

To  
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From  
De

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Pacific

Subject  
Object

**LEGAL LISTING DECISION MATERIALS**

Security Classification - Classification de sécurité <b>UNCLASSIFIED</b>
Our file - Notre référence
Your File - Votre référence
Date <b>August 20, 2004</b>

Please find attached eight documents that constitute the Pacific Region's contribution to the upcoming decision on legally listing of nine Pacific aquatic species.

Though this is the best available information at this time, please note that at the time of this writing the estimates of impacts on the fisheries are being refined to better reflect a range of incremental effects of legal listing on various harvesting scenarios. The incremental effects of listing hinge to a large degree on the the ability to issue incidental harm permits under s.73 of the Act in any given year for each listed population.

Please distribute this information to the appropriate sector at headquarters.

Paul Macgillivray

Attachments:

Analysis of the Benefits, Impacts and Other Considerations of Nine Pacific Aquatic Species  
SARA Listing Summary – Sakinaw Lake Sockeye  
SARA Listing Summary – Cultus Lake Sockeye  
SARA Listing Summary – Speckled Dace  
SARA Listing Summary – Salish Sucker  
SARA Listing Summary – Sticklebacks (2)  
SARA Listing Summary – Whales (3)  
The Economic Importance of Fraser River Sockeye for Commercial & Recreational Harvesters, Processors and Coastal Communities

cc: J. C. Davis  
Mel Kotyk  
Don Lawseth



DFO-04202[00-01]

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**ANALYSIS OF THE BENEFITS, IMPACTS AND  
OTHER CONSIDERATIONS OF LISTING NINE  
PACIFIC AQUATIC SPECIES**

**To Assist in Developing a Regulatory Impact Analysis  
Statement for Legal Listing under the Federal Species at  
Risk Act**

**Fisheries & Oceans Canada  
Pacific Region  
August 2004**

## **BACKGROUND AND PURPOSE**

### **Background**

The Minister of the Environment, in consultation with the Minister of Fisheries and Oceans, is proposing to add species to Schedule 1, the *List of Wildlife Species at Risk*, of the *Species at Risk Act* (SARA). SARA protects wildlife species listed in Schedule 1 and provides for their recovery. This legislation was enacted in December 2002, after extensive consultation with the provincial and territorial governments, aboriginal groups, environmental organizations, industry, and the general public. SARA provides a mechanism for identifying species at risk, planning for their recovery, and providing penalties for contravention of prohibitions.

SARA complements provincial and territorial legislation as well as existing federal legislation; e.g., the *Fisheries Act*, the *Migratory Birds Convention Act, 1994*, the *Wild Animal and Plant Protection and Regulation of International and Inter-provincial Trade Act*, the *Canada Wildlife Act*, the *Canada National Parks Act*, and the *Canadian Environmental Assessment Act*.

SARA allows the Minister of Fisheries and Oceans to enter into agreements with individuals, provinces and territories, wildlife management boards and others to develop, implement and monitor recovery strategies, action plans and management plans. Recovery strategies and action plans are required elements for the recovery of extirpated, endangered and threatened species. Management plans are required for the conservation of species of special concern. In addition, stewardship and conservation agreements can be developed and implemented for protection of species and their residences.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has provided independent scientific advice to governments on the status of wildlife species in Canada since 1977. SARA establishes COSEWIC as an independent scientific advisory body assigned to provide advice on the risk status of species in Canada. COSEWIC met in November 2002 and May 2003 and designated nationally sixteen aquatic mammals, fish and molluscs. Of these sixteen, nine reside in the Pacific Region.

### **Purpose and Structure of the Assessment for Listing**

This document is designed to assist government in deciding whether to add the nine Pacific aquatic species designated by COSEWIC as endangered or threatened to Schedule 1 of SARA, thereby providing legal protection to those species. This document will be used to develop a Regulatory Impact Assessment Statement that informs Cabinet of the benefits and impacts of enacting an order to list each species.

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The content provides considerations for listing and a description of the consultations held with Canadians to arrive at informed recommendations. The listing considerations section provides information on the benefits and impacts common to all nine species, and an analysis of considerations for making a decision. Other considerations include: the quality and completeness of the science supporting COSEWIC's designation; specific benefits of listing each species; costs and negative impacts of listing each species; and other considerations, such as the probability of success in recovering the species, costs to government, political and inter-governmental considerations. The species-specific assessments also summarize positions of key stakeholders and provide listing options with considerations for each option.

### **Species Currently Under Consideration for Legal Listing**

Of the nine aquatic species in the Pacific Region up for consideration, three are marine mammals: the Pacific population of blue whales (EN); the Pacific population of sei whales (EN); and the North-pacific population of humpback whales (TH). Each of these species is currently protected under the *Marine Mammal Regulations* made pursuant to the *Fisheries Act*, but no specific recovery actions are yet underway.

Six species of fish found in the Pacific Region have been assessed by COSEWIC as endangered, threatened or of special concern. These are: Cultus Lake sockeye salmon (EN); Sakinaw Lake sockeye salmon (EN); Enos Lake stickleback "benthic" (EN); the Enos Lake Stickleback "limnetic" (EN); salish sucker (EN); and speckled dace (EN).

## **LISTING CONSIDERATIONS**

Adding species to Schedule 1 of SARA will in most cases entail both benefits and costs in terms of social, economic, biodiversity and environmental concerns. Some can be quantified in absolute terms (measurable in dollars or other metrics, such as biomass), while others are more qualitative. It is important to outline these benefits and costs in order to gain an understanding of the potential positive and negative impacts that listing these species will have on Aboriginal groups, industry, governments, and the general public. Once a species is listed on schedule 1 of the Act, the risk designation can only be changed by the Minister of Environment making a recommendation that is based on a COSEWIC assessment. Once on the legal list automatic prohibitions to protect the species come into effect and it is illegal to jeopardize recovery or survival of the species even through agreements and permits.

### **Common Benefits**

The Species at Risk Act states, in part, that "Canada's natural heritage is an integral part of our national identity and history, wildlife, in all its forms, has value in and of itself and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons..."

Preserving ecosystems and biodiversity (see Appendix for a description of the value of biodiversity) is an important way to protect the endangered species within them, as well

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as preventing other species from becoming endangered. The reverse is also true: by protecting endangered species, we prevent the breakdown of the ecosystems in which we live. The addition of these species to the legal list will protect not only the individuals but their residences, habitat and, by extension, the larger ecosystem of which they are a part.

The Act requires that recovery strategies, action plans, and/or management plans are developed for each Schedule 1 species. While the status reports that are initially prepared in order to assess levels of risk are an important beginning, the further step of listing will ensure that officially sanctioned scientific study continues to the benefit of the species and its environment.

Legal listing of some species may have several economic benefits (aesthetic, ecological, educational, historical, recreational, and scientific value). For example, the recreational field of eco-tourism is an expanding business area. Increased opportunities for wildlife viewing should translate into more people making viewing trips, either as excursions or destination travel.

### **Common Costs**

Costs common of adding any species to Schedule 1 may include reduced revenue from consumption, either directly (reduced harvest of listed species) or indirectly (impact on fisheries in which listed species are by-catch). Reduced harvesting costs or fishing opportunities may extend to secondary industries such as the processing sector, the boat, tackle and gear manufacturers and tourism industries. Costs may also arise from the protection of habitat critical to the species through economic restrictions to land development and agriculture, forest and mining industries. Restrictions to the electric industry by the prevention or curtailment of power development projects may have economic consequences.

Direct costs to government of adding species to Schedule 1 include the ongoing expense of promoting compliance and enforcement, and stakeholder consultations. Section 93 of the Act provides citizens the opportunity to request an investigation, and later sections prescribe timelines for Ministerial response. The cost to government of administering these sections may be significant. There are also significant costs associated with developing and implementing recovery strategies, action plans and management plans. Indirect costs may include the loss of tax and royalty income if listing negatively impacts economic activity, and an increase in social benefit payments to affected individuals.

First Nations may be exposed to loss of some food, social or ceremonial harvesting of listed species or those caught incidentally in the harvest of co-migrating non-listed species. First Nations may also face reduced economic development opportunities through reductions in commercial harvesting or the use of land for economic development.

It should be noted that prior to the implementation of any action that would affect stakeholders' access, economic or environmental interests, the Minister will be required to consult with any landowners, lessees, and other persons directly affected or interested.

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## **SPECIES-SPECIFIC LISTING CONSIDERATIONS**

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## **SOCKEYE SALMON (Sakinaw Lake population)**

Sakinaw Lake is the largest lake on the Sechelt Peninsula, in south-western British Columbia. Most juvenile Sakinaw sockeye rear for one year in the lake before migrating to sea and return to and spawn on beaches at age four.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- The Sakinaw population has unique genetic and biological characteristics (early river-entry timing, protracted lake residency before spawning, small adult size, low fecundity, large smolts).
- Sakinaw Lake is one of about 220 lakes with anadromous sockeye populations in British Columbia, but one of only two sockeye populations remaining within the Strait of Georgia, excluding the Fraser River (total of 13 lakes with sockeye along east coast of Vancouver Island and the southern BC mainland).
- The loss to biodiversity of this one population would be small but irreplaceable; experience with re-introduction of sockeye salmon demonstrates a very low success rate.
- Further, Sakinaw is an example of about 130 coastal lakes in BC with small sockeye populations; in total these populations comprise a significant portion of the biodiversity as genetic differences are greatest between lake systems in sockeye salmon.
- The population is designated by COSEWIC as Endangered under criterion A (reduction was at least 87% over 3 generations) due to rapid declines, and other criteria identifying small populations as at risk.
- Only 44 adults and three adults returned in 2002 and 2003 respectively, and fewer than 290 individuals returned during the last generation (totalled over four years). Impacts from fishing, migration impediments, predation, habitat degradation and water usage could result in extinction.
- Mixed stock fishing was significantly reduced in 1998, and DFO has recently assigned a Recovery Team to develop a recovery strategy and co-ordinate restoration.
- The median forecast of Sakinaw sockeye is 390 fish in 2004 (the return to Canada prior to any mortality) which is less than the viable population target of 500 sockeye currently identified as a minimum by the Recovery Team in the draft Recovery Strategy.
- Hypothetical modeling indicates that even the absence of fishing, there is a less than a 1-in-4 chance of meeting a 500 (the minimum viable population) spawner escapement target in 2004.
- Although survival and recovery of the population are possible according to the Pacific Scientific Advice Review Committee (PSARC), and this may not be until 2017, according to the draft recovery strategy, strong protection and recovery measures, such as a reduction in fishing mortality, and improvement in habitat and protection of broodstock, will be required.

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### **QUALITY OF ASSESSMENT**

- The original Status Report, prepared by DFO scientists, is considered to contain all the relevant information.
- A recent Pacific Scientific Advice Review Committee (PSARC) assessment, based on comprehensive, updated information, confirms that the population of Sakinaw Lake salmon is extremely low relative to historical levels.
- The assessment also confirms that the population is at significant risk of extinction, but the PSARC Sub-Committee concluded there is scope for recovery, though the draft recovery strategy states that it may take several generations.
- In October, 2002, COSEWIC conducted an emergency assessment and designated the population as endangered.
- Management measures and an Action Plan for 2004 and beyond should increase chances of recovery.
- The population status information is good, thus there is little uncertainty;
- The assessment is for a population of sockeye, not for the taxonomic species as a whole.
- This population is genetically and biologically distinct, shows distinct, adaptive characteristics, and is geographically distinct, all consistent with SARA definitions of a wildlife species. It would also qualify as an evolutionarily significant unit (ESU), under the Endangered Species Act (ESA) in the USA.

### **POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING SAKINAW SOCKEYE POPULATION**

In addition to the 'Common Benefits' described earlier there are other benefits related to Sakinaw:

- legal protection could prevent extinction of the remaining non-Fraser River sockeye population in the southern Strait of Georgia. This would protect its intrinsic value for appreciation and sustainable use by future generations, and to maintain its role in the Sakinaw Lake ecosystem;
- would signal Canada's obligations under the Biodiversity Convention;
- assure Canadians government is committed to protecting species at risk;
- the Sechelt Indian Band considers this population to be culturally important because of its historic role in meeting food, social and ceremonial (FSC) needs;
- adult sockeye salmon import marine-derived nutrients to Sakinaw Lake, contributing to the productivity and complexity of the Sakinaw ecosystem both as juveniles and adults;
- measures targeted at reducing harvest rates may also protect other Fraser River populations with similar run timing. This could, over the longer term, increase harvest opportunities on non-threatened stocks in terminal areas;
- management measures targeted at habitat and stewardship activities may generate both direct and indirect benefits. For example, watershed protection,

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habitat repair and enhancement may improve the quality of water supplies for local consumption, and increase recreational opportunities for residents and visitors;

- listing this population, and the resulting recovery efforts, could help support initiatives to certify BC salmon fisheries under the Marine Stewardship Council, as one of the MSC criteria examines impacts on co-migrating stocks.

**POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LEGALLY LISTING  
SAKINAW SOCKEYE POPULATION**

In addition to the Common Costs described in an earlier section, there are potential costs specific to the Sakinaw sockeye population:

- fishery restrictions are necessary, primarily in the Johnstone and Georgia strait mixed-stock fisheries, since there are no selective fishing measures at this time that would allow the commercial harvest of other populations and leave Sakinaw sockeye unharmed;
- the impacts will be borne by the commercial harvesting sector (58%), processing sector (42%) and recreational sector (less than 1%);
- this may be offset to a limited extent by increased harvest in more terminal areas under new allocations rules;
- additional protective measures applied to mixed stock fisheries will compound an already difficult situation for the industry. During periods of greater abundance (2005 and 2006) restrictions on harvest rates may not be as significant but financial impacts will be magnified.

**Commercial Harvest Sector:**

**\*Note: at the date of this writing, August 20, 2004, the following estimates of impacts on the fisheries are being refined to better reflect a range of incremental effects of legal listing on various harvesting scenarios. The incremental effect of listing hinges to a large degree on the likelihood of the ability to issue incidental harm permits under s.73 of the Act in any given year.**

- Fraser River sockeye provide an estimated 75%-80% of the total landed value in the commercial fishing management areas B, D, E and H.
- 2004 is a low cycle year with an estimated base Fraser sockeye total allowable catch (TAC) of 0.8 million sockeye pieces <sup>1</sup> attributed to Sakinaw and an associated fishing industry gross revenue value of \$8.5 million.<sup>3</sup>
- Restrictions applied to mixed stock fisheries to protect the Sakinaw populations (before legal listing) are anticipated to reduce the 2004 Fraser River commercial

<sup>1</sup> All Fraser River sockeye catch estimates also include co-migratory sockeye stocks, such as all non-Fraser sockeye which are bound for Johnstone Strait and upper Gulf of Georgia.

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harvest by about 0.4 million sockeye. This reduction in harvest is worth about \$4.3 M in foregone revenue to the overall industry.

- Magnitude of foregone revenue will increase in high cycle years. This is illustrated in Table 1 where foregone gross revenue jumps dramatically to \$15.4M and \$23.9 M for 2005 and 2006 respectively and is predicted to be about \$47M over four years (2004-2007).
- These four areas consist of 1,012 eligible salmon licences, which are owned and operated by 906 licence holders. Almost 50% of licence holders relied on Fraser River sockeye for less than 25% of their fishing income in 2003; the majority had fishing incomes of more than \$30,000.
- These foregone revenues represent the difference between the fishing regime before the COSEWIC listing and the currently proposed fishing plan for 2004, which results from the emergency listing proposal.
- If the population status continues to decline, increased fishery closures in Johnstone Strait and increasingly stringent habitat measures would likely be necessary to continue to provide protection for Sakinaw.
- Impacts may be moderately reduced from table 1 if new and creative fishing arrangements can be struck. This might be achieved by implementing allocation transfers between existing licence areas (i.e. by having Area X or X fish for Area X once Sakinaw start to their migration). This would require resolution of significant policy and social issues.

Table 1 Estimated Foregone Revenues Associated with Mixed Stock Fishery Restrictions to Protect Sakinaw Sockeye Populations for the Harvesting Sector

Year	Base Anticipated Catch Fraser River sockeye (Millions)**	Revenue Value (\$ Millions)	Implement Measures to Protect Sakinaw *
			Foregone Revenue (\$ Millions)
2004	0.8	\$8.5	\$4.3
2005	2.7	\$29.9	\$15.4
2006	3.9	\$42.7	\$23.9
2007	0.6	\$6.4	\$3.8

\* The estimated foregone revenue is based primarily on the loss of harvesting other non-Sakinaw co-migrating sockeye stocks. The loss of harvest of Sakinaw sockeye is very minimal.

\*\* Total allowable catch (TAC) for the 2005, 2006, and 2007 are for the Sakinaw portion (for purposes of calculation) of the entire Fraser River sockeye fishery – to calculate total TAC, add these figures to those in the Cultus table. These estimates are subject to change, due to climate change, marine survival rate, habitat conditions. DFO Fisheries Management and historic price analysis.

#### Processing Sector

- The processing sector is predicted face an economic loss of about \$34M in addition to, and during the same four years, as the harvesting sector estimates above.

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- This sector will continue to suffer, as 2004 is anticipated to be the tenth consecutive year that economic returns have been negative. There are 103 wild salmon processing plants across BC. However, it is anticipated that only those in the following geographic areas will be significantly affected: North Vancouver Island, Mid Vancouver Island, South Vancouver Island, Victoria & outlying areas, Sunshine Coast, and Vancouver & outlying areas. These 6 geographic areas account for 75% (77 plants, 13 of which process only wild salmon) of the entire wild salmon processing plants in B.C. which provide an estimated 1,141 to 1,205 person years of employment. Seafood processing (including wild salmon) accounts for nearly 20% of the value of food manufacturing activity in the province.

#### Social and Community Impacts

- Over the last 4 years the sockeye fishery has provided an estimated 75-80% of the total southern landed value in the following anticipated impact salmon management areas: B, D, E, H of the harvesting sector.
- Coastal communities, especially on the north-east coast of Vancouver Island are heavily dependent on fishing harvest revenue for economic revenue generation. For example, the percent of basic and non-basic income fishing dependence in the following regions are: Port Hardy (4%, fourth most important industry), Port McNeil (4%, fourth most important industry) Alert Bay (15%, second most important industry)<sup>4</sup>.
- The majority of the impacts (total number of people affected) are expected to be realized in the Vancouver-Lower Mainland region. However, the coastal communities identified are anticipated to be hardest hit due to heavy dependence on the salmon harvest for income and employment within their local economies.
- Impacts to these communities will include direct revenue and jobs, indirect impacts through supporting business and decreased tax revenues.
- To a lesser extent other communities in the southern coastal area will be affected. Communities on mid-Vancouver Island including Sayward, Campbell River, Quadra Island and areas, Comox-Courtenay, Qualicum Beach, Parksville, Nanaimo and other East Coast communities, which have less than 1% dependency on the commercial fishing industry.
- Protection and recovery of Sakinaw populations will also inhibit human settlement and other economic development initiatives. See impact analysis below.

#### First Nations FSC Fisheries

##### *Marine and Approach Areas North of Sunshine Coast*

- Nature of Impact: It is anticipated that fisheries access to certain stock groupings may be limited by time restrictions. It is also anticipated that FSC allocations can still be reached by providing access to other stocks,

<sup>4</sup> Source: BC Stats, "2001 Economic Dependencies and Impact Ratios for 63 local Areas."

<sup>7</sup> All Fraser River sockeye catch estimates also include co-migratory sockeye stocks, such as all non-Fraser sockeye which are bound for Johnstone Strait and upper Gulf of Georgia.

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however, this may not be consistent with the First Nations preferred fishing locations and/or time.

#### *Local Area*

- **Nature of Impact:** In the terminal area, the Sechelt First Nation supports listing and understand the implications on harvesting in the area. Other impacts: The Sechelt Band may own property at or near Sakinaw Lake, the development of which may be affected by listing of Sakinaw Lake sockeye.

#### Tourism and recreational

- **Nature of Impact** - There are five key beaches identified as critical spawning areas for the Sakinaw Lake sockeye. Because of the importance of beach spawning habitat to this population, these areas must be protected preventing any further degradation. Currently efforts to protect lake foreshore and development are provided in the Pender Harbour Official Community Plan.

#### Land use and development

- **Nature of Impact:** The outlet stream of Sakinaw Lake is important habitat. This short stream is used by smolts en route to the sea, and pre-spawning adults when they return to Sakinaw Lake. Access to the lake has been a problem for pre-spawners for many years and remains a problem because of low summer flows and high water temperatures. DFO has applied to the Province of BC for a water storage licence to legalize the existing water storage associated with the Sakinaw Lake Dam. There may be potential legal liabilities for DFO if there is damage to residences and docks associated with adjusting lake storage levels. There may also be limits to lowering the lake as specified under sections of the Navigable Waters Protection Act (NWPA). Future developments on or around Sakinaw Lake area will need to be reviewed by DFO to ensure they will not adversely affect water levels.

#### Forestry

- **Nature of Impact:** There may be an impact on logging – currently taking place on private property near an outlet stream - should DFO determine that water flows are being affected.

#### Agriculture

- **Nature of Impact:** Agricultural activity is limited, mainly in the form of greenhouses.

#### Mining

- **Nature of Impact:** There has been no gravel mining in the watershed to date. However, a recent application has been received for gravel extraction within the watershed. DFO would need to review this issue for impacts to water levels in Sakinaw Lake.

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### Aquaculture

- **Nature of Impact:** There are currently no aquaculture sites in the proximity of the outmigrating sockeye. DFO would have to review applications for any aquaculture sites in the Sakinaw Lake area to ensure there were no barriers to migrating sockeye smolts.

## **OTHER CONSIDERATIONS**

### Probability of Success for the Sakinaw Sockeye Population

- The probability of recovery is currently viewed as greater than the probability of extinction.
- A recent PSARC working paper indicated that recovery is possible, but the (draft) Sakinaw sockeye recovery strategy identifies the year 2017 as a biologically feasible timeframe for achieving a spawning abundance at which the population could be down-listed to “special concern” status.
- Spawner returns in 2004, and to a larger degree in 2005, will provide an indication of ocean survival, and therefore will lend more certainty to the probability of recovery feasibility.
- Spawning and rearing habitat for Sakinaw sockeye is generally good; spawning beds are in relatively good shape following restoration activities. Impositions from settlement will need to be monitored carefully, but are currently not impediments to recovery.
- The 2005 spawner return may be the last chance at recovery, as most other recent brood years have yielded poorly.
- Long-term declines in productivity on sockeye are predicted from effects climate change and ocean conditions which may hamper recovery success.

### Benefits for Other Species/Populations

- Strong protection and recovery efforts for this population would have benefits for other weak sockeye and salmon populations, such as Phillips and Heydon in Johnstone Strait, which co-migrate with Sakinaw sockeye.
- Protection would extend to Village Bay Lake sockeye on Quadra Island, the only other documented sockeye population in the Strait of Georgia, which appears to have similar run timing, vulnerability and poor status as the Sakinaw population.
- Provides a benchmark for the other 10-20 sockeye species that are potentially at risk.

### Costs to Government of Enforcement and Related Protection Measures

- Incremental fishery management costs for enforcement and fishery management following listing is expected to increase. Harvesting will change from larger aggregate marine fisheries to areas closer to spawning grounds where stocks can be harvested separately; this is expected to increase the cost of managing fisheries.
- Enforcement costs are expected to increase with requirements to protect the species and through the need to respond to requests for investigations.

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- Costs for recovery measures, such as broodstock collection, habitat improvement, monitoring and science, are potentially substantial (e.g., \$250K per year based on 2004, though a portion will be spent on one-time capital expenditures). Costs may increase if population continues to decline.
- Litigation costs are anticipated if legal challenges from environmental and Aboriginal groups proceed.

#### Political Risks

- The parties interested in this population have highly-polarized positions and any decision will create controversy.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on fishing, logging, land development and recreational or tourism opportunity.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.

### **POSITIONS OF STAKEHOLDERS**

- The potential legal listing of the two sockeye populations received written comment from one-half of those who replied during consultation, with nearly every respondent opposed to the legal listing of Sakinaw sockeye.
- Some aboriginal fishery stakeholders are largely opposed to this listing, but others, like Sechelt Band members, are very supportive.
- Most commercial fishery stakeholders strongly oppose this listing, believing that fisheries should not be managed to the exclusion of other factors. They are concerned about effects of aquaculture, and the need for predator control around the lake estuary.
- A low level of opposition from recreational fishery stakeholders is anticipated. Sockeye non-retention has been a feature of the recreational fishery in Johnstone Strait, Queen Charlotte Strait and Georgia Strait almost annually since the mid-

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1990's. While this has been implemented primarily in early July (and the Sakinaw listing would require a closure until mid-August), the primary species for this area is chinook and coho. The expectation is that if the commercial fleet was provided an opportunity to fish for sockeye, then the recreational fishery would also be provided an opportunity.

- Environmental and stewardship groups strongly support this listing, and may be expected to initiate litigation if this population is not listed.

## **OPTIONS**

### **Option 1 - Do Not List**

- PSARC recently concluded that recovery is possible; a draft recovery strategy states that this may be possible by 2017. However, the probability of success is currently unknown beyond the scientific opinion that recovery is more likely than extinction (2005 may be the last opportunity to recover this population, as other recent brood years have yielded poorly).
- Allows more flexibility for working with stakeholders on protection and recovery measures under the Fisheries Act, and to potentially move back toward a fishing regime somewhere between pre-COSEWIC listing and the current stringent measures if recovery emerges as unfeasible – though, in the meantime, strong management measures under Fisheries Act may still be necessary.
- Risks litigation from aboriginal or environmental groups.
- the Minister of Environment could be requested again to emergency list these populations if a group felt that appropriate action to recovery them was not being taken.
- A decision not to list Sakinaw sockeye would allow the option of higher levels of incidental harvest in fisheries directed at Fraser sockeye populations in the event of very low recovery probability.

### **Option 2 – List and Manage Under SARA**

- Commits government to long-term recovery efforts and costs, since down-listing depends on a COSEWIC and GIC assessment.
- Would signal a dramatic shift in management policies for Pacific salmon fisheries.
- Reduced risk of litigation.
- DFO would have to be prepared to address calls for compensation and calls to provide more long-term stability for the commercial fishing sector.
- Encourages work with stakeholders to implement strong protection and recovery measures; fishery restrictions, habitat measures; issue permits on the basis that activities will not jeopardise survival or recovery.
- Sakinaw spawners are expected to return for several years at a level lower than the minimum viable population level described in the draft recovery strategy. This would lead to a zero level of allowable harm for the population, which, under a legal listing situation, may place any harvest, incidental or otherwise, in a state of non-compliance with SARA, since permits could not be issued (similar to the current situation with Inner Bay of Fundy salmon).

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- Once listed on schedule 1, government is committed to recovering and protecting the species until COSEWIC changes the designation down to Special Concern or Not at Risk, or up to Extinct. It is possible that recovery of Sakinaw sockeye may take a very long time, or worse, slowly decline, thereby locking in increasingly harsh restrictions on economic activity that affects survival or recovery of the population.

#### **RECOMMENDATION**

- Do not add to schedule 1 of SARA.

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## SOCKEYE SALMON (Cultus Lake population)

This population spawns exclusively in Cultus Lake, in the eastern Fraser Valley of south-western British Columbia, upstream from the Strait of Georgia. The Cultus sockeye has unique genetic and biological characteristics.

### LISTING CONSIDERATIONS

#### Status of the Species

- Cultus Lake is one of about 220 lakes with anadromous sockeye populations in British Columbia.
- The loss to biodiversity of this one population would be small but irreplaceable, experience with re-introduction of sockeye salmon demonstrates a very low success rates.
- The population--down 92% between 1995 and 2002--is designated by COSEWIC as Endangered.
- The Cultus population has collapsed in large part due to overexploitation, including directed and incidental catches in mixed-stock fisheries.
- Since 1995, spawning adults have also suffered very high pre-spawn mortality, associated with unusually early migration into fresh water and with *Parvicapsula* parasite infestation.
- These fish are also affected by predation, ecological impacts to the lake habitat from colonization by Eurasian water milfoil, land development, stream channelization, nutrient input, and recreational use.
- The Pacific Salmon Commission and Fraser Panel managers have taken conservation steps since 2001 to reduce fishery harvest levels on late-run Fraser sockeye.
- PSARC recommended strong protection and recovery measures, such as a reduction in fishing mortality, an improvement in habitat and protection of broodstock.
- Attempts to transplant these salmon to other lakes have failed.
- Risk of extinction is high only if the pre-spawn mortality returns to the very high levels of 1999 and 2000. Otherwise, if pre-spawn mortality is similar to recent years, recovery is consistent with some level of harvest occurring at the same time.
- Recent climate change modeling indicates a long-term trend to decreasing sockeye spawner success, stating: "By the end of the century it is expected that at least every second year will have conditions that are more detrimental to spawning than the worst year in the normal period."

### QUALITY OF ASSESSMENT:

- The assessment is for a population of sockeye, not the species as a whole.
- The original Status Report, prepared by DFO scientists, is considered to contain all the relevant information, the population status information is good, thus there is little uncertainty.

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- A recent PSARC working paper, based on comprehensive, updated information, confirms that the population of Cultus Lake Salmon has declined to low levels relative to those found historically.
- In October, 2002, COSEWIC conducted an emergency assessment.
- This population is genetically distinct, shows distinct, adaptive characteristics, and is geographically distinct, all consistent with SARA definitions. It would also qualify as an evolutionarily significant unit, under the ESA in the USA.
- A Management Measures and Action Plan for 2004 and beyond should increase chances of recovery.

**POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING CULTUS SOCKEYE POPULATION**

- Would signal support to Canada's obligations under the Biodiversity Convention.
- Assure Canadians government is committed to protecting species at risk.
- Reduced exploitation of Cultus sockeye due to fishing restrictions will lead to under-exploitation other productive summer run returns which will return in larger numbers and will be available in larger numbers to First Nations upstream of Cultus Lake.
- Should early migration of late run sockeye continue, reduced exploitation rates coincide with requirements to sustain other late run populations such as the Adams.
- Listing could result in the recovery of off-cycle Adams and Shuswap populations to very large population sizes, as occurred with the Quesnel population. This would result in large sustainable harvests and a very significant economic benefit to harvesters.
- Management measures targeted at habitat and stewardship activities may generate both direct and indirect benefits. For example, watershed protection, habitat repair and enhancement may improve the quality of water supplies for local consumption, and increase recreational opportunities for residents and visitors.
- Listing this population, and the resulting recovery efforts, could help support initiatives to certify BC salmon fisheries under the Marine Stewardship Council, as one of the MSC criteria examines impacts on co-migrating stocks.

**POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LEGALLY LISTING CULTUS SOCKEYE POPULATION**

- Fishery restrictions are necessary, primarily in the Johnstone and Georgia strait and Juan de Fuca mixed-stock fisheries, since there are no selective fishing measures at this time that would allow the commercial harvest of other populations and leave Cultus sockeye unharmed.
- This may be offset to a limited degree by harvest in more terminal areas under new allocations rules.
- Additional protective measures applied to mixed stock fisheries will compound an already difficult situation for the industry. During periods of greater abundance (2005 and 2006), these restrictions on harvest rates may not be as significant but the financial impacts will be magnified.

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- The impacts will be borne by the commercial harvesting sector (48%), processing sector (35%) and recreational sector (17%).

Commercial Harvest Sector:

**\*Note: at the date of this writing, August 20, 2004, the following estimates of impacts on the fisheries are being refined to better reflect a range of incremental effects of legal listing on various harvesting scenarios. The incremental effect of listing hinges to a large degree on the likelihood of the ability to issue incidental harm permits under s.73 of the Act in any given year.**

- 2004 is a low cycle year with an estimated base Fraser Sockeye TAC of 0.2 million sockeye pieces<sup>7</sup> attributed to Cultus, an associated fishing industry gross revenue value of \$2.4 million<sup>8</sup> (Table 2).
- Restrictions applied to mixed stock fisheries to protect Cultus sockeye are anticipated to reduce the 2004 Fraser River harvest by about 0.1 million sockeye. This reduction is worth about \$1.2 M in gross revenue to the industry.
- The magnitude of foregone revenue will increase in high cycle years. This is illustrated in Table 1 where foregone revenue increases to \$4.3 M and \$6.7 M for 2005 and 2006 (Table 2).
- Fraser River sockeye provide an estimated 75%-80% of the total landed value in the commercial fishing management areas B, D, E and H.
- These four areas consist of 1,012 eligible salmon licences, which are owned and operated by 906 licence holders, of which almost 50% relied on Fraser River sockeye for less than 25% of their fishing income in 2003, the majority had fishing income of \$30,000+.
- The foregone revenue represents the difference between the fishing regime before the COSEWIC listing and the currently proposed fishing regime resulting from the emergency listing proposal.
- Cost impacts in Table 1 may be mitigated by revised allocation policies that would allow increased harvest in the terminal areas above the migration route for Cultus sockeye. This would require significant policy and social issues to be resolved.

Table 2 Estimated Forgone Revenues Associated with Mixed Stock Fishery Restrictions to Protect Cultus Lake Sockeye Populations

Year	Base Anticipated Catch Fraser River sockeye (Millions)**	Revenue Value (\$ Millions)	Implement Measures to Protect Cultus *
			Foregone Revenue (\$ Millions)

<sup>8</sup> Fishing industry consists of: southern commercial salmon harvest industry (with an estimate of 71% for Sakinaw and 59% for Cultus of associated revenue impacts) processor industry (estimated 29% for Sakinaw and 24% for Cultus of associated revenue impacts, value added) and the recreational salmon industry (estimated less than 1% for Sakinaw and 17 % for Cultus of associated revenue impacts).

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2004	0.2	\$2.4	\$1.2
2005	0.8	\$8.4	\$4.3
2006	1.1	\$12.0	\$6.7
2007	.2	\$1.9	\$1.1

\* The estimated foregone revenue is based primarily on the loss of harvesting other non-Cultus co-migrating sockeye stocks. The loss of harvest of Cultus sockeye is very minimal.

\*\* Total allowable catch (TAC) for the 2005, 2006, and 2007 are for the Cultus portion (for purposes of calculation) of the entire Fraser River sockeye fishery – to calculate total TAC, add these figures to those in the Sakinaw table. These estimates are subject to change, due to climate change, marine survival rate, habitat conditions. DFO Fisheries Management and historic price analysis.

#### Processing Sector

- The processing sector is predicted face an economic loss of about \$10M in addition to, and during the same four years, as the harvesting sector estimates above.
- The processing sector will continue to suffer, as 2004 is anticipated to be the tenth consecutive year that economic returns have been negative. There are 103 wild salmon processing plants across BC. However, it is anticipated that only those in the following geographic areas will be significantly affected: North Vancouver Island, Mid Vancouver Island, South Vancouver Island, Victoria & outlying areas, Sunshine Coast, and Vancouver & outlying areas. These 6 geographic areas account for 75% (77 plants, 13 of which process only wild salmon) of the entire wild salmon processing plants in B.C. which provide an estimated 1,141 to 1,205 person years of employment. Seafood processing (including wild salmon) accounts for nearly 20% of the value of food manufacturing activity in the province.

#### First Nation FSC Impacts

##### *Marine and Approach Areas Downstream of the Vedder River*

- Nature of Impact: It is anticipated that fisheries access to certain stock groupings may be limited by time restrictions. It is also anticipated that FSC allocations can still be reached by providing access to other Fraser River stock grouping or other stocks, however, this may not be consistent with the First Nations preferred fishing locations and/or time.

##### *Up River of Vedder*

- Nature of Impact: Depending on location, many of these First Nations are likely to have access to large returns in local areas due to increased returning salmon.

##### *Local Area*

- Nature of Impact: In the terminal area, there is no local First Nation who has, in recent years, requested harvesting access to this stock. However,

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should such access be requested, harvesting would be restricted, or possibly prohibited. The Stolo Nation support listing of the Cultus Lake sockeye and have supported the current restrictions on harvesting this stock. In addition, the local First Nation, the Soowahlie Band, supports listing and understand the implications on harvesting in the area. Other impacts: The Soowahlie Band operates a RV/campsite on Swelzer Creek, which Cultus sockeye use to access Cultus Lake. There may need to be a need to restrict recreational access to the creek in August/September months when water temperatures are high, as recreational activities have the potential to delay migrating sockeye in sub-lethal temperature water.

#### Land use and development

- Nature of Impact: Future developments surrounding Cultus Lake will need to be reviewed by DFO to ensure they will not adversely affect recovery. Water use is a potential concern; alternative water management systems may need to be considered. This could include upgrading septic tanks and developing sewage treatment facilities.

#### Tourism and recreational

- Nature of Impact: Cultus sockeye spawn on the beach of Cultus Lake in late fall, so beach use restriction is anticipated to be minimal. Listing may result in increased costs for campground owners and other tourist facilities through water use concerns (see land use and development, above).

#### Forestry

- Nature of Impact: Future logging activity on or near Cultus Lake would need to be reviewed by DFO to ensure it is not adversely affecting recovery.

#### Agriculture

- Nature of Impact: There may be costs incurred through pesticide restrictions used in farming practices should water quality be shown to adversely affect recovery.

#### Mining

- Nature of Impact: There is one mining company located on Cultus Lake. There may be restrictions on fuel and lubricant use if future research indicates this activity is adversely affecting water quality.

#### Aquaculture

- Nature of Impact: NA

#### Social and Community Impacts

- Coastal communities, especially on the north-east coast of Vancouver Island are heavily dependent on fishing harvest revenue for economic revenue generation. For example, the percent of basic and non-basic income fishing dependence in the following regions are: Port Hardy (4%, fourth most important industry), Port

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McNeil (4%, fourth most important industry) Alert Bay (15%, second most important industry)<sup>10</sup>.

- The majority of the impacts (total number of people affected) are expected to be realized in the Vancouver-Lower Mainland region. However, the coastal communities identified are anticipated to be hardest hit due to heavy dependence on the salmon harvest for income and employment within their local economies.
- Impacts to these communities will include direct revenue and jobs, indirect impacts through supporting business and decreased tax revenues.
- To a lesser extent other communities in the southern coastal area will be affected. Communities on mid-Vancouver Island including Sayward, Campbell River, Quadra Island and areas, Comox-Courtenay, Qualicum Beach, Parksville, Nanaimo and other East Coast communities which have less than 1% dependency on the commercial fishing industry.
- Protection and recovery of Cultus populations will also likely inhibit human settlement and other economic development initiatives. See impacts below.

#### Environmental Impacts

- The removal of Eurasian water milfoil, and control of the northern pikeminnow population may have some currently unknown environmental impact.

#### International Considerations

- It is unlikely the US will agree to further restrictions to protect and recover this species in their mixed-stock fisheries, as reciprocal arrangements for each country in protecting species at risk are not in place. Canadian fishers therefore may have to bear a disproportionate share of the protection and recovery efforts.

### **OTHER CONSIDERATIONS**

#### Probability of Success for the Cultus Sockeye Population

- The future status of this population will depend to a large degree on late run migratory behaviour and pre-spawn mortality levels, but otherwise, if pre-spawn mortality remains at the level of recent years (less than 50%), recovery may be rapid with continued implementation of recovery measures, even withstanding some exploitation.

#### Costs to Government of Enforcement and Related Protection Measures

- Incremental fishery management costs for enforcement and fishery management following listing is expected to increase. Harvesting will change from larger aggregate marine fisheries to areas closer to spawning grounds where stocks can be harvested separately; this is expected to increase the cost of managing fisheries.
- Enforcement costs are expected to increase with requirements to protect the species and through the need to respond to requests for investigations.

<sup>10</sup> Source: BC Stats, "2001 Economic Dependencies and Impact Ratios for 63 local Areas."

<sup>12</sup> Hoyt, Erich: Whale Watching 2001, prepared for the International Fund for Animal Welfare, available at <http://www.oceania.org.au/soundnet/features/hoytifaw.html>

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- Costs for pro-active recovery measures, such as broodstock protection, habitat improvement, monitoring and science, are potentially (e.g., \$250K per year based on 2004, though a portion will be spent on one-time capital expenditures). Cost may increase if populations continue to decline.
- Litigation costs are anticipated if legal challenges from environmental and Aboriginal groups proceed.

#### Political Risks

- the parties interested in this population have highly-polarized positions and any decision will create controversy.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on fishing, logging, land development and recreational or tourism opportunity.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.

### **POSITIONS OF STAKEHOLDERS**

- The potential legal listing of the two sockeye populations received written comment from one-half of those who replied during consultation, with nearly every respondent opposed to the legal listing of Cultus sockeye.
- Aboriginal fishery stakeholders in the Interior support this listing in the hopes that they would increase the terminal abundance of fish stocks in their areas, while coastal First Nations throughout southern British Columbia and in the lower Fraser River will oppose this listing (except Soowahlie Band members who put this forward for listing and will be strongly supportive) on the basis that it may impact FSC and commercial harvesting prospects, as well as other economic opportunities such as salmon processing.
- Commercial fishery stakeholders strongly oppose listing this population, believing that fisheries should not be managed to protect small, weak populations, and will

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also be concerned about First Nations' fisheries and poor enforcement; recreational fishery stakeholders views depend on the extent to which a sockeye catch and release fishery can be implemented.

- Environmental groups strongly support this listing, and may initiate litigation (as will Soowahlie Band) if this population is not listed.

## **OPTIONS**

### ***Option 1 - Do Not List***

- Allows more flexibility for working with stakeholders on protection and recovery measures under the Fisheries Act, and to potentially move back toward a fishing regime somewhere between pre-COSEWIC listing and the current stringent measures if recovery emerges as unfeasible - though strong management measures under Fisheries Act may still be necessary.
- Risks litigation from aboriginal or environmental groups.
- The Minister of Environment could be requested again to emergency list these populations if a group felt that appropriate action to recovery them was not being taken.

### ***Option 2 – List and Manage Under SARA***

- Commits government to a long-term commitment to recovery efforts and costs, since down-listing depends on a COSEWIC and GIC assessment.
- Signals a shift in management policies for Pacific salmon fisheries
- Reduced risk of litigation.
- DFO would have to be prepared to address calls for compensation and calls to provide more long-term stability for the commercial fishing sector.
- Encourages work with stakeholders to implement strong protection and recovery measures; fishery restrictions, habitat measures; issue permits on the basis that activities will not jeopardise survival or recovery.
- Once listed on schedule 1, government is committed to recovering and protecting the species until COSEWIC changes the designation down to Special Concern or Not at Risk, or up to Extinct. It is possible that recovery of Cultus sockeye may take a very long time, or worse, slowly decline, thereby locking in increasingly harsh restrictions on economic activity that affects survival or recovery of the population.

## **RECOMMENDATION**

- Do not add to schedule 1 of SARA.

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## **HUMPBACK WHALE (North-eastern Pacific population)**

Heavily reduced by whaling, the North Pacific humpback population seems to have grown over the last few decades but probably remains in the low hundreds, well below historical figures. Individual humpback populations segregate. This phenomenon, coupled with their high level of feeding-ground fidelity, suggests that if animals were extirpated from a particular area, it is unlikely that other humpbacks would enter. Two extirpated British Columbia populations have shown no sign of recovery. Humpbacks are occasionally entangled in fishing gear in British Columbia, though the number entangled annually is not thought to threaten or limit the population.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- The North Pacific population is designated by COSEWIC as Threatened.
- Humpback whales are found off both the east and west coasts of Canada, extending north to Labrador in the east and into North-western Alaska in the west.
- The productive waters off British Columbia are important feeding habitat.
- Humpbacks are both offshore and coastal in their distribution.
- Humpbacks are found in tropical, temperate and sub-polar waters worldwide.
- Heavily reduced by whaling, the North-eastern Pacific humpback whale population seems to have grown over the last few decades, but probably remains in the low hundreds, well below historical numbers.
- This is a population of mysticete (baleen) cetacean.
- It is the only member of its genus, and there are no sub-species.
- There is considerable segregation of populations, and a high level of feeding-ground fidelity. This suggests that if animals are extirpated from a particular area, it is unlikely that the area will be rapidly repopulated from humpbacks of other areas.
- These are one of the larger whales, with lengths averaging thirteen metres.
- Their tendency to inhabit nearshore areas in many parts of the world, including Canadian waters, has brought humpbacks into regular contact with humans.

### **QUALITY OF ASSESSMENT:**

- The current Status Report is considered to contain all the relevant and up-to-date information.
- During consultation, there was some concern that legal listing is not warranted due to the perception that humpback sightings are becoming more common. There is no scientific assessment to support this perception for BC waters.

**Conclusion:** The assessment for the North-eastern Pacific population of the humpback whale is well justified. Even though the North Pacific populations appear to be increasing, they are still small.

### **POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING HUMPBACK WHALES**

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- Given their propensity for spectacular aerial displays and preference for the nearshore, humpbacks are a favourite species for commercial whale watching operations.
- The feature for which they are most well known is their long and complex “song”, which has received considerable attention both from the scientific community and the general public.
- Related to increased understanding and its contribution to ecosystem knowledge, eco-tourism will be the major economic benefactor of adding this species to Schedule 1.
- Whale watching, including ocean kayaking in search of whales, is an expanding industry in British Columbia, and plays a vital part in the provincial tourism economy.
- The BC eco-tourism industry directly employs wilderness outfitters, photographers, boat operators, guides and others. Indirectly, eco-tourism contributes to provincial and local economies through the purchase of goods and services, such as accommodation, meals, entertainment, gear and supplies.
- Whale watching activity grew by an average of 12.1% per year in the number of participants and 21.4% per year in expenditure worldwide from 1991 to 2001. It is one of the most rapidly growing sectors of the tourism industry<sup>12</sup> with humpbacks one of the favoured species.
- If the species recovers sufficiently to show elevated numbers inshore, it can reasonably be expected that eco-tourism entrepreneurs will add humpback watching to their programs which may increase visitor numbers.

#### **POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LEGALLY LISTING HUMPBACK WHALES**

- There are no immediate costs anticipated as a result of automatic prohibitions should this species be listed.
- Over the longer term, recovery planning and the identification of threats and limiting factors may result in impacts to stakeholders. These could include changes to net-fishing practices or opportunities to minimize gear entanglement, and examination of the impacts of activities such as logging and aquaculture in important near-shore habitat.
- This listing would be a consideration in oil and gas development and seismic exploration off the West Coast.
- Possible actions as part of the recovery planning process may be the development of guidelines for oil and gas exploration and production, and the modification of shipping lanes to minimise disruption of normal life processes or to reduce the likelihood of ship-whale collisions.

#### **Social Impacts**

- Possible fishing restrictions to reduce entanglement threats, and possible restriction of offshore oil and gas development may result in economic impacts.

#### **International Considerations**

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- This listing may affect international shipping lanes off the West Coast.

## **OTHER CONSIDERATIONS**

### **Probability of Success**

- Current efforts are underway internationally to collect the data to determine the current status and evaluate the potential for recovery.
- It is therefore critical that the long-term nature of this strategy is recognized in the development of the objectives and supporting strategies.

### **Benefits for Other Species/Populations**

- A recovery strategy will not only be essential to the survival of the humpback whale population, but may also be important for other baleen whale species that occur in the same habitats in the region; e.g., fin, right, sei and blue whales. This set of strategies should be coordinated with other baleen whale strategies in a multi-species approach.

### **Costs to Government of Enforcement and Related Protection Measures**

- There are costs associated with developing and implementing recovery strategies, action plans and management plans, and with funding stewardship projects.
- Direct costs to government of listing this species include the ongoing cost of promoting compliance and enforcement, as well as the cost of consultation with stakeholders.

### **Political Risks**

- Some stakeholders will react negatively to a decision which implies restrictions on oil and gas development.
- Others will object if concerns about oil and gas development appear to threaten the legal listing of the species under SARA.

### **Federal-Provincial Considerations**

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on economic development initiatives.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

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#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.
- DFO will collaborate with other departments as necessary for the development of recovery strategies; for example Parks Canada.

#### POSITIONS OF STAKEHOLDERS

- Aboriginal fishery stakeholders' objections may result from possible prohibitions on directed harvest of humpback whales should they wish to fish for food, social and ceremonial purposes.
- Commercial fishery stakeholders' objections may result from possible restrictions to fishing gear, and/or fishing opportunities.
- Recreational fishery stakeholders have no significant objections to the legal listing of this species.
- Environmental groups strongly support this listing.
- Commercial eco-tourism groups are expected to support listing, but may raise concerns related to potential whale-watching restrictions.
- Industry may oppose due to potential restrictions on marine activities including shipping and oil and gas development.

#### OPTIONS

##### *Option 1 - Do Not List*

- Does not protect species from future activities, such as oil and gas development that may impact the recovery.
- Allows possibility of returning to GIC to list at a later date. The Minister of the Environment may ask COSEWIC to reassess the species at a later date, or if appropriate at a later date, forward the assessment to the GIC for consideration a second time.

*Option 2 – List and Manage Under SARA* - Work with stakeholders to implement strong protection and recovery measures; fishery and gear restrictions, issue permits on the basis that activities will not jeopardise survival or recovery.

- Would require commitment of recovery efforts from government.

#### RECOMMENDATION

- Add to schedule 1 of SARA.

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## **BLUE WHALE (Pacific Population)**

The blue whale is the largest animal known to have existed on Earth. As such, it holds a unique place in the global ecosystem. Due to past uncontrolled whaling, both blue and sei whales are now extremely rare in Canadian waters. In fact, some populations could be approaching extinction before we know much about their natural history. It is probable, due to their size, that they play a significant role in their marine ecosystems. Blue whales off Canada's Pacific coast are likely part of a population based in the North-eastern Pacific.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- The population is designated by COSEWIC as Endangered.
- Risk of extinction is very high.
- There are no estimates of current abundance and no means of assessing current population trends. The rarity of sightings (both visual and acoustic) suggests they currently number significantly fewer than 250 mature individuals.
- Blue whales are widely distributed throughout the coastal and pelagic waters of the North Pacific; their ranges extends well beyond Canadian waters, from southern Japan to Kamchatka and the western Aleutian Islands in the western North Pacific, Hawaii to the Aleutian Islands in the central North Pacific, and from the Eastern Tropical Pacific to the Gulf of Alaska in the eastern North Pacific.
- There may be as many as five distinct populations of blue whales in the North Pacific Ocean, of which three occur along the coast of North America.
- Although blue whales were hunted off British Columbia through 1967, they have only rarely been seen in recent years off British Columbia or the adjacent waters of Washington or south-eastern Alaska. With current population estimates of significantly less than 250 mature individuals, there are no clear signs of recovery.
- The blue whale is the largest animal known to have existed on Earth and may live up to eighty years.
- A mature individual can reach more than thirty metres plus in length; given its size, the blue whale holds a unique place in the marine and global eco-system.
- this population was reduced by whaling, which continued as recently as 1967
- Current population estimates are significantly fewer than 250 mature individuals, and there are no clear signs of recovery.
- Threats to blue whales along the coast of British Columbia are unknown, but may include ship strikes, pollution, entanglement in fishing gear, and long-term changes in climate that could affect the abundance of their zooplankton prey.

### **QUALITY OF ASSESSMENT**

- The current Status Report is considered to contain all the relevant and up-to-date information.
- A recovery team to draft a recovery strategy is planned for 2004-05.

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**Conclusion:** The assessment for the Pacific population of the blue whale is well justified.

**POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING BLUE WHALES**

- Listing would provide protection against threats such as habitat degradation, collisions with ships and underwater disturbance from noise.

**POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LEGALLY LISTING BLUE WHALES**

- There are no immediate costs anticipated as a result of automatic prohibitions should this species be listed.
- Listing would be a consideration in oil and gas development off the West Coast.
- Possible actions as part of the recovery planning process may be the development of guidelines for oil and gas exploration and production, and the modification of shipping lanes to minimise disruption of normal life processes or to reduce the likelihood of ship-whale collisions.

**Social Impacts**

- Possible restrictions to offshore oil and gas development may result in economic impacts.

**International Considerations**

- This listing may affect international shipping lanes off the West Coast.

**OTHER CONSIDERATIONS**

**Probability of Success**

- There is currently a lack of data on the biology, distribution, abundance and threats affecting the blue whale with which to develop measurable recovery criteria. It is necessary to gain enough basic data in order to be able to verify that all recovery objectives will be met.
- It is critical that the long-term nature of this strategy is recognized in the development of the objectives and supporting strategies.

**Benefits for Other Species/Populations**

- A recovery strategy will not only be essential to the survival of the blue whale population, but may also be important for other baleen whale species that occur in the same habitats in the region; e.g., fin, sei, right and humpback whales. This set of strategies should be coordinated with other baleen whale strategies in a multi-species approach.

**Costs to Government of Enforcement and Related Protection Measures**

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- There are costs associated with developing and implementing recovery strategies, action plans and management plans, and with funding stewardship projects.
- Direct costs to government of listing this species include the ongoing cost of promoting compliance and enforcement, as well as the cost of consultation with stakeholders.

#### Political Risks

- Some stakeholders will react negatively to a decision which implies restrictions on oil and gas development.
- Others will object if concerns about oil and gas development appear to threaten the legal listing of the species under SARA.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on economic development initiatives.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- DFO will collaborate with other departments as necessary for the development of recovery strategies; e.g. Parks Canada.
- The Minister of Environment has final decision on what recommendation to make to GIC.

#### POSITIONS OF STAKEHOLDERS

- Aboriginal and recreational fishery stakeholders have no significant objections to the legal listing of this species.
- Commercial fishery stakeholders' objections may result from possible restrictions to fishing gear.
- Environmental groups support this listing.
- Industry may object if oil and gas development is affected.

#### OPTIONS

##### *Option 1 - Do Not List*

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- Current understanding is that there are no direct threats to this species that could be managed, and it is unlikely that there will be any fishery restrictions; therefore few benefits of not listing.
- Does not protect species from future activities, such as oil and gas development that may impact the recovery.
- Allows possibility of returning to GIC to list at a later date. The Minister of the Environment may ask COSEWIC to reassess the species at a later date, or if appropriate at a later date, forward the assessment to the GIC for consideration a second time.

***Option 2 – List and Manage Under SARA***

- Will allow assessment of current status, feasibility and potential threats.
- Will have to consider that this is a long-term commitment, since delisting depends on COSEWIC and GIC.
- Would require commitment of recovery efforts from government.
- There may be negative reactions stemming from possible restrictions on oil and gas development and restrictions to shipping.

**RECOMMENDATION**

- Add to schedule 1 of SARA.

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## **SEI WHALE**

With over 4000 individuals killed, historically, this was one of the most abundant species sought by whalers off the British Columbia coast. Sei whales have not been reported in the region since whaling ended and are rare in British Columbia water. In addition, evidence of a dramatic decline caused by whaling is clear, with no sign of recovery. These are the third largest creature on earth, with an average size of fifteen metres in length and average weight of nineteen tonnes, and may live up to sixty years.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- The population is designated by COSEWIC as Endangered.
- Risk of extinction is very high.
- These whales are difficult to distinguish from fin whales, which could significantly affect our understanding of the species' distribution and population size off Canadian waters.
- Only one stock is officially recognized in the Pacific. However, there is evidence that sei whales in the eastern Pacific are a separate stock and are managed as such by other jurisdictions.
- This whale appears somewhat restricted to temperate waters, with a suggested northern limit in the north-eastern Pacific of 55°N, based on comparing the catch records from British Columbian and Alaskan shore stations.

### **QUALITY OF ASSESSMENT**

- The current Status Report is considered to contain all the relevant and up-to-date information.
- A recovery team is planning to draft a recovery strategy in 2004-05.

**Conclusion:** The assessment for the Pacific population of the sei whale is well justified.

### **POTENTIAL BENEFITS ASSOCIATED WITH LISTING SEI WHALES**

- Listing would provide protection from uncontrolled global whaling.
- Protection under SARA will allow research into sei whale population status, biology, behaviour and potential threats to their recovery to continue as recovery plans are developed.

### **POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LISTING SEI WHALES**

- There are no immediate costs anticipated as a result of automatic prohibitions should this species be listed.
- Modification of shipping lanes, though highly unlikely in the short term, may be required to minimise disruption of normal life processes or to reduce the likelihood of ship-whale collisions.

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- Possible restrictions to offshore oil and gas development may result in economic impacts.
- Over the longer term, recovery planning and the identification of threats and limiting factors may result in impacts to stakeholders.

#### International Considerations

- This listing may affect international shipping lanes off the West Coast.

### **OTHER CONSIDERATIONS**

#### Probability of Success

- It is not possible to develop measurable recovery criteria at this time due to the lack of data on the biology, distribution, abundance and threats affecting the sei whale. It is extremely important to gather enough data to verify goals are achieved.
- It is critical that the long-term nature of this strategy is recognized in the development of the objectives and supporting strategies.

#### Benefits for Other Species/Populations

- A recovery strategy will not only be essential to the survival of the sei whale population, but may also be important for other baleen whale species that occur in the same habitats in the region; e.g., fin, blue, right and humpback whales. This set of strategies should be coordinated with other baleen whale strategies in a multi-species approach.

#### Costs to Government of Enforcement and Related Protection Measures

- Direct costs to government of listing this species include the ongoing cost of promoting compliance and enforcement, as well as the cost of consultation with stakeholders.
- There are also significant costs associated with developing and implementing recovery strategies, action plans and management plans, and with funding stewardship projects.

#### Political Risks

- Some stakeholders will react negatively to a decision which implies restrictions on oil and gas development.
- Others will object if concerns about oil and gas development appear to threaten the legal listing of the species under SARA.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on economic development initiatives.
- However, avenues for discussion are available through new and existing mechanisms:

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- the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
- a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.
- DFO will collaborate with other departments as necessary for the development of recovery strategies; e.g., Parks Canada.

### **POSITIONS OF STAKEHOLDERS**

- Aboriginal and recreational fishery stakeholders have no significant objections to the legal listing of this species.
- Commercial fishery stakeholders' objections may result from possible, but unlikely, restrictions to fishing gear.
- Environmental groups will vehemently support this listing, and may initiate litigation if this population is not listed.
- Industry may object due to possible restrictions on marine-related activities such as oil and gas and shipping lanes.

### **OPTIONS**

#### **Option 1 - Do Not List**

- Current understanding is that there are no direct threats to this species that could be managed, and it is unlikely that there will be any fishery restrictions; therefore few benefits of not listing.
- Does not protect species from future activities, such as oil and gas development that may impact the recovery.
- Allows possibility of returning to GIC to list at a later date. The Minister of the Environment may ask COSEWIC to reassess the species at a later date, or if appropriate at a later date, forward the assessment to the GIC for consideration a second time.

#### **Option 2 – List and Manage Under SARA**

- Will allow assessment of current status, feasibility and potential threats.
- Will have to consider that this is a long-term commitment, since down-listing depends on COSEWIC and GIC; would require commitment of recovery efforts from government.
- Would require commitment of recovery efforts from government.
- There may be negative reactions stemming from possible restrictions on oil and gas development and restrictions to shipping.

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## **RECOMMENDATION**

- Add to schedule 1 of SARA.

## **FRESHWATER SPECIES**

Freshwater species are administered and managed in British Columbia by the provincial government. Fisheries & Oceans Canada and the province of BC collaborate and work under cooperative enforcement and habitat agreements in joint protection of freshwater species, and SARA establishes the Minister of Fisheries & Oceans Canada as the competent minister for all legally listed aquatic species.

The federal government, with Environment Canada as the lead federal agency and Fisheries & Oceans Canada and the Parks Canada Agency as participants, is currently negotiating a bilateral agreement on the species at risk in BC. This agreement follows and is in the spirit of the Accord for the Protection of Species at Risk signed in 1996 by the federal government and the provinces and territories. The SARA bilateral agreement, though still draft, outlines areas of cooperation and collaboration, particularly in the areas of listing, stewardship, permits and agreements, enforcement, recovery planning, communications and outreach and data and information sharing.

Though many of the cooperative arrangements need to be further defined and made operational, an interim arrangement provides for Fisheries & Oceans Canada and the province of BC to co-chair recovery planning and recovery strategy development for freshwater species and to cooperate on the development of recovery strategies for marine species.

There are common benefits associated with the recovery of all four freshwater fish under consideration for listing. All play an ecosystem role as prey for larger aquatic and bird species; recovery of these species may aid in retaining and strengthening predator populations. As all of these species are limited in distribution and abundance in Canada, there is strong scientific and academic support for their protection. In particular, Enos Lake stickleback (benthic and limnetic) are of significant interest to researchers as subjects for the study of evolutionary dynamics.

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## **ENOS LAKE STICKLEBACK (Two populations: Benthic and Limnetic)**

The Enos Lake species pairs are two of the stickleback species pairs that occur in six coastal lakes in British Columbia, and nowhere else in the world. They are among the youngest species on earth, and their rapid and recent evolution has been the subject of considerable public interest and scientific inquiry. Stickleback species pairs are restricted to lakes with very specific physical and biological characteristics. The lakes are all small, at low elevation, have highly productive benthic and pelagic areas and lack fish predators. Climate is characterized by hot dry summers and cool wet winters.

Given the urgency of the Enos Lake stickleback's predicament, the BC Ministry of Water, Lands and Parks (WLAP) and Fisheries and Oceans Canada sponsored a workshop during 2002 on their conservation and restoration. A recovery team, co-chaired by DFO and WLAP, has drafted a recovery strategy that is currently under review.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- The stickleback species pairs in the Paxton Lake and Vananda Creek watersheds were designated as Endangered by COSEWIC in May 2000 and are listed on Schedule 1 of SARA.
- The stickleback species pair in Hadley Lake was designated by COSEWIC as extinct in May 2000.
- Risk of extinction is very high due to restricted range as well as existing and potential habitat impacts, and a lack of specific protection beyond existing environmental and water quality regulations.
- This stickleback species pair is restricted to a single, small lake on Vancouver Island, and is undergoing hybridization and a severe decline in abundance due to habitat degradation and the introduction of an exotic species.
- Each stickleback species pair consists of a benthic (bottom) and a limnetic (open water) form that are genetically and morphologically distinct and reproductively isolated from each other.
- Application of traditional scientific nomenclature for the species pairs is impractical, and they have not been assigned scientific names.
- Each stickleback species pair has been identified as an evolutionary significant unit.
- The stickleback species pairs are unique to British Columbia.
- The stickleback species pairs represent a classic example of recent evolutionary processes, and have been the subject of considerable public interest and scientific inquiry.
- The Enos Lake sticklebacks were the first of the species pairs to be described.

### **QUALITY OF ASSESSMENT**

- The original Status Report, prepared by Dr. Alex Peden, is considered to contain all the relevant information.

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**Conclusion:** The assessment for the Enos Lake stickleback species pairs is well justified.

**POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING ENOS LAKE STICKLEBACK**

- The stickleback species pair in Enos Lake influences the density of the plankton and invertebrates upon which they feed, and are prey for coastal cutthroat trout, herons, kingfishers, and loons. The recovery of this species pair would contribute to the maintenance of the natural Enos Lake ecosystem.
- The benefits of listing are primarily aesthetic and academic, as they are widely regarded as a scientific treasure and a textbook example of evolutionary processes.
- Listing this population provides the opportunity to increase our understanding of species biology, life cycles and ecosystem role and maintains biological diversity.

**POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LEGALLY LISTING STICKLEBACKS**

- No direct economic losses are anticipated as sticklebacks are not a recreational, commercial or First Nations' harvested fish.
- There are no immediate costs anticipated as a result of automatic prohibitions from listing this species.
- Recovery measures for this species may affect forestry activities in the Enos Lake watershed, recreational use of the lake, and the operations and further development of a golf resort adjacent to the lake.

**Social Impacts**

- Recreational use of the Enos Lake area and the adjacent golf resort may be affected.

**OTHER CONSIDERATIONS**

**Probability of Success**

- The extremely limited distribution of the Enos Lake stickleback species pair renders them vulnerable to ongoing activities and as well as potential catastrophic events in the watershed. The ongoing decline and hybridization of the species pair into a single form could likely be reversed only by captive breeding and reintroduction, once habitat and exotic species impacts were addressed. Existing impacts to the habitat of this population could be mitigated, but the introduced crayfish will be difficult to control or eradicate.

**Benefits for Other Species/Populations**

- Other native species in Enos Lake could benefit from recovery measures, such as the control or removal of the exotic crayfish.

**Costs to Government of Enforcement and Related Protection Measures**

- Direct costs to government of listing this species include the ongoing cost of promoting compliance and enforcement, as well as the cost of consultation with

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stakeholders. There are also significant costs associated with developing and implementing recovery strategies, action plans and management plans, and with funding stewardship projects.

- Funding responsibilities between the federal and provincial governments for freshwater species recovery and protection have not yet been determined.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk and has management responsibilities for freshwater fish in BC.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on fishing, logging, land development and recreational or tourism opportunity.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.

### **POSITIONS OF STAKEHOLDERS**

- Aboriginal, commercial and recreational fishery stakeholders have no significant objections to the legal listing of this species.
- Fairwinds Resort may oppose this listing if it means significant new restrictions on their use of Enos Lake for irrigation or their future development of housing around the lake.
- Environmental groups will support this listing.
- Scientific and academic community will support this listing.

### **OPTIONS**

#### **Option 1 - Do Not List**

- Recognizes that recovery may not be feasible under any circumstances.
- Allows more flexibility for working with stakeholders on protection and recovery measures under federal and provincial legislation.
- Possibility of returning to GIC to list at a later date. The Minister of the Environment may ask COSEWIC to reassess the species at a later date, or if

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appropriate at a later date, forward the assessment to the GIC for consideration a second time.

***Option 2 – List and Manage Under SARA***

- Work with stakeholders and the province of BC to implement strong protection and recovery measures; development restrictions, habitat measures; issue permits or stewardship agreements on the basis that activities will not jeopardise survival or recovery.
- Will have to consider that this is a long-term commitment, since delisting depends on a COSEWIC and GIC assessment, and may not be possible given natural rarity and extremely limited distribution of this species.
- Would require commitment of recovery efforts from the federal and provincial governments.

**RECOMMENDATION**

- Add to schedule 1 of SARA.

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## **SALISH SUCKER**

The Canadian range of the Salish sucker is limited to the lower Fraser and Nooksack river drainages, in south-west British Columbia. Salish sucker are one of the few species in British Columbia that originated within the Chehalis refugium during the Pleistocene glaciation. It is genetically and morphologically distinct from the longnose sucker, from which it diverged during a unique evolutionary event. Salish suckers spawn in the early spring in areas of fine gravel.

Although existing provincial and federal regulations are in place to protect this species, the strongest protection arises from the good will, generosity, and cooperation between educational and academic groups, environmental organizations and local industry. Strong public communication has occurred locally, and residents are now well informed on the status of the Salish sucker.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- Salish suckers inhabit the Skagit, Nooksack, and Green river drainages of Puget Sound in Washington State, and the lower Fraser and Nooksack river drainages in British Columbia.
- Canada supports the greatest number of known populations.
- The population is designated by COSEWIC as Endangered.
- Risk of extinction is very high due to restricted range, existing and potential habitat impacts, and a lack of specific protection beyond existing environmental and water quality regulations.
- A very restricted Canadian range and ongoing population declines were cited as reasons for this species' assessment.
- It is genetically and morphologically distinct from its closest relative, the longnose sucker, but has yet to be scientifically named as a species.
- The Salish sucker represents an Evolutionary Significant Unit, as a result of reproductive isolation, independent evolutionary history, and genetic and morphological differences from the longnose sucker, the species from which it originated.
- The viability of Salish suckers provides a biologically sensitive indicator of habitat quality.

### **QUALITY OF ASSESSMENT**

- The original Status Report, prepared by Dr. Alex Peden, is considered to contain all the relevant information.
- A recovery team, co-chaired by DFO and the province of BC, is currently drafting a recovery strategy.

**Conclusion:** The assessment for the Salish sucker population is well justified.

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### **POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING SALISH SUCKER**

- Adding this species to Schedule 1 may have several benefits. These include the protection of a species that in Canada occurs only in the lower Fraser and Nooksack river drainages of British Columbia. Salish suckers are significant consumers of aquatic organisms, and are preyed on by various aquatic and terrestrial species. The recovery of the Salish sucker would contribute to the maintenance of the health of their ecosystem.

### **POTENTIAL COST AND IMPACTS OF LEGALLY LISTING SALISH SUCKER**

- No direct economic losses to recreational, commercial or First Nations as the Salish sucker is not a harvested fish.
- There are no immediate costs anticipated as a result of automatic prohibitions from listing this species.
- Recovery measures for this species may result in impacts to urban development, agriculture, water use, flood control, waste management, and gravel mining in the lower Fraser and Nooksack river watersheds. Habitat restoration and beaver management projects may also be implemented.

#### **Environmental Impacts**

- To address impacts of beaver activity on Salish sucker habitat, beaver management actions may be required. These could include installation of beaver-proofing structures and removal of beavers.

### **OTHER CONSIDERATIONS**

#### **Probability of Success**

- Existing impacts on this population could be addressed, and population could likely be stabilized. However, the extremely limited distribution of Salish sucker in Canada renders them increasingly vulnerable to ongoing development and as well as potential catastrophic events in the watershed.

#### **Benefits for Other Species/Populations**

- The Nooksack dace, a species listed as Endangered on Schedule 1 of SARA, has a very similar geographic range to the Salish sucker, and a combined recovery strategy is in development for both species. Protective measures and recovery actions for Salish sucker will also likely benefit Nooksack dace.

#### **Costs to Government of Enforcement and Related Protection Measures**

- Direct costs to government of listing this species include the ongoing cost of promoting compliance and enforcement, as well as the cost of consultation with stakeholders. There are also significant costs associated with developing and implementing recovery strategies, action plans and management plans, and with funding stewardship projects.

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- Funding responsibilities between the federal and provincial governments for freshwater species recovery and protection have not yet been determined.

#### Political Risks

- Potential opposition to listing by municipalities, agricultural groups, and gravel mining companies may become political.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk and has management responsibilities for freshwater fish in BC.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on fishing, logging, land development and recreational or tourism opportunity.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.

### **POSITIONS OF STAKEHOLDERS**

- Aboriginal, commercial and recreational fishery stakeholders have no significant objections to the legal listing of this species.
- Municipalities, farmers & gravel mining companies may oppose this listing, if it means significant new restrictions on their activities.
- Environmental groups will support this listing.

### **OPTIONS**

#### **Option 1 - Do Not List**

- Recognizes that recovery may not be feasible under any circumstances.
- Allows more flexibility for working with stakeholders on protection and recovery measures under federal and provincial legislation.
- Possibility of returning to GIC to list at a later date. The Minister of the Environment may ask COSEWIC to reassess the species at a later date, or if

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appropriate at a later date, forward the assessment to the GIC for consideration a second time.

***Option 2 – List and Manage Under SARA***

- Work with stakeholders to implement strong protection and recovery measures; development restrictions, habitat measures; issue permits or stewardship agreements on the basis that activities will not jeopardise survival or recovery.
- Will have to consider that this is a long-term commitment, since delisting depends on COSEWIC and GIC.
- Would require commitment of recovery efforts from federal and provincial governments.
- DFO and the province of BC would have to be prepared to address calls for compensation for impacts of protection and recovery measures on resource use activities.

**RECOMMENDATION**

- Add to schedule 1 of SARA.

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## **SPECKLED DACE**

In British Columbia, speckled dace are restricted to a 112 km section of the Kettle and Granby Rivers in the Columbia River system. Speckled dace prefer stony habitat, washed by moderate current, with hiding spaces between stones. The details of the species' reproductive behaviour are not known.

### **LISTING CONSIDERATIONS**

#### **Status of the Species**

- The population is designated by COSEWIC as Endangered.
- Risk of extinction is very high due to restricted range as well as existing and potential habitat impacts, and a lack of specific protection beyond existing fisheries, environmental and water quality regulations.
- Speckled dace are genetically distinct from Umatilla dace, leopard dace, and longnose dace.
- Speckled dace occur in areas in common with Umatilla dace and possibly leopard dace without reproductive-isolating mechanisms breaking down.
- The speckled dace is subject to deteriorating water quality as a result of urban and industrial development, as well as to loss of preferred habitat.
- They may be under threat of further habitat loss and degradation due to the proposed Cascade Heritage Power Project on the Kettle River.
- At least seven races of this polymorphic species are considered to be at risk.

### **QUALITY OF ASSESSMENT**

- The original Status Report, prepared by Dr. Alex Peden, may no longer contain all the relevant information pertaining to the proposed power project as it was written in 2002.
- Since then, the design and potential impacts of the proposed hydro project on the Kettle River have changed substantially. However, current scientific opinion is that the species would still be designated as at risk based on other COSEWIC assessment criteria, even without the hydro project.

**Conclusion:** The assessment for the speckled dace population is justified. However, the hydro project proponent has expressed a desire to have the status report returned to COSEWIC for further information and consideration. Opponents of the power project have requested an emergency listing of the species.

### **POTENTIAL BENEFITS ASSOCIATED WITH LEGALLY LISTING SPECKLED DACE**

- Speckled dace occupy an important ecological niche as predators on aquatic invertebrates, and as prey for larger vertebrates. The recovery of this species may aid in retaining the balance of the Kettle River ecosystem.
- Other benefits of listing include the protection of a unique population that occurs only in the Kettle River drainage of British Columbia. This species represents an

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important component of Canada's natural history, and is of some scientific interest.

- This species represents an important component of Canada's natural history, and is of some scientific interest.

### **POTENTIAL COSTS AND IMPACTS ASSOCIATED WITH LEGALLY LISTING SPECKLED DACE**

- No immediate direct economic losses as speckled dace is not a recreational, commercial or First Nations' harvested fish.
- Recovery measures for speckled dace may result in impacts to forestry, agriculture, industry, recreation, and urban development activities in the Kettle River watershed.
- The most controversial and potentially most significant impact in the longer term could be to a proposed hydro power development proposed for the Kettle River called the Cascade Heritage Power Project.
  - This project has been in the design phase for about ten years and is currently under a CEAA review process and predicts construction to cost \$24 million over a 2½ year period. About one half of this cost will be spent locally in the Grand Forks, Christina Lake, Rossland and Trail areas.
  - It also estimates an annual expenditure of \$375,000 for system operations plus \$50,000 for a public park maintenance, \$260,000 for provincial water rentals, \$38,000 for corporate capital taxes and \$350,000 for property and school taxes.
  - It also predicts approximately 40 full time jobs for the 20-month construction period and three full-time operating staff for the generating facilities, plus additional maintenance personnel on an occasional basis. Three people to be employed on a seasonal basis for park maintenance and staffing of the interpretive centre and museum.

### **OTHER CONSIDERATIONS**

#### **Probability of Success**

- Existing impacts on this population could be addressed, and the population could likely be stabilized. However, the extremely limited distribution of speckled dace in Canada renders them increasingly vulnerable to ongoing development, and potential catastrophic events in the watershed.

#### **Benefits for Other Species/Populations**

- Speckled dace occupy an important ecological niche as predators on aquatic invertebrates, and as prey for larger vertebrates. The recovery of this species may aid in retaining the balance of the Kettle River ecosystem.
- The shorthead sculpin, a species listed as Endangered on Schedule 1 of SARA, has a very similar geographic range to the speckled dace. Protective measures and recovery actions for speckled dace will also likely benefit the shorthead sculpin population.

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#### Costs to Government of Enforcement and Related Protection Measures

- Direct costs to government of listing this species include the ongoing cost of promoting compliance and enforcement, as well as the cost of consultation with stakeholders. There are also significant costs associated with developing and implementing recovery strategies, action plans and management plans, and with funding stewardship projects.
- Funding responsibilities between the federal and provincial governments for freshwater species recovery and protection have not yet been determined.

#### Political Risks

- Opposition to listing by hydro project proponent and those opposed to the power project may become very contentious and public.

#### Federal-Provincial Considerations

- The BC government is a signatory to the federal/provincial Accord for the Protection of Species at Risk and has management responsibilities for freshwater fish in BC.
- The current BC government is very supportive of economic development opportunity and will be concerned about a legal listing decision which implies significant new restrictions on fishing, logging, land development and recreational or tourism opportunity.
- However, avenues for discussion are available through new and existing mechanisms:
  - the province recently passed amendments to the BC Wildlife Act which provide protection for species at risk, and is engaged with the federal government in developing a bilateral agreement to protect and recover species at risk;
  - a new task force on species at risk has recently been developed by the Canadian Council of Fisheries and Aquaculture Ministers Working Group.
- A letter from the DFO Deputy Minister has been sent to the Province soliciting a formal response.

#### Interdepartmental Considerations

- The Minister of Environment has final decision on what recommendation to make to GIC.

#### **POSITIONS OF STAKEHOLDERS**

- There are no significant objections to the legal listing of this species by aboriginal, commercial and recreational fishery stakeholders.
- Proponents of the proposed Cascade Heritage Power Project on the Kettle River oppose this listing and may initiate legal action.
- Local organizations opposed to the proposed hydro project will support this listing, as it may prevent potential impacts of the project on water use, tourism, and economic development in the region.
- Environmental groups will support this listing.

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- Recreational groups will support this listing as it may prevent potential impacts of the proposed hydro project on activities such as kayaking in the Kettle River.

## **OPTIONS**

### ***Option 1 - Do Not List***

- Recognizes that recovery may not be feasible under any circumstances;
- Allows more flexibility for working with stakeholders on protection and recovery measures under federal and provincial legislation.
- Possibility of returning to GIC to list at a later date. The Minister of the Environment may ask COSEWIC to reassess the species at a later date, or if appropriate at a later date, forward the assessment to the GIC for consideration a second time.

### ***Option 2 – List and Manage Under SARA***

- Work with stakeholders to implement strong protection and recovery measures; development restrictions, habitat measures; issue permits or stewardship agreements on the basis that activities will not jeopardise survival or recovery.
- Will have to consider that this is a long-term commitment, since delisting depends on COSEWIC and GIC.
- Would require commitment of recovery funding from federal and provincial governments.
- DFO and the province of BC would have to be prepared to address calls for compensation for impacts of protection and recovery measures on resource use activities.

### ***Option 3 – Return to COSEWIC for Further Information or Clarification***

- Would allow COSEWIC to consider recent changes in proposed hydro project design that are intended to reduce potential habitat impacts.
- Updated biological data on the population could also be collected for consideration by COSEWIC.
- Initial objections to listing by hydro project proponent and possibly BC government would be addressed.
- May be perceived as a “stalling tactic,” especially by those opposed to the power project, unless there is assurance that additional information will make a better and more informed decision.

## **RECOMMENDATION**

- Return to COSEWIC for Further Information or Clarification

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## **CONSULTATIONS**

Fisheries & Oceans Canada began consultation in January 2004 on the legal listing of the nine species referenced in this document and another two (interior Fraser River coho and bocaccio) that were later put on the 'extended' consultation list. First Nations were consulted in six coastal and interior BC community workshops. Consultation sessions were held in eight key communities in BC through a series of workshops.

In advance of consultation, letters of notice and invitation were sent to all First Nation organizations and Bands and key stakeholder organizations in the commercial fishing industry, recreational angler community and non-government environmental organizations. A consultation 'workbook' was developed, providing a background on SARA and each species under consideration for listing. A series of questions were posed in the workbook to assist individuals and organizations in responding with written briefs. Consultation information, the workbook and workshop schedules were posted on the Fisheries & Oceans Canada website, with opportunities for written submissions by email, fax or mail.

### **FIRST NATIONS' CONSULTATIONS**

#### **General Comments and Concerns**

Consultations with First Nation groups were carried out throughout coastal and interior British Columbia. The meetings were well attended with a total of 114 attendees at the 7 meetings. The consultation meetings were scheduled in locations where large numbers of First Nation groups are located. The location and dates of the meetings include: February 23 Quesnel, March 23 Abbotsford, May 10 Campbell River, May 13 Port Hardy, May 17 Prince Rupert and June 8 Chilliwack. The completion date was June 15, 2004, with potential follow-up meetings with individual First Nations if requested.

These sessions followed a format similar to the general public sessions, providing both PowerPoint presentations on background information, and consultation workbooks, which were modified to solicit feedback specific to First Nations. The SARA legal listing background information was presented by DFO specialists, followed by presentations on the species being considered for legal listing by species' specialists. DFO senior managers also attended to address area-specific questions. Questions and feedback were solicited throughout. The meetings have produced good comments, questions and feedback.

Though opinions and comments were varied, a number of common comments and concerns emerged:

- the method by which socio-economic impacts will be considered during the listing process;
- the possibility of food, social and ceremonial fisheries (FSC) being reduced, especially if commercial and recreational fishing don't face similar reductions;
- the extent of power SARA has on reserves;

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- whether non-federal land will be treated differently than reserve lands under SARA;
- the lack of participation in these consultations by the Province and Environment Canada;
- the lack of First Nations' involvement in SARA recovery projects for which they have the capacity and interest to participate;
- the funding available to First Nations for participation in the recovery of species at risk;
- the lack of transparency of the COSEWIC process, and a general misunderstanding about its structure, designation process and general operations;
- First Nations were also interested in how COSEWIC considered Aboriginal Traditional Knowledge when making designation decisions, and wished to see COSEWIC conduct local meetings, such as DFO's current legal listings meetings, prior to completing their assessments;
- whether a species may be de-listed, and if so, by what criteria; that DFO take an eco-system approach to conserving species at risk and that other species may need to be co-managed.

#### **Comments Regarding Whales**

- There were few comments in favour or against listing blue, sei or humpback whales.

#### **Comments Regarding Freshwater Fish**

- There were few comments in favour or against listing Salish sucker, Enos Lake stickleback or the speckled dace.

#### **Comments Regarding Sakinaw Lake Sockeye**

Sakinaw Lake sockeye created much discussion, mostly concerning FSC access to co-migrating Johnstone Strait sockeye, migration issues, and the continuously low water levels in the Sakinaw Lake outflow that may be contributing to stock depletion. DFO's understanding of this species was challenged, and so was the effectiveness of the Department's recovery efforts, given the onset of global warming.

#### **Other comments:**

- How the dam on Sakinaw Lake may be impacting sockeye recovery, and as to what the residences along the lake were doing to ensure water flow to the stream outflow.
- The examination of non-fishing threats to Sakinaw sockeye recovery was questioned.
- The threat of salmon aquaculture to wild salmon.
- Resistance to listing Sakinaw Lake sockeye if FSC fisheries were to be greatly reduced, however, it was recognized that in the long term, healthy salmon runs will ensure the long term viability of those fisheries.

#### **Comments Regarding Cultus Lake Sockeye**

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Cultus Lake sockeye also produced much debate at the coastal First Nations' consultations. Many questions were asked regarding the efforts under way to recover this population, such as the steps being taken to remove Eurasian milfoil weed, and to assess predation issues. Concerns regarding the recreational use of Cultus Lake, the potential impacts on the salmon's pre-spawning mortality and global warming were raised.

Other comments:

- DFO was encouraged to work with Lower Fraser First Nations to look at fishing methods, such as fish wheels, to enable selective fishing, instead of blanket closures when Cultus Lake sockeye are present.
- Interior First Nations supported conservation measures, understanding that this would increase the terminal abundance of fish stocks in their areas.
- Coastal First Nations alarmed at the degree of potential closures for FSC salmon fisheries.
- The accuracy of DFO salmon abundance forecasting was questioned, and a suggestion was made to install a fish-counter beam at the mouth of the Fraser River or in Johnstone Strait, in place of the current test-fishery method.

#### **Comments Regarding Other Species**

First Nations on the west coast of Vancouver Island, expressed concerns over sea otters and their SARA legal listing. Claims were made that sea otters are eliminating the shellfish on the west coast, thus limiting First Nations access to shellfish for food, social and ceremonial purposes. Similar disquiet exists about other SARA-listed species and their effects on FSC fisheries. A sea otter cull was suggested for localized areas where their population threatens shellfish resources and numbers of individuals are high.

Lastly, the current status and legal listing time table of white sturgeon was raised at all meetings, as white sturgeon was designated as endangered by COSEWIC while consultation for the current species were underway. This caused some concern about when they would be considered for legal listing by the federal government.

#### **PUBLIC COMMUNITY CONSULTATION**

In late January to mid-February, Fisheries and Oceans Canada conducted eight community consultation sessions throughout coastal and interior British Columbia. The consultation process consisted of wide distribution of the consultation documents, public meetings, and direct consultation with other jurisdictions, Aboriginal groups, industry groups, and environmental organizations. In addition, information was posted on the SARA public registry website in accordance with section 123 of the Act.

All eight sessions were well-attended, with 234 individuals providing verbal feedback, and 105 commenting through written submissions. Attendees at the Port Hardy, Nanaimo, Sechelt and Prince Rupert sessions were mainly industry representatives, while a broader mix of conservationists and industry were present at the sessions held in Victoria, Richmond, Chilliwack and Kamloops.

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These sessions provided participants with a brief overview of the *Species at Risk Act* and the legal listing process. This was followed by species-specific presentations on biology, threats as identified by COSEWIC and possible protective measures if the legal listings were to proceed.

### **General Comments and Concerns**

Several common concerns were brought forward by participants in both the community sessions and in the consultation workbooks. These fell into three broad categories: COSEWIC; the SARA process; and the possible impacts of recovery actions.

#### *COSEWIC*

- Confusion about the purpose of COSEWIC, its relationship with other government departments, and the role DFO plays in assessing species.
- Perceived lack of transparency and the lack of opportunity for public input in the COSEWIC assessment process generated numerous comments. Many stakeholders expressed concern over the validity of the scientific data used in COSEWIC's assessments.

DFO representatives stressed COSEWIC arm's-length-from-government status. They clarified DFO's position as a member, stressing that the decisions on the species considered and the assessments made are based on scientific evaluation and Aboriginal Traditional Knowledge, and are not directed by the Department. Participants were informed of the discreet roles of COSEWIC and DFO, and were directed to the COSEWIC website for further details on the Committee's role and function.

#### *Species at Risk Act Process*

- Uncertainty and confusion over the difference between the COSEWIC assessment and listing under SARA led to questions over the relevance of consultations at this time.
- Concerns were raised over the emergency listing provisions of the Act, and the triggers that would cause the Minister to recommend a species be emergency listed.
- DFO representatives responded with information available at the time and later followed up by email as appropriate. The presentation was also updated to cover some of the common SARA- related questions from earlier sessions.

#### *Impacts of Recovery Actions*

- Belief that commercial, sport and recreational fishers are unfairly targeted by restrictions imposed in recovery strategies, while predator control and habitat are inadequately addressed. It was suggested that the impact of aquaculture activities be included in recovery planning.
- Suggestion that their unions, fishing associations and/or councils be given adequate funding to play a greater role in assessment and recovery by participating in data collection, scientific review, and habitat and stock enhancement. Numerous responders also requested increased funding for

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recovery planning processes and compensation for the possible loss of harvest opportunities.

### **Comments Regarding Whales**

Input on the potential legal listing of the three whale species received relatively little comment. The majority of those who responded were concerned about possible fishing restrictions to reduce entanglement threats, as well as potential restriction of offshore oil and gas development, with resulting in social and economic hardship. Those opposed to the legal listing of the humpback whale were particularly troubled by COSEWIC's designation of 'threatened', given that humpback sightings are increasing. Other comments were also raised surrounding the COSEWIC process, SARA, compensation, and recovery viability.

Similarly, comments in favour of legal listing were relatively sparse. Key arguments in support included the preservation of biodiversity, tourism opportunities, quality of life, and the government's responsibility to preserve species at risk.

### **Comments Regarding Cultus Lake and Sakinaw Lake Sockeye**

The potential legal listing of the two sockeye populations received written comment from one-half of those who replied, with nearly every respondent opposed to the legal listing.

- Concerns by commercial harvesters, recreational and sports fishers about both the historical and current biological quality of the populations and the spawning lakes highlighted by individuals anxious about the Cultus sockeye.
- Concern about the potential for further restrictions on the mixed-stock fisheries in the Fraser River and Johnstone and Georgia Straits.
- Excessive First Nations' fisheries and poor enforcement while aquaculture and the need for predator control around the lake estuary were key issues for those worried about Sakinaw sockeye.
- Recovery viability and compensation for lost income as a result of listing. Overall, the respondents predicted severe social and economic hardship as a result of legal listing.
- DFO pointed out that while fishing restrictions for all sectors will continue to be a feature in the management of listed and mixed stocks, SARA requires that a more holistic recovery strategy be developed. This will include an evaluation of all identified threats to recovery and measures to minimize those threats, and increased funding for directed enforcement of SARA prohibitions. Information on compensation was unavailable at the time of the consultations.
- Several individuals were in favour of legal listing and provided several broad comments regarding an improved quality of life, the importance of biodiversity, and the government's responsibility to preserve species at risk.

### **Comments Regarding Freshwater Fish - Enos Lake Stickleback, Salish Sucker and Speckled Dace**

With the exception of significant concerns about speckled dace, there were no significant objections to the legal listing of the four freshwater fish species. While there was some

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support, input was restricted to broad comments identifying preservation of biodiversity, quality of life and the government's responsibility to preserve species at risk as key arguments.

The extent and degree of controversy over speckled dace at the workshop in Grand Forks were unexpected. The reaction of participants was passionate, and follow-up correspondence to the department, including the Minister, and the province of BC was quick and strong.

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## **COMPLIANCE**

Listing species in Schedule 1 of the *Species at Risk Act* provides those species, their residences and their critical habitat with protection from harm, harassment, damage and destruction. SARA outlines measures to protect listed wildlife species and habitat, and provides incentives and penalties to ensure compliance.

SARA seeks to promote compliance with recovery efforts by engaging Canadians in stewardship programs and giving concerned groups and individuals the opportunity to take ownership of some aspects of the recovery process. There is also a requirement to involve Aboriginal groups, Wildlife Management Boards, and land claims' bands in the original assessment of a species and in recovery planning. The participation of Aboriginal groups, and the inclusion of Aboriginal Traditional Knowledge in listing and recovery decisions, may help increase aboriginal ownership of, and compliance with, recovery measures.

At the time of listing, the Act imposes automatic prohibitions on the harming of individuals, their residences and habitat, thus providing immediate and direct protection. Subsequently, recovery strategies, action plans and management plans must be developed to promote and manage the revitalization of the species. The implementation of these plans may result in further regulatory protection of the species, or may draw on the provisions of other acts of Parliament, such as the *Fisheries Act*, to provide required protections.

Certain activities affecting a listed species will require permits. Such permits will be considered only for activities that benefit the species, for scientific research relating to the conservation of the species, or where affecting the species is incidental to carrying out an activity. In all cases, the Minister must be assured that the activity will not jeopardise the survival or recovery of the species, and that all reasonable alternatives and feasible measures to reduce or minimize the impact have been considered.

SARA contains provision for the levying of substantial fines or incarceration upon conviction of contravention of one of the prohibitions in the Act. In addition, the court may order the payment of costs, seizure and forfeiture of the proceeds of an illegal activity, and other actions or payments be directed toward the mitigation of harm or the recovery of the species. However, the Act promotes the use of alternative measures to prosecution wherever appropriate. Eligible offenders may be required to undertake tasks or make payment in support of recovery, as an alternative to traditional criminal prosecution. These alternative measures should reduce the costs associated with prosecutions, and increase compliance by reducing the number of repeat offences.

DFO fishery officers will continue to be the primary enforcement agents for aquatic species. A national training plan is under development to instruct officers on the stewardship, prohibition, enforcement and alternative measures provisions of the Act, as

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well as information specific to the listed species in the officers' region of operation. It is anticipated that officers who complete the training will be designated as SARA enforcement officers under subsection 8(2) of the Act. Cooperative enforcement arrangements are being discussed within the context of federal/provincial bilateral agreements.

General implementation of the prohibitions will be incorporated into regular fisheries enforcement operations. For those species not directly affected by commercial contact, such as large whales and freshwater fishes, the prohibitions can be enforced as presented in Sub-sections 32 to 36, 58, 60 and 61 of the *Species at Risk Act*. For those species that will be directly affected, mitigation measures will be implemented through close times, the use of selective fishing equipment and techniques and mandatory release of listed species. These actions will be undertaken by variation orders and licence conditions made pursuant to the *Fisheries Act* and *Regulations*, and enforced under current operating procedures. For fishing activity to occur, the mitigation measures will have to meet the standards and requirements for permits set out in Section 73.

Conservation and Protection Branch (C&P) is also actively involved in directed enforcement projects funded through SARA departmental funding for species already listed in Schedule 1. C&P will propose and conduct directed enforcement activities as funding becomes available for newly-listed species.

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