriate for this indicator. Bocking (2005) suggested that the 80SG guidepost was only partially met because "there is insufficient monitoring to show continued improvement in the quality and quantity of catch and discard data, at least for steelhead and chum". The Team found that while some harvesters have complied with requests for data on catch and discards of non-target species, it is clear that the number of complying fishers is not sufficient to provide reliable estimates of total catches and discards for steelhead. The Team's score was 60 for this indicator.
DFO Action Plan	DFO will develop a program for monitoring the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate commercial harvest impacts. A catch monitoring framework will be developed by December, 2011.
Observations from 1st Surveillance	There have been meetings with gillnetters, unions and processing companies about redesigning fishing log forms in order to practically improve reporting by sub-areas. It's not achieved yet and DFO will proceed further in 2011. The objective is that logbooks are entered in 3 – 4 days after landing at the landing site by processing companies. The initial discussion was that processing companies would provide data entry for the vessels. Many trollers already have e-logs so they enter it automatically. (D. Peacock, Pers. Comm.).
Conclusion from 1st Surveillance Report	**There is progress on this condition as several groups within the industry work together to see how information can be captured in a quicker timeframe. This condition will be evaluated at the next surveillance audit.**

3.10 Nass Conditions – Principle 1

Condition 15	Certification will be conditional until annual escapement estimates are computed for each of the Nass sockeye stocks targeted in the fisheries for Nass sockeye, within one year (**Nass Condition #1.1**).
Assessed Activity	This Condition relates to Indicator 1.1.2.2. PI: Estimates exist of the spawning escapement for each stock unit. 100 Scoring Guidepost • Estimates are available for the annual escapement for each stock unit harvested in the fishery. • In-season escapement data are collected for all stock units and used to regulate the fishery. 80 Scoring Guidepost • Estimates are available for the annual escapement of each target stock harvested in the fishery. • Fishery independent indicators of abundance are available for the non-target species harvested in the fishery. • In-season escapement data are collected for the target stocks and used to regulate the fishery. 60 Scoring Guidepost • Escapement estimates for target stocks are available, where escapement estimates are necessary to protect the target stock from overexploitation. • Fishery independent indicators of abundance are available for non-target stocks where the fishery harvests may represent a significant component of the harvest of that stock. **SCORE 74** The management agency's detailed submission for Nass sockeye (DFO Nass 2003a, p.14) suggested that a score of 95 was appropriate for this indicator. Levy (2005) concurred with the DFO score for this indicator. The Team found that reliable escapement estimates are computed for the aggregate sockeye return to the Nass River and the Meziadin sockeye stock. Annual estimates are not available in recent years for most of the smaller sockeye stocks (e.g. Bowser, Damdochax, Kwinageese), therefore, the first scoring guidepost at the 80 SG was not met. The escapement of these stocks could be readily estimated using DNA samples obtained from the Lower Nass fishwheels. The Team's score was 74.
DFO Action Plan	DFO will use the current core stock assessment program to develop and implement a plan for monitoring the escapement of sockeye stocks targeted in fisheries. DFO intends to continue monitoring escapements to the dominant Meziadin stock using direct counts at the fishway. For the other lake rearing stocks (Fred Wright, Damdochax, Bowser), an escapement monitoring program will be developed in cooperation with the FN interests in the watershed and may include direct visual escapement surveys, stock specific escapement estimates derived from Nisga'a fishwheel DNA analysis, scale pattern analysis from Nisga'a fishwheel biological samples, and/or hydroacoustic lake surveys to assess juvenile abundance as an indirect measure of spawning success. Stream-type sockeye stocks comprise a small component of the Nass aggregate sockeye stock and currently two systems are monitored by FNs for escapements using visual survey methods (Brown Bear and Gingit). DFO intends to continue to support these programs and as part of the overall Nass escapement monitoring plan will examine the feasibility of using fishwheel DNA analysis to develop annual estimates of the stream type sockeye stocks (these are a single CU under the WSP). A technical workshop will be convened in 2009 to develop an overall Nass escapement monitoring plan. The resulting monitoring plan will be provided to the Certifier by December 2010.
Observations	This condition was to be closed out during the first year. A Nass sockeye technical workshop

from 1st Surveillance	was conducted in the Spring of 2010. This workshop led to the analysis of all available DNA samples and development of the CSAS working paper on Nass Sockeye (Hall et al. 2010). The current approach for monitoring sockeye escapement to the Nass sockeye stocks includes obtaining weekly DNA samples through the Nisga'a fishwheel program, operating a video counting fence on the Kwinageese River, conducting visual surveys of Gingit and Brown Bear creeks and conducting hydroacoustic estimates of fry abundance in Damdochax Lake. The Nass Sockeye CSAS paper included specific recommendations regarding conservation measures for Kwinageese sockeye which were implemented in 2011. .
Conclusion from 1st Surveillance Report	**Given the information provided in the CSAS working paper on Nass Sockeye and the actions undertaken in 2010 and 2011 to improve escapement monitoring systems for Nass sockeye stocks, the requirements for this condition have been met. The score for this indicator has been raised to 80 and the condition has been closed out**

Condition 16	Certification will be conditional until LRP's have been defined for each of the Nass sockeye stocks targeted in the fisheries for Nass sockeye, within two years (**Nass Condition #1.2**).
Assessed Activity	This Condition relates to Indicator 1.1.3.1. PI: Limit Reference Points or operational equivalents have been set and are appropriate to protect the stocks harvested in the fishery. 100 Scoring Guidepost • The Limit Reference Point for target species have been reviewed and found to be scientifically defensive and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • There is general agreement among regional fisheries scientist outside the management agency that the LRP's are appropriate. • There is general scientific agreement regarding the LRP's for non-target species. 80 Scoring Guidepost • There is some scientific basis for the LRP's for target stocks and these LRP's are defined to protect the stocks harvested by the fisheries. • There is no significant scientific disagreement regarding the LRP's used by the management agency to formulate management decision for the fishery. 60 Scoring Guidepost • There is general agreement among regional fisheries scientist within the management agency that the LRP's or equivalent are appropriate to achieve the management goals for target stocks. **SCORE 75** The management agency's detailed submission for Nass sockeye (DFO Nass 2003a, p.18-19) suggested that a score of 100 was appropriate for this indicator. Levy (2005) disagreed with the DFO scoring but indicated that the Nass fishery was still above the MSC threshold for this indicator. The Team found that LRP's have been defined for the aggregate sockeye return to the Nass River and the Meziadin sockeye stock. LRP's have not been defined for any of the smaller sockeye stocks (e.g. Bowser, Damdochax, Kwinageese), therefore, the first scoring guidepost at the 80 SG was only partially met. It is anticipated that implementation of the WSP will include the definition of LRP's or their operational equivalent, in the near future. The Team's score was 75.
DFO Action Plan	In addition to the development and implementation of an overall Nass sockeye escapement monitoring plan described above and consistent with the regional approach and schedule for LRP development, DFO will work cooperatively with the First Nation interests in the watershed to develop Nass sockeye LRP's. Initially the discussions are expected to focus on the existing lake productivity assessments (to indicate capacity) for non-Meziadin sockeye stocks, and stock recruit analysis for Meziadin.

	Nass LRPs will be defined and reviewed by PSARC by December, 2011.
Observations from 1st Surveillance	A workshop was held and DFO has begun its analyses of lake productivity and other methods as a means to estimate LRPs for the smaller sockeye stocks. A 2010 PSARC report on Nass sockeye salmon provides technical information to support the development of reference points. This process will be analogous to that used for Skeena sockeye salmon. A report is expected in spring 2012. Although total escapements had been above the aggregate LRP for the Nass in years past, DFO reported that runs have been weak in recent years. The 2011 IFMP indicated that the aggregate escapement goal for the Nass River was increased from 200,000 to 225,000 sockeye as buffer for in-season run size uncertainty and to help rebuild stocks of concern
Conclusion from 1st Surveillance Report	**Some progress has been made. This condition will be evaluated at the next surveillance audit.**

3.11 Nass Conditions – Principle 2

Condition 23	Nass Sockeye Salmon Condition #1. Certification of the Nass sockeye salmon fishery is contingent upon developing and implementing a recovery plan for chum salmon stocks that are below the LRP and that spawn in the Nass or its tributaries. Such a plan must have clear procedures to determine the impact of the existing fishery management system on these stocks and provide for decreasing incidental harvest rates on chum salmon, if harvest pressure is found to have significant risks to chum recovery. To be completed within 2 years. **(Nass Condition 2.1)**
Assessed Activity	This Condition relates to Indicator 2.3.1. PI: Management strategies include provision for restrictions to the fishery to enable recovery of non-target stocks to levels above established LRPs (Limit Reference Points). 100 Scoring Guidepost • The management plans and escapement goals have been shown to have a high (>80%) probability of achieving a long-term recovery of depleted non-target stocks using risk analysis. • Historic data have been thoroughly examined to ensure fisheries restoration objectives are based on the likely habitat capacity, rather than on trends that cover only the most recent decades, thus avoiding the "moving baseline" syndrome. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Proposed management strategies have been reviewed and found to be scientifically defensible and appropriate by the Pacific Scientific Advice Review Committee or the appropriate Pacific Salmon Commission technical committee. • The management system supports the collection of data on non-fishing related human activity in the development of recovery plans for non-target stocks. 80 Scoring Guidepost • The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. • Objectives for recovery have at least some consideration of historic documents on stock abundance. • The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. • Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. • Escapement goals will be revised periodically to accommodate new data indicating

	success or failure of existing recovery plans. • The management system considers the impact of non-fishing related human activity in the development of recovery plans for non-target stocks 60 Scoring Guidepost • The management system attempts to prevent extirpation of non-target stocks and does have rebuilding strategies for the majority of the stocks. • The management system has at least a 50% probability of achieving long-term recovery of depleted non-target stocks. • The management system has a strategy for periodic revisiting escapement goals to respond to new data on recovery success or failure for the majority of the stocks. **SCORE 73** The management agencies detail submission for Nass sockeye (DFO Nass 2004b, p.21-23) suggested a score of 95 was deserved and an independent review by David Levy (Levy 2005) agreed with this assessment. At the 80 scoring level, the Team disagree with DFO and the reviewer in that the chum salmon stocks that are impacted by this fishery are depleted and there is no recovery plan reducing scores on scoring elements 3, 5, and 6 at the 80 level while we did agree the existing monitoring plan was sufficient to meet scoring elements 1, 2 and 4. As there are no identified depleted sockeye salmon stocks on the Nass, the first two guideposts are not factors and we have no reason to believe that if stocks become depleted in the future, such factors will be considered in concert with the Wild Salmon Policy document. The third guidepost at the 80 level was considered partially met in that the Wild Salmon Policy provides guidance and considerations for depleted sockeye stocks. We have been provided with ample evidence of major depletion of Nass chum salmon stocks that are intercepted in the marine fisheries for sockeye salmon and may be harvested in the inshore fisheries. There is no obvious process or a recovery plan for these chum stocks that limits the impact of fisheries on their harvest. There needs to be a process in place where any depleted non-target species will require a recovery plan with a reasonable chance of success. Without a risk analysis or other process that identifies the relative risk to the chum salmon (or other non-target stocks) of the existing fishery, the sustainability of these non-target stocks cannot be assured. The last guidepost was considered partially met in that the escapement monitoring and intensive scrutiny of habitat and development that impact the Nass fisheries is likely to occur with the broad based ownership of the fishery by the Nisga'a people. The Team found that all of the 60 scoring guideposts were met because DFO has taken measures to prevent the extirpation of non-target stocks. While it is difficult to distinguish between a 50% probability of achieving long-term recovery at the 60 scoring level and a 60% at the 80 scoring level, the Team found that the management system has taken actions to reduce the impact of fisheries on the depleted non-target chum stock in recent years. Based on the deficiencies at the 80 scoring level regarding a recovery plan for Nass chum stocks, the Team's score for this indicator was 73.
DFO Action Plan	DFO will work cooperatively with the FN interests in the area to develop a chum rebuilding plan for Area 3 chum included chum spawning in the Nass River and its tributaries. Chum rebuilding has been an ongoing concern for DFO and significant changes have been made to the Nass area gillnet and seine fisheries over the past several decades. Time and area closures are the primary method used to reduce chum interceptions in fisheries directed at sockeye and pink salmon. Retention of chum salmon was not permitted by seines in Area 3 in 2009 and gillnet fisheries are currently requested to release live chum. More stringent measures for chum are under consideration, as most chum encountered by gillnets are currently retained. An important point is that the majority of the chum encountered in the Area 3 fishery does not originate from Area 3 which complicates management of the fishery. DFO, with contributions from Alaska has developed an extensive chum DNA baseline for North Central BC and some coverage for SE Alaska. We are currently analyzing Canadian Area 3 and 4 commercial fishery samples to better understand the harvest impacts on Area 3 chum. There is a linkage between the fisheries impacts on Nass and Skeena chum, and the Nass and Skeena rebuilding planning processes will need to be coordinated.

	The primary objective of a Nass Area rebuilding plan for chum is to halt the decline in chum abundance and ensure the aggregate escapement for each of the three Wild Salmon Policy conservation units (Portland Canal-Observatory, Portland Inlet, and Lower Nass) are in the amber zone or higher. To achieve this objective, non-retention regulations for chum are being considered for all Area 3 fisheries. Monitoring and compliance of these release fisheries will be an important component of the rebuilding plan for chum. A Nass Area chum rebuilding plan will include a stock monitoring plan to evaluate rebuilding against goals. The Nisga'a Fisheries Program continues to monitor escapements of chum salmon to the lower Nass River using fishwheels, escapements to the Kincolith River, and conducted a pilot chum telemetry study in the lower Nass in 2008, as a first step towards better understanding the timing and habitat uses of specific lower Nass chum stocks. DFO monitors the escapement of chum salmon to Area 3 streams using visual surveys and will use the core stock assessment program to guide future chum escapement monitoring. The development of escapement benchmarks (LRP) for the Area 3 chum aggregates in each conservation unit will be an important aspect of a chum re-building strategy. Analytical approaches to determining LRPs for chum are not well developed and much work needs to be done in this area. In the meantime, DFO will identify interim benchmark LRPs and rebuilding targets for Nass Area 3 chum. In 2010, the Nass Joint Fisheries Management Committee will review the current Nisga'a Treaty escapement goals for Nass Area chum and align those with the requirements of the Wild Salmon Policy. In addition, it is important to note that, although the Kincolith CEDP hatchery does provide some small-scale enhancement of Kincolith River chum, large-scale enhancement is not proposed at this time as part of the chum rebuilding plan. Should harvest restrictions be found to not be sufficient to enable Area 3 chum stocks to be sustained in the amber or higher zone, DFO will review the role enhancement and other habitat-related measures might play at that time. In addition, should scientifically sound enhancement or habitat restoration opportunities be identified for Area 3 chum in the future, these will be reviewed by DFO. LRPs will be developed for Nass chum populations and provided for PSARC review by December, 2011. Additional measures to reduce the Nass sockeye fishery impacts on Nass chum were incorporated in to the 2009 IFMP.
Observations from 1st Surveillance	Limited progress has been made on development and implementation of a Nass chum salmon recovery plan. A draft CSAP report was prepared that lays the groundwork for a more refined Nass chum management plan (Peacock 2011). This paper provided the following recommendations and conclusions: 1. A Nass chum recovery plan should be developed. 2. As an interim step, the 2010 Integrated Fisheries Management Plan (IFMP) should include an updated section on Area 3 - Nass chum. 3. Although there is no quantitative analysis in support, the management-recovery plan should take into account the trends and variability in return rates. 4. Area 3 - Nass chum index streams should be monitored each year using consistent methods. 5. An annual review, update and documentation of the chum enumeration plan should occur through the Nass JTC and other FN-DFO technical committees as appropriate for each CU. The Nass JTC should evaluate the potential for additional escapement indicator stocks in the Lower Nass CU, including a review of the utility of using the chum data from the Nisga'a fish wheels. 6. There should be an expansion of the Skeena model (Cox-Rogers, 2010) approach (to

	estimate weekly fishery impacts) using the run reconstruction model data (Alexander 2010) to estimate Canadian and Alaskan harvest impacts for sockeye stocks with different timing. The review of Gazey (2008) forms the base for this project. 7. The north coast chum DNA stock identification initiatives should continue with a work plan to address the outstanding issues and evaluate the potential contribution to Area 3 - Nass chum assessments. 8. We recommend an evaluation of status of chum salmon habitat for Area 3 - Nass chum streams as part of the recovery planning process. The IFMP mentions some measures to reduce bycatch of chum salmon, such as non-retention and mesh size restrictions, but a recovery plan is needed that critically evaluates actions to minimize harvest impacts on chum salmon.
Conclusion from 1st Surveillance Report	**The preparation of the CSAS working paper on Area 3 chum represents a first important step towards the definition of benchmarks and a recovery plan for Area 3 chum stocks. The progress on this condition appears to be consistent with that outlined in the DFO Action Plan and the condition is expected to be closed out at the next surveillance audit.**

3	**Any complaints against the certified operation; recorded, reviewed and actioned**
	There were no complaints received in relation to the certified operation.

4	**Any relevant changes to legislation or regulation.**
	There were no relevant changes in legislation found during the course of the first year of MSC certification.

5	**Any relevant changes to management regime.**
	There were a number of annual changes to the management regime for the fishery. These changes were fully described in the Integrated Fishery Management plans for both northern and southern regions. Most of the relevant changes refer to additional measures implemented to provide clear regulation of salmon fisheries in British Columbia.

8	**Overall Conclusions**
	The first surveillance audit for the MSC Certified British Columbia sockeye fishery concluded that there was significant progress made on many conditions due at the first surveillance audit. There were 14 conditions in total due to be completed by the first surveillance audit. Of these 14, six were closed out successfully. The team confirmed progress and agreed to postpone eight other conditions for a variety of reasons to the 2nd surveillance audit. The primary reason for postponing these conditions is because there was little to no commercial fisheries for sockeye during the years of 2007 – 2009, as such, conditions which require that DFO demonstrate, through analysis of data from the fisheries, that specific changes in management had been undertaken, could not be completed. The team agreed to postpone these conditions to the 2nd surveillance audit when data analyses from the large 2010 fishery will be completed. There are 27 conditions due for the second annual surveillance audit cycle (not including the postponed conditions from year 1). Of these, the team evaluated progress on all and determined that there progress in all but 3 of these conditions. All conditions will be evaluated at the second surveillance audit as per the requirements of Section 6 of the Fisheries Certification Methodology, version 6.1. The surveillance audit team reviewed the progress on four surveillance audit conditions due for closeout by the third surveillance audit. The team successfully closed out three of the conditions and confirmed adequate progress on remaining condition. The assessment team concludes that the MSC certification should continue.

4.0 Stakeholder Comments

One written submission was received from the North Coast Steelhead Alliance on May 9th. This submission was forwarded to the team members and discussed that day. This input provided specific concerns related to: Mr. Karl English's participation in the assessment; conditions related to selective fishing measures, their implementation and lack of commitment from the commercial gillnet fleet; and conditions related to steelhead escapement estimation. The entire submission can be seen in Appendix A.

On May 10th, the assessment team heard testimony from Mark Beere, a Fisheries Biologist with the BC Ministry of Forests, Lands and Natural Resource Operations. Mr. Beere provided feedback on his department's interactions with the Nass and Skeena fisheries. He commented on the following issues.

- Mr. Beere indicated that the Province of BC was a significant stakeholder in the MSC assessment and had concerns about progress of DFO towards meeting conditions. Mr. Beere indicated that steelhead on the Skeena were of particular concern for the Province.

- Mr. Beere questioned Karl English's participation with the certification process and raised concerns about conflict of interest as a result of LGL Limited's work with the Nisga' First Nation on the Nass.
    - **IMM Response: Steve Devitt of IMM responded that Mr. English's participation had been accepted by the clients, the Marine Conservation Caucus, Fisheries and Oceans and the MSC at the time of the assessment. Mr. English will be the primary evaluator for the Fraser Unit of Certification and will provide review of the report sections on the Nass, Skeena and Barkley Sound units of certification.**

- Concern was raised regarding the on-going lack of significant participation of the commercial gillnet fleet to implement selective fishing measures such as tangle tooth nets, short nets and short sets to reduce mortality on non-target species.

- In reference to Conditions 35c and 36b, it was suggested that perhaps cameras should be installed as a methods of verifying commitment of DFO and harvesters to implement selective fishing techniques.

- In reference to improving escapement estimates for steelhead, Mr. Beere provided examples of several years of annual reports from the Wet'suwet'en Fisheries Bulkley/ Morice River Steelhead Tagging Project. He also discussed some concerns that have arisen in recent years regarding the Skeena Model for evaluating escapement. He was not convinced that the model is capable of evaluating the impact of the commercial catch on steelhead. As such, the Province has reiterated to DFO the need to implement selective fishing techniques and to improve enforcement and compliance actions in order to ensure that the measures are implemented.

- Mr. Beere indicated that DFO were publically on record as not fully supporting selective fishing measures. DFO indicated in early 2011 that changes to the seasonal harvest rate for sockeye would result in reduced pressure on co-migrating, non-target stocks.

- Mr. Beere terminated his testimony by indicating that there are currently concerns about the Skeena Watershed Initiative, and its progress on working through the recommendations from the ISRP.

On the morning of May 13, the assessment team heard testimony from Mr. Barron Carswell, a Senior Manager for Marine Fisheries and Seafood Policy with the BC Ministry of Agriculture. Mr. Carswell provide testimony on his department's interest in the MSC certification for BC Sockeye. A summary of his commentary is as follows:

- Mr. Carswell summarized the jurisdictional split of fisheries management in BC, between Fisheries and Oceans and the Province of BC. In short, the Province takes over jurisdictional management of fisheries products once fish is landed. As such, the Province is keenly interested in maximizing the socio-economic value of the BC fisheries.

- This impetus for high socio-economic return has lead the Province of BC to be significant investors in MSC certifications for a number of species.

- Mr. Carswell indicated that there was a general concern about steelhead interceptions, primarily on the Skeena as well as chum non-target catch in the Fraser fishery. He further indicated that there was concern that the two levels of government may not be working together in an effective manner on the steelhead issue in particular.

- Mr. Carswell indicated that there was an initiative to improve relations between the two government levels.

- The Province specifically requested that DFO include the requirement for selective fishing measures in the 2011 IFMP, with the objective of reducing steelhead interceptions.

- Mr. Carswell's understanding is that the Skeena steelhead run was in relatively good shape, however, the Thomas run was quite weak.

The assessment team met with members of the ENGO stakeholder community on May 13, 2011. The meeting included the following:

Moody Marine/ Assessors: Steve Devitt, Karl English, Greg Ruggerone

Watershed Watch Salmon Society: Craig Orr, Aaron Hill (via teleconference)

Pacific Salmon Foundation: Greg Taylor

SkeenaWild Conservation Trust: Greg Knox (via teleconference)

The meeting consisted of a discussion about three of the four units of certification, including the Fraser, Skeena and Nass. A powerpoint presentation was provided by the stakeholders and used to guide the discussions for each fishery. These are attached below in Appendix A.

The majority of the discussion was a presentation of how DFO has responded, or failed to respond to the requirements of the conditions. The stakeholders raised a number of important pieces of information to the attention of the team members, who considered this information while completing the annual surveillance report.

Stakeholders have reiterated concerns that the team has raised in regards to progress of action plan items related to a number of the conditions.

Information Sources:

Meetings

Stakeholder meetings were conducted May 9 – 13, 2011. Information sessions were organized by the Units of Certification. The Sessions, dates and participants are listed below.

May 10, 2011

Barkley Sound Update

Moody Marine/ Assessors: Steve Devitt, Chair; Karl English, Greg Ruggerone

MSC: Dan Averill (observer)

DFO: Paul Ryall, Arlene Tompkins, Diana Dobson, Wilf Luedke, Bill Shaw, Colin Masson. Carole Eros

Canadian Pacific Sustainable Fisheries Society: Christina Burridge, Rob Morley

Notetaker: Dawn Steele

Province of BC

Moody Marine/ Assessors: Steve Devitt, Chair; Karl English, Greg Ruggerone

BC MOE: Mark Beere (by conference call)

May 11, 2011

Moody Marine/ Assessors: Steve Devitt, Chair; Karl English, Greg Ruggerone

MSC: Dan Averill (observer)

DFO: Paul Ryall, Arlene Tompkins, Jeff Grout, Carol Cross, Sue Grant, Annemarie Huang, Neil Surry, Melissa Evanson, Michael Folkes, Dave Peacock

Pacific Salmon Commission: Mike Lapointe

Canadian Pacific Sustainable Fisheries Society: Christina Burridge, Rob Morley

Notetaker: Dawn Steele

May 12, 2011

Moody Marine/ Assessors: Steve Devitt, Chair; Karl English, Greg Ruggerone

DFO: Paul Ryall, Arlene Tompkins, Dave Peacock, Dale Gueret

Canadian Pacific Sustainable Fisheries Society: Christina Burridge, Rob Morley

Notetaker: Dawn Steele

May 13, 2011

Moody Marine/ Assessors: Steve Devitt, Chair; Karl English, Greg Ruggerone

BC Department of Agriculture

BC MOA: Barron Carswell

ENGO Stakeholder Group

Watershed Watch Salmon Society: Craig Orr, Aaron Hill (via teleconference)

Pacific Salmon Foundation: Greg Taylor

SkeenaWild Conservation Trust: Greg Knox

References

Baillie, Steve. 2011. Unpublished data on adult returns and smolt emigration at Sakinaw Lake. Fisheries and Oceans Canada. South Coast Stock Assessment, 3225 Stephenson Point Road, Nanaimo, BC. Contact 250-756-7227 or steve.baillie@dfo-mpo.gc.ca

Bradford, M.J., Hume, J.M.B., Withler, R.E., Lofthouse, D., Barnetson, S. Grant, S., Folkes, M., Schubert, N., Huang, A-M. 2010. Status of Cultus Lake sockeye salmon. DFO Can. Sci. Advis. Sec. Res. Doc. 2010/nnn. vi + xx p.

Cox-Rogers, S. 2010. Power Point Presentation to Certifier: North/ Central Coast Sx Overview. 39 slides.

Cultus Sockeye Recovery Team. 2009. National conservation strategy for Cultus Lake sockeye salmon (Oncorhynchus nerka). Can. Tech. Rep. Fish. Aquat. Sci. 2846: viii + 46 p.

DFO. 2009. Pre-season run size forecasts for Fraser River sockeye and pink salmon in 2009.
DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2009/022

DFO. 2010. Recent status of Cultus Lake sockeye salmon. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2010/nnn.

Dobson, D.L. and D.S. O'Brien. 2011. Assessment of Henderson Lake sockeye salmon (*Oncorhynchus nerka*). Draft PSARC Working Paper. Fisheries & Oceans Canada. Nanaimo, B.C. (Final report expected in late 2011)

Fisheries and Oceans Canada, 2010. 2010/ 2011 Northern British Columbia (BC) Salmon Integrated Fisheries Management Program. 137pp

Fisheries and Oceans Canada. 2010. North Coast Post Season Review (SFA 1 – 10). 177p.

Fisheries and Oceans Canada, 2010. 2010/ 2011 Southern British Columbia (BC) Salmon Integrated Fisheries Management Program. 234pp.

Fisheries and Oceans Canada, 2011. 2011/ 2012 Northern British Columbia (BC) Salmon Draft Integrated Fisheries Management Program. 151pp.

Fisheries and Oceans Canada, 2011. 2011/ 2012 Southern British Columbia (BC) Salmon Draft Integrated Fisheries Management Program. 270pp.

Fisheries and Oceans Canada. 2011. Report to Certifier - Aboriginal Sockeye Salmon (*Onchorhyncus nerka*) Fisheries in the Pacific Region. Unclassified. 16 p.

Fisheries and Oceans Canada. 2011. Presentation to Certifier: Evaluation of Uncertainty in Fraser Sockeye Wild Salmon Policy Status using Abundance and Trends in Abundance Metrics.

Folkes, M., Pieter Van Will, Leroy Hop Wo, Chuck Parken. 2006. Exploitation rate reconstruction for Sakinaw sockeye salmon. Unpublished report.

Godbout, L., J. R. Irvine, C. C. Wood, C. Fu, and G. Jamieson. 2004. Critical Habitat Case Study – Sakinaw Lake Sockeye Salmon. CSAS Research Document - 2004/116. http://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2004/2004_116-eng.htm

Grant, S.C.H., B. L MacDonald, T.E. Cone, C. A. Holt, A. Cass, E.J. Porszt, J.M.B Hume, and L. B. Pon, 2010. Fraser Sockeye (Oncorhynchus nerka) Wild Salmon Policy Evaluation of Stock Status: State and Rate. DFO Can. Sci. Advis. Sec. Res. Doc. 2010/nnn. Ix + 185p.

Grant, S. 2011. Power Point Presentation to Certifier: Management of Fraser Sockeye, Population Structure and Management Groups. May 2011.

Grant, S.C.H., MacDonald, B.L., Cone, T.E., Holt, C.A., Cass, A., Porszt, E.J., Hume, J.M.B. and Pon, L.B. 2010. Fraser Sockeye Wild Salmon Policy Evaluation of Stock Status: State and Rate. Working Paper 2010/P14.

Grant, S., MacDonald, B., Cone, T., Holt, C., Cass, A., Porszt, E., Hume, J. and Pon, L. May 2011. Power Point Presentation to Certifier: Evaluation of Uncertainty in Fraser Sockeye Wild Salmon Policy Status using Abundance and Trends in Abundance Metrics.

Hall. P.E.D., Bocking, R.C., Hume, J.M.B., Selbie, D.T., Candy, J.R., Alexander R.F., and Gottesfeld, A.S. 2010. Status of Nass River Sockeye Salmon (*Oncorhynchus nerka*). DFO Can. Sci. Advis. Sec. Working Paper 2010/P42.

Harlow, Cindy and Grant McBain. 2011. Pers. Comm. Local Community Advisor and Habitat Biologist on the Sunshine Coast, Fisheries and Oceans Canada, South Coast Oceans, Habitat, and Enhancement. Madeira Park, BC. Contact cindy.harlow@dfo-mpo.gc.ca

Holt, C. A., Cass, A., Holtby, B., and Riddell, B. 2009. Indicators of status and benchmarks for Conservation Units in Canada's Wild Salmon Policy. Can. Sci. Advis. Sec. Res. Doc. 2009/058, -vii+74

Labelle, M., O'Brien, D., and D. Dobson. 2009. Exploitation patterns of three major sockeye salmon populations in the Barkley Sound and Alberni Inlet fisheries during 1997-2007. DFO Can. Sci. Advis. Sec.

Peacock, D. 2011. Power Point Presentation to Certifier: Sockeye Conditions Response: Skeena and Nass. 33 slides.

Peacock, D., Spilsted, B., Bocking, R.C., and Duguid, W. 2011. Draft - Nass Chum (*Oncorhynchus keta*) Stock Status. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/nnn. vii + 57 p.

Peacock, D., and Spilsted, B. 2011. Draft - Skeena River Chum (*Oncorhynchus keta*) Stock Status. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/nnn. x + xx p.

Pestal, G., Huang, A. M., Cass, A. 2010. Draft Working Paper - Updated Methods for Assessing Harvest Rules for Fraser River Sockeye Salmon. CSAP Working Paper. 186p.

Sakinaw Sockeye Recovery Team. 2005. DRAFT National Recovery Strategy for Sockeye Salmon (*Oncorhynchus nerka*), Sakinaw Lake Population, in British Columbia. DRAFT National Recovery Strategy. 30pp.

Tanasichuk, R. 2003. Proceedings of the PSARC Salmon Subcommittee Meeting May 13 -15, 2003. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2003/016.

Wood, C.C., Welch, D.W., Godbout, L., and Cameron, J. 2011. Marine migratory behavior of hatchery-reared anadromous and wild non-anadromous sockeye salmon revealed by acoustic tags. *In* Advances in fish tagging and marking technology. *Edited by* J. McKenzie, Q. Phelps, R. Kopf, M. Mesa, B. Parsons, and A. Seitz. American Fisheries Society, Symposium 76, Bethesda, Md

Websites consulted

www.dfo-mpo.gc.ca/csas/Csas/proceedings/2003/PRO2003_016_E.pdf

http://www.pac.dfo-mpo.gc.ca/species/salmon/sakinaw_sockeye_cs/default_e.htm

http://www.pac.dfo-mpo.gc.ca/science/habitat/cultus/sockeye-rouge-eng.htm

Standards and Guidelines used:

1. MSC Principles and Criteria for Sustainable Fishing
2. MSC Fishery Certification Methodology Version 6. September 2006
3. TAB Directives - all

Appendix A

North Coast Steelhead Alliance Submission

ENGO Stakeholder Submissions for Fraser, Skeena and Nass

Fraser Target Stocks

Conditions 2, 5, 6, 8, 19

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline for implementation	DFO's Commitments in Action Plan
There is general agreement among regional fisheries scientists within the management agency that the status of indicator stocks reflects the status of other stocks within the management unit There is no significant scientific disagreement regarding the indicator stocks used by the management agency to formulate management decisions for the fishery	While there is not complete agreement among regional fisheries scientists outside DFO regarding the adequacy of the indicator stocks for formulating management decisions, there does not seem to be significant disagreement regarding the stocks used. However, there remains a need to assess the degree to which these stocks represent the status of the other stocks within each management unit (i.e. run timing group)	**Condition 2** Certification will be conditional until a rigorous review has been completed to confirm that the indicator stocks reflect the status of the other stocks within each management unit, within one year **(Fraser Condition #1.2)**	**July 2009** as per Action Plan **July, 2011** Required by Condition	To satisfy this condition DFO in conjunction with Pacific Salmon Commission staff will summarize existing information on choice of indicator stocks used to reflect status of other stocks within each management unit. This information will be provided in a written review to the MSC certifying body by **December, 2009**
		Comments		**Unclear whether Report has been prepared and submitted to Certifier.**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
There is no significant scientific disagreement regarding the LRP's used by the management agency to formulate management decision for the fishery	The AT found that the management agency has operational LRPs for the 19 Fraser sockeye indicator stocks and is in the process of defining LRPs for Fraser sockeye stocks in order to implement the WSP. Bradford and Wood (2004) provide the scientific basis for setting minimum population sizes and recovery objectives for Cultus and Saginaw sockeye stocks.	**Condition 5** Certification is conditional until the Conservation Units have been defined for Fraser sockeye using the methods described in Holtby and Ciruna (2007) and LRP's for each Fraser sockeye conservation unit are defined and peer reviewed. (Fraser Condition #1.5). **Comments next page**	**2008 – 12** as per Action Plan	DFO commits to the following milestones in implementing Strategy 1 of the WSP, and therefore addressing Condition 5. DFO will provide a progress report on Strategy 1 implementation to the Certifier **by late 2010.** 1.Identify CU's based on Holtby and Ciruna's 2007 PSAR paper published **in 2008** 2.Final methodology for determining reference points for salmon populations and assessment criteria completed **March, 2009** 3.Define LRPs for each target stock by **December, 2011** 4.Define TRP's for each target stock along with a corresponding harvest strategy through Strategy 4 of the WSP by **May, 2012**

Comments, Condition 5

A report has not been provided to the Certifier as required by the Action Plan

In that DFO has not begun to consult on "buffers" for the LRP's it is difficult to see how LRPs for all Fraser LRPs will be defined and peer reviewed by December, 2011.. The AP quotes the WSP, "In the context of the WSP, The lower benchmark (LRP) will be established at a level high enough to ensure there is a substantial buffer between it and being considered at risk of extinction by COSEWIC. As defined in the WSP: "the buffer will account for uncertainty in data and control of harvest management. There is no single rule to use for determination of the lower benchmark. Rather, it will be determined on a case by-case basis, and depend on available information, and the risk tolerance applied…."

The WSP goes on to say that, "The determination of the risk tolerance to apply is a *value judgment* that requires consultation with First nations and others affected by this choice". These discussions have not commenced in any meaningful way. It would therefore seem that DFO is unlikely to meet their timetable for implementation of the WSP and therefore, the Condition.

The identification of Fraser River sockeye salmon lower benchmarks under the wild salmon policy (LRP equivalents) to all conservation units is critical to meeting a number of conditions placed on the certification of this fishery. This includes assigning status of all Fraser sockeye CUs relative to their lower benchmark and where necessary undertaking increased spawning ground assessments to assign LRPs and CU status to those CUs lacking information. For those CUs below the LRP, a science-based recovery plan must be completed and credible information demonstrating that fisheries management is consistent with meeting these recovery plans.

Without LRPs and recovery plans for CUs below their LRP this certification may be in jeopardy given how critical this progress is to multiple conditions on the certification.

The Cohen Commission is looking for similar information, and to our knowledge, it has yet to be provided to them.

It is our understanding that COSEWIC is currently reviewing Fraser River sockeye.

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
There is no significant scientific disagreement regarding TRPs used by the management agency to formulate management decision for the fishery The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and the productivity of non-target stocks	The AT found that fixed escapement goals at low run sizes for each of the of the four run-timing aggregates qualified as operational equivalents of TRPs that have been set relatively low because of concerns regarding the differential productivity of stocks within these timing groups. The Team recognizes that there continues to be considerable scientific debate regarding TRP's for both target and non-target stocks. It is anticipated that the implementation of the WSP will provide a clear definition of the TRP's for Fraser sockeye.	**Condition 6** Certification is conditional until the Management Units have been defined for Fraser sockeye and the management agency defines the TRP's for each Fraser sockeye management unit taking into account the productivity of target and non-target stocks within each management unit. (Fraser Condition #1.6)	**May, 2012** as per Action Plan	Same as Condition 5
		Comments		**Meeting the timeline for implementation of the WSP as detailed in the Action Plan will be difficult. DFO should be asked to provide a revised work plan that meets the schedule outlined under their response to Condition 5 in the AP. In that assigning benchmarks is critical to the Certification, it is important that the AT not extend DFO's timeline.**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
Management actions have reduced fishing as target stocks approach the LRP and fisheries have only resulted in escapements that approach or are below the LRP escapement goal in one year in a period of the most recent 5 consecutive years, for any of the target stocks	The trend plots for Fraser sockeye show that the 4yr average escapement has been above the Low Escapement Benchmark (LEB) for all run-timing groups except early Stuart sockeye.	**Condition 8** Certification is conditional until the management agency defines the LRP's for the target stocks and the management agency provides documentation that fisheries have not resulted in escapements that approach or are below the LRP in more than one year in a period of the most recent 5 cycle years, for any of the target sockeye stocks. The intent for this condition is to resolve the effects of fisheries, not other factors, on the stock and to recognize that the Fraser River sockeye undergo cycles so that these cycles must also be taken into account when examining whether the stocks are being maintained above LRPs. (Fraser Condition #1.8).	**December, 2011** as per Action Plan	Same as Condition 5

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
See 80SGs that failed to pass in Condition 18	See AT comments for Condition 18	**Condition 19** Fraser Sockeye Salmon Certification #3. Certification will be conditional until Limit Reference Points or their equivalents have been defined for Fraser sockeye salmon stocks, and recovery plans have been developed and implemented for stocks harvested in Fraser sockeye fisheries that are below their LRP. The proposed recovery plans must provide information regarding the probability of recovery and timing for recovery. To be completed by May 2012. **(Fraser Condition #2.3)**	**May, 2012** Required by Condition **Action Plan does not provide a Timeline**	DFO committed to take the following steps towards implementing the WSP as their response to Principle 2 Conditions, and would report on their progress to the Certifier by **December, 2010**. The milestones are: 1.Define LRPs for non-target stocks – **December, 2011** 2.Implement WSP Strategy 4. The first step would be to design and implement a fully integrated planning process for salmon conservation. **The measurable outcome would be a regional framework for integrated planning by April 2010**. 3.The next step in implement WSP Strategy 4 would be to develop fishery specific integrated management plans. The measurable outcome would be to initiate local integrated strategic planning processes to develop integrated management plans for salmon CUs that will: • Define LRPs for target and non-target stocks • Define precautionary harvest strategies and decision rules • Determine rebuilding strategies • Define performance measures 4.These processes would be initiated for Barkley, Fraser, Skeena, and Nass Units of Certification by **December, 2011**. 5.Implement WSP Strategy 5: annually review and report on performance of fishery and management system against defined performance measures for salmon conservation **beginning in 2012**

Comments, Condition 19

Comments are fourfold:

First, the Action Plan does not address what is required by the Condition. MSC has stated that surveillance audits will measure progress against the Condition, not what is described in the Action Plan.

Second, significant work must be completed before meeting this condition by May, 2012. LRPs will not be established until December, 2012. Detailing the probability of recovery and timing for recovery would presumably involve considerable additional analysis and consultation. It is not clear if DFO has a work plan to ensure the Condition is addressed within the time frame.

Third, the Action Plan specifies completion dates and objectives that are not being realized. The IHPC is a harvest planning committee, not a "fully integrated planning process for salmon conservation". There is no evidence that the IHPC has either the mandate or capacity to implement Strategy 4 of the WSP.

Fourth, a Fraser specific "integrated strategic planning processes to develop integrated management plans for salmon CUs that will:

- Define LRPs for target and non-target stocks
- Define precautionary harvest strategies and decision rules
- Determine rebuilding strategies
- Define performance measures"

has not been initiated.

It is questionable whether DFO will meet the Condition's deadline for completion when the necessary processes have not been initiated. Furthermore, DFO must meet the deadlines. The absence, dysfunction, or slowness of consultation processes can not be used as an excuse for why Conditions are not met within a required timeframe.

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The management system includes a program to create incentives for harvesters to not exceed target catches or exploitation rates	The Team found that the 80SG was only partially met because DFO has not implemented management approaches, such as defined allocations, that create incentives for harvesters to not exceed target catches.	**Condition 26** Certification will be conditional until the management agency provides clear evidence that measures are being implemented to encourage harvesters not to exceed catch targets or exploitation rate limits, within two years. **(Fraser Condition #3.3)**	July, 2012	See response to Condition 25
		Comments		**Fraser gillnet fisheries still operate as competitive fisheries. Hence, there is an incentive to catch as much as they can, irregardless of the GN TAC.** **There has been little progress in implementing incentives – or disincentives – that would address this.** **The fleet has not moved to a "defined share" approach that the AT discusses in their rational.** **DFO has also not addressed the large proportion of gillnet catch that is not recorded on sales slips.**

Non-Target Stocks

Conditions 1, 3, 4, 18, 27

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline for implementation	DFO's Commitments in Action Plan
The information available on the geographic range for harvest of non-target stocks is sufficient to prevent the over harvesting of these stocks	Deficiencies in the information and analysis of run-timing through JS have likely resulted in some over harvesting of Sakinaw sockeye. References to Sakinaw sockeye include other inside south coast non-Fraser stocks with similar marine distributions and run-timing	**Condition 1** Certification is conditional until a review of the run timing and harvest rates for Sakinaw sockeye have been completed and the fisheries management plan is consistent with the goal of minimizing the harvest rate on Sakinaw sockeye, within one year **(Fraser Condition #1.1)**	**July 2009** as per Action Plan **July, 2011** Required by Condition	A report summarizing this information will be made available to the appropriate MSC certifying body for their review by **December, 2009.**
		Comments		**Report has not been made available to Certifying Body, nor to the Public**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
Catch estimates are available for non-target stocks where the catch of the non-target stock may represent a significant component of the harvest of that stock Mechanisms exist to ensure accurate catch reporting and these mechanisms are evaluated at least once every 5 years	The Team found that current catch estimates and fisheries management guidelines for Sakinaw sockeye are based on preliminary analyses that require further review and refinement.	**Condition 3** Certification is conditional until the harvest rate analysis for Sakinaw sockeye has been updated using the best available data from the Pacific salmon Commission sockeye run reconstruction analyses and appropriate fisheries management actions are consistent with the goal of reducing harvest rates for Sakinaw sockeye and rebuilding this depleted stock, within one year **(Fraser Condition #1.3)**	**July 2009** as per Action Plan **July, 2011** Required by Condition	This information will be made available to the appropriate MSC certifying body for their review by **December, 2009**.
		Comments		**A Report has not been provided by Certifier, nor to Stakeholders** **It is unclear what mechanisms have been put in place to produce accurate catch reporting of non-target stocks**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
There is adequate information to estimate the relative productivity of the non-target stocks where the fishery harvests may represent a significant component of those non-target stocks The harvest limitation for target stocks take into consideration the impacts on non-target stocks and the uncertainty of the productivity of these stocks	The Team found that harvest guidelines in the IFMP were developed for the protection of these non-target stocks but information on the productivity of the Sakinaw stock relative to co-migrating Fraser stocks needs to be assessed and harvest rates adjusted accordingly	**Condition 4** Certification is conditional until a review of the relative productivity of Sakinaw sockeye has been completed and the fisheries management plan is consistent with the estimated productivity and goal of rebuilding the Sakinaw stock, within one year **(Fraser Condition #1.4)**	**July 2009** as per Action Plan **July, 2011** Required by Condition	This information will be made available to the appropriate MSC certifying body for their review by **December, 2009**
		Comments		**Has report has been made available to the certifier, or public?**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans	Estimates of Sakinaw exploitation rates should be based on average historical run-timing and harvest rates of the more abundant Fraser stocks that occur in the same fishery. Furthermore, based on information provided to date for the Sakinaw sockeye stock, we believe that the fishery may still be a factor in the recovery of at least the latter half of the run. Although the recovery plan goes a long way in providing goals and procedures to ensure freshwater productivity is increased, in the absence of further risk analysis of the recover strategy, we remain unconvinced that the current harvest policies and commercial closures have been adequately examined for their impact on the recovery of Sakinaw sockeye. Beyond Cultus and Sakinaw sockeye, there are other small sockeye stocks in the area of targeted Fraser stocks that recently had reduced returns. Although we had limited information as to what role harvests have had on these reductions, their recent reductions parallel those of the Sakinaw and may have a common cause. DFO as part of meeting the WSP guidelines are expected to develop the functional equivalent of LRPs for these stocks and if necessary, develop similar analysis and recovery strategies as those developed for Cultus and Sakinaw. Although sockeye salmon stocks are of primary concern, depleted stocks of other species that are a significant bycatch in the sockeye salmon directed fishery must also be addressed. At the 80 scoring level, we found scoring elements 1,3,4, and 5 partially deficient because LRPs have not been defined for all non-target stocks, the probability of achieving long-term recovery of depleted non-target stocks is likely less than 60%; monitoring and assessment goals have yet to be defined for most non-target stocks.	**Condition 18** Fraser Sockeye Salmon Condition #2. Certification of the Fraser sockeye salmon fishery is conditional upon developing and implementing a risk assessment of the Sakinaw Lake recovery strategy that will include the following items: 1) Examination of the risk of differing temporal harvest rates on returning run and its implication on the probability of recovery of the stock; and 2) Refinement and peer review of run reconstruction analyses for Sakinaw sockeye, both tasks to be completed within one year. **(Fraser Condition #2.2)**	**December, 2009** as per Action Plan **July, 2011** Required by Condition	A report summarizing this information will be made available to the appropriate MSC certifying body for their review by **December, 2009.**

Comments, Condition 18

Has the report referred to been made available?

Have the two points referred to in the Condition been addressed?

The AT was quite specific in their rational in regards to what they are looking for, "Beyond Cultus and Sakinaw sockeye, there are other small sockeye stocks in the area of targeted Fraser stocks that recently had reduced returns. Although we had limited information as to what role harvests have had on these reductions, their recent reductions parallel those of the Sakinaw and may have a common cause. DFO as part of meeting the WSP guidelines are expected to develop the functional equivalent of LRPs for these stocks and if necessary, develop similar analysis and recovery strategies as those developed for Cultus and Sakinaw

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Although sockeye salmon stocks are of primary concern, depleted stocks of other species that are a significant bycatch in the sockeye salmon directed fishery must also be addressed.

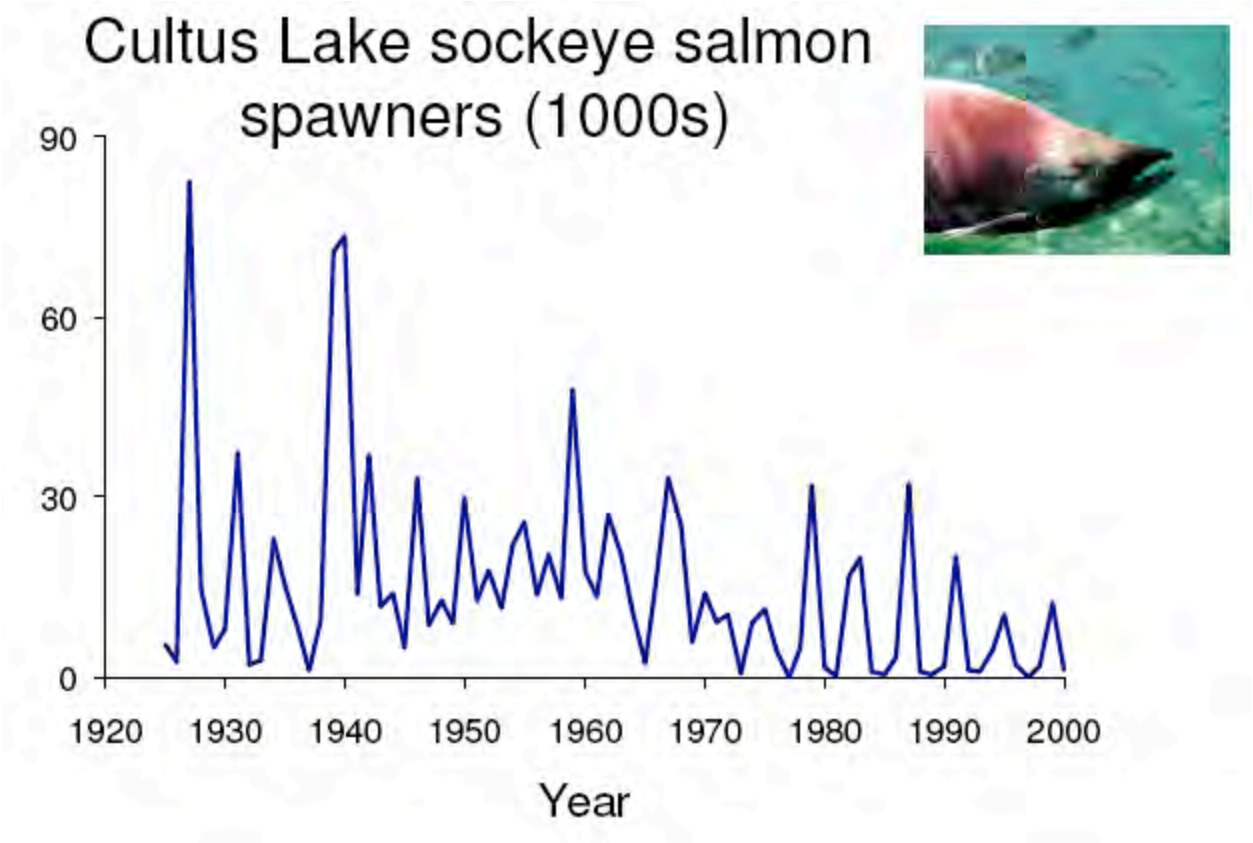
At the 80 scoring level, we found scoring elements 1,3,4, and 5 partially deficient because LRPs have not been defined for all non-target stocks, the probability of achieving long-term recovery of depleted non-target stocks is likely less than 60%; monitoring and assessment goals have yet to be defined for most non-target stocks."

Progress towards resolving the above concerns is required within one year. There is little evidence, however, that much, if any, progress has been made.

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The research plan addresses concerns related to the impact of the fishery on the ecosystem The research plan addresses socioeconomic issues that result from the implementation of management The research plan is responsive to changes in the fishery	The Team found that three of the 80 scoring guideposts were not met because of the lack of any research plan for Fraser sockeye makes it difficult to assess whether the plan addresses concerns related to the impact of the fishery on the ecosystem, socioeconomic issues that result from the implementation of management plans, or if research is responsive to changes in the fishery.	**Condition 27** Certification will be conditional until the management agency provides a research plan that addresses identified concerns related to the impact of the fishery on the ecosystem, with emphasis on non-target stocks, and takes into consideration socio-economic factors and anticipated changes to fisheries within two years. **(Fraser Condition #3.4)**	**July, 2012** Required by Condition	The requirement to include ecosystem values and objectives in planning process is an element of the WSP. It is also an element of the **new IFMP template described above that will be implemented for salmon fisheries in 2009** DFO has developed a Resource Assessment Framework for Fraser River sockeye (**PSARC reviewed in May 2008**) to help guide assessment priorities based on biological status and knowledge gaps for each CU. Once LRPs are developed for each CU, they will be integrated into the assessment framework.
		Comments		**Will be reviewed in preparation for the 2012 Audit**

Cultus Sockeye

Condition 7, 25, 28



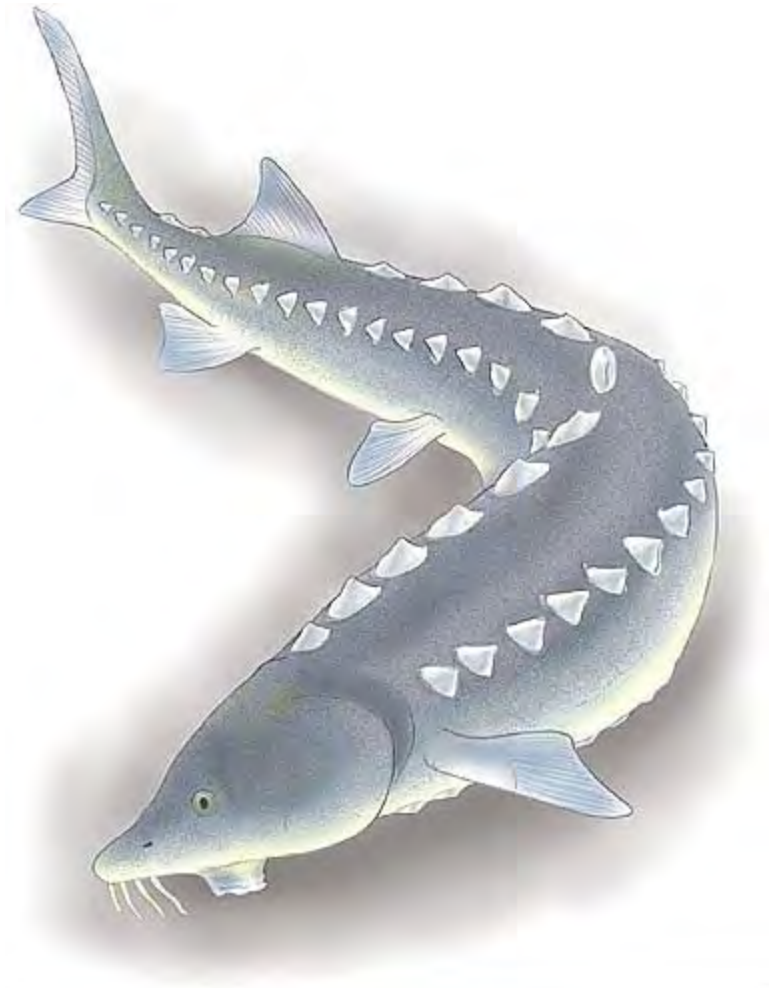
The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
In the event of severe depletion, recovery plans are developed and implemented to facilitate the recovery of depleted stocks within 3 reproductive cycles Stocks are allowed to recover to more than 150% of the LRP for abundance before any fisheries are permitted that target these stocks	Cultus sockeye is an example of a severely depleted target Fraser sockeye stock within one of the run-timing aggregates where DFO does have a strategy for protecting and rebuilding the stock. However, the Team found that there were significant concerns regarding the implementation of the recovery for Cultus sockeye.	**Condition 7** Certification is conditional until the management agency provides a clear commitment to implement the recovery plan for Cultus sockeye and evidence that fisheries management actions are consistent with the recovery goals for Cultus sockeye, within one year. **(Fraser Condition #1.7)**	**December, 2010** as per Action Plan **July, 2011** Required by Condition	A report summarizing this information will be made available to the appropriate MSC certifying body for their review by **December, 2010**
		Comments		**Has a report been made available? If so, does it address the failed SC's?** **There is also no evidence that stocks have been allowed to recover to 150% of the LRP as required by the 80 SG. In 2010, fishery impacts on Cultus were increased in order to harvest more abundant co-migrating target stocks. 2010 was a clear example of where DFO was NOT making progress towards meeting this condition.**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
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.	The Team agrees that DFO has not always managed in a precautionary manner and has not shown a clear commitment to define and implement action plans for two sockeye stocks (Cultus and Sakinaw) where precautionary measures are necessary to manage Fraser sockeye fisheries	**Condition 25** Certification will be conditional until the management agency provides a clear commitment to implement recovery action plans for Cultus and Saginaw sockeye (Fraser conditions #3.2)	**December, 2010** as per Action Plan (Condition 7)	Same as Condition 19 In addition, over the next two years, DFO will be revising the format for Integrated Fisheries Management Plans (IFMPs). The new IFMP template is much more fishery specific and requires elements not included in past IFMPs, such as stock status, a socioeconomic overview and summary of management issues. Development of these IFMPs will require many of the gaps identified in the conditions to be addressed.
		Comments		DFO increased the Cultus exploitation rate in 2010 in order to increase the harvest of abundant target stocks.

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The management system includes measures, which 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	The lack of TRP or equivalent for the depleted Cultus stock and the lack of a time schedule for recovery suggests that the two 80SG have not been fully met. The recovery plan needs credibility by providing clear restoration guidelines, time frames, and a strategy for incremental changes and incremental increases in funding when the time schedule for achieving the TRP is not met.	**Condition 28** Certification will be conditional until the management agency provides TRP's for the Cultus sockeye salmon stock, a clear indication of the commitment to implement the Cultus Sockeye Recovery Plan, and an assessment of the probability of recovery and the timing for recovery for Cultus sockeye, within one year **(Fraser Condition #3.5)**	Undefined by Action Plan **July, 2011** Required by Condition	Same as for Condition 25
		Comments		**Based on DFO's actions in 2010 in regards to the allowable ER for Cultus, leaves room for some doubt as to whether DFO has, "a clear commitment to implement the CSRP" Nor is it clear if DFO has provided an analysis describing the probability and timing of recovery**

Bycatch and Discards

Conditions 17, 24, 30



The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The fishery has been monitored and the stock composition is assessed with a special effort to determine presence of rare, endangered, protected, or icon species.	the first SG at the 80SG was considered partially met because stock composition analysis is generally assessed and efforts have been made to identify the presence of depleted stocks in the fishery, including Cultus lake sockeye. However, the team did find deficiencies with regard to Sakinaw sockeye, sturgeon, and steelhead in that little or no direct action had been taken to provide data indicating the impact of the fishery on these species. There has been no special effort to identify Sakinaw sockeye salmon in the fishery or to monitor white sturgeon bycatch, a species currently undergoing SARA review. Steelhead catches are also not well documented and many of the steelhead stocks in the region have been highly depleted.	**Condition 17** Continued certification of the Fraser sockeye salmon fishery is contingent upon providing reasonable, reliable, and defensible estimates of the harvest of white sturgeon and steelhead within a reasonable time frame. See also Condition 1, 3, and 4 regarding Saginaw sockeye, and the need to be able to identify and understand the impact of fish released from a supplementation program to assist in the recovery plan of Sakinaw sockeye and to be able to detect impacts on natural spawning produced returning adults. To be completed by May 2012 **(Fraser Condition #2.1)** **Comments Next page**	**May, 2012 as per** Action Plan **May 2012** Required by Condition	A report summarizing the work will be completed in **May 2011**

Comments, Condition 17
A Report has not been provided to either the Certifier or the public. **There were no fishery independent measures of steelhead or sturgeon catch in the 2010 fishery.** **Scientifically defensible data on the impact of the 2010 commercial and economic opportunity fisheries on Sakinaw sockeye, sturgeon, and steelhead are unavailable.**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
Management objectives are clearly defined for most of the target stocks and are consistent with the MSC criteria for a well managed fishery The management system provides estimates for all major catches, landings, and bycatch	agrees with KW's concerns over the quality of catch monitoring in First Nations food, social and ceremonial fisheries, The AT has concerns regarding the results from the ongoing processes to define CUs and management objectives under FRSSI and WSP. These processes need to be completed before the AT can assess whether these objectives are consistent with MSC criteria. There are significant concerns regarding the data on the bycatch and mortality of sturgeon in Fraser fisheries	**Condition 24** Certification will be conditional until a clear set of management objectives has been defined and found to be consistent with MSC criteria and measures are taken to reduce the bycatch of sturgeon and improve the monitoring systems used to estimate sturgeon bycatch. Both of these tasks should be completed within two years **(Fraser Condition #3.1)**	**May, 2011** as per Action Plan **July, 2012** Required by Condition	To satisfy this condition DFO will develop a two year program (e.g. census based and/ or observer based) to estimate the impact of Fraser River sockeye fisheries on sturgeon **beginning in 2009**. The need for further work will be assessed according to the result of this program. **A report summarizing the work will be completed in May, 2011**
		Comments **information**		**The AT states in their rational that they will have to assess whether the work completed under FRSSI and WSP meets MSC criteria. Hence, it is important that DFO address the deadlines, comments and concerns outlined in Condition 19.** **Fishery independent monitoring is unavailable for commercial and economic opportunity fisheries.** **Has report described in Action Plan been made available to the Certifier and public?** **There is significant commercial catch landed outside the sales slip process that remains unverified.**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
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 catches and discards for the fishery can be obtained.	The Team found that reliable estimates for sturgeon and steelhead bycatch are not available from all harvesters for sockeye fisheries in the lower Fraser River. The Team's opinion is that the catch reporting is sufficient to manage the majority of non-target species harvested. While it is important that the catch reporting be improved for Fraser sturgeon and steelhead caught in Fraser sockeye fisheries, these species do not represent the majority of the non-target species harvested in Fraser sockeye fisheries.	**Condition 30** Same as Condition 17. Certification will be conditional until the management agency provides reasonable estimates of the harvest of white sturgeon and steelhead, by May 2012 **(Fraser Condition #3.7)**	**May, 2012** as per Action Plan **May, 2012 Required by Condition**	To satisfy this condition DFO will develop a two year program (e.g. census based and/or observer based) to estimate the impact of Fraser River sockeye fisheries on sturgeon **beginning in 2009**. The need for further work will be assessed according to the results of the program. **A report summarizing the work will be completed in May, 2012**
		Comments		**Will be reviewed for 2012 Audit**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The management system is found to be in compliance with all legal and most of the customary rights of First nations peoples that are impacted by the fishery.	In consultation with First Nations and conservation groups, the AT learned that several First Nations expressed concern that the management system has not adequately addressed their legal priority rights for FSC fisheries and is not a transparent process. Others expressed concerns with the management approach for protection of Cultus and Saginaw sockeye.	**Condition 29** Certification will be conditional until the management agency provides evidence that First Nation issues regarding aboriginal and treaty rights have been identified and these issues are being addressed through an effective consultation or negotiation process, within three years **(Fraser Condition #3.6)**	**June 2010** as per Action Plan **July, 2013** Required by Condition	In order to meet this condition DFO will provide a report summarizing how the management system addresses issues regarding aboriginal and treaty rights related to the sockeye salmon fisheries. **This report will be provided by June 2010**
		Comments		**Has report been delivered as per Action Plan?**

Skeena Stock Status: LRPs, TRPs, and Recovery Plans

Conditions 13, 13b, 13c, 14, 21b

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
In fisheries where both enhanced and un-enhanced stocks are harvested at the same time, the harvest guidelines are based on the goals and objectives for the un-enhanced stocks There are adequate data and analyses to determine that the presence of enhanced fish in the management units do not adversely impact the unenhanced stocks	The Team found that there was general scientific agreement within the management agency that the primary target for Skeena sockeye fisheries are the enhanced Babine sockeye produced from the Pinkut and Fulton spawning channels and fisheries targeting these enhanced stocks have had a significant impact on the Skeena's wild sockeye stocks and other co migrating salmon and steelhead. However, recent harvest rates are significantly reduced from historical levels and managers have indicated that the available stock-recruitment data provides a scientific basis that current harvest rates set for the mixed-stock fisheries should not adversely affect the majority of un-enhanced stocks within each stock unit (i.e. Babine and non-Babine sockeye). The Skeena Independent Science Review Panel (ISRP) recommended "a comprehensive assessment of the advantages and disadvantages of either reducing channel production substantially, 	**Condition 13** *Certification will be conditional until a peer reviewed (e.g. PSARC) assessment of the impact of production from Pinkut and Fulton spawning channels on wild sockeye stocks has been completed and the TRPs and LRPs have been clearly defined for the unenhanced Sockeye stocks.* ***(Skeena Condition #1.1).*** **Rational Cont'd** ,or eliminating it entirely in favour of sustaining the wild stock fishery." The ISRP identified a number of deficiencies in the information available to assess trends in marine survival and the impact of enhanced stocks on the wild stocks. The reinstatement of the Babine sockeye smolt monitoring program was identified as one of the top priorities. Other scientists have proposed provisional LRP's for most of the un-enhanced Skeena sockeye stocks (Wood, 1999) but to date these LRP's have not been formally used in the development of harvest plans for Skeena sockeye.	December 2011	DFO commits to providing a peer reviewed assessment of the impact of production from the Babine enhanced production on wild Skeena sockeye stocks in a PSARC reviewed stock assessment paper and TRPs and LRPs have been defined for Skeena sockeye CUs (December, 2011). **Comments** **It is unclear whether DFO has commenced work on a peer reviewed assessment of the impact of enhanced Babine production on wild stocks and whether it will be complete by December, 2011.** **LRP's, as defined in the WSP (including buffers), are still some way from being developed for the Skeena. There is some concern that DFO may not meet the December, 2011 deadline.**

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
Fishery independent indicators of abundance are available for the non-target species harvested in the fishery.	The Team found that escapement estimates for the non-target sockeye stocks (i.e. non-Babine stocks) were less reliable than those for Babine sockeye. The shift towards management by conservation unit (CU), would require more information on the abundance within each CU. The management agency has recently defined 32 sockeye CUs within the Skeena watershed and the ISRP concluded that "the available data are not sufficient to define escapement trends or assess stock status for 15 of the sockeye CUs". This is flagged as a gap in the current annual stock assessment program that could be addressed by the approaches defined in the Core Stock Assessment Review for North and Central Coast salmon stocks.	**Condition 13b** *Certification is conditional until the management agencies implement the escapement and fall fry monitoring plans for Skeena sockeye as defined in the Core Stock Assessment Review for North and Central Coast salmon stocks or a similar scientifically defensible program to address this key information gap.* ***(Skeena Condition #1.1b).***	December 2011 (PSARC reviewed stock assessment paper)	DFO will use the existing core stock assessment program to develop and implement a plan for monitoring sockeye escapements. The program will be developed in cooperation with the FN interests in the watershed and may include direct visual escapement surveys, weir counts, and mark recapture programs for adults or hydroacoustic lake surveys to identify juvenile abundance. The Skeena Fisheries Commission has been conducting hydro acoustic estimates in recent years, and DFO will continue to cooperate in planning and funding of these surveys. The program will be described in PSARC reviewed stock assessment paper (December, 2011)

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
There is adequate information to estimate the relative productivity of the non-target stocks where the fishery harvests may represent a significant component of those non-target stocks.	The Team found that the second guidepost at the 80 SG was not fully met because the data available for some non-target sockeye stocks is not adequate to estimate the relative productivity for these non-target stocks.	**Condition 13c** *Certification is conditional until the management agencies have implemented the programs necessary to provide periodic assessments of the relative productivity for each Skeena sockeye CU or justification for the use of currently monitored populations as indicator stocks.* ***(Skeena Condition #1.1c).***	December 2011 (PSARC stock assessment paper)	DFO commits to providing periodic assessments of the relative productivity for Skeena sockeye CU's, or representative indicators. Our experience has been that the productivity of the sockeye systems are relatively stable, and will place priority on assessments of systems for stocks of concern, those most susceptible to climate change impacts or subject to recent habitat perturbations. The relative productivity will be reviewed in a PSARC stock assessment paper (December, 2011).

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
The TRP's for the target stocks take into account variability in the productivity of each component of the target stock and the productivity of non-target stocks.	The management agency has indicated that historically the TRP for the Babine stock did not take into account the productivity of non-target Skeena stocks. The current TRP for the target Babine sockeye stock is based on the plans to limit harvests in mixed-stock fisheries to levels that take into account the lower productivity of non-target stocks and harvest the surplus production of the Babine stock in areas where only Babine stocks are present (i.e. within the Babine watershed). The WSP calls for the definition of conservation units for each salmon species and the definition of management guidelines for each conservation unit	**Condition 14** *Certification will be conditional until the management agency provides direct evidence that the productivity of non-target stocks has been taken into account when setting the TRP for the target Babine stock, within one year.* ***(Skeena Condition #1.2).***	July, 2011	As an interim measure for the 2009 fishing season DFO adopted a precautionary management objective of reducing the Canadian commercial exploitation rate on Skeena sockeye to begin rebuilding individual stocks of concern by maintaining on average, a Canadian commercial exploitation rate in the range of 20 to 30%. This represents a reduction of 30 to 50% from recent decade averages. This range was consistent with the advice provided in the Skeena ISRP (Independent Science Review Panel). DFO also supports Recommendation # 1 of the ISRP, "There is a need to confront the major trade-off decisions that are implied by the Wild Salmon policy and the impacts of mixed-stock ocean fisheries on Skeena stocks. There should be an explicit public decision about the loss of biodiversity (number of weak stocks allowed to remain overfished or at risk of extinction) that is deemed acceptable and changes required to fisheries in order to achieve particular harvest objectives." Resolving this issue will be the central focus of the Skeena Watershed Process over the next few years.

Comments, Condition 14

The Condition insists that the 2011 fishery respond to the requirements of the Condition. However, a reduction in the aggregate exploitation rate does not necessarily mean that the TRP accounts for the productivity of non-target stocks. In order to achieve target exploitation rates on target stocks, DFO allows for weekly harvest rates which may impact non-target sockeye stocks. Weekly harvest rates of 50% or more might be expected during times when non-target sockeye stocks may be present.

There is little direct evidence that DFO has taken into account non-target stocks when setting the TRP for Skeena sockeye in 2011. The 20 -30% aggregate ER's on non-target sockeye CU's and depressed target CU's returning in late July may well produce stock specific ER's which will not permit the rebuilding of these CU's. The 2011 IFMP does not place a ceiling on the harvest impacts on the aforementioned CU's.

The discussion in the Action Plan about managing trade-offs is irrelevant in terms of the Condition. The Condition is very specific in what it requires of DFO. And MSC demands that fishery performance be measured against the Conditions, not against the Action Plan.

The Scoring Guideposts that scored less than 80;	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans.	We generally agreed with Bocking's findings at the 80 scoring level in that there are no LRP's or comprehensive recovery programs for depleted stocks and agreed that depleted stocks (those below an LRP) were covered under this MSC criteria without being listed by COSEWIC. The Skeena sockeye salmon fishery falls short in the area of development of recovery plans for the Damshiquit, Kitwanga, Spawning and Sicintine systems. Given the relatively long term period of low returns to the depressed systems, there is reasonable doubt that these stocks will have at least a 60% probability of recovery. Guideposts 1, 3, 4 and 5 are all deficient for some of the identified depleted stocks. Although these stocks do not appear to be immediately threatened with extirpation, a recovery strategy associated with a risk analysis is needed. In addition, we received information suggesting chum salmon stocks are depleted in this area and are a significant bycatch of the sockeye salmon fishery. A recovery plan for these non-target stocks and associated risk analysis of any modified harvest strategy should be completed.	**Condition 21b** *Certification will be conditional until Limit Reference Points or their equivalent have been defined for Skeena sockeye salmon stocks, and recovery plans have been developed and implemented for stocks harvested in Skeena sockeye fisheries that are below their LRP. The proposed recovery plans must provide information regarding the probability of recovery and the timing for recovery.* ***(Skeena Condition 2.1b)*** **Condition 22** *Continued certification of the Skeena sockeye salmon fishery is contingent upon developing and implementing a recovery plan for chum stocks harvested in Skeena sockeye fisheries that are below their LRP. The proposed recovery plan must include procedures for determining the impact of the existing fishery management system on these stocks and provide for decreasing incidental harvest rates on chum salmon, if harvest pressure is found to have significant risks to chum recovery*	Condition 21b Assessment Team will be looking for progress on this Condition in annual surveillance audits beginning in May, 2011 Condition 22 Same as above and a PSARC paper focused on Chum LRPs by December 2011	As an interim measure for the 2009 fishing season DFO adopted a precautionary management objective of reducing the Canadian commercial exploitation rate on Skeena sockeye to begin rebuilding individual stocks of concern by maintaining on average, A Canadian commercial exploitation rate in the range of 20 to 30%. This represents a reduction of 30 to 50% from recent decade averages. This range was consistent with the advice provided in the Skeena ISRP (Independent Science Review Panel). DFO also supports Recommendation # 1 of the ISRP, "There is a need to confront the major trade-off decisions that are implied by the Wild Salmon policy and the impacts of mixed-stock ocean fisheries on Skeena stocks. There should be an explicit public decision about the loss of biodiversity (number of weak stocks allowed to remain overfished or at risk of extinction) that is deemed acceptable and changes required to fisheries in order to achieve particular harvest objectives." Resolving this issue will be the central focus of the Skeena Watershed Process over the next few years. ***Continued next slide***

Comments, Condition 21b

Condition 21b is fundamental to ensuring the Skeena sockeye fishery meets MSC criteria. DFO has done little thus far to meet the concerns expressed by the AT in their rational for not passing the 80 SG. DFO has not yet developed LRPs for non-target stocks. They have not developed recovery plans for the stocks the AT identified in their rational. And they have not provided information regarding the probability of recovery and the timing for recovery.

The response in their Action Plan is not adequate for meeting the Condition. The AT should therefore be looking for direct evidence that DFO is addressing their concerns. It would also be important for the AT to again specify what they are looking for, and why DFO's response in their Action Plan does not meet MSC criteria.

Bycatch and Discards

Conditions 13a, 21a, 22, 35a, 46c

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost (s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
Catch estimates are available for non-target stocks where the catch of the non-target stock may represent a significant component of the harvest of that stock.	After a detailed review of all the methods used to estimate catch or exploitation rates for Skeena steelhead stocks, the Skeena ISRP concluded that "The state of affairs today is that we actually have no idea how reliable DFO's estimates of steelhead exploitation rates are." While the steelhead bycatch in fisheries targeting Skeena sockeye can represent a significant portion of the harvest of Skeena steelhead, the steelhead harvest rates are believed to be relatively low, and thus a much less significant component of the steelhead stock in most years. However, there is an urgent need to improve the procedures used to estimate the catch for these non-target steelhead stocks.	**Condition 13a** *Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries.* ***(Skeena Condition #1.1a).***	December 2011 (Catch Monitoring Framework)	DFO will develop a program for monitoring the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to develop methods to estimate steelhead impacts from the Skeena sockeye fisheries. A catch monitoring framework will be developed by December, 2011

Comments, Condition 13a

It is unclear whether an effective catch monitoring framework will be put in place. The current draft would allow up to 20% underreporting of discards.

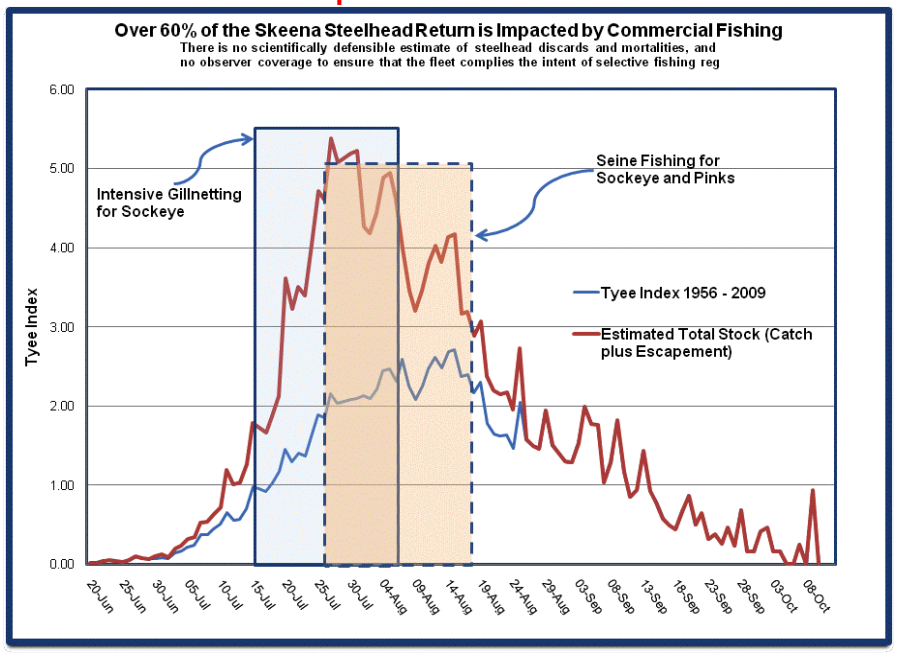
A scientifically defensible estimate of steelhead discards will not be in place for 2011. Hence, a great deal of work must be completed prior to December, 2012.

It is unclear whether the Province of BC will agree to enter into discussion on how to improve the model. Discussions are ongoing, but the province has not made a commitment, and may not do so.

Effective fish management requires defensible estimates of catch, bycatch, and discards (FAO). There is little support from anyone other than DFO that a model could produce defensible catch estimates

The recent J.O.Thomas report provides compelling evidence that there is significant under reporting of steelhead catch, as well as a lack of compliance with selective fishing regulations.

A significant proportion of the steelhead return falls within the time period in which there is intensive commercial fishing based on returns to Tyee.



The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
A monitoring program exists that provides estimates of bycatch. In known problem areas of high bycatch, there is an ongoing monitoring program.	We agreed specifically with the findings of the ISRP that estimates of DFO of bycatch rates on steelhead have little reliability. After a detailed review of all the methods used to estimate catch or exploitation rates for Skeena steelhead stocks, the Skeena ISRP concluded that *"The state of affairs today is that we actually have no idea how reliable DFO's estimates of steelhead exploitation rates are."* Since there is general scientific agreement that the terminal Skeena sockeye fisheries represent a known area of high bycatch for steelhead, there is an urgent need to improve the procedures used to estimate steelhead bycatch. The condition is necessary because there is a need for an ongoing monitoring program and these types of programs have not been consistently conducted in the past.	**Condition 21a** *Same as new condition 13a. Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries.* ***(Skeena Condition #2.1a).***	December 2010 (PSARC reviewed catch monitoring framework)	DFO in cooperation with the Province of BC will develop a program for evaluating the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to develop a method to estimate steelhead impacts in the Skeena sockeye fisheries. A catch monitoring framework will be presented to PSARC for review in December, 2010.
		Comments		**See Comments under 13a**

The Scoring Guideposts that scored less than 80;	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
The management system includes assessment of plans for the recovery of non-target stocks to levels above established LRPs. The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks. Monitoring and assessment programs are established to determine with a high degree of confidence and in a timely manner that recovery is occurring. Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans.	We generally agreed with Bocking's findings at the 80 scoring level in that there are no LRP's or comprehensive recovery programs for depleted stocks and agreed that depleted stocks (those below an LRP) were covered under this MSC criteria without being listed by COSEWIC. The Skeena sockeye salmon fishery falls short in the area of development of recovery plans for the Damshiquit, Kitwanga, Spawning and Sicintine systems. Given the relatively long term period of low returns to the depressed systems, there is reasonable doubt that these stocks will have at least a 60% probability of recovery. Guideposts 1, 3, 4 and 5 are all deficient for some of the identified depleted stocks. Although these stocks do not appear to be immediately threatened with extirpation, a recovery strategy associated with a risk analysis is needed. In addition, we received information suggesting chum salmon stocks are depleted in this area and are a significant bycatch of the sockeye salmon fishery. A recovery plan for these non-target stocks and associated risk analysis of any modified harvest strategy should be completed.	**Condition 21b** *Certification will be conditional until Limit Reference Points or their equivalent have been defined for Skeena sockeye salmon stocks, and recovery plans have been developed and implemented for stocks harvested in Skeena sockeye fisheries that are below their LRP. The proposed recovery plans must provide information regarding the probability of recovery and the timing for recovery.* ***(Skeena Condition 2.1b)*** **Condition 22** *Continued certification of the Skeena sockeye salmon fishery is contingent upon developing and implementing a recovery plan for chum stocks harvested in Skeena sockeye fisheries that are below their LRP. The proposed recovery plan must include procedures for determining the impact of the existing fishery management system on these stocks and provide for decreasing incidental harvest rates on chum salmon, if harvest pressure is found to have significant risks to chum recovery*	Condition 21b Assessment Team will be looking for progress on this Condition in annual surveillance audits beginning in May, 2011 Condition 22 Same as above and a PSARC paper focused on Chum LRPs by December 2011	As an interim measure for the 2009 fishing season DFO adopted a precautionary management objective of reducing the Canadian commercial exploitation rate on Skeena sockeye to begin rebuilding individual stocks of concern by maintaining on average, A Canadian commercial exploitation rate in the range of 20 to 30%. This represents a reduction of 30 to 50% from recent decade averages. This range was consistent with the advice provided in the Skeena ISRP (Independent Science Review Panel). DFO also supports Recommendation # 1 of the ISRP, "There is a need to confront the major trade-off decisions that are implied by the Wild Salmon policy and the impacts of mixed-stock ocean fisheries on Skeena stocks. There should be an explicit public decision about the loss of biodiversity (number of weak stocks allowed to remain overfished or at risk of extinction) that is deemed acceptable and changes required to fisheries in order to achieve particular harvest objectives." Resolving this issue will be the central focus of the Skeena Watershed Process over the next few years. ***Continued next slide***

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost (s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
				DFO will develop a chum-rebuilding plan for Area 4 chum included chum spawning in the Skeena River and its tributaries. Management measures to reduce the impacts of the Skeena sockeye fishery on chum has been ongoing and significant changes have been made to the Skeena gillnet and seine fisheries. Time and area closures and selective fishing measures are used to reduce chum impacts. DFO supports the SISRP report recommendation 6: *"Chum salmon stocks appear to be severely depressed and should be protected by avoiding late season ocean fishery openings and targeted fisheries of any kind."* Retention of chum salmon was not permitted by seines or gillnets in Skeena commercial fisheries in 2009. DFO will continue to revise the IFMP to take a more precautionary approach to chum concerns in the Skeena sockeye fishery. Monitoring and compliance of these release fisheries will remain an important component of the rebuilding plan for chum. LRPs will be developed for Skeena chum populations and provided for PSARC review by December, 2011.

Comments, Condition 22

The 2011 fishing plan does not provide for any new plans to reduce the impacts of fish harvesting on chum stocks as required by the Condition. There are no plans to improve catch and compliance monitoring.

There is a proposal to initiate a new Demonstration GN Pink fishery on the Skeena. This will mean fishing in a time and area where Skeena chum stocks are known to be present

There has been no movement to encourage selective fishing as discussed in the ISRP.

The 2011 IFMP does not mandate that GN's employ selective fishing strategies such as "short nets – short sets".

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost (s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
The management system provides estimates for all major catches, landings, and bycatch.	After a detail review of all the methods used to estimate catch or exploitation rates for Skeena steelhead stocks, the Skeena ISRP concluded that "The state of affairs today is that we actually have no idea how reliable DFO's estimates of steelhead exploitation rates are." Since there is general scientific agreement that the terminal Skeena sockeye fisheries represent a known area of high bycatch for steelhead, there is an urgent need to improve the procedures used to estimate steelhead bycatch.	**Condition 35a** *Same as new condition 13a. Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries.* ***(Skeena Condition #3.1a).***	December 2010 (Catch Monitoring Framework)	Same as condition 13a.
		Comments		**Same as 13a**

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
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.	The Team found that the level of uncertainty associated with steelhead catch, escapement and stock status should have been sufficient for the management system to recognize that precautionary measures were necessary to manage the Skeena sockeye fishery and call for increasing efforts to fill information gaps. However, it took significant pressure and funding from outside the management system to initiate just a review of the fishery and information gaps and at the time of the rescoring there had not been a clear commitment from the management agencies to implement the recommendations of the ISRP regarding improved assessments of steelhead catch, escapement and stock status	**Condition 35b** *Similar to new condition 13a. Certification is conditional until the management agencies implement a scientifically defensible program for estimating steelhead catch in the Skeena sockeye fisheries and escapement and stock status for Skeena steelhead stocks.* ***(Skeena Condition #3.1b).***	December 2011	DFO will develop a program for evaluating the impacts of the Skeena sockeye fisheries on steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and B.C. Ministry of Environment (MOE), and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate commercial harvest impacts. A program to estimate steelhead escapement for the watershed and for major steelhead stocks was initiated by MOE in 2008, in cooperation with DFO. Part of this study is to evaluate components of this estimation procedure to inform a steelhead escapement program planned for 2009. MOE is expected to take the lead in an evaluation of Steelhead stock status, with DFO providing support as required. The MOE initiated pilot studies in 2008 to address Skeena steelhead stock status and escapement (MOE 2008). These studies included funding to: extend DFO's Skeena test fishery past its typical late August ending date; carry out steelhead bio-sampling from the post August test fishery for genetic analysis; conduct acoustic tagging to assess the suitability of acoustic telemetry to monitor the distribution of steelhead spawners within the Skeena River; and hire a full time steelhead management biologist for the Skeena Region Ministry office to assist with steelhead project management, quality control and delivery. A catch monitoring framework will be developed by December, 2010.

Comments, Condition 35b

There continues to be little commitment from the management agencies to implement the recommendations of the ISRP regarding improved assessments of steelhead catch, escapement, and stock status.

It is also unclear whether a full time steelhead management biologist will be hired for the Skeena region as per the Action Plan.

The 2011 season will not provide a *scientifically defensible* estimate of catch or fishery impacts on steelhead or chum

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
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.	The Team found that while some harvesters have complied with requests for data on catch and discards of non-target species, it is clear that the number of complying fishers is not sufficient to provide reliable estimates of total catches and discards for steelhead.	**Condition 36c** *Certification will be conditional until there is a clear commitment from the fishers participating in Skeena sockeye fisheries to provide sufficient information for managers to derive reliable estimates of the catch and discards of steelhead and other non-target species.* ***(Skeena Condition #3.2c).***	December 2011 (Catch monitoring framework	DFO will develop a program for monitoring the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate commercial harvest impacts. A catch monitoring framework will be developed by December, 2011.

Selective Fishing

Conditions 35c, 35d, 36b

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost (s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
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.	There were clear examples of decisions in 2006 that were not consistent with the information provided. Managers knew that there were selective fishing methods that could be used to reduce the impact of the sockeye fishery on steelhead but the management system chose not to require fishers to use these more selective fishing methods and the requirement for functional revival boxes on all gillnet vessels to increase the post-release survival of non-target species was not adequately enforced.	**Condition 35c** *Certification is conditional until the management agencies and the terminal gillnet fisheries demonstrate their commitment to implement selective fishing and handling techniques that have been shown to increase the post-release survival of non-target species.* ***(Skeena Condition #3.1c).***	March 2010 (Report to Certifier)	This challenge is expected to be a particular focus of Skeena watershed discussions. There has been extensive research over the last 15 years to evaluate selective harvest approaches. Many of these have been implemented, resulting in very significant changes to commercial fishing seasons, geographical areas fished, daylight only fisheries, changes to gillnet configurations and the length of sets. These programs will continue to be evaluated and implemented. Monitoring and compliance of the selective fishing practices is recognized as an essential component of the management of the Skeena gillnet fishery. A report will be provided to the Certifier by March, 2010 describing selective fishing measures and outcomes.

Comments, Condition 35c

While there has been extensive research about selective fishing techniques, much of it has not been peer reviewed. This was pointed out by the ISRP.

The Condition specifies that techniques be used that have been shown to increase the post-release survival of non-target species. There are no incentives the 2011 IFMP that would promote this.

Selective fishing techniques need to be scientifically reviewed and an estimate of their estimated relative benefits within the context of a fishery need to analyzed. This is not being proposed.

There are no new measures to ensure that the gillnet fleet complies with selective fishing measures in 2011. In fact, there is little discussion of selective fishing measures for GN's in the 2011 IFMP. Furthermore, the fishing plan does not specify when, and what, selective fishing measures will be employed in 2011.

A report has not been provided to the Certifier or public as stated in the Action Plan

New information on the lack of compliance and poor catch reporting has been provided in a recent J.O.Thomas report. This new information should be included in the audit.

DFO has not advanced any of the suggestions or ideas put forward in the PRFCC 2009 document, "Responsible Fishing in Pacific Region Salmon Fisheries". Nor has DFO followed their own Selective Fishing Policy which states that allocations should move from less to more selective fishing gears. In fact, DFO has agreed to abide by demands from GN's that limit allocation transfers to more selective in-river fisheries.

The Scoring Guideposts that scored less than 80;	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost(s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
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 socioeconomic 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.	The Team… found…. that the lack of any research plan for Skeena sockeye fisheries makes it impossible to assess whether the plan addresses concerns related to the impact of the fishery on the ecosystem, socioeconomic issues that result from the implementation of management plans, or if the research plan is responsive to changes in the fishery. The Core Stock Assessment Review for North and Central Coast salmon stocks and the ISRP process identify many of the key elements that should be included in a research plan for Skeena sockeye fisheries.	**Condition 35d** *Certification will be conditional until the management agency provides a research plan that addresses identified concerns related to the impact of the fishery on the ecosystem, with emphasis on non-target stocks (e.g. Skeena summer-run steelhead), and takes into consideration socioeconomic factors and anticipated changes to fisheries.* ***(Skeena Condition #3.1d).***	May 2012 (Research Plans Incorporated into IFMP)	In addition to the more generic response provided above, the Skeena Watershed Process will provide a forum to help meet this condition. A socio-economic review of Skeena salmon fisheries was released in late October 2008, and is currently being reviewed and will be used to inform the Skeena Watershed Process. A "habitat" subcommittee has been formed and as a first step has initiated a mapping project to be completed by the spring of 2009, intended as a public information tool on salmon habitat, land use and ecosystem factors. DFO will develop a program for monitoring the by-catch in Skeena sockeye fisheries including steelhead. Fishery impacts on steelhead have been estimated using a model jointly created by DFO and MOE, and reviewed by PSARC. The Skeena Independent Science Review commented on the model and expressed concern over the uncertainty in the model parameters. As recommended, DFO will work with MOE to review the utility of the model to estimate steelhead catch in the Skeena sockeye fisheries. Research plans will be incorporated into a revised IFMP for the Skeena fishery by May, 2012.

Comments, Condition 35d

Further work will be prepared for the 2012 audit

It should be noted that the Blewett/Nelson report cited by DFO has not been tabled at the Skeena Watershed Initiative

While a Habitat Sub-Committee has been formed. Its mandate does not include “fishery impacts on the ecosystem”.

The Scoring Guideposts that scored less than 80; (Red is Fail; Purple is a partial pass)	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost (s)	Condition Required by Assessment Team	Timeline	DFO Action Plan provides a detailed response outlining DFO's commitment to meet the Conditions.
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.	The Team found that the uncertainties related to the capture and discard rates for non-target species in Skeena sockeye fisheries make it virtually impossible to determine trends in these rates. The continuing resistance to the use of short nets and short sets or tangle tooth nets in the Skeena sockeye gillnet fishery is strong evidence that this fishery is not conducted in a manner that is consistent with the goal of reducing the catch of nontarget species.	**Condition 36b** *Certification will be conditional until there is a clear commitment from the management agency and fishers to identify and implement selective fishing techniques that are consistent with the goal of reducing the catch of non-target species, especially steelhead.* ***(Skeena Condition #3.2b).***	December 2010 Report to Certifier	There has been extensive research over the last 15 years to evaluate selective harvest approaches. Many of these have been implemented, resulting in very significant changes to commercial fishing seasons, geographical areas fished, daylight only fisheries, changes to gillnet configurations and the length of sets. These programs will continue to be evaluated and implemented. Monitoring and compliance of the selective fishing practices is recognized as an essential component of the management of the Skeena gillnet fishery. A report will be provided to the Certifier by December, 2010 describing selective fishing measures and outcomes.

Comments, Condition 36b

There is little evidence that the points raised in the AT's rational for not passing the 80 SG have been addressed in any meaningful way by DFO.

The 2011 IFMP does not call for any changes that would:

reduce uncertainties related to the capture and discard rates for non-target species in Skeena sockeye fisheries

or

That there have been any changes that would suggest that, "continuing resistance to the use of short nets and short sets or tangle tooth nets in the Skeena sockeye gillnet fishery is strong evidence that this fishery is not conducted in a manner that is consistent with the goal of reducing the catch of nontarget species" has been addressed.

The 2011 IFMP has made no improvements in catch or compliance monitoring

The 2011 IFMP does not require "short nets-short sets" be employed.

Finally, the 2011 IFMP does not provide any incentives to encourage fishers to move to more selective gear or become more compliant.

The recent J.O. Thomas report emphasis that the 80 SG has not been met. There is no indication in the 2011 IFMP that DFO has made any effort to address the identified failings

There are no measures being proposed in 2011 that would allow for scientifically defensible estimates of compliance.

Meeting this Condition requires a "measure" of compliance. There is no fishery independent measure of compliance being proposed for 2011.

Nass Target Stocks

Conditions 15, 16

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline for implementation	DFO's Commitments in Action Plan
• Estimates are available for the annual escapement of each target stock harvested in the fishery.	The Team found that reliable escapement estimates are computed for the aggregate sockeye return to the Nass River and the Meziadin sockeye stock. Annual estimates are not available in recent years for most of the smaller sockeye stocks (e.g. Bowser, Damdochax, Kwinageese), therefore, the first scoring guidepost at the 80 SG was not met. The escapement of these stocks could be readily estimated using DNA samples obtained from the Lower Nass fishwheels.	**Condition 15** Certification will be conditional until annual escapement estimates are computed for each of the Nass sockeye stocks targeted in the fisheries for Nass sockeye, within one year (**Nass Condition #1.1**	**July 2010** as per Action Plan **July, 2011** Required by Condition	DFO will use the current core stock assessment program to develop and implement a plan for monitoring the escapement of sockeye stocks targeted in fisheries. DFO intends to continue monitoring escapements to the dominant Meziadin stock using direct counts at the fishway. For the other lake rearing stocks (Fred Wright, Damdochax, Bowser), an escapement monitoring program will be developed in cooperation with the FN interests in the watershed and may include direct visual escapement surveys, stock specific escapement estimates derived from Nisga'a fishwheel DNA analysis, scale pattern analysis from Nisga'a fishwheel biological samples, and/or hydroacoustic lake surveys to assess juvenile abundance as an indirect measure of spawning success. Stream-type sockeye stocks comprise a small component of the Nass aggregate sockeye stock and currently two systems are monitored by FNs for escapements using visual survey methods (Brown Bear and Gingit). DFO intends to continue to support these programs and as part of the overall Nass escapement monitoring plan will examine the feasibility of using fishwheel DNA analysis to develop annual estimates of the streamtype sockeye stocks (these are a single CU under the WSP). A technical workshop will be convened in 2009 to develop an overall Nass escapement monitoring plan. The resulting monitoring plan will be provided to the Certifier by December, 2010.
		Comments		**Unclear whether Report has been prepared and submitted to Certifier.** **Unclear as why DFO doesn't follow the AT's recommendation to use DNA samples from fishwheels.**

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
There is some scientific basis for the LRP's for target stocks and these LRP's are defined to protect the stocks harvested by the fisheries	The Team found that LRP's have been defined for the aggregate sockeye return to the Nass River and the Meziadin sockeye stock. LRP's have not been defined for any of the smaller sockeye stocks (e.g. Bowser, Damdochax, Kwinageese), therefore, the first scoring guidepost at the 80 SG was only partially met	**Condition 16** Certification will be conditional until LRP's have been defined for each of the Nass sockeye stocks targeted in the fisheries for Nass sockeye, within two years **Comments** **The AT concluded at the time of Certification that ,** "There are no depleted target stocks. In years when returns of Nass sockeye are small or returns of other salmon species are less than escapement goals, appropriate management actions were taken to reduce harvest pressure. Escapements have been consistently above LRP for Nass sockeye since 1982 despite large variations in annual returns" **There is new information which challenges this conclusion and should be addressed in the audit**	December, 2011 As per Action Plan July 2012. as per Condition	In addition to the development and implementation of an overall Nass sockeye escapement monitoring plan described above and consistent with the regional approach and schedule for LRP development, DFO will work cooperatively with the First Nation interests in the watershed to develop Nass sockeye LRP's. Initially the discussions are expected to focus on the existing lake productivity assessments (to indicate capacity) for non-Meziadin sockeye stocks, and stock recruit analysis for Meziadin. Nass LRPs will be defined and reviewed by PSARC by December, 2011.

Bycatch and Discards

Condition 23

The 80 Scoring Guideposts that Failed to Pass	Assessment Team's Rational For Not Passing the 80 Scoring Guidepost	MSC Condition	Timeline	DFO's Commitments in Action Plan
The management system has a reasonable (>60%) probability of achieving long-term recovery of depleted non-target stocks Escapement goals will be revised periodically to accommodate new data indicating success or failure of existing recovery plans. The management system considers the impact of non-fishing related human activity in the development of recovery plans for non-target stocks	We have been provided with ample evidence of major depletion of Nass chum salmon stocks that are intercepted in the marine fisheries for sockeye salmon and may be harvested in the inshore fisheries. There is no obvious process or a recovery plan for these chum stocks that limits the impact of fisheries on their harvest. There needs to be a process in place where any depleted non-target species will require a recovery plan with a reasonable chance of success. Without a risk analysis or other process that identifies the relative risk to the chum salmon (or other non-target stocks) of the existing fishery, the sustainability of these non-target stocks cannot be assured	**Condition 23** Certification of the Nass sockeye salmon fishery is contingent upon developing and implementing a recovery plan for chum salmon stocks that are below the LRP and that spawn in the Nass or its tributaries. Such a plan must have clear procedures to determine the impact of the existing fishery management system on these stocks and provide for decreasing incidental harvest rates on chum salmon, if harvest pressure is found to have significant risks to chum recovery. To be completed within 2 years.	**Dec, 2011** as per Action Plan for LRPs Unclear timeline for reduction in harvest impacts although they were to begin in 2009 July, 2012 in Condition	See Next Slide
		Comments After Next Slide		.

DFO Response to Condition 16 in Action Plan

DFO will work cooperatively with the FN interests in the area to develop a chum rebuilding plan for Area 3 chum included chum spawning in the Nass River and its tributaries.

Chum rebuilding has been an ongoing concern for DFO and significant changes have been made to the Nass area gillnet and seine fisheries over the past several decades. Time and area closures are the primary method used to reduce chum interceptions in fisheries directed at sockeye and pink salmon. Retention of chum salmon was not permitted by seines in Area 3 in 2009 and gillnet fisheries are currently requested to release live chum. More stringent measures for chum are under consideration, as most chum encountered by gillnets are currently retained. An important point is that the majority of the chum
encountered in the Area 3 fishery does not originate from Area 3 which complicates management of the fishery. DFO, with contributions from Alaska has developed an extensive chum DNA baseline for North Central BC and some coverage for SE Alaska.

We are currently analyzing Canadian Area 3 and 4 commercial fishery samples to better understand the harvest impacts on Area 3 chum. There is a linkage between the fisheries impacts on Nass and Skeena chum, and the Nass and Skeena rebuilding planning processes will need to be coordinated.

The primary objective of a Nass Area rebuilding plan for chum is to halt the decline in chum abundance and ensure the aggregate escapement for each of the three Wild Salmon Policy conservation units (Portland Canal-Observatory, Portland Inlet, and Lower Nass) are in the amber zone or higher. To achieve this objective, non-retention regulations for chum are being considered for all Area 3 fisheries. Monitoring and compliance of these release fisheries will be an important component of the rebuilding plan for chum.

A Nass Area chum rebuilding plan will include a stock monitoring plan to evaluate rebuilding against goals. The Nisga'a Fisheries Program continues to monitor escapements of chum salmon to the lower Nass River using fishwheels, escapements to the Kincolith River, and conducted a pilot chum telemetry study in the lower Nass in 2008, as a first step towards better understanding the timing and habitat uses of specific lower Nass chum stocks. DFO monitors the escapement of chum salmon to Area 3 streams using visual surveys and will use the core stock assessment program to guide future chum escapement monitoring.

The development of escapement benchmarks (LRP) for the Area 3 chum aggregates in each conservation unit will be an important aspect of a chum re-building strategy. Analytical approaches to determining LRPs for chum are not well developed and much work needs to be done in this area. In the meantime, DFO will identify interim benchmark LRPs and rebuilding targets for Nass Area 3 chum. In 2010, the Nass Joint Fisheries Management Committee will review the current Nisga'a Treaty escapement goals for Nass Area chum and align those with the requirements of the Wild Salmon Policy. In addition, it is important to note that, although the Kincolith CEDP hatchery does provide some small-scale enhancement of Kincolith River chum, large-scale enhancement is not proposed at this time as part of the chum rebuilding plan. Should harvest restrictions be found to not be sufficient to enable Area 3 chum stocks to be sustained in the amber or higher zone, DFO will review the role enhancement and other habitat-related measures might play at that time. In addition, should scientifically sound enhancement or habitat restoration opportunities be identified for Area 3 chum in the future, these will be reviewed by DFO.

LRPs will be developed for Nass chum populations and provided for PSARC review by December, 2011.

Additional measures to reduce the Nass sockeye fishery impacts on Nass chum were incorporated in to the 2009 IFMP.

Comments to Condition 23

DFO has little action in the 2011 to reduce harvest impacts on chum salmon. They will not fishery independent catch validation that would provide scientifically defensible estimates of chum discards. They will not have comprehensive monitoring in place for gillnet and seine fisheries in 2011. They also not introduced mechanisms that would ensure that compliance will improve. DFO has no scientifically defensible estimates of post-release mortalities, no is there any research plan in place to assess post-release mortalities. And, there are no incentives in place to ensure better compliance.

DFO will have non-retention of chums for gillnets in 2011. The result will be that the reasonably accurate estimates of chum bycatch they had in past years will now disappear. Hence, DFO's ability to determine harvest impacts will be further limited.

DFO has not responded to the information provided in the recent J.O.Thomas report that indicates that Area 3 fisheries have very poor performance in terms of catch reporting and compliance. The J.O.Thomas reports warns that as more light is shone on the chum problem, catch reporting will likely decrease, similar to what has occurred with steelhead. The result will be that the numbers that DFO will report in the future will significantly under report the actual harvest impacts on chum salmon returning to the Nass.

DFO has not incorporated any of the concerns expressed in the stakeholder response to the pink PCDR . Stakeholders pointed out severe catch reporting and compliance issues in Nass River pink salmon fisheries. There is no reason to believe that similar problems don't exist in sockeye fisheries. In the last significant seine fishery in the Nass (2009), DFO has provided graphs showing substantial under reporting of discards by the seine fleet.

It is therefore evident that DFO does not have, "clear procedures to determine the impact of the existing fishery management system on these stocks and provide for decreasing incidental harvest rates on chum salmon" as required by the Condition. DFO has not put fishery independent catch reporting in place that would provide a scientifically defensible estimation of discards, there will not be comprehensive monitoring in place, there are no incentives or mechanisms to improve compliance, and finally, there are no scientifically defensible estimates of post-release mortality in Area 3 fisheries that are incorporated into stock assessments or the IFMP.

In their Action Plan DFO bizarrely states that most of the chum intercepted in Area 3 are not returning to Area 3 streams. A large proportion is, however, returning to other northern BC areas where, DFO acknowledges, chums are also depleted.

DFO says in their response that, "Monitoring and compliance of these release fisheries will be an important component of the rebuilding plan for chum". However, there is no evidence of improved monitoring and compliance in the 2011 IFMP.

In summary, there has been no progress towards meeting this condition. DFO states in their Action Plan that measures to reduce harvest impacts would begin in 2009. There were some boundary changes, but other that this, there has been little progress up to, and including, the 2011 IFMP.