

Effects of the *Species at Risk Act* (SARA) on First Nations' fisheries

A background discussion paper prepared for

Assembly of First Nations
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Executive summary

The goal of this background discussion paper is to determine the nature and degree to which the *Species at Risk Act* (SARA) impacts upon First Nations' access to fisheries. In order to achieve this goal, the report reviews the origin and responsibilities for implementation of SARA, and describes the implementation of SARA for aquatic species under the jurisdiction of Fisheries and Oceans Canada (DFO). Annotated lists are presented for species currently listed by DFO under various species at risk designations.

After description of the process and identification of key aquatic species currently proposed/listed/reviewed under SARA, the report presents an analysis and evaluation of SARA implementation, especially as it relates to First Nations and their fisheries. A total of 41 recommendations are offered for consideration by the Assembly of First Nations in order to improve the utility of SARA by facilitating a high level of strategic planning among First Nations (a) to coordinate the two-way flow of essential information, and (b) to increase First Nations' capability and participation in research, policy development and implementation of SARA regarding their fisheries management programs.

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Thanks to Audrey Mayes (AFN, Environmental Stewardship Unit - Fisheries) for close technical and moral support on this project. Peigi Wilson, Nancy Bobbish, and David Gorman (AFN) provided insightful comments on an earlier draft. I am particularly grateful for the time of AFN National Fisheries Committee Members for participating in Clayton's interviews, and for the AFN National Policy Advisory Group for feedback on an early draft outline.

Special thanks to Byron Louis (NACOSAR Coordinator), Deana Machin and Howie Wright (Okanagan Nation Fisheries Commission) for comments on earlier drafts. Chi-Miigwetch to Clayton Coppaway (Curve Lake First Nation) for conducting interviews and compiling results.

1. Introduction

1.1 Background

Few pieces of federal legislation regarding Canadian fisheries have the potential to both affect - and be affected by - First Nations, than the *Species at Risk Act* (SARA). First Nations' territorial lands and waters are typically located in geographic proximity to the sites of traditionally important harvests. With specific reference to fisheries, aquatic species remain an important part of wild harvests along coastal and inland waters. More than any other segment of Canadian society, First Nations have expressed a spiritual connection and reliance on the environment for their livelihood, social and cultural expression and preservation (AFN 2004). It has been estimated that 40% of the species at risk in Canada are on Aboriginal Federal Lands (AFN 2003), leading to the hypothesis that it was a general effect of this connection and reliance that maintained refuges for species that declined in other parts of their ranges as a result of overharvest, ecological disturbance and/or habitat destruction.

The creation of SARA was generally applauded by the Assembly of First Nations, which saw the legislation as a much needed step in the right direction for many species that urgently required deliberate action to prevent extinction (AFN 2005c). Many of the species identified under SARA are of importance to First Nations for food, social and ceremonial purposes. Supreme Court decisions, such as *R. v. Sparrow* (1990), provide guidance regarding priority access to fisheries in Canada. According to these decisions, Aboriginal people, fishing for sustenance, have priority over the fishery above all other categories, except for conservation measures. When SARA was introduced and implemented by Canada as a conservation measure, it transformed the legal and scientific landscape in ways which had the potential to have significant effects (both positive and negative) on First Nations' access to fisheries and the lifestyles (traditional and modern) of the people that rely on those fisheries (DFO 2005i).

In their briefing document on SARA, the AFN (2005b, p.2) identified three reasons for the significance of SARA to First Nations:

- First and foremost, as traditional Keepers of the Earth, they have a solemn duty to try to help prevent species from becoming at risk, and to assist in saving those that are at risk.
- Secondly, SARA provides First Nations with an opportunity to play a central role in the struggle to protect and recover species at risk and their habitats.
- Finally, a number of provisions in SARA could affect [positively and/or negatively] their Aboriginal and treaty rights and interests. AFN needs to help ensure that those rights and interests are fully respected.

1.2 Goal and objectives

The goal of this background discussion paper is to determine the nature and degree to which the *Species at Risk Act* impacts upon First Nations' access to fisheries.

In order to achieve this goal, it will be necessary to satisfy the following objectives:

- a) Review the origin, history and responsibilities for administration of SARA, with specific emphasis on Fisheries and Oceans Canada (DFO);
- b) Describe the implementation of SARA, focusing on the process employed by DFO for aquatic species;
- c) Identify the species currently listed by DFO under various SARA designations;
- d) Analyse and evaluate the implementation of SARA, especially as it relates to First Nations and their fisheries; and
- e) Recommend actions for consideration by AFN to strengthen the understanding and role of First Nations in the implementation and development of SARA, with specific regards to protecting their fisheries.

In this manner, AFN and associated First Nations will be provided with the background information and analyses to more fully understand the process of SARA, and to develop effective strategies and tactics for managing their fisheries in the context of species at risk.

Finally, it is important to note that while this report deals with many legal, administrative and sometimes political aspects of SARA, the focus of this report is primarily on transparency and accountability of decisions regarding species at risk and fisheries management. Where appropriate, references to other sources of perspective and analysis have been incorporated.

2. Sources of information

During preparation for this report, information from three qualitatively different sources was reviewed: material received from AFN, material published by the Government of Canada, and material from the primary and technical scientific literature.

2.1 AFN information

The first source of information received from AFN was the 'AFN - First Nations *Species at Risk Act* - Toolkit', most of which was prepared and distributed to First Nations' delegates as briefing material (Appendix I). The second source of information received from AFN was a recent legal analysis of SARA that had been prepared with specific reference to member First Nations of the Atlantic Policy Congress of First Nation Chiefs (Bernard 2006). The third source of information associated with AFN was a series of interviews with members of various AFN committees or experts referred by AFN staff for special insight on the effect of SARA and First Nations' fisheries. These interviews included:

- Members of AFN National Fisheries Committee were interviewed via telephone by my Research Assistant, Mr. Clayton Coppaway (Curve Lake First Nation) using an interview template presented as Appendix II. While Clayton was unable to interview a large number of NFC members in the period of time available for report preparation, we did appreciate the time and effort of those who were generous with their knowledge and insight (summarized results presented in Appendix III). Where possible the perspectives and concerns of the interviewees were incorporated into the structure and content of this report.
- Members of the AFN National Policy Advisory Committee reviewed a draft outline of this report and offered comments and suggestions via Ms. Audrey Mayes of the AFN Secretariat.
- ATK, COSEWIC and SARA Experts were identified and suggested for interview due to their specialized and extensive knowledge of First Nations' resource management issues. Special thanks to Mr. Byron Louis (NACOSAR Coordinator) and Ms. Deana Machin (Program Manager, Okanagan Nation Fisheries Commission) for their generous and very helpful comments on an earlier draft.

2.2 Government of Canada information

There is a large array of public information related to SARA that is released and distributed by the Government of Canada, primarily via websites managed by various Departments and Committees, including:

- *Species at Risk Act* - Public Registry, including text of the *Species At Risk Act* itself,
- Environment Canada (EC)
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
- Fisheries & Oceans Canada (DFO)
- Parks Canada (PC)
- Interdepartmental Recovery Fund (IRF)
- Endangered Species Recovery Fund (ESRF)

Various website URLs useful to SARA researchers are listed in Appendix IV. For the purposes of this report, primary focus was placed on SARA information presented by DFO.

2.3 Primary and technical scientific information

Despite the volumes of scientific information that have been generated on species at risk, there are relatively few articles that have been published on the role of science and/or administration of SARA as it relates to First Nations' and their fisheries. This is partly due to the fact that SARA is a relatively recent piece of legislation, and partly due to the fact that while SARA and First Nations and species at risk are deeply intertwined, most scientists would avoid dealing with politically sensitive issues. Nonetheless, there have been some recent articles that are important for understanding the role of science in SARA, and these are identified where appropriate.

3. Species at Risk Act (SARA)

The Government of Canada, First Nations, and public stakeholders have been involved for many years in efforts to develop and implement a legislative process that ultimately resulted in the 2003 *Species at Risk Act* (AFN 2004). Direct discussions about Aboriginal participation in Canada's species protection plans between Aboriginal governments and organizations and the Government of Canada have been on-going since 1998 (AFN 2003).

In order to have a full understanding of SARA, it is necessary to understand where it came from, what it seeks to accomplish, and specifically who is responsible for its implementation. Each of these issues is discussed in this section.

3.1 History of SARA

In 1975, Canada became the tenth country of what would become 164 nations to sign the *Convention on International Trade in Endangered Species* (CITES) of wild plants and animals (Irvine et al. 2005). The signing of this Convention led to a meeting in 1976 of the Federal, Provincial and Territorial Wildlife Directors to recommend formation of an independent scientific advisory body, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which was formed in 1977.

Fifteen years later, in 1992, the United Nations Conference on Environment and Development (Earth Summit, Rio de Janeiro, Brazil) opened the *Convention on Biological Diversity* for signature by member nations (Irvine et al. 2005). Specifically, the Convention proposed international and national objectives for biodiversity conservation, the sustainable use of biological resources, and the importance of fully considering the perspectives and traditional knowledge of Aboriginal people when developing conservation strategies (AFN 2004). Canada was the first western nation to formally join the International *Convention on Biological Diversity* when it ratified the Convention later in 1992 (d'Eca 2005). As a result of this ratification, Canada became obliged to the objectives and principles of the Convention as they applied to the protection of endangered species in this country.

In response to its international commitments under *the Convention on Biological Diversity*, the federal government developed the 1996 Canadian Biodiversity Strategy which called for the drafting of legislation that would protect endangered species (AFN 2005b). The Canadian Biodiversity Strategy laid out a broad strategy for developing legislative tools that would require the responsible Departments, notably the Department of Environment, to take a proactive approach to species protection (d'Eca 2005). It is important to note that the Canadian Biodiversity Strategy recognized that the conservation of biodiversity

and the sustainable use of biological resources are of fundamental importance to the Aboriginal peoples of Canada (AFN 2004). Moreover, the Strategy explicitly identified the utility of Aboriginal traditional knowledge as a basis for developing conservation and sustainable use policies and programs (AFN 2005b).

In order for the Government of Canada to meet its commitments under both the Convention on Biological Diversity and the Canadian Biodiversity Strategy, the government formulated the concept of a *Species at Risk Act* (AFN 2004). While the concept was widely considered to be sound, and received general support from Aboriginal organizations, the road to implementation was interrupted by a series of legislative and administrative detours.

In 1996 Canada introduced “*A National Framework for the Conservation of Species at Risk*” (d'Eca 2005, Appendix E), followed by 1997 parliamentary discussions of a Canadian Endangered Species Protection Act-CESPA (Bill C-65), however this Bill died on the order paper due to a federal election in the spring of 1997 (Irvine et al. 2005). Also in 1996, Environment Canada made specific contact with Aboriginal organizations regarding their direct involvement in the development of federal endangered species legislation (d'Eca 2005).

Over the next several years, Environment Canada and Aboriginal organizations including AFN, convened several meetings of an Aboriginal Working Group on Species at Risk (AWG) leading to the formal establishment of this group as an Environment Canada Committee in 1999 (AFN 2004). The AWG was made up of representatives of national Aboriginal organizations (Assembly of First Nations, Métis National Council, Inuit Tapiriit Kanatami), with regional participation from Okanagan Nation Alliance, the Council of Yukon First Nations and wildlife management boards established under various land claim agreements (AFN 2004). The activities of the AWG included an extensive review of the Species at Risk legislation, and a discussion and draft of an Aboriginal Accord on Species at Risk that was never adopted (AFN 2004). The AWG also worked with Canada on the creation of two Aboriginal Committees that would prove to play significant roles in the two-way relationship between SARA and First Nations – the COSEWIC Subcommittee on Aboriginal Traditional Knowledge, and the National Aboriginal Council on Species at Risk (NACOSAR) which is mandated to provide advice and recommendations regarding the administration of SARA to the Minister of Environment and CESC (AFN 2005a).

In 1999, the Government of Canada developed an “*Accord for the Protection of Species at Risk*” which described a commitment by Federal, Provincial and Territorial governments to a unified national approach for the protection of endangered species (d'Eca 2005). This Accord was transformed into the first draft of the *Species at Risk Act* (SARA), and was re-introduced in 2000 as Bill C-33, which once again died on the order paper due to another federal election (Irvine et al. 2005).

SARA was re-introduced (with modifications) in 2001 as Bill C-5, was passed on 11 June 2002, proclaimed as federal law on 05 June 2003 with two-thirds of its sections in effect (d'Eca 2005, DFO 2005b). Full implementation of SARA, including enforcement of automatic prohibitions, started on 01 June 2004 (DFO 2005i, Irvine et al. 2005).

3.2 Objectives of SARA

In its most general sense, the *Species at Risk Act* (SARA) was created to prevent wildlife species from becoming extinct (DFO 2005b). Specifically, the three purposes of SARA are stated in Section 2.(1) are as follows:

1. To prevent wildlife species from being extirpated or becoming extinct;
2. To provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity; and
3. To manage species of special concern to prevent them from becoming endangered or threatened (emphasis added).

In order to understand these stated objectives of SARA, it is necessary to understand what the Act means by the key terms in the objectives which are underlined in the text above. The following definitions can be found in SARA:

- wildlife species: “a species, subspecies, variety, or geographically or genetically distinct population of animal, plant, or other organism, other than a bacterium or virus, that is wild by nature and (a) is native to Canada; or (b) has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.”
- extirpated species: “a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.”
- endangered species: “a wildlife species that is facing imminent extirpation or extinction.”
- threatened species: “a wildlife species that is likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction.”
- species of special concern: “a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.”

It should be noted that SARA does not provide a definition for extinct, although this term is generally accepted to mean all members of the species are dead.

Finally, although mentioned explicitly in the objectives SARA does not provide a definition of recovery.

According to DFO (2005a,b), SARA achieves the stated objectives by satisfying two specific sub-objectives:

- a. Providing for the recovery of species at risk due to human activity; and
- b. Ensuring through sound management that species of special concern don't become threatened, endangered or extinct.

The term species at risk is defined by SARA as “*an extirpated, endangered, or threatened species or a species of special concern.*”

The term sound management is not defined by either DFO or SARA.

3.3 Responsibility for administration of SARA

The following subsections focus on the structure and responsibilities for SARA, rather than the actual implementation or processes which are presented in the next section. The information presented in this subsection was compiled from various sources, with references given as available.

Governor in Council (GIC)

Ultimately, authority and responsibility for SARA reside with the Governor in Council (GIC) which is the Federal Cabinet (AFN 2005b). The GIC makes a number of important orders and regulations under SARA, including placement of a species on the List of Wildlife Species at Risk. The Regulations made pursuant to SARA complete the Act, and provide necessary details which flow from the Act. As such, they constitute very important subordinate legislation to SARA (AFN 2005b). SARA legislation allows Government to make up to fourteen different sets of Regulations, a number of which are of particular interest to First Nations (AFN 2005b), including:

- Regulations concerning matters to be included in recovery strategies and action plans;
- Regulations to implement particular measures included in action or management plans;
- Regulations to protect critical habitat;
- Regulations to carry out the purposes of SARA's compensation provisions;
- Regulations respecting agreements and permits made under SARA; and
- Regulations respecting alternative measures to deal with persons alleged to have committed offences under SARA.

Federal Departments

Under authority of the GIC, three government departments were identified as directly responsible for administration and implementation of SARA (DFO 2005a)

1. Environment Canada (EC)
2. Fisheries and Oceans Canada (DFO)
3. Parks Canada (PC).

Recent restructuring of the Canadian Federal Ministries has re-placed Parks Canada directly under authority of Minister of Environment.

Environment Canada has the lead responsibility for administration and implementation for SARA, however DFO is responsible for the administration and implementation of SARA as it relates to all aquatic species, including those in freshwater and/or marine environments (DFO 2005d).

In Section 2.(1) of SARA, the following definitions are used for the term 'competent minister'

- “(a) the Minister of Canadian Heritage with respect to individuals in or on federal lands that are administered by that Minister and that are national parks, national historic sites or other protected heritage areas as those expressions are defined in subsection 2(1) of the Parks Canada Agency Act;*
- (b) the Minister of Fisheries and Oceans with respect to aquatic species, other than individuals mentioned in paragraph (a); and*
- (c) the Minister of the Environment with respect to all other individuals.”*

Therefore, with the exception of SARA responsibilities for aquatic species in waters associated with Parks Canada, DFO is the responsible agency for all other aquatic species, including fishes as defined in the *Fisheries Act*.

Environment Canada (EC)

Under SARA, the Environment Minister is required to satisfy a set of mandatory conditions (AFN 2005), including:

- Establish a public registry to facilitate access to most documents and information relating to SARA;
- Table in Parliament an annual report on the administration of SARA;
- Convene a round table to advise on matters respecting the protection of species at risk, at least once every two years;
- Table in Parliament a general report on the status of wildlife species in Canada, every five years; and
- Undertake a full parliamentary review of SARA five years after coming into force (2008).

Fisheries and Oceans Canada (DFO)

As indicated above, although Environment Canada has the lead responsibility for SARA, fish species fall under the jurisdiction of DFO (2005d). Under the *Fisheries Act*, "fish" is defined to include all life stages of "*fish, shellfish, crustaceans, marine animals and marine plants.*"

Under SARA, the DFO Minister is required to receive COSEWIC status recommendations for species at risk (i.e. endangered, threatened), and is responsible for taking the following actions in response (DFO 2005d):

- Consult with various stakeholders on the designated species;
- Provide advice to the Minister of the Environment on whether the species should be listed for legal protection under SARA;
- If the species is listed under SARA by the EC Minister, then the DFO Minister must:
 - Work with affected stakeholders to develop recovery strategies and action plans for species protected under SARA;
 - Conduct additional scientific research on the impact of fisheries and other activities on listed species and their habitats;
 - Update fisheries management plans where applicable to include new conservation measures; and
 - Develop a compliance program.

We will return to a more detailed discussion of DFO's implementation of SARA in the next section.

There are currently five different Sections within DFO (2005):

1. Policy
2. Science
3. Fisheries Management
4. Oceans (Oceans and Fish Habitat)
5. Coast Guard

Each of these Sections has various responsibilities under SARA, however for the purposes of this report, the two most important DFO Sections are 'Policy' and 'Science.' DFO Policy Section has far-reaching power when it comes to interpretation and recommendation of final decisions regarding the *Species at Risk Act*. In contrast, DFO Science Section appears to be operationally subordinate to Policy Section in most respects, despite the fact that Science is required to provide all evidence-based evaluations of species status. With respect to SARA, DFO Science Section is specifically responsible for the following tasks:

- species assessment
- identifying limiting factors/threats
- measuring (but not defining) 'critical habitat', 'residence', and 'allowable harm'
- developing recovery strategies
- developing action plans
- monitoring predicted effects

- providing science advice to various internal and external committees, including COSEWIC.

The bulk of responsibility for SARA species evaluation resides in DFO Science, however SARA decision-making ultimately resides in DFO Policy and its advisory relationship with the DFO Minister.

On a geographic basis, DFO is divided into six Regions (Figure 1, DFO 2005):

1. Pacific
2. Central and Arctic
3. Quebec
4. Gulf
5. Maritimes
6. Newfoundland and Labrador

With the possible exception of British Columbia, these DFO Regions are based entirely on socio-political factors, and have little to do with the ecology of fish populations or the fisheries that they may support.

For future research and analysis on SARA and aquatic species at risk, it is highly recommended to replace the DFO regions with a combination of the 14 national Freshwater Ecological Areas of Canada (Figure 2) used by COSEWIC when considering designations (Mandrak 2003). These ecological areas are based on the criteria of maintaining discontinuity in gene flow between, and geographic distinctiveness within regions (Dextrase & Mandrak 2006).

For the purposes of this report, DFO reports on SARA species by DFO Region will be presented in a simpler format of Pacific, Arctic, Inland, Atlantic regions.

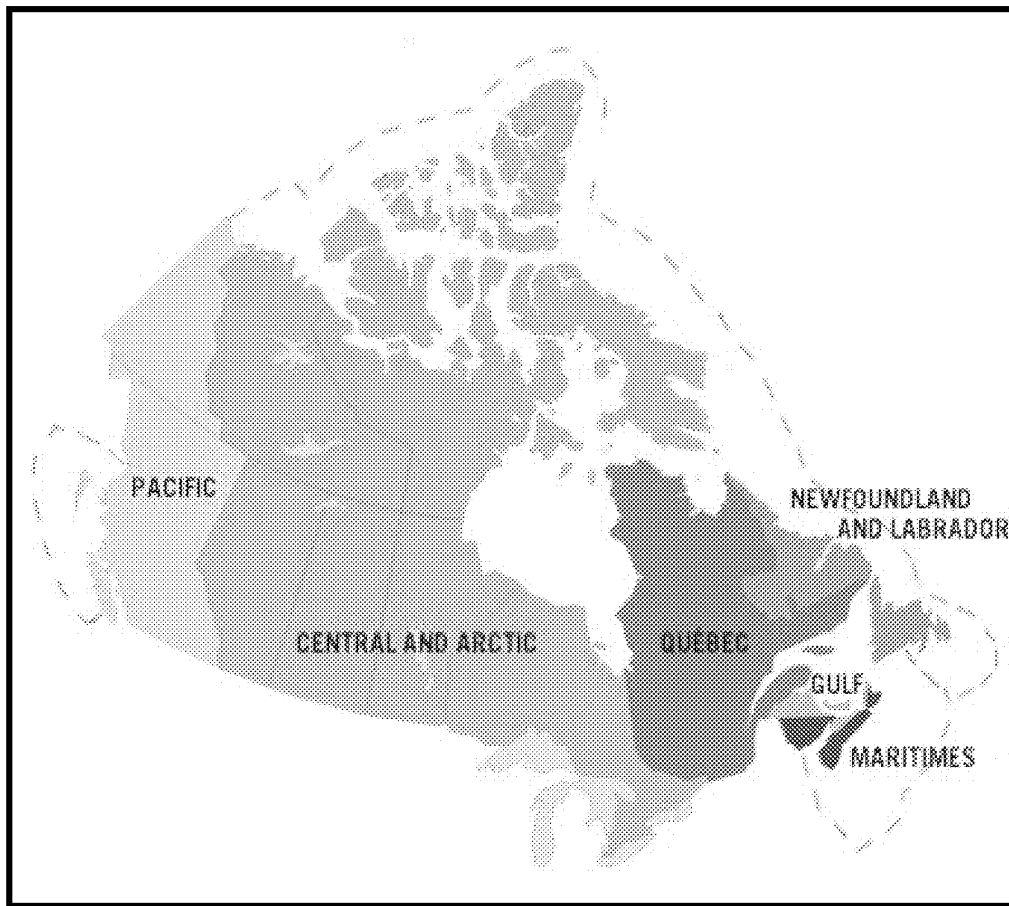


Figure 1. Map of Canada showing the six administrative regions of Fisheries and Oceans Canada (DFO). Source: <http://www.dfo-mpo.gc.ca/species-especes/species> (Accessed February 2006)

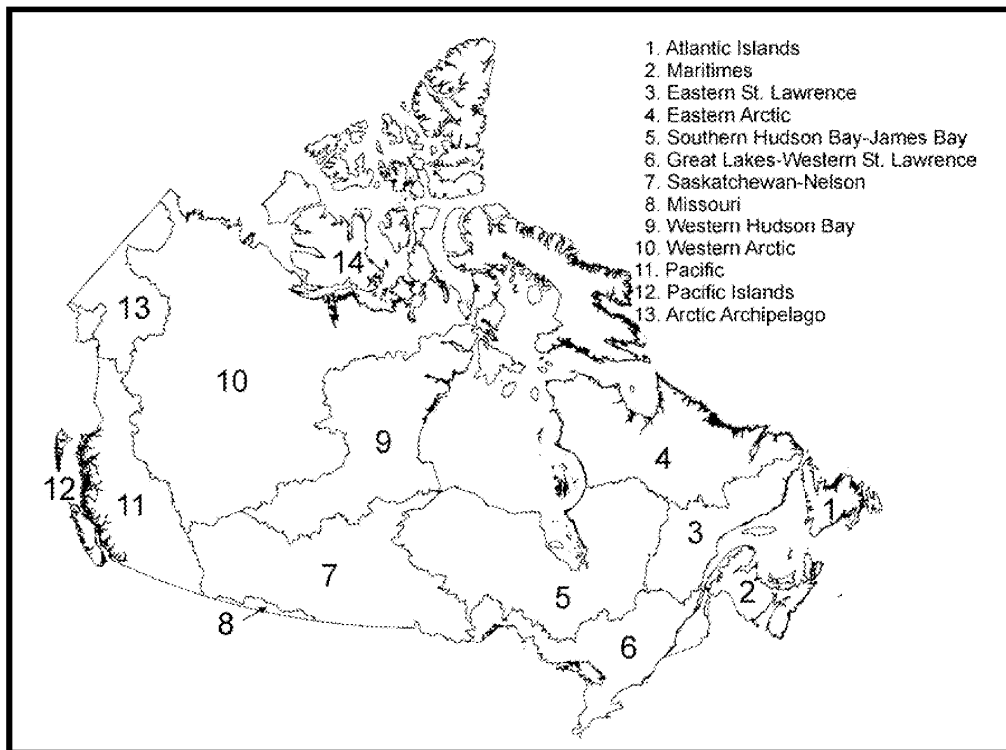


Figure 2. Map of Canada showing the 14 national Freshwater Ecological Areas of Canada used by COSEWIC when considering designations for aquatic species at risk. Source: Dextrase & Mandrak (2006).

Canadian Endangered Species Conservation Council (CESCC)

Under Section 7 of SARA, the CESCC consists of the federal EC and DFO Ministers, as well as all the Provincial and Territorial ministers who are responsible for the conservation and management of a wildlife species. The primary purposes of the CESCC are stated in SARA as:

- “(a) provide general direction on the activities of COSEWIC, the preparation of recovery strategies and the preparation and implementation of action plans; and*
- (b) coordinate the activities of the various governments represented on the Council relating to the protection of species at risk.”*

It is important to note that the CESCC is also responsible for interaction with the NACOSAR to ensure effective communication and cooperation with Aboriginal governments and communities.

National Aboriginal Council on Species at Risk (NACOSAR)

Section 8.(1) of SARA explicitly describes the establishment of the National Aboriginal Council on Species at Risk (NACOSAR):

- “The Minister shall establish a Council, to be known as the National Aboriginal Council on Species at Risk, consisting of six representatives of the aboriginal peoples of Canada selected by the Minister based upon recommendations from aboriginal organizations that the Minister considers appropriate. The role of the Council is to*
- (a) advise the Minister on the administration of this Act; and*
- (b) provide advice and recommendations to the Canadian Endangered Species Conservation Council.”*

The primary purpose of NACOSAR is to provide a forum that involves Aboriginal perspectives in discussions and decisions concerning the implementation of SARA at the highest levels.

The following information on structure and function of NACOSAR is based on the draft Terms of Reference presented in d'Eca (2005). The six members of NACOSAR are appointed by the Minister of Environment for a term of two years (repeated appointments are possible), and can only be removed prematurely for cause. NACOSAR selects a Chair from its membership, and this person serves as primary contact with the Minister and the CESCC. NACOSAR itself may propose changes to its specific Terms of References for consideration by the Minister of Environment.

NACOSAR is required to convene at least twice per year, and at least once per year for a meeting with the Minister of Environment (d'Eca 2005). NACOSAR seeks to reach consensus on advice where possible, and to provide a perspective on divergent views in situations where consensus is not achieved.

According to the NACOSAR Terms of Reference (d'Eca 2005), specific functions for the council include developing and providing advice on:

- The activities of COSEWIC;
- Species assessment criteria;
- Response actions and priorities for further action;
- The encouragement of effective stewardship of Canada's rich biological diversity;
- Measures to prevent species from becoming at risk; and
- Coordination of emergency protection efforts.

In addition to these advisory responsibilities, NACOSAR is also required to:

- Develop Operating Procedures and produce an Annual Report;
- Establish ad hoc or standing committees;
- Exchange information, advice and recommendations with Aboriginal governments, organizations and individuals, and with land claims organizations, concerning species at risk issues;
- Subject to the terms of self-government and land claims agreements, provide advice and recommendations for the inclusion of Aboriginal Traditional Knowledge in the assessment, classification, recovery and overall protection of species at risk;
- Review progress and provide advice and recommendations related to the recovery and overall protection of species at risk in areas of concern to affected Aboriginal Peoples;
- Provide advice and recommendations to assist in the effort to ensure that Aboriginal peoples are consulted and included in the implementation of SARA, the National Accord and the National Framework; and
- Provide recommendations to the Environment Canada Minister concerning the membership of the ATK Subcommittee.

Thus, it should be clear that NACOSAR holds a potentially important role in the interpretation and implementation of SARA.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

One of the pivotal committees early in the SARA process was the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (Bernard 2006). COSEWIC has been described as a scientific body which acts in a manner that is largely independent of government control, however it is actually a division of Environment Canada (Irvine et al. 2005, Dextrase & Mandrak 2006). COSEWIC was originally formed in 1977 jointly by Provincial and Federal governments as a tool for providing expert scientific reports on the status of wildlife species (Vanderzwaag & Hutchings 2005). COSEWIC served in this reporting capacity for 25 years, until SARA explicitly designated it as the responsible committee to assess and recommend to the Environment Canada Minister the species that should be considered for legal listing (Irvine et al. 2005).

“This enactment establishes the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk. It provides that COSEWIC’s assessments are to be reported to the Minister of the Environment and to the Canadian Endangered Species Conservation Council and it authorizes the Governor in Council to establish by regulation the official list of species at risk based on that process.” (SARA, summary)

Thus, the primary role of COSEWIC under SARA is to provide mostly scientific information regarding risk status to the Minister of Environment (and other competent Ministers) and the CESCO, at which point other non-scientific forms of information are brought into the decision-making process.

COSEWIC is responsible for identifying and ranking candidate species at risk of extinction, and preparing public reports that conclude with a scientifically based classification of status (Irvine et al. 2005). According to Section 15.(1) of SARA, COSEWIC is mandated to:

- (a) assess the status of each wildlife species considered by COSEWIC to be at risk and, as part of the assessment, identify existing and potential threats to the species and

 - (i) classify the species as extinct, extirpated, endangered, threatened or of special concern,*
 - (ii) indicate that COSEWIC does not have sufficient information to classify the species, or*
 - (iii) indicate that the species is not currently at risk;**
- (b) determine when wildlife species are to be assessed, with priority given to those more likely to become extinct;*
- (c) conduct a new assessment of the status of species at risk and, if appropriate, reclassify or declassify them;*
- (c.1) indicate in the assessment whether the wildlife species migrates across Canada’s boundary or has a range extending across Canada’s boundary;*
- (d) develop and periodically review criteria for assessing the status of wildlife species and for classifying them and recommend the criteria to the Minister and the Canadian Endangered Species Conservation Council;*
- and*
- (e) provide advice to the Minister and the Canadian Endangered Species Conservation Council and perform any other functions that the Minister, after consultation with that Council, may assign.”*

We will return to the actual process whereby COSEWIC makes conclusions regarding an individual species assessment in the next section.

In its current form, COSEWIC is comprised by 30 voting representatives, who consist of wildlife experts and scientists appointed by the Minister of Environment from each of the following (COSEWIC 2006r, DFO 2005b, Irvine et al. 2005):

- The three Federal Departments with responsibilities for SARA:
 - Canadian Wildlife Service (a branch of Environment Canada)
 - Fisheries and Oceans Canada
 - Parks Canada
- Each Provincial/Territorial wildlife agency;
- The National Biosystematics Partnership;
- Three non-jurisdictional representatives (members at large);
- The co-chairs for the nine Species Specialist Subcommittees:
 - Terrestrial Mammals
 - Marine Mammals
 - Fish (a) Marine and (b) Freshwater
 - Arthropods
 - Reptiles and Amphibians
 - Molluscs
 - Birds
 - Plants
- The co-chairs for the Aboriginal Traditional Knowledge Subcommittee.

With the notable exception of the ATK Subcommittee co-chairs, COSEWIC is composed primarily of a number of Western Science experts in conservation biology, genetics, taxonomy, population dynamics, all drawn from Federal, Provincial and Territorial governments, universities, and non-government organizations (AFN 2005b, DFO 2005b). The Act does not establish a minimum or maximum number of appointees, leaving this issue to the discretion of the Minister. Vanderzwaag & Hutchings (2005) have noted that although governments are represented at COSEWIC, members do not represent their governments when species are being assessed - all COSEWIC and Subcommittee members are expected to act as independent experts, and to base their assessments on the best available scientific, community, and Aboriginal Traditional Knowledge, as appropriate. It has been suggested that by having government agencies represented by their experts at COSEWIC, there is less possibility that the agencies will discount or reject COSEWIC assessments (Vanderzwaag & Hutchings 2005).

It is interesting to note that neither commercial nor recreational harvester's associations can be represented on COSEWIC (DFO 2005h). This may be consistent with the SARA mandate that COSEWIC be a non-governmental scientific group with the task of conducting the biological assessments of risk, without considering the regulatory or socioeconomic impacts (Irvine et al. 2005). DFO (2005h) states that "*COSEWIC was created as an independent committee of experts that assesses the risk of extinction of species at risk. As such, no groups with an economic interest in the species being assessed are members; However, the knowledge of groups such as the fishing industry and First Nations are often considered in COSEWIC's assessments*".

COSEWIC Aboriginal Traditional Knowledge Subcommittee

As noted above, the major exceptions to a COSEWIC philosophy dominated by Western Science, are the co-chairs of the Aboriginal Traditional Knowledge Subcommittee. In Section 15.(2) of SARA, the Act explicitly identifies the responsibility of COSEWIC to combine scientific and local and Aboriginal knowledge in its species assessments:

“COSEWIC must carry out its functions on the basis of the best available information on the biological status of a species, including scientific knowledge, community knowledge and aboriginal traditional knowledge.”
(emphasis added)

In contrast to an exclusively scientific process, COSEWIC is explicitly required to use non-Western scientific (notably ATK) information, when it is available. The phrase 'best available information' is emphasized in this section, to highlight this as a key uncertainty in SARA, which is discussed in more detail below.

In Section 15.(3) of SARA, the Act also explicitly identifies the requirement for COSEWIC to take into account any applicable “*provisions of treaty and land claims agreements*” when carrying out its functions. Given the fact that COSEWIC's primary responsibility is assessment of risk for selected species, one way that “*provisions of treaty and land claim agreements*” could affect the species assessments would be in the delivery and content of Aboriginal Traditional Knowledge – if this ATK was explicitly addressed in treaties and/or agreements.

In order to facilitate this input of Aboriginal Traditional Knowledge, Section 18 of SARA explicitly establishes:

“a subcommittee specializing in aboriginal traditional knowledge”

in which

“the chairperson and members of the aboriginal traditional knowledge subcommittee must be appointed by the Minister after consultation with any aboriginal organization he or she considers appropriate.”

COSEWIC (2005a) states that ATK subcommittee members are “*elders or technical people*” who have been nominated by their National Aboriginal Organization (The Assembly of First Nations; The Métis National Council, Inuit Tapiriit Kanatami, Congress of Aboriginal Peoples and Native Women's Association of Canada), and appointed by the Minister of the Environment “*on the basis of their Aboriginal knowledge experience.*” In turn, the ATK Subcommittee is mandated to work with a COSEWIC ‘Ecoregion Network’ comprised of “*approximately thirty-four Aboriginal knowledge holders (not members of COSEWIC) [which] will be identified by the National Aboriginal Organizations to work with the ATK Subcommittee to provide the links to community participation in species assessments*” (COSEWIC 2005a).

According to COSEWIC (2005a) the Committee “*welcomes the contribution of Aboriginal traditional knowledge to the species assessment process through the establishment of an Aboriginal Traditional Knowledge subcommittee.*” It is

important to note the definition of what COSEWIC (2005a) considers as ATK in the species assessment process:

- Species occurrence;
- Species distribution;
- Population size;
- Information related to observed changes in biology and/or population size, over time;
- Potential threats; and
- Aboriginal use of a species.

COSEWIC (2005a) explicitly states that it does not consider specific information on “*Aboriginal cultural, medicinal or spiritual use of a species*” in its assessment process. While this condition may have originally been intended to relieve concerns about inappropriate transfer/use of ATK, it also may have the effect that ATK must be translatable to a defined set of concepts that Western Science considers to be important.

The guiding principles for the COSEWIC ATK Subcommittee are as follows (COSEWIC 2005a):

- a) Subject to the terms of self-government and land claims agreements, Aboriginal communities are presumed to be the primary bodies to facilitate access to Aboriginal traditional knowledge in the assessment and classification of species at risk;
- b) Access is subject to local laws, protocols and practices. Permission to use Aboriginal traditional knowledge in the assessment and classification of species at risk must be secured from the holders of such knowledge;
- c) Aboriginal traditional knowledge used in the assessment and classification of species at risk is to be treated as public knowledge only with the approval of the holders of such knowledge;
- d) It is to be organized and presented in a culturally-appropriate, timely and thorough manner, and - to the extent possible - in such a way as to be comprehensible by both Aboriginal and non-Aboriginal persons.

Specific duties of the COSEWIC ATK Subcommittee include (COSEWIC 2005a):

- Attend at least two meetings each year;
- Contribute to species assessments: review draft and interim status reports, participate on ATK Review Teams and provide regional expertise on the status of, and threats to species;
- Suggest species for the priority list;
- Participate on COSEWIC Working Groups (as requested by COSEWIC chair);
- Participate on COSEWIC's Species Specialist Subcommittees (SSC) to contribute to the work of the SSCs and to ensure that ATK is included in species assessments; and
- Function as “gate-keepers” to facilitate the inclusion of ATK in the species assessment process by advising writers of status reports and ATK reviews of appropriate guidelines established for the gathering and recording of

Aboriginal traditional knowledge, as well as known sources of information and appropriate contacts.

Once again, it is important to realize that the ATK which COSEWIC refers to are the specific concepts considered to be important by Western Science.

Overall, it can be seen that the COSEWIC ATK Subcommittee is similar to NACOSAR in that they are both intended to provide Aboriginal input to the SARA process. However, it should be clear that while NACOSAR is expected to provide strategic advice on implementation of SARA, the ATK Subcommittee is focused on the primary responsibility of COSEWIC – that is, assessing the risk of species extinction.

Wildlife Management Boards

There are repeated references in the COSEWIC guidelines and in SARA to the requirement for consultations with 'Wildlife Management Boards.' COSEWIC (2006f) identifies current Wildlife Management Boards (WMB) as having been established under land claims agreements, extending over almost all of Nunavut, northern Northwest Territory, the Yukon and parts of Quebec and British Columbia (Figure 3). Appendix V presents detailed information for the WMBs that have expressed an interest in COSEWIC's activities (COSEWIC 2006f)

- British Columbia
 - **Nisga'a Wildlife Committee (NWC) & Joint Fisheries Management Committee (NJFMC)**
- Yukon
 - **Wildlife Management Advisory Council - North Slope (WMAC-NS)**
 - **Yukon Fish and Wildlife Management Board (YFWMB)**
- Northwest Territories
 - **Fisheries Joint Management Committee (FJMC), Inuvialuit Renewable Resources Committees**
 - **Gwich'in Renewable Resources Board (GRRB)**
 - **Sahtu Renewable Resources Board (SRRB)**
 - **Wildlife Management Advisory Council - Northwest Territories (WMAC-NWT)**
- Nunavut
 - **Nunavut Wildlife Management Board (NWMB)**
- Québec
 - **Hunting, Fishing and Trapping Coordinating Committee (HFTCC)**

These Wildlife Management Boards were established under land claims agreements to make management decisions regarding wildlife in their jurisdictions (COSEWIC 2006g). It is important to note that many First Nations have agreements with Federal/Provincial/Territorial governments that act in similar ways to the Wildlife Management Boards, although these are not legally defined within the context of SARA.

For the specific issues associated with SARA, the WMBs and COSEWIC have developed a process for ensuring that (a) information about COSEWIC plans and activities are effectively communicated to the WMBs, and (b) that information held by the WMBs is included in COSEWIC's assessment process in order to improve the quality of the assessment (COSEWIC 2006f). WMBs have access to local information on wildlife in their settlement regions and they have the ability to facilitate communication between COSEWIC and the hunters and trappers with substantial knowledge of species of interest. (COSEWIC 2006f). Recently, COSEWIC and the WMBs have engaged in drafting a formal consultation process to ensure that the WMBs have full opportunity for input during the preparation and review of status reports for species within their management area (COSEWIC 2006g).

First Nations

There is no evidence that COSEWIC has developed or proposed a formal consultation protocol for engaging First Nations (or associated Political Treaty Organizations) in the similar manner that it engages the Wildlife Management Boards, as described above.

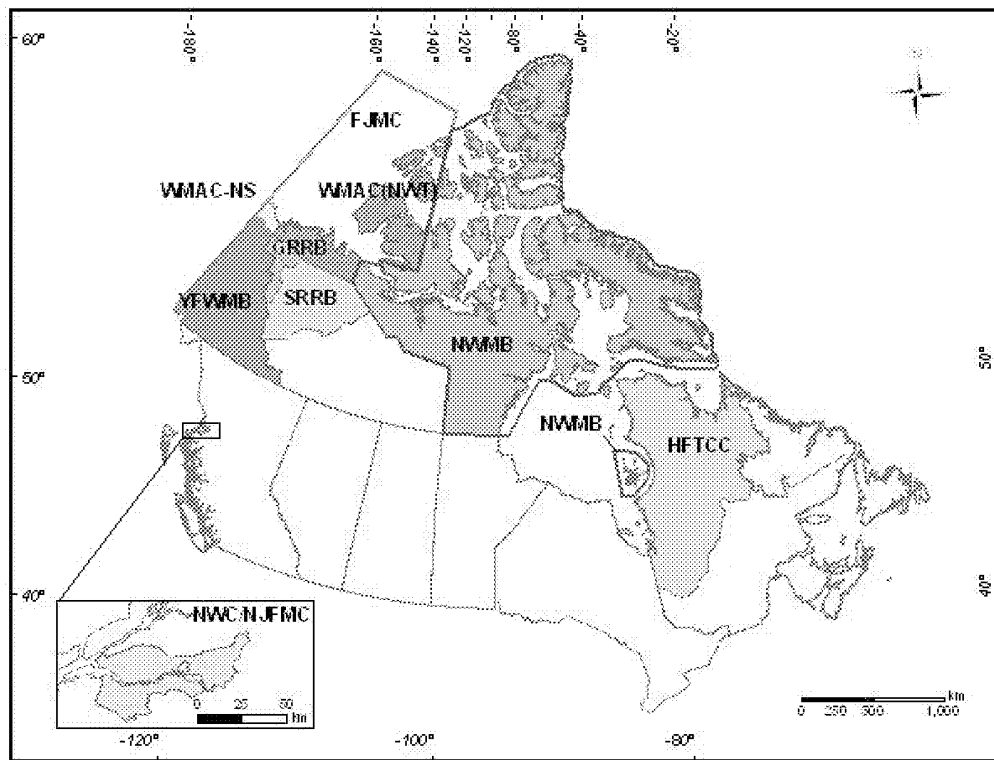


Figure 3. Map of Wildlife Management Boards in Canada. Source: COSEWIC (2006i)

4. DFO Implementation of SARA Process

Given the various branches of the Government of Canada, and their various responsibilities for administration of SARA, it is important to determine how the process is actually supposed to be implemented. No single, comprehensive document has been published by the federal government (Environment Canada or Fisheries and Oceans Canada) to describe actual implementation of the various processes associated with SARA. The information presented in this subsection was compiled from various sources, with references given as available.

For the purpose of this report, focus will be placed on the role of Fisheries and Oceans Canada (DFO), one of the three Federal Departments with responsibility for administration and implementation of SARA. As discussed in the previous section, the Minister of Fisheries and Oceans is required to submit recommendations to the Environment Canada Minister, and ultimately the Governor in Council (i.e. Federal Cabinet), for decision-making. Unless specifically mentioned otherwise, the term 'Minister' in this description refers specifically to the Minister of Fisheries and Oceans.

Figure 4 shows a flowchart depicting five major phases in DFO implementation of the SARA process as defined by the Act, including:

1. Assessment
2. Response Statements
3. Legal Listing
4. Protection
5. Recovery

as well as a final important phase that is not explicitly included in the DFO scheme:

6. Delisting

The following subsections present the details for each of these six phases in the SARA process.

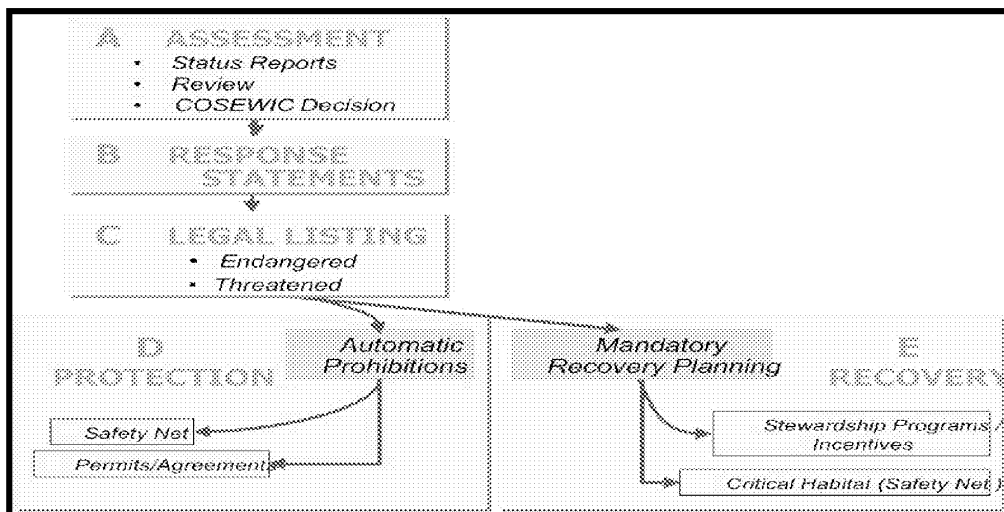


Figure 4. Flowchart for the five major phases in implementation of SARA identified by Fisheries and Oceans Canada (DFO). Source: <http://www.dfo-mpo.gc.ca> (Accessed February 2006)

4.1 Assessment

The first phase in DFO implementation of SARA is triggered by the COSEWIC assessment of species status, with regard to the risk of extinction (COSEWIC 2006q). For the purposes of this report, this initial phase has been divided into seven steps:

1. Proposal of species for COSEWIC designation;
2. Establishment of Species Record in SARA Public Registry;
3. Prioritization/Selection of Species for COSEWIC Assessment;
4. Preparation of COSEWIC Status Reports;
5. Review of COSEWIC Status Reports;
6. Designation of COSEWIC Species Status; and
7. Report of COSEWIC Species Status Designation.

The following subsections describe the specific process associated with these seven steps.

4.1.1 Proposal of species for COSEWIC designation

The first step in the SARA process is the identification of 'Candidate' species from among the many thousand of species that reside in whole or part within Canada – species which may be most at risk of extinction or extirpation nationally, and which would require a detailed assessment of this risk.

There are two different ways that a species may arrive at the Candidate List for COSEWIC. The first, and most common method, is for the COSEWIC Species Specialist Subcommittee (SSC) or Aboriginal Traditional Knowledge (ATK) Subcommittee to nominate the species to the Candidate List, based on their expert information. The second method, required under Section 22 of SARA, is for COSEWIC to accept external applications from the public for assessment of a species:

"(1) Any person may apply to COSEWIC for an assessment of the status of a wildlife species. (2) The Minister may, after consultation with the Minister of Canadian Heritage, the Minister of Fisheries and Oceans and the Canadian Endangered Species Conservation Council, make regulations respecting the making of applications to COSEWIC under subsection (1) and the dealing with of those applications by COSEWIC."

Thus, SSC Co-chairs also will accept and evaluate public requests to consider species for the Candidate List (COSEWIC 2006l).

4.1.2 Establishment of Species Record in SARA Public Registry

Once a species is placed on the Candidate List, the Minister is required by SARA to establish a public registry to facilitate access to most documents and information relating to the SARA process for that species (AFN 2005b). Section 120 of the Act states that *"The Minister must establish a public registry for the purpose of facilitating access to documents relating to matters under this Act."* The SARA Public Registry is an online internet service that is intended to provide the public with timely access to SARA information and documents including

status reports, species assessments, response statements, recovery strategies, and action and management plans (DFO 2005b). According to Section 123:

“The public registry shall contain every document required to be included in the public registry by this Act and the following documents, or a copy of the following documents:

- (a) regulations and orders made under this Act;*
- (b) agreements entered into under section 10;*
- (c) COSEWIC's criteria for the classification of wildlife species;*
- (d) status reports on wildlife species that COSEWIC has had prepared or has received with an application;*
- (e) the List of Wildlife Species at Risk;*
- (f) codes of practice, national standards or guidelines established under this Act;*
- (g) agreements and reports filed under section 111 or subsection 113(2) or notices that those agreements or reports have been filed in court and are available to the public; and*
- (h) every report made under sections 126 and 128.”*

Although the creation of a species record in the SARA Public Registry is truly a purely administrative task of record-keeping, it is important to establish it as a step in the chain because all subsequent events in the SARA process for that species are required to be registered there. The SARA Public Registry is intended to enable the public to monitor the progress of documents from draft stages to final publication, and supports participation in decision-making by providing the public with notice of public consultations, and opportunities to comment on SARA-related documents (DFO 2005b)

4.1.3 Prioritization/Selection of Species for COSEWIC Assessment

Once a species is placed on the COSEWIC Candidate List, and registered on the SARA Public Registry, COSEWIC must decide which Candidates rank high enough in priority to be selected for preparation of a detailed species status report. COSEWIC attempts to give priority attention to species at greatest risk of extinction or extirpation across their range in Canada (COSEWIC 2006I). There are two different sub-assessments that are undertaken in the prioritization process:

- Determination of eligibility for Candidate Species, and
- Prioritization of Eligible Candidate Species.

Each of these sub-assessments is described briefly below.

Determination of Eligibility for Candidate Species

In order to be deemed 'eligible', a Candidate Species must meet certain COSEWIC criteria regarding taxonomic validity, native origin, regularity of occurrence and dependence on Canadian habitat, as presented in Table 1.

Table 1. COSEWIC eligibility criteria for determining which proposed species on the Candidate List satisfy conditions required to be included in the prioritization process (COSEWIC 2006p).

COSEWIC Eligibility Criteria	Description of eligibility
1. Taxonomic validity	<ul style="list-style-type: none"> • COSEWIC would normally only consider species and subspecies or varieties that have been established as valid in published taxonomic works or in peer reviewed communications from taxonomic specialists. • COSEWIC would not normally consider other designatable units unless they can be shown to be genetically distinct, separated by a major range jurisdiction, or biogeographically distinct (refer to Guidelines for Recognizing Designatable Units Below the Species Level). • Justification for considering designatable units below the species level must be provided.
2. Native species	<ul style="list-style-type: none"> • COSEWIC would normally only consider native species. • A native species is a wild species that occurs in Canada naturally, or that has expanded into Canada without human intervention from a region where it naturally occurred, has produced viable populations, and has persisted in Canada for at least 50 years.
3. Regularity of occurrence	<ul style="list-style-type: none"> • COSEWIC would normally only consider species which occur regularly in Canada, excluding vagrants.
4. Requires habitat in Canada	<ul style="list-style-type: none"> • COSEWIC considers species that are year-round residents in Canada. • COSEWIC also considers a species which, although not a full-time resident in Canada, meet the other eligibility criteria and require habitat in Canada for a key life history stage.
5. Special cases	<ul style="list-style-type: none"> • Notwithstanding the above guidelines, a taxon may be considered eligible if there are clear conservation reasons for consideration (for example high risk of extinction). • In particular, a species which does not meet the eligibility criteria but which is at risk in its primary range outside of Canada could be considered for designation. • Reasons for considering a special case must be presented and supporting information must be provided; this should normally be reviewed and agreed to by COSEWIC before a status report is prepared

The assessment of these eligibility criteria for species on the Candidate List is completed by the SSC Co-chairs, in consultation with their SSC and ATK Subcommittee members. Eligibility of each species is ultimately reviewed and confirmed by the Main COSEWIC Committee (COSEWIC 2006I).

Prioritization of Eligible Candidate Species

Once the Candidate List has been screened for eligibility, COSEWIC must rank the eligible species in terms of priority for status assessment. Priority is determined by considering levels of apparent risk, taxonomic distinctiveness, global distribution and proportion of range in Canada. Species are selected using the 'May be at Risk' list in the Monitoring of the General Status of Wild Species in Canada Program, as well as information drawn from other multi-jurisdictional monitoring, jurisdictional and international assessment processes (e.g., NatureServe ranks, IUCN and ABI), published ranking systems in the scientific literature, and the expert knowledge of SSC and COSEWIC members (COSEWIC 2006a). Each SSC assigns their associated candidate species into **High**, **Mid** and **Low** priority groups, based on documented criteria weighting systems that vary by taxonomic group, life histories and information available (COSEWIC 2006I). Ultimately, the main COSEWIC Committee selects particular species to enter the detailed evaluation process (Irvine et al. 2005).

4.1.4 Preparation of COSEWIC Status Reports

Once COSEWIC has made a decision to assess the status of a species, it tenders contract bids for external sources to compile COSEWIC status reports which are intended to review and present of the available scientific evidence that is pertinent to status designation (DFO 2005b, COSEWIC 2006I):

"As time and resources allow, COSEWIC will commission status reports for candidate species so that an assessment can be undertaken. Status reports are commissioned by COSEWIC through an open competition. A Call for Bids is periodically posted on this website both for selected candidate species, and also for designated species that require reassessment." (COSEWIC 2006a).

A COSEWIC species status report is essentially a compilation of all available data, knowledge and information on the current condition of that species in Canada.

"A status report is a comprehensive technical document that compiles and analyzes the best available information on a species' status in Canada. It contains information on the basic biology of a wildlife species, as well as information on a species' distribution in Canada, population sizes and trends, habitat availability and trends, and threats to the species." (COSEWIC 2006c, my underline)

The phrase best available information is important here, because in many cases there is little that is actually known about species at risk. COSEWIC defines best available information as:

“Best Available Information: all existing information that is pertinent to assessing the status of a species, including scientific knowledge, community knowledge and Aboriginal Traditional Knowledge, which has been subjected to appropriate quality controls and can be obtained from literature sources or from the holders of the information. Information that is not in the literature, that is kept secret by its holders, or that cannot be located following a reasonably diligent search, cannot be included in reports.” (COSEWIC 2006d)

There are two things to keep in mind about this definition of best available information. Although the conditions of ‘quality control’ may be determined by the traditional knowledge holders themselves in many cases, these conditions could also unfairly constrain what is recognized as ‘acceptable’ traditional knowledge – especially unpublished information if it is difficult to obtain.

The phrase ‘best available information’ was emphasized in this section, because (a) this provision has a major effect on COSEWIC status designation, (b) there is no operational definition of what ‘best available’ means, (c) there is no description of what would happen if there is virtually no information available, and (d) there is no mechanism that would require any improvement of available information in the case where there is virtually no information available.

The actual preparation of COSEWIC status reports is outsourced by COSEWIC to external authors. Contractors are invited to bid on contracts to draft status reports for the high priority candidate species on the COSEWIC Candidate List or for species that require re-assessment (‘update status reports’) (COSEWIC 2006c). According to COSEWIC (2006q) the required information includes distribution, extent of occurrence, area of occupancy, abundance (including population estimates or number of occurrences, where available), population and habitat trends, and factors or threats limiting the species (details regarding contents and structure of a status report are defined in ‘Instructions for the Preparation of COSEWIC Status Reports’). Applicants (bidders) will be expected to submit a work plan and budget, a statement of qualifications, and a statement indicating willingness to cede intellectual property and moral rights to the Crown on behalf of COSEWIC (2006q). There are no explicit methods of auditing the draft status reports prepared by external contractors, to ensure quality controls and independence from the socio-political factors associated with some species at risk.

It should be noted that COSEWIC also indicates that it considers unsolicited status reports (apart from those commissioned by COSEWIC) from any member of the public when accompanied by an Application for Species Assessment (COSEWIC 2006c).

4.1.5 Review of COSEWIC Status Reports

The fifth, and arguably the most important step in the COSEWIC process is a review of the information provided in the commissioned status report. Section 15.(2) of SARA specifically states that:

“COSEWIC must carry out its functions on the basis of the best available information on the biological status of a species, including scientific knowledge, community knowledge and aboriginal traditional knowledge.”
(emphasis added)

Section 23.(1) establishes a one-year time frame within which COSEWIC must respond to the commissioned status report, by designating the species status:

“COSEWIC must assess the status of a wildlife species within one year after it receives a status report on the species, and it must provide reasons for its assessment.”

Once a draft status report has been received by COSEWIC it is distributed to the appropriate Species Subcommittee, the Aboriginal Traditional Knowledge Subcommittee, the Provincial/Territorial range jurisdictions, and any relevant Wildlife Management Boards for internal peer review (COSEWIC 2006c). These internal reviewers make comments and suggestions for revision of the draft status report, which in turn are sent to the contract author who is required to make these changes to what is referred to as the ‘Provisional Status Report’ and pending further changes, to the ‘Interim Status Report’ (COSEWIC 2006q). The Interim Status Report – including the draft recommendation of status designation – is reviewed by the SSC once again, and then becomes the focus of discussion at a scheduled Species Assessment Meeting of the Main COSEWIC Committee (Irvine et al. 2005, COSEWIC 2006m).

Species Assessment Meetings are conducted according to a specific series of questions which are considered for the Candidate Species and the Status Report, in order to determine a Canadian status designation. The following descriptions were taken verbatim from COSEWIC (2006n) documentation, except where noted.

A. Is the species eligible for assessment?

The SSC Co-chair introduces the species, highlighting features such as taxonomy and biology and establishes eligibility for COSEWIC assessment (Table 1). After discussion, COSEWIC may: choose to accept the SSC's recommendation of eligibility of species; alter the parameters of the species to be considered (e.g., combine or divide designatable units); or identify the species as ineligible for assessment by COSEWIC.

B. Is the status report adequate and acceptable?

The appropriate SSC Co-chair then briefly summarizes the status report and presents the rationale for the status assessment recommended by the SSC. After discussion, Committee members may choose to let the report stand for status assessment or move that it be withdrawn for further work.

C. What status is suggested by application of approved COSEWIC quantitative assessment criteria and guidelines?

Once the species is determined to be eligible, and the status report has been accepted, COSEWIC proceeds to discuss the appropriate status designation on the basis of the best available information.

As a first step in this deliberation, information in the status report is used to assess the species according to COSEWIC's quantitative criteria and definitions, based in large part on World Conservation Union (IUCN) criteria as guidelines when assessing risks of extinction (Irvine et al. 2005, COSEWIC 2006n). A complete description and definition of quantitative criteria and guidelines for the status assessment of species is provided by COSEWIC (2006o,q).

Irvine et al. (2005) paraphrased these IUCN criteria employed by COSEWIC, indicating that a species (or 'designated unit' = DU) is likely to be considered endangered if it has:

- a. a declining total population size (by >70 % in the past 10 years or 3 generations, whichever is longer, where the causes of the reduction are clearly reversible and understood and ceased, or by >50 % in the recent past or projected future where the reduction or its causes may not have ceased or may not be understood or may not be reversible);
- b. a small distribution (< 5,000 km² extent of occurrence or <500 km² area of occupancy) with declining or fluctuating abundance;
- c. a small declining population size (<2,500 mature individuals);
- d. a very small population (<250) or restricted distribution; or
- e. a probability of extinction in the wild >20% in 20 years or 5 generations, whichever is longer.

When applying these IUCN quantitative criteria within Canada, it is important to evaluate whether immigration from outside Canada may influence extinction risk of the Canadian population (i.e. rescue effect). If rescue of the Canadian population seems likely, the status being considered according to the IUCN quantitative criteria may be adjusted to an adequate level.

D. Does the suggested status conform to the COSEWIC definition for the proposed status category?

As a final step in the assessment process, COSEWIC considers all the information, analysis, and discussion presented at the meeting, and evaluates if the status category suggested by the application of the criteria and guidelines is consistent with the definition of the status category used by COSEWIC. If there is inconsistency, the status representing the most appropriate definition will take precedence, and any variance will be explained.

4.1.6 Designation of COSEWIC Species Status

Ultimately, the Main COSEWIC Committee deliberating at the Species Assessment Meeting must assign species status in only one of the following categories (COSEWIC 2006e):

Extinct	A wildlife species that no longer exists.
Extirpated	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered	A wildlife species facing imminent extirpation or extinction.
Threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not At Risk	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient	A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

COSEWIC (2006q) makes a specific note to indicate that the final category 'Data Deficient' should be used in cases where the best available information is not sufficient (quantity and/or quality) to either (a) satisfy any criteria or assign any status, or (b) resolve the species' eligibility for assessment. 'Data Deficient' is explicitly not available for situations where (a) the choice between two status designations is difficult to resolve by COSEWIC, or (b) the status report is inadequate and has not fully investigated all best available information (in which case the report should be rejected), or c) the information available is minimally sufficient to assign status but inadequate for recovery planning or other such use.

It is important to note that here, the key phrase best available information is actually defined in more operational terms of COSEWIC experts being able to determine eligibility or determine any level of risk status. There is no mechanism described that would require any improvement of available information in the case where there is virtually no information available.

SARA does not present details regarding the approach for COSEWIC and its subcommittees to reach assessment decisions. In practice, species status assignments are conducted once or twice annually, with a minimum of two-thirds

of the electronically cast votes required before a specific status will be assigned (Vanderzwaag & Hutchings 2005).

It should also be noted that under conditions of perceived emergency, COSEWIC can take the extraordinary step of recommending that the Minister take immediate action to protect a Candidate Species under SARA, even if a COSEWIC Status Report has not been completed and/or reviewed (Irvine et al. 2005).

4.1.7 Report of COSEWIC Species Status Designation

Once the Main COSEWIC Committee reaches a conclusion on the species status designation, the COSEWIC Secretariat finalizes the report for publication. The resulting COSEWIC Assessment and Status Report are then posted on the SARA Public Registry as a publicly-available, downloadable document (COSEWIC 2006q). It is important to note that the COSEWIC assessment is released to the public at the same time that it is transmitted to the Minister, thus reducing the possibility that a government agency might attempt to filter information to “*smooth the rough edges of scientific advice, or to eliminate them completely*” (Vanderzwaag & Hutchings 2005).

Under Section 24 of SARA, COSEWIC is responsible for reviewing its classification of each species at risk at least once every ten years, or at any point that COSEWIC has reason to believe that the status of the species may have changed significantly (positively or negatively).

Section 25.(1) of SARA describes the completion of COSEWIC's responsibility to designate the risk of extinction status for a Candidate Species:

“When COSEWIC completes an assessment of the status of a wildlife species, it must provide the Minister and the Canadian Endangered Species Conservation Council with a copy of the assessment and the reasons for it. A copy of the assessment and the reasons must also be included in the public registry.”

This transfer of COSEWIC Species Status Designation and associated documentation to the Minister and CESSC, triggers the response phase of the SARA process as implemented by Fisheries and Oceans Canada as described in the next section.

4.2 Response Statements

Once the Minister has been provided with the COSEWIC Species Status Designation and documentation, a timetable is established for determining a response. According to Section 25.(3) of SARA:

“On receiving a copy of an assessment of the status of a wildlife species from COSEWIC under subsection (1), the Minister must, within 90 days, include in the public registry a report on how the Minister intends to respond to the assessment and, to the extent possible, provide time lines for action.”

During the 90 days after receiving a COSEWIC assessment, the Minister is required to provide an initial response as to how the Department will deal with the assessment in general terms.

The actual process for Ministerial decision-making on species at risk issues is not specified by SARA, nor is it possible to find detailed descriptions in material published by DFO. We do know that the Minister is required to at least consider the primarily scientific COSEWIC assessment, as explicitly stated in Section 27.(2) of SARA:

“Before making a recommendation in respect of a wildlife species or a species at risk, the Minister must (a) take into account the assessment of COSEWIC in respect of the species; (b) consult the competent minister or ministers; and (c) if the species is found in an area in respect of which a wildlife management board is authorized by a land claims agreement to perform functions in respect of a wildlife species, consult the wildlife management board.”

There are three important observations that we should make here. First, the Minister is required to consult with other competent Ministers as required, and - if the species is found in a land claims area - the Wildlife Management Board exercising jurisdiction in that area. The Assembly of First Nations holds the position that the Minister is legally required to consult with those First Nations that will be directly affected by a potential listing, although this is not explicitly stated in SARA (AFN 2005b). Second, the Minister is required to consider several things, but is not bound to any particular information (science or otherwise), when making a decision about a species at risk.

“This decision is not made in isolation: it is made after the federal government holds consultations with affected stakeholders and other groups, taking into account the economic and social implications that listing a species may have on Canadians' lives and livelihoods.” (DFO 2005b)

It should be clear that socio-economic factors, legal factors and political factors all have potentially great influence on the Minister's decision-making. Finally, there is no provision in SARA that provides a deadline for the Minister to submit the COSEWIC assessment to the federal Cabinet for decision-making. This lack of a deadline can, and does, result in significant and unnecessary delays in the entire SARA process (Vanderzwaag & Hutchings 2005).

Ultimately, within 270 days of receiving the COSEWIC assessment, the federal Cabinet (including the Minister) is required to make a formal decision about how to deal with the COSEWIC assessment, as described in SARA Section 27.(1.1):

“the Governor in Council, within nine months after receiving an assessment of the status of a species by COSEWIC, may review that assessment and may, on the recommendation of the Minister,
(a) accept the assessment and add the species to the List;
(b) decide not to add the species to the List; or
(c) refer the matter back to COSEWIC for further information or consideration.”

It should be noted that under subsection (3), the default in the event that Cabinet does not choose any of these options, is automatic listing at the level recommended by COSEWIC:

“Where the Governor in Council has not taken a course of action under subsection (1.1) within nine months after receiving an assessment of the status of a species by COSEWIC, the Minister shall, by order, amend the List in accordance with COSEWIC’s assessment.”

It is important to realize that all of these deadline consequences are tied to the submission of COSEWIC assessment to the Cabinet in the first place. However, as discussed above, there is no deadline for when the Minister actually submits this COSEWIC assessment to begin the 9-month clock.

So, boiled down – the Cabinet can say ‘Yes’, ‘No’, or ‘Send it back’ to COSEWIC for further work. It must be further noted that, under subsection (1.2) if Cabinet chooses ‘No’ or ‘Send it back’, the Minister must publicly release a response statement that has been approved by Cabinet which explains the reasons for not listing the species at risk, or sending it back to COSEWIC for further work.

“Where the Governor in Council takes a course of action under paragraph (1.1)(b) or (c), the Minister shall, after the approval of the Governor in Council, include a statement in the public registry setting out the reasons.”

There is nothing in SARA to ensure that the reasons provided by the Minister in the response statement for ‘No’ or ‘Send it back’ would be necessary or sufficient to actually explain the decision.

4.3 Legal Listing

Whether by active decision under SARA Section 27.(1), or by default by not taking a course of action under SARA Section 27.(3), the Federal Cabinet will amend a species List of Wildlife Species at Risk in Schedule 1 of SARA, in accordance with the COSEWIC assessment. The Minister is required to forward COSEWIC assessments to the Governor in Council (i.e., Federal Cabinet) along with recommendations for listing, but SARA does not specify a timeline for listing, and significant delays can occur (Irvine et al. 2005).

It should be noted that there are Emergency Order provisions under SARA Section 29 that allow the Cabinet to amend the List with a species that is considered to be in imminent threat of survival:

“29.(1) If the Minister is of the opinion that there is an imminent threat to the survival of a wildlife species, the Minister must, on an emergency basis, after consultation with every other competent minister, make a recommendation to the Governor in Council that the List be amended to list the species as an endangered species.”

and

“29 (2) The Minister may arrive at that opinion on the basis of his or her own information or on the basis of COSEWIC's assessment.”

Once a species is listed on Schedule 1 under the *Species at Risk Act*, the Government of Canada becomes obliged to develop and implement mandatory protection and recovery measures; it becomes illegal to kill, harass, capture or harm it in any way; critical habitats are protected from destruction; and recovery strategies, action plans and management plans must be developed for all listed species (DFO 2005b). These protection and recovery measures, and their associated restrictions, are described in more detail in the following subsections.

4.4 Protection

As soon as a species is listed on SARA Schedule 1, it becomes legally protected under the 'Measures to Protect Listed Wildlife Species' identified in SARA, including a set of automatic general prohibitions, and measure intended to ensure protection of Habitat.

4.4.1 Automatic General Prohibitions

Section 32.(1) of SARA introduces the two major statements regarding automatic prohibitions related to species that have been listed on Schedule 1 as one of three different risk assessments:

"32. (1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.

32.(2) No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual."

The actual meanings of the terms 'harm,' 'harass,' and 'take' are particularly open to interpretation (Vanderzwaag & Hutchings 2005).

Thus, for species designated under SARA as (i) Extirpated, (ii) Endangered, or (iii) Threatened, SARA prohibits possession or harm of any individuals. It should be noted that these prohibitions do not apply to species designated under SARA as Special Concern.

In Section 83.(5), SARA makes explicit reference to exceptions of the possession prohibition with regards to Aboriginal people:

"83.(5) Subsection 32(2) and paragraph 36(1)(b) do not apply to a person who possesses an individual of a listed extirpated, endangered or threatened species, or any part or derivative of such an individual, if
(a) it was in the person's possession when the species was listed;
(b) it is used by an aboriginal person for ceremonial or medicinal purposes, or it is part of ceremonial dress used for ceremonial or cultural purposes by an aboriginal person;
(c) the person acquired it legally in another country and imported it legally into Canada."

Thus, for purposes of ceremonial, medicinal or cultural purposes (however defined), Aboriginal people are not prohibited under SARA with possession of individuals or parts of individuals that are listed on Schedule 1 as Extirpated, Endangered, or Threatened.

Similarly, according to Section 83.(3) the SARA automatic prohibitions “do not apply to a person who is engaging in activities in accordance with conservation measures for wildlife species under a land claims agreement.” We will return to exemptions for species recovery activities below.

For Aboriginal people engaged in harvesting for food or commerce, the automatic prohibitions of SARA would apply as they would for non-Aboriginal people. In the context of harvest activities such as fisheries, the specific implementation of the prohibitions could take various forms, depending on the location of fishing effort and species harvested (DFO 2005g,l):

- Reductions or closures of food/social/ceremonial or commercial fisheries;
- Restrictions on bycatch;
- Modifications of fishing gear;
- Closure of fishing area;
- Closure of fishing season;
- Closures or reductions in traditional fisheries.

4.4.2 Protection of Habitat

SARA makes specific reference to automatic general prohibitions of habitat destruction for SARA species listed as Extirpated, Endangered or Threatened, in two different sections of the Act:

“33. No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.”

and

“58.(1) Subject to this section, no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species—or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada—if (a) the critical habitat is on federal land, in the exclusive economic zone of Canada or on the continental shelf of Canada; (b) the listed species is an aquatic species.”

The key terms ‘residence,’ ‘habitat’ and ‘critical habitat’ are defined for aquatic species in SARA Section 2 as follows:

residence: *“a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating.”*

habitat: *“spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced.”*

critical habitat: *“the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species.”*

In operational terms, ‘residence’ can be thought of as a specific site that an individual of the species uses during a particular part of its life, while ‘critical habitat’ is a place that has been defined as being strategically important for the survival or recovery of the species as a whole. Vanderzwaag & Hutchings (2005) noted the significance of an Environment Canada Federal Discussion Paper (DOE 2004) in identifying a number of ways in which a species’ use of a particular place might be similar to a nest or den, including exhibition of a strong fidelity to a particular location and modification of habitat by a species for occupation purposes.

Irvine et al. (2005) noted that, in one sense, SARA protection of ‘critical habitat’ is redundant because fish habitat in general (including critical habitat) is already protected under the *Fisheries Act* (Sections 35-43). For the purposes of SARA, the prohibition of destruction to ‘residence’ could be almost anything that negatively affects any habitat used by any individual of the listed species, while ‘critical habitat’ would require significant additional work to demonstrate that the specific habitat in question would be important to the survival and/or recovery of the species.

4.4.3 Safety Net

The term ‘safety net’ is not explicitly used in SARA. Irvine et al. (2005) noted that the 1996 ‘Accord on the Protection of Endangered Species’ obliged the Provincial and Territorial Governments to protect SARA species (Extirpated, Endangered, or Threatened) outside of federal lands, but that if this does not take place, the Federal Cabinet can order that certain prohibitions will apply – the so-called ‘Safety Net.’ The basic idea behind the ‘Safety Net’ is that in the absence of a formal jurisdictional arrangement, any decision made will default to the best interest of the species; a concept that is also commonly associated with the ‘precautionary principle’ in science and management (see below). For example, Canada and British Columbia entered into a 2005 agreement to coordinate the delivery of species at risk protection and recovery through legislation, policies, and operational procedures (Irvine et al. 2005). If this agreement had not existed, Federal Cabinet could have drafted a plan for implementation of SARA in British Columbia which as administered directly by Canadian agencies responsible for SARA.

4.4.4 Emergency Protection

In a similar manner to the process described in SARA Section 29 whereby the Federal Cabinet can amend the List with a species that is considered to be in imminent threat of survival, it is also possible for Cabinet to provide direct emergency protection under Section 80.(1):

“The Governor in Council may, on the recommendation of the competent minister, make an emergency order to provide for the protection of a listed wildlife species. (2) The competent minister must make the recommendation if he or she is of the opinion that the species faces imminent threats to its survival or recovery. (3) Before making a recommendation, the competent minister must consult every other competent minister. (4) The emergency order may (a) in the case of an aquatic species, (i) identify habitat that is necessary for the survival or recovery of the species in the area to which the emergency order relates, and (ii) include provisions requiring the doing of things that protect the species and that habitat and provisions prohibiting activities that may adversely affect the species and that habitat.”

This section specifically includes the phrase “to provide for the protection of a listed wildlife species,” although SARA species (Extirpated, Endangered, or Threatened) would have already been afforded the protection under general automatic prohibitions and habitat (residence/critical) protection. Given the fact that this is referred to as an ‘emergency order’, this provision may be intended to allow ‘fast-track’ for prohibitions, in the same manner that Section 29 provided for ‘fast-track’ of Federal Cabinet’s ability to amend the List with a species that is considered to be in imminent threat of survival.

4.4.5 Agreements and Permits

Under Section 73 of SARA, there are three different categories of potentially harmful activities that may be allowed to continue (DFO 2005m):

1. Scientific research relating to the conservation of the species and conducted by qualified persons;
2. Recovery activities that benefit the species or is required to enhance its chance of survival in the wild; or
3. Incidental harm that is incurred while carrying out some other activity directed at another species.

In order to receive a Section 73 permit for harmful activities the proponent of the activity must demonstrate that (a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted, (b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals, and (c) the activity will not jeopardize the survival or recovery of the species (DFO 2006m).

Irvine et al. (2005) have suggested that the third category of Section 73 permits, which allow incidental harm, will probably receive the greatest scrutiny because

they can allow fisheries to continue despite non-target catch of species listed by SARA (DFO 2006h). For this reason, information presented by DFO (2006h,j) has been paraphrased with specific reference to application of Section 73 'Incidental Harm' permits in fisheries management.

Section 73 'Incidental Harm' permits will not be automatically granted. DFO must undertake scientific research in consultation with the affected individual, business or fishing industry to further understand the impacts of various commercial fisheries on listed species at risk. Before a permit is granted, an applicant must have explicitly considered other reasonable alternatives, have taken all feasible measures to minimize the impact and must substantiate that any harm caused by the activity will not jeopardize the species' survival or recovery. When permits are issued, explanations will be published in the SARA Public Registry and will be included in DFO fisheries management plans. Bycatch of a listed species may be allowed at a restricted level through an Incidental Harm Permit or under the provisions of a recovery strategy so long as it is determined that the activity will not jeopardize the survival or recovery of the species.

Section 73 'Incidental Harm' permits are only valid while fishing is conducted under the licences issued to commercial fishers under the *Fisheries Act*, and a copy of the permit must be attached to this licence and on board the vessel when fishing activities are taking place. Every person on board a fishing vessel who incidentally catches one of these species while conducting fishing activities must return these species to the place from which they were taken, in a manner that causes them the least harm. The licensee is required to collect and report information about the SARA listed species to DFO, such as where the species was caught, its size and health, and the type of gear that caught it. Incidental harm activities are only authorized by DFO once it is confident that the incidental harm will not jeopardize the survival or recovery of the species at risk. DFO must also be confident that reasonable alternatives to fishing activities have been considered and that all feasible measures will be taken to minimize the impact on the species. It should be noted that it is not actually possible to determine whether an activity will jeopardize recovery in the absence of recovery targets – targets which are not established until the Recovery Strategy is developed after the incidental harm permits have been issued (Vanderzwaag & Hutchings 2005).

In February 2005, DFO issued a 'Revised Framework for Evaluations of Scope for Harm under Section 73 of the *Species at Risk Act*,' (DFO 2005n) which has been interpreted by some as a significant departure from protecting listed SARA species by using what it refers to as a 'relative risk assessment approach' (Vanderzwaag & Hutchings 2005). Under this approach, three conditions are used to identify possible situations where incidental harm might be permitted:

1. The current population is not so small that random factors threaten population viability nor so concentrated in space that it is vulnerable to elimination by a catastrophic event;

2. The recent trajectory of the stock is stable or likely to be increasing, so that neither survival nor recovery is in jeopardy in the period when the permit is in place;
3. The known sources of human-induced mortality are unlikely to increase during the permitting period. This means that there is high confidence that the causes of human-induced mortality are under management control, monitored, and that management measures can be enforced effectively. (Vanderzwaag & Hutchings 2005).

This Revised Framework emphasizes that reasonable alternatives to the proposed actions must be evaluated in combined terms of biological, social and economic factors.

4.4.6 Enforcement Measures

DFO (2005k) states that SARA adds a new set of considerations to the guidelines and procedures that are already in place for both commercial and recreational fisheries, including sports fisher, lodge owner, fishing-tour operator, or tackle or boat retailer. Having said that, it is clear that SARA includes extensive enforcement powers, especially with respect to inspections, searches and seizures (AFN 2005b).

Enforcement of SARA regulations will be enforced by DFO fishery officers in the same manner that they enforce other legislation, such as the Fisheries Act (DFO 2005j). For inland waters where Canada claims that it has delegated responsibility for fisheries management to the Provinces, the responsibilities for enforcement of SARA regulation is less clear. DFO could consider fisheries-related regulations in these regions to be enforced by the Province or Territory. In the case of habitat-related regulations in these regions, DFO has retained a direct role in management and would likely act directly regarding enforcement as well.

DFO (2005j) has stated that the issue of whether charges would be laid will depend on the individual circumstances. Fishery officers would conduct at-sea observer coverage, boardings/inspections of fishing vessels, and dockside checks to verify compliance with licence conditions and monitor the amounts of fish landed. Enforcement officers may not enter a dwelling-place except with consent or under the authority of a warrant (AFN 2005b).

Punishments for offences under SARA can include prison terms and fines of up to \$250,000 for individuals and \$1,000,000 for corporations. If a person is convicted of an offence a subsequent time, the amount of the fine for the subsequent offence may be doubled.

4.4.7 Alternative Measures

SARA also includes the possibility of applying alternative measures, typically authorized by the Attorney General, to deal with persons alleged to have committed offences under the Act (AFN 2005b). These alternative measures are explicitly described close to the end of SARA, under Section 108:

“(1) Alternative measures may be used to deal with a person who is alleged to have committed an offence, but only if it is not inconsistent with the purposes of this Act to do so and the following conditions are met:

- (a) the measures are part of a program of alternative measures authorized by the Attorney General, after consultation with the competent minister;*
- (b) an information has been laid in respect of the offence;*
- (c) the Attorney General, after consultation with the competent minister, is satisfied that the alternative measures would be appropriate, having regard to the nature of the offence, the circumstances surrounding its commission and the following factors, namely, (i) the protection of species at risk, (ii) the person's history of compliance with this Act, (iii) whether the offence is a repeated occurrence, (iv) any allegation that information is being or was concealed or other attempts to subvert the purposes and requirements of this Act are being or have been made, and (v) whether any remedial or preventive action has been taken by or on behalf of the person in relation to the offence.”*

There is no explicit reference to the development or implementation of alternative measures specifically for dealing with situations where First Nations fishermen come into direct conflict with SARA regulations, however the liberal wording of 'alternative measures' suggests that this may be one of the primary motivations for the provisions.

4.4.8 Critical Habitat Compensation

The term 'compensation' appears only in Section 64 of SARA, relating specifically to the need to ensure fairness following the imposition of the critical habitat prohibitions. It should be noted that the concept of 'compensation' in SARA does not explicitly relate to the need to ensure fairness following the imposition of any other regulations (e.g. harvest constraints, gear restrictions, closures, etc.). Under the terms of SARA, the Minister may provide compensation to any person for “extraordinary impact” losses suffered because of the imposition of protection measures specifically for 'critical habitat' as described above (AFN 2005b). While there is provision under the Act for critical habitat compensation, it is planned to only be offered under extraordinary circumstances (DFO 2005h). SARA provides authority for the payment of fair and reasonable compensation to persons who have suffered an extraordinary loss from applying the critical habitat prohibitions or applying an emergency order to protect critical habitat (DFO 2005h).

Compensation does not apply to other economic losses resulting from the listing of a species (DFO 2005h). The actual details of the critical habitat compensation scheme are not set out in the Act. The procedures for applying for compensation are currently being developed by DFO(2005h), and they will be provided in future regulations established by the Federal Cabinet pursuant to SARA (AFN 2005b). DFO has listed, among other possible effects of SARA of First Nation fisheries (see 'Automatic General Prohibitions' above), "possible increased fishing opportunities in other fisheries" (DFO 2005i), although this is not discussed further.

4.5 Recovery

After legal listing of a SARA species by Federal Cabinet, and the protection of automatic general prohibitions afforded to the species by that legal listing, the focus turns to mandatory recovery planning and implementation for that species. There are two different streams of recovery under SARA, depending on the SARA category of risk under which the species was listed. For species listed as Extirpated, Endangered, or Threatened, SARA requires that a Recovery Strategy and an associated Recovery Action Plan be developed and implemented. For species listed as Special Concern, SARA describes a less intensive Recovery Management Plan. Both of these mandatory recovery activities are described in the subsections that follow.

A special note about consultation will be made at this point, since it is used at several repeated instances in SARA sections regarding mandatory recovery planning and implementation. Specifically, SARA uses wording to specify what it refers to as 'cooperation with others' including (a) Wildlife Management Boards with authority for the species in a given area, and (b) Aboriginal Organizations, including First Nations, that would be directly affected by the particular recovery activity in question:

"To the extent possible, the [insert particular SARA recovery activity here] must be prepared in cooperation with

- (a) the appropriate provincial and territorial minister for each province and territory in which the listed wildlife species is found;*
- (b) every minister of the Government of Canada who has authority over federal land or other areas on which the species is found;*
- (c) if the species is found in an area in respect of which a wildlife management board is authorized by a land claims agreement to perform functions in respect of wildlife species, the wildlife management board;*
- (d) every aboriginal organization that the competent minister considers will be directly affected by the recovery strategy; and*
- (e) any other person or organization that the competent minister considers appropriate."*

This kind of template 'cooperation' clause is repeated for the SARA description of mandatory Recovery Strategies and associated Recovery Action Plans and regulations, as well as Recovery Management Plans and associated implementation.

Similarly, each of these recovery activities is also associated with a template 'land claims agreement' clause, for example::

"If the listed wildlife species is found in an area in respect of which a wildlife management board is authorized by a land claims agreement to perform functions in respect of wildlife species, the [insert particular SARA recovery activity here] must be prepared, to the extent that it will apply to that area, in accordance with the provisions of the agreement."

The template 'cooperation' consultation clause and the template 'land claims agreement' consultation clause are presented for each of the SARA recovery activities described below (AFN 2005b)

Finally, it should also be noted that there is no explicit reference in SARA to the 'precautionary principle' with regards to the science or management of species at risk. However, the concept is clearly stated in Section 38, with specific reference to all of the recovery activities mandated for SARA Listed Species:

"In preparing a recovery strategy, action plan or management plan, the competent minister must consider the commitment of the Government of Canada to conserving biological diversity and to the principle that, if there are threats of serious or irreversible damage to the listed wildlife species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty."

In its strongest form, the Precautionary Principle places the burden of proof on proponents to demonstrate a lack of significant harm to a listed species before being allowed to proceed (Vanderzwaag & Hutchings 2005). Thus, for the purposes of all recovery activities required by SARA, the burden of scientific proof is established at the level of reasonable expectation, rather than some higher level of 'full scientific certainty' (which technically never exists in the first place, but that is different and less important argument for purposes of this report).

4.5.1 Recovery Strategy/Recovery Action Plan (Extirpated, Endangered, Threatened)

Section 37,(1) of SARA explicitly states the mandatory requirement for development of a Recovery Strategy:

"If a wildlife species is listed as an extirpated species, an endangered species or a threatened species, the competent minister must prepare a strategy for its recovery."

Section 132 of SARA dictates that Recovery Strategies must be prepared within three years after legal listing for Endangered species, and within four years for Threatened species.

After making explicit the template 'cooperation' and 'land claims agreement' consultation clauses (described above), SARA proceeds to constrain the development of recovery strategies to what it refers to as 'feasible':

"40. In preparing the recovery strategy, the competent minister must determine whether the recovery of the listed wildlife species is technically and biologically feasible. The determination must be based on the best available information, including information provided by COSEWIC."
(emphasis added)

The phrase 'best available information' is also emphasized in this section, because (a) this provision has a major effect on what is deemed 'feasible,' (b) there is no operational definition of what 'best available' means, (c) there is no

description of what would happen if there is virtually no information available, and (d) there is no mechanism that would require any improvement of available information in the case where there is virtually no information available.

In the event that a Recovery Strategy is actually deemed 'feasible' by the Minister, SARA lays out the general terms of reference for the final structure and function of the strategy:

"41.(1) If the competent minister determines that the recovery of the listed wildlife species is feasible, the recovery strategy must address the threats to the survival of the species identified by COSEWIC, including any loss of habitat, and must include

- (a) a description of the species and its needs that is consistent with information provided by COSEWIC;*
- (b) an identification of the threats to the survival of the species and threats to its habitat that is consistent with information provided by COSEWIC and a description of the broad strategy to be taken to address those threats;*
- (c) an identification of the species' critical habitat, to the extent possible, based on the best available information, including the information provided by COSEWIC, and examples of activities that are likely to result in its destruction; (c.1) a schedule of studies to identify critical habitat, where available information is inadequate;*
- (d) a statement of the population and distribution objectives that will assist the recovery and survival of the species, and a general description of the research and management activities needed to meet those objectives;*
- (e) any other matters that are prescribed by the regulations;*
- (f) a statement about whether additional information is required about the species; and*
- (g) a statement of when one or more action plans in relation to the recovery strategy will be completed."*

In Section 42, SARA requires the Minister to post a proposed Recovery Strategy on the SARA Public Registry within one year after a species is legally listed as Endangered, or within two years after a species is legally listed as Extirpated or Threatened. More extended timelines are allowed by SARA as deadlines for Recovery Strategies to be proposed for species with listings that were carried over on Schedule 1 prior to SARA Section 27 coming into effect.

In the event that a Recovery Strategy is actually deemed 'not feasible' by the Minister, SARA lays out the requirements for a more abbreviated strategy document that ends with presentation of reasons why any strategy was deemed to be 'not feasible':

"41.(2) If the competent minister determines that the recovery of the listed wildlife species is not feasible, the recovery strategy must include a description of the species and its needs, an identification of the species'

critical habitat to the extent possible, and the reasons why its recovery is not feasible.”

Although not explicitly stated in SARA, it can be presumed that the deadline for 'non-feasible' Recovery Strategies is the same as described above for those which are deemed 'feasible.' In a similar manner to the reasons provided in Ministerial Response Statements to COSEWIC Assessments described above, there is nothing in SARA to ensure that the reasons provided by the Minister for a 'not feasible' decision would be necessary or sufficient to actually explain the decision (Vanderzwaag & Hutchings 2005).

In summary, the development of a Recovery Strategy and Action Plan is dependent on the species, its life history and what opportunities exist to minimize the impact to the species. A 'feasible' SARA recovery strategy must include the following steps (DFO 2005b):

1. Describe the particular species and its needs;
2. Identify threats to survival;
3. Classify the species' critical habitat, where possible;
4. Provide examples of activities that are likely to result in destruction of the critical habitat;
5. Set long-term goals, short-term objectives and approaches for species recovery;
6. Identify information gaps that should be addressed; and
7. State when one or more action plans relating to the strategy will be completed.

According to Section 41.(3), the approach employed for a given Recovery Strategy is not limited to single-species planning, but could include multiple species or even a broader 'ecosystem-based' approach to planning for recovery of a species at risk. Recovery Strategies are typically developed by recovery teams, which can include representatives from the fishing industry (DFO 2005h). Recovery Strategies must outline the conditions under which incidental harm of this species, if any (DFO 2005h), which can be permitted under Section 73 of SARA (see previous section). Finally, there are provisions in SARA that Recovery Strategies are to be updated every 5 years until the species is considered 'recovered' (Irvine et al. 2005).

Recovery Action Plan

Once a 'feasible' Recovery Strategy has been approved by the Minister, Section 47 of SARA requires the preparation of publicly documented Recovery Action Plan(s) that is(are) specifically designed to achieve the long-term goals and short-term objectives of the strategy to improve a species' status:

“The competent minister in respect of a recovery strategy must prepare one or more action plans based on the recovery strategy. If there is more than one competent minister with respect to the recovery strategy, they may prepare the action plan or plans together.”

After making explicit the template 'cooperation' and 'land claims agreement' consultation clauses (described above), SARA proceeds to describe in more detail the various components of a Recovery Action Plan:

"49.(1) An action plan must include, with respect to the area to which the action plan relates,

- (a) an identification of the species' critical habitat, to the extent possible, based on the best available information and consistent with the recovery strategy, and examples of activities that are likely to result in its destruction;*
- (b) a statement of the measures that are proposed to be taken to protect the species' critical habitat, including the entering into of agreements under section 11;*
- (c) an identification of any portions of the species' critical habitat that have not been protected;*
- (d) a statement of the measures that are to be taken to implement the recovery strategy, including those that address the threats to the species and those that help to achieve the population and distribution objectives, as well as an indication as to when these measures are to take place; (d.1) the methods to be used to monitor the recovery of the species and its long-term viability;*
- (e) an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation; and*
- (f) any other matters that are prescribed by the regulations."*

Thus, the Recovery Action Plan must not only provide a specific workplan, but it must also undertake a socio-economic evaluation of the 'costs' and 'benefits' associated with the workplan. Details of how this socio-economic analysis is to be executed are not provided in SARA, nor discussed by DFO. It should be noted that the Minister *"may adopt a multi-species or an ecosystem approach when preparing the recovery strategy if he or she considers it appropriate to do so."* The possibility of changes to harvest regulations for a fishery would be included under (d) 'measures that are to be taken to implement the recovery strategy' (DFO 2005h).

Once approved, the Minister is required to implement the Recovery Action Plan and to monitor implementation as it progresses toward satisfaction of the stated objectives. Implementation may require the Minister to recommend for approval by the Federal Cabinet, various orders and regulations to execute the action plan specifically including the protection of critical habitat (see above). The monitoring program leads ultimately to a publicly-released report on ecological and socio-economic effects of implementation, five years after the action plan comes into effect.

4.5.2 Recovery Management Plans (Special Concern)

If a species is listed under SARA as one of Special Concern, the competent Minister must prepare a Recovery Management Plan for the species and its habitat, instead of a Recovery Strategy and Action Plan.

“65. If a wildlife species is listed as a species of special concern, the competent minister must prepare a management plan for the species and its habitat. The plan must include measures for the conservation of the species that the competent minister considers appropriate and it may apply with respect to more than one wildlife species.”

Section 133 of SARA dictates that Recovery Management Plans must be prepared within five years after legal listing for species of Special Concern. The explicit template 'cooperation' and 'land claims agreement' consultation clauses (described above) are also provided with the SARA descriptions of Management Plans and their associated regulations.

According to DFO (2005b), Recovery Management Plans differ from recovery strategies and action plans in at least two ways:

- *“Management plans set goals and objectives for maintaining sustainable population levels of one or more species that are particularly sensitive to environmental factors, but which are not yet considered in danger of becoming extinct; and*
- *Whenever possible, management plans are prepared for multiple species on an ecosystem or landscape level.”*

The first characteristic is actually explained by the fact that the Special Concern designation is, by definition, associated with species that are “not yet considered in danger of becoming extinct.” The second characteristic is inconsistent with the SARA description of Recovery Strategies/Action Plans where the Minister “*may adopt a multi-species or an ecosystem approach when preparing the recovery strategy if he or she considers it appropriate to do so.*” In reality, SARA presents no real distinctions between the actual components in Recovery Strategy/Action Plans and Recovery Management Plans.

4.5.3 Stewardship Programs/Incentives

Under SARA, the Minister may establish a Stewardship Action Plan that creates incentives and other measures to support voluntary stewardship actions that would aid in recovery of species at risk. In addition, a competent minister may enter into (AFN 2005b):

1. An Administrative Agreement with any government in Canada, organization or wildlife management board with respect to the administration of any provision of SARA, including the preparation and implementation of recovery strategies, action plans and management plans; or
2. A Conservation Agreement (and accompanying Funding Agreement) with any government in Canada, organization or person for the conservation of a species at risk or another species, which in turn may include:

- Monitoring the status of a species;
- Developing and implementing education and public awareness programs;
- Developing and implementing recovery strategies, action plans and management plans;
- Protecting the species' habitat, including its critical habitat;
- Undertaking research projects in support of recovery efforts; and/or
- For species not currently at risk, preventing a species from becoming at risk.

3. Canada's Habitat Stewardship Program (HSP) for Species at Risk, established in 2000, was provided with an initial five-year \$45 million budget to assist in the voluntary local protection of habitat and the recovery of species at risk (AFN 2005b, DFO 2005e). This program is managed jointly by Environment Canada, DFO and Parks Canada (DFO 2005f). 'Habitat Stewardship,' in the context of SARA, refers to a wide range of voluntary actions that Canadians take to care for the environment - and, specifically, to help species from becoming at risk and to help in the recovery of species and habitats already at risk (AFN 2005b).

4.6 Delisting

For all of the attention and forethought and detail that is represented in the SARA process, it is important to note that the *Species at Risk Act* makes no mention of de-listing, or removing a species from the List of Wildlife Species at Risk in Schedule 1 of SARA. In fact the terms 'de-listing' and 'removal' do not exist in the text of SARA at all. This observation is noteworthy for two reasons. First, it is truly unusual for a document that is so careful with documenting 'due process' to have omitted such an important step. Second, it could be argued that de-listing of a species is the ultimate goal of SARA, and it seems strange that something so important should not receive even passing mention in the Act.

5. Aquatic species at various stages in the SARA process

The purpose of this section is to provide an overview and preliminary analysis of the aquatic species under DFO jurisdiction that could be, or have been, subjected to the SARA process. This overview is intended to give a landscape view of the taxonomic and geographic diversity of species, with identification of the species that are most closely associated with First Nations' fisheries.

It is beyond the scope of this draft of the report to enter into detailed case studies of situations where SARA has come into direct effect on First Nations' fisheries. These stories are typically complex; scientifically, culturally, legally and politically. Clearly, there are many lessons that have been learned about the specific relationships between First Nations and the SARA process, and it is hoped that these stories and lessons can be compiled and analysed more thoroughly in the near future.

5.1 COSEWIC assessments proposed for aquatic species (Feb 2006)

Table 2 presents a list of aquatic species that are currently on the Candidate List proposed for COSEWIC assessment. The 30 species are distributed across each of the four region categories used in this report, with a predominance of species associated with the largest Inland region. As expected, the Pacific and Atlantic regions have more marine than freshwater species. Appendix VI presents summaries of information for those species which have been assigned a ranking of 'High' on the COSEWIC Candidate List, and have previously been fished.

Pacific

One fish species on the list of proposed COSEWIC assessments stands out as being very important from a First Nations' perspective - eulachon (*Haleichthys pacificus*). Eulachon population abundance has shown a declining trend in many rivers throughout their distribution in recent years, especially in the Fraser and Columbia Rivers, although there is great uncertainty regarding the causes of these declines. Eulachon are extremely important to First Nations who harvest them for food, social and ceremonial purposes, including the use of eulachon as gifts in potlatch ceremonies between communities. It would be very wise for AFN and the First Nations associated with eulachon to undertake a thorough review of the available information regarding the status of these eulachon populations, and their traditional knowledge, in preparation for participation in a full COSEWIC assessment.

Arctic

There are no fishes currently ranking 'High' on the COSEWIC Candidate List for the Arctic region. However, it should be noted that all four of the fish species ranking 'Mid' or 'Low' are species that are currently the focus of First Nations' fisheries, including Arctic cisco (*Coregonus autumnalis*), least cisco (*Coregonus*

sardinella), broad whitefish (*Coregonus nasus*), and Arctic grayling (*Thymallus arcticus*). AFN should undertake a survey of the many First Nations that rely on these important northern fish species, as the first step of a pro-active strategy to ensure coordinated preparation for full participation of the First Nations in COSEWIC risk evaluations, when they occur.

Inland

There are no major fisheries supported by fish species currently ranking 'High' on the COSEWIC Candidate List for the Inland region. However, it should be noted that several fishes ranking 'Mid' or 'Low' are species that are currently the focus of First Nations' fisheries, including lake trout (*Salvelinus namaycush*) and Dolly Varden (*Salvelinus malma*) to a lesser extent. As time goes on, the priority ranking of lake trout (beginning at the population or DU level) on the COSEWIC Candidate List will likely become a major issue for First Nations and their fisheries in the future.

Table 2. Candidate Species proposed for COSEWIC assessment - aquatic species (fishes, reptiles) under SARA jurisdiction of Fisheries and Oceans Canada. Source: <http://www.cosewic.gc.ca> Accessed February 2006.

Region	Priority	Species (common name)	DFO taxonomic group	DFO environment type
Pacific	High	Eulachon	Fish	Marine
Pacific	High	Mottled sculpin (Flathead popn)	Fish	Freshwater
Pacific	High	Shortspine thornyhead	Fish	Marine
Pacific	High	Silvergrey rockfish	Fish	Marine
Pacific	High	Yellowtail rockfish	Fish	Marine
Pacific	Low	Green turtle	Reptile	Marine
Arctic	Mid	Arctic cisco	Fish	Freshwater, Marine
Arctic	Mid	Least cisco	Fish	Freshwater
Arctic	Low	Arctic grayling	Fish	Freshwater
Arctic	Low	Broad whitefish	Fish	Freshwater
Inland	High	Pygmy whitefish	Fish	Freshwater
Inland	High	Silver lamprey	Fish	Freshwater
Inland	Mid	Brassy minnow	Fish	Freshwater
Inland, Arctic	Mid	Dolly Varden	Fish	Freshwater
Inland	Mid	Greater redhorse	Fish	Freshwater
Inland, Atlantic	Mid	Lake trout	Fish	Freshwater
Inland	Mid	Largescale sucker	Fish	Freshwater
Inland, Atlantic	Mid	Northern redbelly dace	Fish	Freshwater
Inland	Mid	River shiner	Fish	Freshwater
Inland	Mid	Stonecat	Fish	Freshwater
Inland	Mid	Yellow bullhead	Fish	Freshwater
Inland	Low	American brook lamprey	Fish	Freshwater
Atlantic, Arctic	High	American plaice	Fish	Marine
Atlantic	High	Atlantic halibut	Fish	Marine
Atlantic, Arctic	High	Deepwater redfish	Fish	Marine
Atlantic	High	Ocean pout	Fish	Marine
Atlantic	High	Pollack	Fish	Marine
Atlantic	High	Spiny eel	Fish	Marine
Atlantic	Mid	White perch	Fish	Freshwater
Atlantic	Low	Mummichog	Fish	Freshwater

5.2 COSEWIC assessments in progress for aquatic species (Feb 2006)

Table 3 presents a list of aquatic species (mostly fishes and mammals) that are in various stages of preparation or under review by COSEWIC for species under the jurisdiction of DFO. Of the 76 entries on this list, most are associated with the Pacific or Inland regions, as categorized in this report. Appendix VII presents summaries of additional information for selected species which have previously been the subject of fisheries with special reference to First Nations' fisheries.

Chinook salmon, *Oncorhynchus tshawytscha* (Okanagan population)

On 26 March 2005 COSEWIC received a request for an Emergency Assessment of the Okanagan population of chinook salmon (*Oncorhynchus tshawytscha*) from Mr. Howie Wright on behalf of the Okanagan Nation Alliance Fisheries Department COSEWIC (2005b). The Okanagan population of chinook salmon is the only remaining Columbia Basin population of chinook salmon in Canada, and is considered to be distinct from all other Canadian chinook salmon populations. Mr. Wright's request was accompanied by a submission which included elements integrating what COSEWIC (2005b) referred to as 'substantial' Aboriginal Traditional Knowledge. In response, COSEWIC (a) established an Emergency Assessment Subcommittee in accordance with COSEWIC operations and procedures and (b) notified the Minister of the Environment on 04 April 2005. (COSEWIC 2005b)

The causes hypothesized for decline of abundance in Okanagan chinook include habitat loss, historic overfishing in the ocean and the Columbia River, juvenile and adult mortality due to dams downstream on the Columbia River, effects of non-native species, and artificial hatchery stocking programs (COSEWIC 2005b). With spawning numbers as low as 50 adults, it is unlikely that fish from elsewhere in the Columbia River Basin will contribute to recovery of the Canadian Okanagan population.

COSEWIC reviewed the information provided for the Okanagan population of chinook salmon, and concluded that the available evidence clearly indicated that the conservation status for this population warranted an Emergency Listing under Section 29.(1) of the *Species at Risk Act*. On 04 May 2005, COSEWIC passed the motion:

"The Okanagan Chinook salmon is facing an imminent threat to its survival, such that an Emergency Listing of the Species as Endangered is warranted." (COSEWIC 2005b)

Thus, the Okanagan population of chinook salmon became the fifth salmon species to be designated as Endangered species by COSEWIC – the first to be designated by Emergency Order (Irvine et al. 2005).

The case of Okanagan chinook salmon is important to First Nations for at least three important reasons. First, it clearly demonstrates the potential for First Nations to accelerate consideration of a candidate species under SARA by

making use of the unsolicited proposal option. Second, it underscores the potentially significant effect of ATK on the decision-making process when time and effort are invested by a First Nation in the compilation, analysis and presentation of the traditional knowledge. Finally, this case is one of the first SARA Emergency Listings and, as such, establishes a precedent for future proposals of Section 29 species listings.

Table 3. COSEWIC Status Reports in various stages of preparation or under review for aquatic species under SARA jurisdiction of Fisheries and Oceans Canada. Source: <http://www.cosewic.gc.ca> Accessed February 2006.

Region	Species (common name)	DFO Taxonomic Group	DFO environment type	Last Assessment Date	Stage of current Assessment
Pacific, Pacific, Atlantic	Big Skate	Fish	Marine	New Report	Draft Report in Preparation
Pacific	Blue Shark	Fish	Marine	New Report	Report under review
Pacific	Brown Cat Shark	Fish	Marine	New Report	Draft Report in Preparation
Pacific	Canary Rockfish	Fish	Marine	New Report	Report under review
Pacific	Charlotte Unarmoured Stickleback	Fish	Freshwater	Special Concern, April 1983	Report under review
Pacific	Chinook Salmon (Okanagan population)	Fish	Marine	Endangered, May 2005	Report under review
Pacific	Coastal Cutthroat Trout	Fish	Freshwater	New Report	Report under review
Pacific	Cultus Pygmy Sculpin	Fish	Freshwater	Threatened, November 2000	Report under review
Pacific	Giant stickleback	Fish	Freshwater	Special Concern, April 1980	Report under review
Pacific	Leopard Dace	Fish	Freshwater	Not at Risk, April 1990	Draft Report in Preparation
Pacific	Longnose Skate	Fish	Marine	New Report	Draft Report in Preparation
Pacific	Longspine Thornyhead	Fish	Marine	New Report	Report under review
Pacific	Misty Lake Sticklebacks	Fish	Freshwater	New Report	Draft Report in Preparation
Pacific	Quillback Rockfish	Fish	Marine	New Report	Draft Report in Preparation
Pacific	Rougheye Rockfish	Fish	Marine	New Report	Report under review
Pacific	Sandpaper (Black) Skate	Fish	Marine	New Report	Draft Report in Preparation
Pacific, Atlantic	Shortfin Mako (Bonito)	Fish	Marine	New Report	Report under review
Pacific	Sixgill Shark	Fish	Marine	New Report	Draft Report in Preparation
Pacific	Soupin Shark (Tope)	Fish	Marine	New Report	Draft Report in Preparation
Pacific	Speckled Dace	Fish	Freshwater	Endangered, November 2002	Report under review
Pacific, Atlantic	Spiny Dogfish	Fish	Marine	New Report	Report under review
Pacific	Umatilla Dace	Fish	Freshwater	Special Concern, April 1988	Report under review
Pacific	Westslope cutthroat trout	Fish	Freshwater	Threatened, May 2005	Report under review

	(Alberta population)					
Pacific, Atlantic	White Shark	Fish	Marine	New Report		Report under review
Pacific	Yelloweye Rockfish	Fish	Marine	New Report		Draft Report in Preparation
Pacific, Atlantic	Common Minke Whale	Mammal	Marine	New Report		Report under review
Pacific	Northern Fur Seal	Mammal	Marine	Not at Risk, April 1996		Report under review
Pacific	Sea Otter	Mammal	Marine	Threatened, May 2000		Draft Report in Preparation
Arctic	Arctic Char	Fish	Freshwater	New Report		Report under review
Arctic, Atlantic	Roughhead Grenadier	Fish	Marine	New Report		Report under review
Arctic, Atlantic	Roundnose Grenadier	Fish	Marine	New Report		Report under review
Arctic, Atlantic	Spinytail Skate	Fish	Marine	New Report		Report under review
Arctic	Atlantic Walrus (Eastern Arctic population)	Mammal	Marine	Not at Risk, April 1987		Report under review
Inland	Atlantic Salmon (Lake Ontario populations)	Fish	Marine	New Report		Report under review
Inland	Bigmouth Buffalo	Fish	Freshwater	Special Concern, April 1989		Report under review
Inland	Black Buffalo	Fish	Freshwater	Special Concern, April 1989		Report under review
Inland	Blackfin cisco	Fish	Freshwater	Threatened, April 1988		Report under review
Inland	Bull Trout	Fish	Freshwater	New Report		Draft Report in Preparation
Inland	Carmine Shiner	Fish	Freshwater	Threatened, November 2001		Report under review
Inland	Chestnut Lamprey	Fish	Freshwater	Special Concern, April 1991		Report Initialization
Inland	Darktail Lamprey	Fish	Freshwater	Data Deficient, April 1990		Report under review
Inland	Deepwater Sculpin	Fish	Freshwater	Threatened, April 1987		Report under review
Inland	Eastern Sand Darter	Fish	Freshwater	Threatened, November 2000		Draft Report in Preparation
Inland	Flathead Catfish	Fish	Freshwater	Data Deficient, April 1993		Draft Report in Preparation
Inland	Greenside Darter	Fish	Freshwater	Special Concern, April 1990		Draft Report in Preparation
Inland	Jasper Longnose Sucker	Fish	Freshwater	New Report		Report Initialization
Inland	Lake Chubsucker	Fish	Freshwater	Threatened, November 2001		Draft Report in Preparation

Inland	Lake Sturgeon (Great Lakes and Western St. Lawrence River populations)	Fish	Freshwater	Special Concern, May 2005	Report under review
Inland	Lake Sturgeon (Rainy River-Lake of the Woods populations)	Fish	Freshwater	Special Concern, May 2005	Report under review
Inland	Lake Sturgeon (Southern Hudson Bay and James Bay populations)	Fish	Freshwater	Special Concern, May 2005	Report under review
Inland	Lake Sturgeon (Western populations)	Fish	Freshwater	Endangered, May 2005	Report under review
Inland	Mountain Sucker	Fish	Freshwater	Not at Risk, April 1991	Draft Report in Preparation
Inland	Northern Brook Lamprey	Fish	Freshwater	Special Concern, April 1991	Draft Report in Preparation
Inland	Orangespotted Sunfish	Fish	Freshwater	Special Concern, April 1989	Draft Report in Preparation
Inland	Pearl Dace	Fish	Freshwater	New Report	Report Initialization
Inland	Redbreast Sunfish	Fish	Freshwater	New Report	Draft Report in Preparation
Inland	River Redhorse	Fish	Freshwater	Special Concern, April 1987	Draft Report in Preparation
Inland	Silver Shiner	Fish	Freshwater	Special Concern, April 1987	Report Initialization
Inland	Westslope Cutthroat Trout (British Columbia population)	Fish	Freshwater	Special Concern, May 2005	Report under review
Inland	Eastern Pondmussel	Mollusc	Freshwater	New Report	Report under review
Inland	Mapleleaf Mussel	Mollusc	Freshwater	New Report	Report under review
Inland	Rainbow Mussel	Mollusc	Freshwater	New Report	Report under review
Inland	Snapping Turtle	Reptile	Freshwater	New Report	Draft Report in Preparation
Atlantic, Inland	American Eel	Fish	Freshwater	New Report	Report under review
Atlantic	Atlantic Salmon (Inner Bay of Fundy populations)	Fish	Marine	Endangered, May 2001	Report under review
Atlantic	Atlantic Sturgeon	Fish	Freshwater	New Report	Report under review
Atlantic	Basking Shark	Fish	Marine	New Report	Report under review

Atlantic	Blue Hake	Fish	Marine	New Report	Report under review
Atlantic	Thorny Skate	Fish	Marine	New Report	Draft Report in Preparation
Atlantic	White Hake	Fish	Marine	New Report	Report Initialization
Atlantic	Bearded Seal	Mammal	Marine	Not at Risk, April 1994	Report under review
	Harbour Porpoise (Northwest Atlantic population)				
Atlantic	Harbour Seal Atlantic subspecies	Mammal	Marine	Special Concern, May 2003	Draft Report in Preparation
Atlantic	Harbour Seal Lacs des Loups Marins subspecies	Mammal	Marine	Data Deficient, April 1999	Draft Report in Preparation
Atlantic	Sowerby's Beaked Whale	Mammal	Marine	Special Concern, April 1996	Draft Report in Preparation
Atlantic	Loggerhead Sea Turtle	Reptile	Marine	Special Concern, April 1989	Report under review
				New Report	Report under review

5.3 Current SARA status for aquatic species (Feb 2006)

Table 4 presents a list of all aquatic species that have been assessed as species at risk by COSEWIC, and their current status under the SARA process administered by DFO. Of the 71 entries on this list, almost half are associated with the Pacific region, as categorized in this report.

Of the 71 species on this list, the vast majority have either been listed by DFO according to the COSEWIC Assessment (n=55, approximately 77%), or are currently under consideration for SARA designation by DFO (n=14, approximately 20%). There are two significant exceptions, in which the Federal Cabinet (hence DFO) received COSEWIC assessments and decided to 'Not List' at all – additional information is provided in Appendix VIII.

Coho salmon (*Oncorhynchus kisutch*) - Interior Fraser population - Endangered

Last COSEWIC Assessment: May 2002

Last COSEWIC Designation: Endangered

SARA Status: **Under consideration**

Information sources: COSEWIC (2002b), Irvine et al. (2005)

In 2001, Irvine submitted a solicited status report on the coho salmon (*Oncorhynchus kisutch*) of the interior Fraser River. Coho salmon from the interior Fraser River watershed (Fig. 5) was considered to constitute a designatable unit 'DU' since the population is genetically differentiated and substantially reproductively isolated from all other coho salmon. Status of the Interior Fraser coho salmon was based mostly on an analysis of trends in the estimated abundance which showed a decline of greater than 60% over a sustained time period. The hypothesized causes of this decline include changes in freshwater and marine habitats, overexploitation, and effects relating to hatchery stocking programs. Specifically, COSEWIC was concerned that DFO harvest limits were insufficient or would not be maintained long enough to ensure recovery.

Interior Fraser coho spawn primarily within the traditional territories of the Secwepemc people (North and South Thompson and Clearwater rivers), of the Nlaka'pmux, Sce'exmx and Okanagan people of the upper Fraser canyon and Nicola valley, and the traditional territories of the St'at'imc, (Lillooet/Bridge River areas) and Tsilhqot'in (Chilcotin river system). COSEWIC (2002b) formally recognized the Aboriginal Traditional Knowledge related to Interior Fraser River coho salmon, including a variety of First Nation communities represented by the Secwepemc Fisheries Commission (SFC) and the Nicola Valley Stewardship and Fisheries Authority (NWFSa) represent bands with knowledge of traditional fisheries. Irvine et al. (2000) reviewed some of the issues concerning the role of ATK in the assessment of interior Fraser coho salmon.

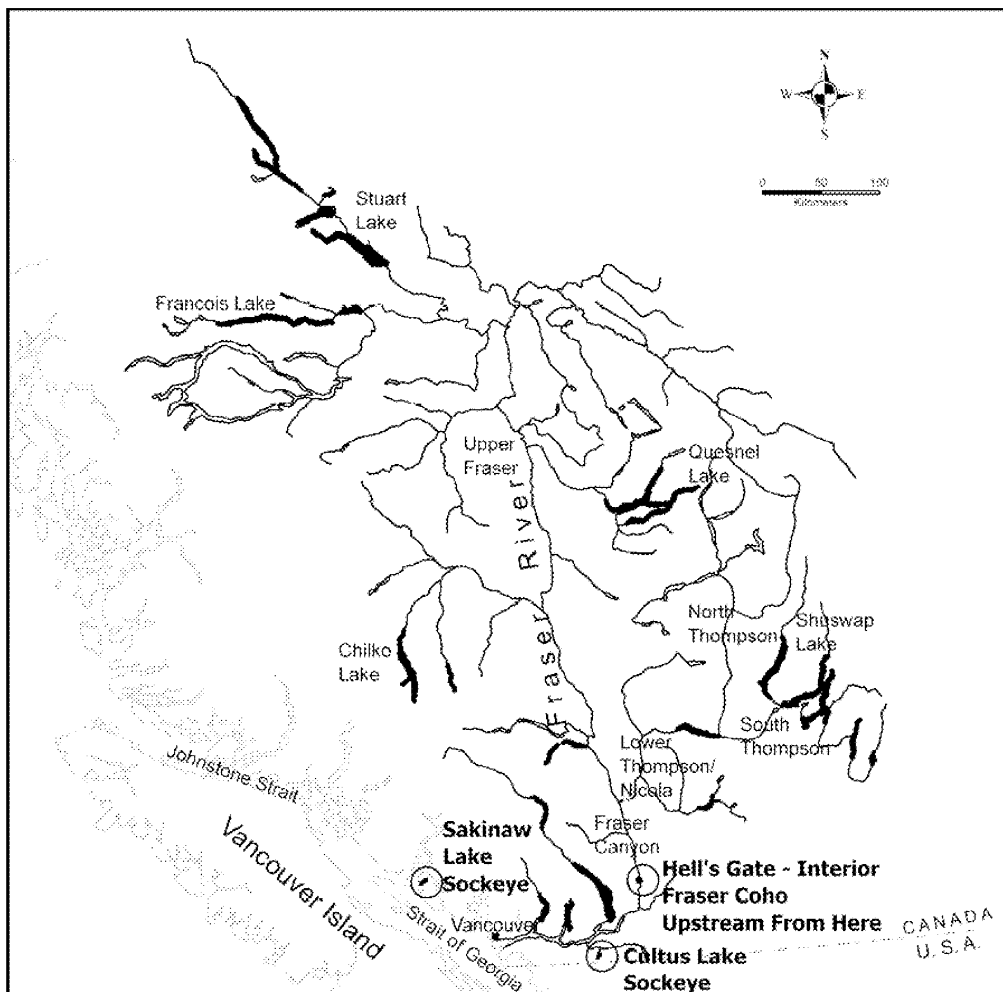


Figure 5. Map of southwest British Columbia showing the geographic distribution of Sackinaw Lake and Cultus Lake sockeye (*Oncorhynchus nerka*) populations, and Interior Fraser River coho salmon (*Oncorhynchus kisutch*). Source: (Irvine et al. 2005, Fig. 3).

In May 2002, Interior Fraser coho became the first Pacific salmon to be designated by COSEWIC as 'Endangered' (Irvine et al. 2005), and this designation is currently being reviewed by COSEWIC. A DFO response statement released in April 2004 confirmed that consultations would occur for 9 months before the Minister of the Environment forwarded the COSEWIC assessment to the Federal Cabinet. The final decision whether to add this species to the SARA List, is expected in April 2006 (Irvine et al. 2005).

From a First Nations' perspective, perhaps the most important aspect of the COSEWIC and SARA evaluations for Interior Fraser coho salmon has been the formal recognition of ATK possessed by the local communities. Despite the fact that this source of information was not fully explored during the evaluations, this formal recognition serves as a benchmark that all First Nations should ensure applies to their specific traditional knowledge in any future SARA processes.

Sockeye Salmon (*Oncorhynchus nerka*) - (Sakinaw Lake population)

Last COSEWIC Assessment: May 2003
Last COSEWIC Designation: Endangered
SARA Status: **Not listed**

Sockeye Salmon (*Oncorhynchus nerka*) - (Cultus Lake population)

Last COSEWIC Assessment: May 2003
Last COSEWIC Designation: Endangered
SARA Status: **Not listed**

Information sources: COSEWIC (2003a,b), CSAR (2005b), DFO (2005r,s), Irvine et al. (2005), Levy (2006)

Perhaps the most complex and contentious COSEWIC and SARA evaluations related to First Nations' fisheries have been the Sakinaw Lake and Cultus Lake populations (Fig. 5) of sockeye salmon (*Oncorhynchus nerka*). Unsolicited requests from biologist Ken Wilson and Chief Doug Kelly (Soowahlie First Nation), initiated COSEWIC's Emergency Assessments of Sakinaw and Cultus sockeye in October 2002. With specific respect to Cultus sockeye, COSEWIC commented on the importance to local First Nations:

"Cultus sockeye are also of significance to human culture. They are especially important to the Soowahlie Band of the Sto:lo First Nation. This band occupies the land that borders both sides of Sweltzer Creek, the sole access to Cultus Lake. The presence of sockeye in Cultus Lake was a principle determinant in the Band's settlement of the area and played a role in their survival for thousands of years. Today, the sockeye continue to be of cultural and spiritual importance to the community. Sockeye are featured on the band totem and in the band's expressions and dances; they are important to the band's economic opportunities for the future. The current Chief, Doug Kelly, was a co-petitioner (with Ken Wilson) in 2002 of

the COSEWIC emergency assessment of Cultus sockeye.” (COSEWIC 2003b, p.38)

COSEWIC considered that both Sakinaw and Cultus sockeye warranted designation as ‘Endangered’ nationally significant populations, under provisions for Emergency Assessment in November 2002, and by COSEWIC ratification in May 2003.

The major factors hypothesized to explain the decline and ongoing constraint of these two sockeye populations include overfishing, historic logging, reduced productivity due to freshwater habitat degradation, poaching, natural predation, parasitism, and impediments to spawning migration including low water flow. It is important to note that Sakinaw sockeye are captured together with sockeye and pink salmon from more productive populations in mixed-stock fisheries during their return migration through Johnstone and Georgia straits. Abundance data for Sakinaw sockeye and Cultus sockeye indicated reductions between 50-90% over 1-2 decades of time. COSEWIC concluded that there was virtually no possibility of natural rescue from neighbouring sockeye populations.

In 2005, the Minister of Environment, in consultation with the Minister of Fisheries and Oceans, decided not to recommend adding the Sakinaw and Cultus sockeye populations to the SARA list. It was concluded that listing could cost the sockeye fishing industry \$125 million in lost revenue by 2008 and would also have significant impacts on First Nations' food, social, and ceremonial fisheries and various industries.

“The strongest and most widespread opposition to listing received during consultations related to the proposed recommendation not to add the Sakinaw and Cultus populations of Pacific sockeye salmon to Schedule 1. Commercial harvesters and recreational fishers expressed concern that further conservation measures for these populations will further restrict mixed-stock fisheries in the Fraser River, Juan de Fuca and Johnstone and Georgia Straits, resulting in severe social and economic hardship.” (CSAR 2005b, p.102)

The responsible Ministers concluded that a virtual shutdown of the Fraser River sockeye fishery would have been necessary in light of the impossibility of visually distinguishing Sakinaw and Cultus sockeye from fish of other, larger sockeye populations.

One of the most significant issues raised by the SARA evaluation of Sakinaw and Cultus sockeye populations was the opposite positions held by different First Nations:

“Aboriginal peoples in inland areas consider these populations to be culturally important because of their historic role in meeting food, social and ceremonial needs, and thus support their listing, while Aboriginal people in the marine environment who are more closely associated with the mixed stock fishing oppose the listings because of potential restrictions on mixed-stock fisheries.” (CSAR 2005b, p.102)

“More than 50 responses were received from groups and individuals, primarily in response to the proposed recommendations not to add the two sockeye salmon populations to Schedule 1. A number of individuals and groups, including the Sierra Club, British Columbia Aboriginal Fisheries Commission, and Soowahlie First Nation are critical of these decisions. They believe, for example, that the estimated costs from listing the sockeye populations are exaggerated and that not listing will cause these populations to become extinct. Many individuals and associations, primarily from the fishing industry sector, strongly support the decision not to add to Schedule 1. They feel that the estimated costs are understated, and that listing these populations would bring significant negative economic consequences to the commercial fishing sector and coastal communities of British Columbia. The British Columbia chapter of the Sierra Club of Canada has requested that a decision regarding Cultus and Sakinaw sockeye salmon be deferred until such time as the Government has an opportunity to establish whether there is any basis to the justifications for the Minister's reasons for recommending not listing these populations. They have suggested that in order to establish the facts there should be a full public review of the socioeconomic analyses.” (CSAR 2005b, p.103)

In January 2005, a final decision was made by the Government of Canada to not list Sakinaw Lake sockeye salmon under the Species at Risk Act (SARA), due to *“unacceptably high social and economic costs that the commercial fishing and recreational fishing sectors, some Aboriginal peoples, coastal communities and others would face if these species were added to Schedule 1.”* (CSAR 2005b, p.96). In lieu of SARA protection, DFO established a variety of ‘conservation measures’ to protect late run sockeye, including Sakinaw Lake and Cultus Lake sockeye populations.

There are several lessons for First Nations to derive from the SARA processes for Sakinaw and Cultus sockeye, however two aspects stand out as especially important. First, despite the fact that a First Nation initiative led to strong COSEWIC scientific support for designating these sockeye populations as ‘Endangered,’ this scientific rationale was ultimately vetoed by political factors related to socio-economic consequences of automatic prohibitions that would have been implemented if the Federal Cabinet had listed the species under SARA. First Nations must be fully aware that such political forces could similarly affect any other SARA evaluations, and the First Nations should be prepared for these possibilities. Second, the fact that different First Nations adopted fundamentally contrary positions regarding SARA listing for these fish should be seen as a major constraint on the effectiveness of the SARA process as a whole. Where possible, First Nations should attempt to resolve objectives for shared fisheries prior to a species entering into the SARA evaluation process.

Shortjaw Cisco (*Coregonus zenithicus*)

Last COSEWIC Assessment: May 2003

Last COSEWIC Designation: Threatened

SARA Status: **Threatened**

Information sources: Todd (1985), COSEWIC (2003c), CSAR (2005a)

The shortjaw cisco (*Coregonus zenithicus*) is a deepwater fish that occurred in most of the Laurentian Great Lakes (Superior, Nipigon, Michigan, Huron, Erie) and many smaller lakes in central North America. The absence of shortjaw cisco from Lakes Michigan (since 1975) and Erie (since 1957) supports a conclusion that the species has been extirpated in these lakes; population trends in other lakes throughout its range are generally unknown. Hypothesized factors in the decline and local extinctions of shortjaw cisco include overfishing, introduction of exotic species and habitat degradation caused by urban, agricultural, and industrial activities. The shortjaw cisco was designated as 'Threatened' by COSEWIC in the 1987, and was submitted for evaluation under SARA soon after the program came into effect.

In 2005, the Minister of the Environment, on the advice of the Minister of Fisheries and Oceans, recommended that the assessments for shortjaw cisco be returned to COSEWIC for further information or consideration. Specifically, DFO indicated that (a) the assessment for the shortjaw cisco lacked Aboriginal traditional knowledge and (b) the assessment applied a single designatable unit when there was 'insufficient' information to do so:

"Responses on whether or not to list the Shortjaw Cisco ranged from general support for listing, conditional support for listing based on the development of sound management decisions, and rejection of listing based on a lack of credible scientific data and the lack of recognition of First Nation treaty rights. The commercial and sport fishing sectors are concerned that listing would negatively impact directed or bycatch fisheries. First Nations are opposed to listing until more information becomes available about this species and the potential impacts on their fishing activities. The Government of Ontario is concerned that listing this species will negatively impact First Nations' fisheries, as well as fisheries in Lake Nipigon, Lake Huron, and Lake Superior. The governments of Saskatchewan, Alberta, and Northwest Territories support listing the Shortjaw Cisco." (CSAR 2005a, p.4049)

In this case, First Nations should take special note that it was DFO that effectively played the 'Aboriginal trump card' with the result that COSEWIC must now take special steps to (a) define in more accurate and precise terms what ATK is and specifically how it relates to the Western Science of species evaluation (i.e. 'best available information'), and (b) present an expanded COSEWIC assessment that necessarily presents and evaluates the available ATK - before resubmitting the species for SARA evaluation. First Nations should keep a very close eye on how COSEWIC will proceed with this important and very challenging task.

Table 4. COSEWIC Assessments and SARA Status for aquatic species under SARA jurisdiction of Fisheries and Oceans Canada.
Source: http://www.cosewic.gc.ca/eng/sct2/sct2_4_e.cfm (COSEWIC 2006). Accessed February 2006.

Region	Species (common name)	DFO taxonomic group	DFO environment type	COSEWIC Status	SARA Status
Pacific	Bocaccio	Fish	Marine	Threatened	Under consideration
Pacific	Coho salmon	Fish	Anadromous	Endangered	Under consideration
Pacific	Cultus pygmy sculpin	Fish	Freshwater	Threatened	Listed
Pacific	Enos Lake stickleback	Fish	Freshwater	Endangered	Listed
Pacific	Enos Lake stickleback	Fish	Freshwater	Endangered	Listed
Pacific	Morrison Creek lamprey	Fish	Freshwater	Endangered	Listed
Pacific	Nooksack dace	Fish	Freshwater	Endangered	Listed
Pacific	Paxton Lake stickleback	Fish	Freshwater	Endangered	Listed
Pacific	Paxton Lake stickleback	Fish	Freshwater	Endangered	Listed
Pacific	Salish sucker	Fish	Freshwater	Endangered	Listed
Pacific	Shorthead sculpin	Fish	Freshwater	Threatened	Listed
Pacific	Sockeye salmon	Fish	Freshwater	Endangered	Not listed
Pacific	Sockeye salmon	Fish	Freshwater	Endangered	Not listed
Pacific	Speckled dace	Fish	Freshwater	Endangered	Under consideration
Pacific	Vananda Creek stickleback	Fish	Freshwater	Endangered	Listed
Pacific	Vananda Creek stickleback	Fish	Freshwater	Endangered	Listed
Pacific	Vancouver lamprey	Fish	Freshwater	Threatened	Listed
Pacific	Blue whale	Mammal	Marine	Endangered	Listed
Pacific	Grey whale	Mammal	Marine	Special Concern	Listed
Pacific	Harbour porpoise	Mammal	Marine	Special concern	Listed
Pacific	Humpback whale	Mammal	Marine	Threatened	Listed
Pacific	Killer whale	Mammal	Marine	Endangered	Listed
Pacific	Killer whale	Mammal	Marine	Threatened	Listed
Pacific	Killer whale	Mammal	Marine	Special Concern	Listed
Pacific	Killer whale	Mammal	Marine	Threatened	Listed
Pacific	Sea otter	Mammal	Marine	Threatened	Listed
Pacific	Sei whale	Mammal	Marine	Endangered	Listed
Pacific	Steller sea lion	Mammal	Marine	Special Concern	Listed

Pacific	Hotwater physa	Mollusc	Freshwater	Endangered	Listed
Pacific	Northern abalone	Mollusc	Marine	Threatened	Listed
Pacific	Leatherback turtle	Reptile	Marine	Endangered	Listed
Arctic	Northern wolffish	Fish	Marine	Threatened	Listed
Arctic	Spotted wolffish	Fish	Marine	Threatened	Listed
Arctic	Beluga whale	Mammal	Marine	Threatened	Under consideration
Arctic	Beluga whale	Mammal	Marine	Endangered	Under consideration
Arctic	Beluga whale	Mammal	Marine	Endangered	Under consideration
Arctic	Bowhead whale	Mammal	Marine	Endangered	Under consideration
Arctic	Bowhead whale	Mammal	Marine	Endangered	Under consideration
Inland	Aurora trout	Fish	Freshwater	Endangered	Listed
Inland	Carmine shiner	Fish	Freshwater	Threatened	Listed
Inland	Channel darter	Fish	Freshwater	Threatened	Listed
Inland	Eastern sand darter	Fish	Freshwater	Threatened	Listed
Inland	Lake chubsucker	Fish	Freshwater	Threatened	Listed
Inland	Northern madtom	Fish	Freshwater	Endangered	Listed
Inland	Pugnose shiner	Fish	Freshwater	Endangered	Listed
Inland	Shortjaw cisco	Fish	Freshwater	Threatened	Listed
Inland	Spotted gar	Fish	Freshwater	Threatened	Listed
Inland	Western silvery minnow	Fish	Freshwater	Threatened	Listed
Inland	Kidneyshell	Mollusc	Freshwater	Endangered	Listed
Inland	Lake Winnipeg physa	Mollusc	Freshwater	Endangered	Under consideration
Inland	Mudpuppy mussel	Mollusc	Freshwater	Endangered	Listed
Inland	Northern riffleshell	Mollusc	Freshwater	Endangered	Listed
Inland	Rayed bean	Mollusc	Freshwater	Endangered	Listed
Inland	Round hickorynut	Mollusc	Freshwater	Endangered	Listed
Inland	Snuffbox	Mollusc	Freshwater	Endangered	Listed
Inland	Wavy-rayed lampmussel	Mollusc	Marine	Endangered	Listed
Atlantic	Atlantic cod	Fish	Marine	Threatened	Under consideration

Atlantic	Atlantic cod	Fish	Marine	Threatened	Under consideration
Atlantic	Atlantic salmon	Fish	Marine	Endangered	Listed
Atlantic	Atlantic whitefish	Fish	Anadromous	Endangered	Listed
Atlantic	Cusk	Fish	Marine	Threatened	Under consideration
Atlantic	Lake Utopia dwarf smelt	Fish	Freshwater	Threatened	Listed
Atlantic	Northern wolffish	Fish	Marine	Threatened	Listed
Atlantic	Spotted wolffish	Fish	Marine	Threatened	Listed
Atlantic	Atlantic walrus	Mammal	Marine	Extirpated	Listed
Atlantic	Beluga whale	Mammal	Marine	Threatened	Listed
Atlantic	Blue whale	Mammal	Marine	Endangered	Listed
Atlantic	Grey whale	Mammal	Marine	Extirpated	Listed
Atlantic	North Atlantic right whale	Mammal	Marine	Endangered	Listed
Atlantic	Northern bottlenose whale	Mammal	Marine	Endangered	Under consideration
Atlantic	Leatherback turtle	Reptile	Marine	Endangered	Listed

6. Strategic Analysis and Recommendations

AFN can play a central role in helping to prepare First Nations as they take on expanded responsibilities with respect to fisheries management in general, and management of SARA issues in particular. AFN can also assist First Nations in the coordination of research and management initiatives that would be beyond the capabilities of individual First Nations or even larger bodies, such as Political Treaty Organizations.

It is with these strategic objectives in mind that the following general analysis and discussion of SARA and its effects on First Nations' fisheries is offered. The analysis is based on (a) review of SARA process (with emphasis on role of DFO) presented in this report, and (b) discussions with the various people interviewed during preparation of the report – many of whom shared ideas so that they could be presented here. Where appropriate, I have attempted to identify key recommendations on actions that could be taken by AFN to strengthen the position of First Nations in the ongoing implementation and development of SARA.

6.1 Responsibility for administration of SARA

Ultimately, the authority and responsibility for interpretation and implementation of SARA reside with the Governor in Council (GIC) which is the Federal Cabinet. The Canadian Endangered Species Conservation Council (CESCC), which consists of the Federal Environment and DFO Ministers and the Provincial and responsible Territorial Ministers, also have significant influence on SARA decision-making. Taken together, this means that there is significant potential for political influence that can be exerted on SARA at the strategically highest levels.

Recommendation 1: AFN should closely monitor the actions of responsible Federal and Provincial/Territorial Ministers involved in decision-making with respect to SARA policy and implementation.

Specifically within DFO, it is clear that DFO Policy Section has relatively far-reaching power when it comes to interpretation and recommendation of final decisions regarding the SARA. In contrast, DFO Science Section appears to be operationally subordinate to Policy Section in most respects, despite the fact that Science is required to provide all evidence-based evaluations of species status.

Recommendation 2: AFN should work with DFO to explicitly define the role of DFO Policy with regards to SARA, and specifically to define the manner in which DFO Science hypotheses, evidence and recommendations are weighted by DFO Policy in formulation of Ministerial Responses.

The National Aboriginal Council on Species at Risk (NACOSAR) holds a potentially powerful and strategically important role in the interpretation and implementation of SARA. It will be important to maintain effective communication between members of NACOSAR and members of the AFN National Policy Advisory Council and National Fisheries Committee. This two-way communication will serve to keep First Nations' representatives apprised of new developments in SARA policy and implementation, while ensuring that NACOSAR can effectively stress First Nations' priority concerns directly to the competent Ministers (Environment, Fisheries and Oceans) and the Canadian Endangered Species Conservation Council. Currently, the AFN representative on NACOSAR is also the Co-Chair of the AFN National Fisheries Committee and the AFN Chiefs Committee on the Environment.

Recommendation 3: AFN should schedule regular (quarterly?) meetings with NACOSAR for updates on SARA policy, species proposed for COSEWIC assessment, and operational issues in listing, protection, recovery and delisting. Where appropriate, representatives of affected First Nations should participate directly in meetings where their fisheries are identified for discussion.

6.2 COSEWIC Assessment of Species at Risk

The primary role of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) under SARA is to provide scientific information and traditional knowledge to the Minister of Environment (and other competent Ministers) and the CESC, after which point other non-scientific forms of information are brought into the decision-making process. Aside from internal COSEWIC proposals for species assessment, COSEWIC also accepts external applications from the public for COSEWIC to consider species for the Candidate List.

When considering whether a species should be considered eligible for COSEWIC assessment, the issue of taxonomic validity is often a factor – at the level of species, populations or smaller 'designatable units' or DUs (Green 2005, Dextrase & Mandrak 2006). COSEWIC states that it would normally only consider species and subspecies or varieties that have been established as valid in published taxonomic works or in peer reviewed communications from taxonomic specialists. COSEWIC would not normally consider other designatable units unless they can be shown to be genetically distinct, separated by a major range jurisdiction, or biogeographically distinct. In some circumstances, a DU may be considered eligible by COSEWIC if there are clear 'conservation' reasons for consideration (for example high risk of extinction), as long as justification was provided by the proponent. However, from a First Nation's perspective, they may have a specific title to a specific stream that may not be genetically distinct from other populations but are of food/social/ceremonial importance to that First Nation (e.g. Interior Fraser Coho is considered a DU under COSEWIC assessment but has many sub-populations within it). A First Nation community could be significantly impacted by the loss of one of those sub-populations, especially if the sub-population supports their only terminal fishery. There may also be a difference of opinion between terminal (inland) First Nations and coastal First Nations who still maintain a livelihood with commercial fisheries.

According to its mandate, COSEWIC must carry out its functions on the basis of the best available information on the biological status of a species, including Western scientific knowledge, community knowledge and Aboriginal Traditional knowledge. Information in Status Reports are used to assess the species according to COSEWIC's quantitative criteria and definitions, based in large part on World Conservation Union (IUCN) criteria as guidelines when assessing risks of extinction. While there can be many questions or concerns expressed about the COSEWIC scientific methods for undertaking a particular species assessment, the evaluation processes and quantitative criteria for assessment appear to be relatively good. It would also be desirable for COSEWIC methodology to reflect more of a hypothesis-driven approach where possible constraints to species recovery are identified as alternate hypotheses, which are associated with probabilities based on empirical evidence, and which generate

testable predictions that would drive the development of Recovery Strategies and Action Plans.

There does not appear to be any method of auditing the draft COSEWIC Status Reports prepared by external contractors, to ensure quality controls and independence from the socio-political factors associated with some species at risk. COSEWIC should have some mechanism to search and prevent conflict of interest regarding experts that are contracted to prepare and draft the Status Reports.

More importantly, the operational constraint of best available information needs to be improved, for several reasons: (a) this provision has a major effect on COSEWIC status designation, (b) there is no operational definition of what 'best available' means, (c) there is no description of what would happen if there is virtually no information available, and (d) there is no mechanism that would require any improvement of available information in the case where there is virtually no information available. As in many cases of species at risk, we often have little or no information on essential aspects of the species condition (COSEWIC 'Data Deficient'). For example, COSEWIC's use of IUCN quantitative criteria in species assessment assumes that the assessor has abundance data beyond simple presence/absence of individuals – yet these are often the only data that are actually available (Vanderzwaag & Hutchings 2005). Rather than relying on best available information, we need to ensure that some minimum available information criteria are established. There is no mechanism described that would require any improvement of available information in the case where there is virtually no information available. If a species is important enough to have a COSEWIC Status Report prepared, under most circumstances it should be important enough to make sure that minimum information requirements are satisfied – even if this means expending new field effort to collect the required information.

Vanderzwaag & Hutchings (2005) have discussed the debate about the appropriateness of IUCN criteria as guidelines for assessing risk, especially for marine species due in part to their high levels of abundance, broad distributions, and high levels of offspring production. They suggested that governments and stakeholders who might oppose having a species listed, especially commercially valuable species, might contest the applicability of the IUCN criteria as COSEWIC guides, resulting in undue extensions of the listing process.

Recommendation 4: AFN should work with individual First Nations to develop a list of species related to the community's fisheries that the First Nation wishes to propose to COSEWIC for consideration on their Candidate List for assessment of risk.

Recommendation 5: AFN should work with individual First Nations to develop a list of species related to the community's fisheries that other parties wish to propose to COSEWIC for consideration on their Candidate List for assessment of risk.

Recommendation 6: AFN should work with individual First Nations and COSEWIC to develop a framework for establishing 'taxonomic validity' in terms that are meaningful to the needs and uses of First Nations' fisheries.

Recommendation 7: AFN should work with COSEWIC to develop an explicit understanding of what the scientific method is in the context of management decision-making, and the explicit criteria that should be used to evaluate the scientific defensibility of a specific COSEWIC Species Assessment and SARA Recovery Strategy.

Recommendation 8: AFN should work with COSEWIC to develop a set of guidelines to prevent conflict of interest for potential Status Report contractors.

Recommendation 9: AFN should work with COSEWIC to develop minimum information requirements for COSEWIC status reports, and identify standard data collection programs for species designated as 'Data Deficient.'

6.3 COSEWIC Aboriginal Traditional Knowledge Subcommittee

The COSEWIC Aboriginal Traditional Knowledge Subcommittee is another key factor in the SARA process that AFN must focus on, for several reasons. The *Species at Risk Act* makes a special reference to the importance of including Aboriginal Traditional Knowledge (ATK) in the recovery of species at risk (DFO 2005l). From the perspective of COSEWIC, Aboriginal Traditional Knowledge must be translatable to a defined set of concepts that Western Science considers to be important.

If Aboriginal Traditional Knowledge is to be truly incorporated into COSEWIC deliberations, it needs to be defined and translated according to standards established by the ATK experts, rather than the Western Science experts. Aboriginal Traditional Knowledge cannot be viewed as simply a set of data from which various elements can be selected or ignored at will. Traditional knowledge is by nature, holistic in approach and must be considered from that perspective rather than from a Western reductionist perspective (AFN 2003). As a result, Western interpretation of fundamental principles such as 'conservation' and 'recovery' and 'protection' are often very different from First Nation's interpretations (Crawford & Morito 1997). This is a priority topic that needs to be addressed for the COSEWIC ATK Subcommittee to effectively perform its duties.

From a consultation perspective, COSEWIC and the Wildlife Management Boards have engaged in drafting a formal consultation process to ensure that the WMBs have full opportunity for input during the preparation and review of status reports for species within their management area (COSEWIC 2006g). Apparently, COSEWIC has not developed or proposed a formal consultation protocol for engaging First Nations (or associated Political Treaty Organizations) in the similar manner that it engages the Wildlife Management Boards, as described above.

Recommendation 10: AFN should work with First Nations and their experts in Aboriginal Traditional Knowledge to develop their own standards for what ATK is appropriate for consideration by COSEWIC in the preparation and evaluation of species assessment reports.

Recommendation 11: AFN should engage COSEWIC in a review and revision of the process by which ATK is considered by COSEWIC in the preparation and evaluation of species assessment reports. This process must recognize the high degree of cultural and regional variation in ATK across Canada.

Recommendation 12: AFN should work with COSEWIC to draft a formal consultation process to ensure that the First Nations have full opportunity for input during the preparation and review of status reports for species within their traditional area.

6.4 Ministerial Response Statements

The actual process for Ministerial decision-making on species at risk issues is not specified by SARA, nor is it possible to find detailed descriptions in material published by DFO. We do know that the Minister is required to at least consider the primarily scientific COSEWIC assessment, and hopefully the ATK that might have made it through COSEWIC's Western Science filter (see above). The Minister is also required to consult with other competent Ministers as required, and - if the species is found in a land claims area - the Wildlife Management Board exercising jurisdiction in that area. The Assembly of First Nations holds the position that the Minister is legally required to consult with those First Nations that will be directly affected by a potential listing, although this is not explicitly stated in SARA.

There is nothing in SARA that provides a deadline for the Minister actually submitting the COSEWIC assessment to the Federal Cabinet for decision-making. This lack of a deadline can, and does, result in significant and unnecessary delays in the entire SARA process (Vanderzwaag & Hutchings 2005).

From a strategic point of view, the Minister is required to consider several things, but is not bound to any particular information (science or otherwise), when making a decision about a species at risk. Socio-economic factors, legal factors and political factors all have potentially great influence on the Minister's decision-making (Vanderzwaag & Hutchings 2005). This is already a very complex decision-making environment, but it is made even more complex by a general lack of transparency and accountability in the process.

Federal Cabinet can say 'Yes', 'No', or 'Send it back' to COSEWIC for further work. Possible reasons for returning an assessment to COSEWIC for further work include (i) taxonomic uncertainty regarding the proposed species of 'designatable unit, (ii) scientific uncertainty about constraints to recovery, and (iii) lack of Aboriginal Traditional Knowledge in the assessment. It must be further noted that, under subsection (1.2) if Cabinet chooses 'No' or 'Send it back', the Minister must publicly release a response statement that has been approved by Cabinet which explains the reasons for not listing the species at risk, or sending it back to COSEWIC for further work. However, there is nothing in SARA to ensure that the reasons provided by the Minister in the response statement for 'No' or 'Send it back' would be either necessary or sufficient to actually explain the decision. The worst case scenario that is possible under the current system would be that a species would not receive legal protection even though it was biologically at risk, and that we would not even have a full accounting of the reasons that actually led to that decision (Irvine et al. 2005).

Recommendation 13: AFN should work with DFO to draft a formal consultation process to ensure that the First Nations have full opportunity for input during the preparation of Ministerial Responses for species within their traditional area.

Recommendation 14: AFN should work with DFO to develop an explicit understanding regarding the principles and application of formal Decision Analysis, and the explicit criteria that should be used to evaluate the degree to which decision-making in the face of uncertainty satisfies specific SARA objectives.

Recommendation 15: AFN should require a formal Decision Analysis for all DFO Ministerial Responses to COSEWIC Species Assessments.

6.5 Legal Listing

The Minister is required to forward COSEWIC assessments to the Governor in Council (i.e., Federal Cabinet) along with recommendations for listing, but SARA does not specify a timeline for listing, and significant delays can occur (Irvine et al. 2005). If the Federal Cabinet decides to proceed with a legal listing the species will be amended to the List of Wildlife Species at Risk in Schedule 1 of SARA, in accordance with the COSEWIC assessment.

Under the Emergency Order provisions of SARA Section 29, the Cabinet is allowed to amend the List with a species that is considered to be in imminent threat of survival. Sakinaw sockeye, Cultus sockeye and Okanagan chinook were all assessed as emergency cases in this manner (Irvine et al. 2005). In cases where species are legally listed under Emergency Order provisions, socio-economic factors do not have to be taken into account. Although the Minister is required to publish reasons for the emergency listing, there is nothing in SARA to ensure that the reasons provided by the Minister would be either necessary or sufficient to actually explain the decision.

Recommendation 16: AFN should require DFO and Federal Cabinet to develop specific, reasonable timelines for Federal Cabinet to make legal listing decisions once a COSEWIC assessment has been received.

Recommendation 17: AFN should require a formal Decision Analysis for all Emergency Listings of species that are not associated with Ministerial Responses to COSEWIC Species Assessments

6.6 Protection

For species designated under SARA as (i) Extirpated, (ii) Endangered, or (iii) Threatened, SARA prohibits possession or harm of any individuals. It should be noted that these prohibitions do not apply to species designated under SARA as Special Concern.

Under SARA, automatic general prohibitions against possession do not apply to an Aboriginal person, if the person uses the animal or plant (or any part or derivative of it) *“for ceremonial or medicinal purposes, or it is part of ceremonial dress used for ceremonial or cultural purposes.”* This artificial separation of food (possibly prohibited), social (possibly prohibited) and ceremonial (allowed) uses of a fishery inevitably leads to confusion, especially if the prohibitions are interpreted by someone who is unfamiliar with the often overlapping role of fish in First Nations' cultures.

For Aboriginal people engaged in harvesting for food or commerce, the automatic prohibitions of SARA would apply as they would for non-Aboriginal people. In the

context of harvest activities such as fisheries, the specific implementation of the prohibitions could take various forms, depending on the location of fishing effort and species harvested (DFO 2005g):

- Restrictions on bycatch;
- Fishing gear modifications;
- Fishing area closures;
- Fishing season closures;
- Closures or reductions in traditional fisheries.

Given these potentially severe restrictions, it is understandable that many First Nations are concerned that they are being expected to 'bear the burden of conservation.' Many hold the belief that remnants of species are often found in proximity to First Nations' traditional territory specifically because the species were afforded the benefit of First Nation protection from overharvest or disturbance – protection that was not provided elsewhere (AFN 2003). Simply put, First Nations would be penalized for having been the only ones to do the right thing.

Concerns have also been expressed about the longer term effects of SARA restrictions on access to traditional fisheries, especially on social, economic and health conditions of First Nation populations. Specifically, there are concerns that reductions in traditional diet of wild fish could have significant effects on the increase of health problems such as diabetes, and the social and economic costs associated with disease.

Recommendation 18: AFN should work with First Nations and DFO to explicitly define the exemptions from SARA prohibitions of food, social and ceremonial fisheries.

Recommendation 19: AFN should work with DFO to develop a framework for evaluating the degree to which individual First Nations have provided refuge to species at risk supporting fisheries, and to revise the Aboriginal exemptions to reflect the protection that has been, and could continue to be, afforded species at risk under First Nations fisheries management.

Recommendation 20: AFN should undertake research to investigate the short-, medium- and long-term costs (health, social, economic) of separating First Nation communities from traditional diets supported by food fisheries.

6.7 Safety Net

Under Section 36 of SARA, there are explicit provisions to extend SARA to unlisted species that have been classified by Provincial or Territorial Ministers. DFO perceives this extension as part of the 'Safety Net' cast to make sure that species at risk do not fall through the cracks and remain unprotected: "*SARA complements other laws and programs of Canada's federal, provincial and territorial governments*" (DFO 2005b).

The 1996 'Accord on the Protection of Endangered Species' obliged the Provincial and Territorial Governments to protect SARA species (Extirpated, Endangered, or Threatened) outside of federal lands, but if this does not take place, the Federal Cabinet can order that certain prohibitions will apply. In 2005, the Federal Government signed an agreement with British Columbia to coordinate the delivery of species at risk protection and recovery through legislation, policies, and operational procedures (Irvine et al. 2005). If this agreement had not existed, Federal Cabinet could have drafted a plan for implementation of SARA in British Columbia which as administered directly by Canadian agencies responsible for SARA. As it stands, some have argued that Provincial species-at-risk legislation is inadequate for the task, specifically a misconception of the purpose, arbitrary constraints on protection, and a lack of legal commitment to recovery (Wood & Flahr 2004).

There have been a few major concerns expressed by First Nations with the Federal-Provincial/Territorial relationship, specifically as it relates to SARA and First Nations fisheries. First, for some regions such as inland waters in Ontario, the Federal and Provincial/Territorial Governments are under the belief that authority has been 'delegated' to the Province for fisheries management – including First Nation fisheries which are protected by Aboriginal and treaty rights and the fiduciary responsibilities of the Federal Government. This alleged 'delegation' is a source of much controversy, which is made even more complex by the fact that under these circumstances DFO decided to not 'delegate' direct responsibility for fish habitat management and SARA, both of which DFO somehow interprets as not being part of 'fisheries management.'

The combination of (a) SARA support of Provincial/Territorial listings and regulation, and (b) formal Federal-Provincial/Territorial agreements regarding species at risk, raises serious concerns among First Nations that the Provinces have a much more active role in SARA (potential or realized) than is commonly perceived. For example, Atlantic salmon rivers are protected under Provincial/Territorial legislation, and there are numerous points of contact between First Nations fisheries and Provincial/Territorial policy, legislation and regulations. With the attachment of the Provincial conduit to SARA implementation, comes a wide variety of regional politics and concerns for manipulation of the SARA process by industry or others with close political ties to non-Federal agencies responsible for SARA.

Recommendation 21: AFN should undertake a comprehensive review of the 'delegation of authority' regarding fisheries management that is claimed to have occurred between the Federal and Provincial/Territorial Governments, with specific reference to management of First Nations' fisheries.

Recommendation 22: AFN should undertake a comprehensive review of all Federal-Provincial/Territorial relations (default, informal or formal) regarding implementation of SARA, with specific emphasis on the role of parties involved in the process.

6.8 Emergency Protection

In a similar manner to the process described in SARA for Emergency Listing of a species at risk, it is also possible for the Federal Cabinet to provide direct emergency protection under Section 80.(1). While this provision increases the ability to respond quickly to rapidly developing and potentially dire situations, it also has the potential effect of rapidly forcing First Nations into a severe corner with regards to management of their fisheries. Concerns have been expressed that many First Nations would simply not have the in-house ability to handle a situation of Emergency Protection where severe and strict regulations could be imposed virtually overnight.

Recommendation 23: AFN should prepare a Fisheries Tactical Response Team for supporting individual First Nations dealing with short- and medium-term fisheries management crisis situations in general, and SARA Emergency Protection situations in particular. Members of this team should be experienced people from a variety of relevant backgrounds (Aboriginal Traditional Knowledge, biology, legal, dispute resolution), with the ability to communicate effectively, and with credibility in both First Nations and in non-Aboriginal fisheries science/management. The Team should be able to deploy on short notice for short periods to provide direct input to Council and Management Boards on crisis management, negotiation with Federal/Provincial/Territorial governments, and short-medium-term planning leading to longer term solutions.

6.9 Agreements and Permits

Under Section 73 of SARA, there are three different categories of potentially harmful activities that may be allowed to continue under special permit, most notably 'incidental harm' that is incurred while carrying out some other activity directed at another species. 'Incidental harm' permits are most likely to be the principle tool by which provisions are made for ongoing First Nations' fisheries,

whether as non-target catch or limited harvest, in the face of SARA prohibitions for listed species. Some have argued that the record of Section 73 incidental harm permits issued to date shows that Ministerial discretion has largely been exercised in favor of commercial interests and pressures (Vanderzwaag & Hutchings 2005). It should be noted that, under SARA, there is no provision for public comment or review of the incidental harm permitting process (Irvine et al. 2005).

Recommendation 24: AFN should work with individual First Nations and DFO to explore the range of possible options for incidental harm permits, specifically within the context of non-target First Nation's fisheries.

Recommendation 25: AFN should require a formal Decision Analysis for all Section 73 Agreements and Permits, including public review and comment.

6.10 Enforcement Measures

SARA includes extensive enforcement powers, especially with respect to inspections, searches and seizures – in regions where DFO has a primary and active role in management decision-making and enforcement. For inland waters where Canada claims that it has delegated responsibility for fisheries management to the Province/Territory, the responsibilities for enforcement of SARA regulation is less clear. It is likely that DFO would consider fisheries-related regulations in these regions to be enforced by the Province or Territory. In the case of habitat-related regulations in these regions, DFO has retained a direct role in management and would likely act directly regarding enforcement as well.

Recommendation 26: AFN should work with DFO (and the Provinces/Territories as appropriate) to explicitly define the protocol for enforcement of SARA regulations, specifically as they relate to First Nations members involved in a fishery.

6.11 Compensation

The term 'compensation' appears only in Section 64 of SARA, relating specifically to the need to ensure fairness following the imposition of the critical habitat prohibitions. The issue of compensation arises only in circumstances where voluntary measures are not in place, and Government has unilaterally imposed a restriction or requirement to protect a species' critical habitat (AFN 2005b). The concept of 'compensation' in SARA does not relate to the need to ensure fairness following the imposition of any other regulations (e.g. harvest

constraints, gear restrictions, closures, etc.). It is planned to only be offered under extraordinary circumstances (DFO 2005h).

The issue of compensation will likely be of particular importance to First Nations, even if it arises only occasionally, because of the unique character of Aboriginal/treaty fisheries rights, and the interests of First Nations in lands, waters and associated resources. Those rights and interests are not dependent upon land ownership, and are often connected to Crown lands (AFN 2005b). There is a concern within First Nations that SARA could be used as a means for the Federal Government to curtail the economic opportunities provided by First Nations fisheries (AFN 2003).

While the cultural loss of the ability to fish for a listed species at risk is going to be considered by First Nations as a devastating and incalculable loss, the law will generally attempt to measure this loss in terms of compensation (Bernard 2006). In assessing the value of losses to First Nations fisheries, DFO will need to take account of the following issues, among others: (a) the unique qualities and strength of First Nations' Aboriginal/treaty rights, including their constitutional status, which give them a higher value than other forms of rights, and (b) the cultural, sustenance and other values that First Nations derive from lands and resources (AFN 2005b).

It is important to note that according to some DFO (2005h) sources, compensation does not apply to other economic losses resulting from the listing of a species. In other cases, DFO has explicitly recognized the need for creative/innovative compensation packages for First Nations where Aboriginal/treaty rights for fisheries have been infringed, depending on species/region. In these cases, it is important to realize that from a First Nation perspective, the focus must not be just financial compensation, but also (and in many cases more importantly) supplementary access to harvests of other non-threatened species, as indicated by DFO (2005l). Compensation can take the form of tools or equipment to conduct selective harvesting techniques such as fish wheels, weirs or specialized traps to conduct live release of captured listed species. In cases where reserves were set aside as fishing stations for specific use or benefit of a Band, then it is important to consider what happens when fishing stations are no longer usable, and the compensation needs associated with these specific circumstances. In general, it is very important that First Nations take a lead role in determining the most appropriate form of SARA compensation to satisfy their needs in terms.

The actual details of the critical habitat compensation scheme are not set out in the Act. Procedures for applying for compensation are currently being developed by DFO(2005h), and they will be provided in future regulations established by the Federal Cabinet pursuant to SARA (AFN 2005b).

Recommendation 27: AFN should work with individual First Nations and DFO to provide direct input into the development of the SARA compensation scheme.

6.12 Recovery Strategy/Recovery Action Plan

For species listed as Extirpated, Endangered, or Threatened, SARA requires that Recovery Strategy and an associated Recovery Action Plan be developed and implemented. For species listed as Special Concern, SARA describes a less intensive Recovery Management Plan.

There is no explicit reference in SARA to the 'precautionary principle' with regards to the science or management of species at risk. However, the concept is clearly stated in Section 38, with specific reference to all of the recovery activities mandated for SARA Listed Species. For the purposes of all recovery activities required by SARA, the burden of scientific proof is established at the level of reasonable expectation, rather than some higher level of 'full scientific certainty.' In a specific case, DFO or the courts may be forced into a *Sparrow* analysis where they must deal with a fisheries situation where an infringement occurs in a situation where evidence is scant and scientific uncertainty is high (as is often the case with species at risk), and the 'precautionary principle' is invoked. Any resulting prohibitions or regulations that have a negative effect on a First Nation fishery would clearly be considered an 'infringement' – the question is whether the 'precautionary approach' would be enough by itself to support a justification argument for infringement of a constitutional right (Bernard 2006).

Recommendation 28: AFN should undertake a comprehensive review of the 'precautionary principle' as it relates to fisheries management in general, and its application to SARA and fisheries in particular.

SARA constrains the development of recovery strategies to what it refers to as 'technically and biologically feasible.' The key phrase 'best available information' once again becomes important in this section, because (a) this provision has a major effect on what is deemed 'feasible,' (b) there is no operational definition of what 'best available' means, (c) there is no description of what would happen if there is virtually no information available, and (d) there is no mechanism that would require any improvement of available information in the case where there is virtually no information available. In the event that a Recovery Strategy is actually deemed 'not feasible' by the Minister, SARA lays out the requirements for a more abbreviated strategy document that ends with presentation of reasons why any strategy was deemed to be 'not feasible.' There is nothing in SARA to ensure that the reasons provided by the Minister for a 'not feasible' decision would be necessary or sufficient to actually explain the decision.

Although mentioned explicitly in the objectives, SARA does not provide an operational definition of recovery. Without clearly and explicitly defining the concept of recovery, SARA cannot hope to achieve its purpose. From a First Nations' perspective, there are considerable concerns about what the point of recovery is, how it is translated into specific cases, and who does the translation and definition.

Recovery Action Plans must not only provide a specific workplan, but must also undertake a socio-economic evaluation of the 'costs' and 'benefits' associated with the workplan. Details of how this socio-economic analysis is to be executed are not provided in SARA, nor discussed by DFO. First Nations need to make sure that DFO recovery actions have their intended consequences by following their own scientific method. DFO must test the predictions generated by their competing recovery hypotheses, force the hypotheses to generate testable predictions of recovery progress, and update the probabilities of the hypotheses (learning) by testing the predictions in the field. If there is no requirement for follow-up testing of predictions, DFO will never know if the hypotheses/decisions were correct in the first place, or whether the SARA recovery decision-making achieves its purpose.

Recommendation 29: AFN should work with DFO to develop an explicit understanding of what the scientific method is in the context of recovery planning, and the explicit criteria that should be used to evaluate the 'technical and biological feasibility' of SARA Recovery Strategies and Action Plans.

Recommendation 30: AFN should require a formal Decision Analysis for all DFO Recovery Strategies and Action Plans.

6.13 Delisting

Finally, and most importantly, the *Species at Risk Act* makes no mention of de-listing, or removing a species from the List of Wildlife Species at Risk in Schedule 1 of SARA. In fact, the terms 'de-listing' and 'removal' do not exist in the text of SARA at all. This observation is noteworthy for two reasons. First, it is truly unusual for a document that is so careful with documenting due process to have omitted an important step. Second, it could be argued that de-listing of a species is the ultimate goal of SARA, and it seems strange that something so important should not receive even passing mention in the Act.

Recommendation 31: AFN should work with DFO to develop an explicit understanding of what the scientific method is in the context of removing a species from the Schedule 1 of SARA.

Recommendation 32: AFN should require a formal Decision Analysis for all DFO proposals to removing a species from the Schedule 1 of SARA.

6.14 Consultation

It is extremely important that First Nations clearly understand the legal implications prior to entering into any type of species recovery process to ensure maximum benefit to their communities, the species in question and the critical habitat of the listed species. Supreme Court of Canada decisions such as *R. v. Sparrow* (1990), *Delgamuukw v. British Columbia* (1997), and *R. v. Marshall* (1999), outline the Federal Government's legal responsibility to consult with First Nations where federal action has the potential to affect First Nations interests (AFN 2003). To date, Canada has been very careful to be inclusive of Aboriginal communities within SARA decision-making processes, especially with respect to the involvement of Aboriginal people and pathways for inclusion of Aboriginal Traditional Knowledge in the assessment, protection and recovery processes. Some have argued that the extent of the Crown's duty to consult is a matter of degree dependent on adverse impacts on First Nations - the greater the degree of adverse impact, the greater the duty to consult (*Delgamuukw v. British Columbia* 1997). (Bernard 2006).

Table 5 provides a general summary of the clauses regarding the requirement for consultation with Aboriginal Communities and Aboriginal Wildlife Management Boards on specific elements with the Act. At a glance, it can be seen that virtually all important aspects of SARA implementation require consultation with both INAC/First Nations and identified Wildlife Management Boards. The most important exception to this is the notable absence of INAC/First Nation consultation regarding (a) the 'Decision to List' a Species at Risk, and (b) the 'Application of General Prohibitions' to Provincial/Territorial jurisdictions. The Assembly of First Nations holds the position that the Minister is legally required to consult with individual First Nations that will be directly affected by a potential listing and subsequent prohibitions, although this is not explicitly stated in SARA. Concern has also been expressed by First Nations that in addition to consultation by the lead Minister on a specific listing decision or prohibition, the associated 'competent Ministers' who advise the lead Minister should also be required to consult those same First Nations before provide advice to the lead Minister.

Recommendation 33: AFN should work with DFO to draft a formal consultation process to ensure that the First Nations have full opportunity for input during the decision to list a species at risk under SARA.

Recommendation 34: AFN should require all competent Ministers advising the lead Minister on a specific SARA issue to consult with the First Nation(s) that the lead Minister was required to consult with.

Table 5. Summary of SARA template clauses regarding the requirement for consultation with Aboriginal Communities and Aboriginal Wildlife Management Boards on specific elements with the Act. INAC/FN refers to consultation by the responsible Ministry with both Indian Affairs and Northern Development and the specific First Nation(s). Aboriginal Management Board refers to consultation with “wildlife management board is authorized by a land claims agreement to perform functions in respect of wildlife species.”

SARA Section – Element	Consultation Clause	
	INAC/FN	Aboriginal Wildlife Management Board
S27.(2) Decisions to List	no	yes
S34.(4) Application of General Prohibitions - Provincial	no	yes
S35.(4) Application of General Prohibitions - Territory	no	yes
S39.(1) Recovery Strategies	yes	yes
S48.(1) Action Plans	yes	yes
S53.(2/3) Action Plan Regulations	yes	yes
S58.(7) Protection of Critical Habitat	yes	yes
S59.(6/7) Regulations to Protect Critical Habitat	yes	yes
S66.(2) Management Plans for Species of Special Concern	yes	yes
S71.(2/3) Implementation of SSC Management Plans	yes	yes
S73.(4/5) Agreements and Permits	yes*	yes

* - only FN consultation indicated

6.15 Infringement of SARA on Aboriginal and/or treaty rights

The Supreme Court of Canada has found that Aboriginal rights are not absolute, and that the Crown may infringe upon an Aboriginal right based upon conservation, public safety or for economic purposes. However, the onus is clearly placed on the Crown to justify the infringement.

Section 3 of SARA provides a 'non-derogation clause' stating that "*nothing in this Act shall be construed so as to abrogate or derogate from the protection provided for existing aboriginal or treaty rights of the aboriginal peoples of Canada by the recognition and affirmation of those rights in section 35 of the Constitution Act, 1982.*" While this section states that the Act will not take away or erode Aboriginal constitutional rights such as fisheries, it can be clearly seen from this review and analysis that SARA has a hugely important potential effect on these fisheries rights (Bernard 2006). AFN (2005b) has alerted First Nations that new wording, such as that found in SARA, marks a profound change in the meaning of 'non-derogation clauses.' What was once a protective statement, has become at best a neutral statement indicating that SARA may or may not infringe Aboriginal or treaty rights, depending on the specific circumstances.

Bernard (2006) has suggested that any treaty defense to a charge under SARA would automatically trigger a *Sparrow* analysis to determine: (Bernard 2006)

1. Whether there is a treaty right; if yes;
2. Whether an infringement of that treaty right occurred; if yes;
3. Whether such an infringement is justified.

The justification test involves two steps:

- a. First, is there a valid legislative objective? Once again, the legislative objective is 'conservation' which – once defined, by whomever does the defining (Crawford & Morito 1997) – does justify infringement. If the objective is found to be valid as it likely would be, the analysis proceeds to the second part of the justification issue;
- b. Second, has the Crown upheld its honour Crown in dealings with the First Nation people.

Thus, the Federal Government can indeed infringe Aboriginal or treaty rights through the provisions of SARA (AFN 2005b). The key issue boils down to whether the Federal Government can justify the infringement that is proposed, or has taken place.

The test of infringement is whether it is scientifically defensible in terms of 'conservation' of the species; this criterion actually has two subcomponents: (1) definition of 'conservation' (Crawford & Morito 1997) and definition of the scientific method as it applies to competing hypotheses about the possible cause-effect mechanisms that may threaten the survival of the species. 'Conservation' has been held as (the only) reasonable justification for the infringement of Aboriginal and treaty rights since 1990 and the *Sparrow* decision, and the establishment of 'conservation' over Aboriginal and treaty rights, and

then other harvesting privileges. However, it is important to note that DFO cannot stop a food/social/ceremonial fishery due to problems that were created by a DFO fisheries management program in the first place.

Recommendation 35: AFN should undertake a comprehensive review of the biological/cultural/economic/legal basis for defining 'conservation' objectives for fisheries management, especially as it relates to differences between Western Science and Aboriginal Traditional Knowledge systems.

Recommendation 36: AFN should prepare a legal analysis and discussion paper specifically focused on the SARA justification of infringement related to First Nations' fisheries.

6.16 Increasing capability of First Nations to engage SARA

As mentioned above, there is already a rich base of First Nations' expertise when it comes to dealing with fisheries management in general and SARA in particular. However, many First Nations have no idea of the abundance or distribution of expertise that may be able to help them with their specific SARA issues. In some cases, even a simple telephone conversation or email transfer of a single document can make all the difference in the world for SARA planning and preparation. SARA requires that Aboriginal people have full opportunity to participate in its implementation from beginning to end (DFO 2005I). Serious concerns have been expressed by many First Nations, that despite their strong desire to engage in the SARA process – they simply do not have the homegrown capability or the financial resources to participate in SARA.

Recommendation 37: AFN should develop a roster of FN experts in traditional knowledge, fisheries management and fisheries biology, identifying background availability for consultation (informal versus formal, area of expertise, experience).

Recommendation 38: AFN should establish a special SARA Advisory Committee (with a full-time SARA Coordinator) drawing on FN experts, with the purpose of monitoring DFO implementation of SARA, identifying and monitoring strategically important SARA cases, and coordinating necessary research and preparation with individuals First Nations involved in those cases.

Recommendation 39: AFN should work with First Nations and Canadian universities to develop new curricula and implement new B.Sc. degrees in Aboriginal Resource Management, combining the best of Aboriginal Traditional Knowledge and the best of Western Science in resource management decision-making.

6.17 Mandatory Review of the Act

At several points in SARA, there are explicit references to mandatory reports and reviews scheduled for the Act and the implementation process, including:

- Annual reporting by the Minister on the administration of this Act during the preceding calendar year;
- Biannual round table of persons interested in matters respecting the protection of wildlife species at risk in Canada to advise the Minister on those matters;
- Five-year general report on the status of wildlife species;
- Five-year (2008) committee of the House of Commons, of the Senate or of both Houses of Parliament is to be established for the purpose of reviewing this Act

First Nations should plan on being well prepared to provide strong, clearly articulated comments and recommendations when these opportunities arise. This is especially true for the full 2008 SARA review, where First Nations will have an opportunity to directly provide Parliament with their assessments of the Act based upon five years of experience, and with their recommendations for its improvement (AFN 2005b).

Recommendation 40: AFN should work with the special AFN SARA Advisory Committee and individual First Nations to present reviews and recommendations at every possible opportunity to COSEWIC, DFO and Environment Canada, regarding SARA and its effect on First Nations' fisheries.

Recommendation 41: AFN should begin planning now for the critical 2008 Parliamentary review of SARA, with special emphasis on (a) the relationship between Aboriginal Traditional Knowledge and Western Science, (b) justification of infringement, (c) development and implementation of Recovery Strategies/Action Plans, and (d) the role of Decision Analysis in providing transparency and accountability.

7. Concluding remarks

There is no doubt that SARA is one of the most important pieces of Canadian legislation in terms of its potential to affect First Nations' fisheries, both positively and negatively. SARA flows directly from the key issue of defining 'conservation' as laid out in the *Sparrow* decision (Crawford & Morito 1997). To this point, SARA has challenged many First Nations due to its complexity, its use of advanced Western Science, and the intensive effort required by any First Nation that wants/needs to participate fully in the process. In some cases, SARA has divided First Nations that have developed very different objectives for individual species currently being processed by SARA. There are some First Nations with highly-skilled biologists and decision-makers who are very knowledgeable about SARA. However, there are many more who know little or nothing about the SARA process, and its potential to affect the future of First Nations' fisheries.

SARA is a double-edged sword, for positive and/or negative effect, for both First Nations and the Federal and Provincial/Territorial governments as they satisfy their very different mandates. Vanderzwaag & Hutchings (2005) have argued that there is an urgent need to move from "deathbed" treatment to proactive encouragement of biodiversity recovery, including the modernization of Canada's antiquated Fisheries Act. AFN can greatly improve the utility of SARA by facilitating a high level of strategic planning among First Nations (a) to coordinate the two-way flow of essential information, and (b) to increase First Nations' capability and participation in research, policy development and implementation of SARA regarding their fisheries management programs.

Hopefully, some of the information, analyses and recommendations presented in this report contribute to enhancing First Nations' skill with this potentially powerful tool.

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Appendix I. List of the 'AFN - First Nations *Species at Risk Act* - Toolkit', most of which was prepared and distributed to First Nations' delegates as briefing material. This toolkit (dated March 2005) included the following articles:

- AFN. 2003. Brief on Bill C-33 Species at Risk Act prepared for Standing Committee on Environment and Sustainable Development. pp. 13, Assembly of First Nations, Ottawa, Ontario, Canada.
- AFN. 2004. Fact sheet: Species at Risk Act (May 2004). pp. 2, Assembly of First Nations Environment Secretariat, Ottawa, Ontario, Canada.
- AFN. 2005a. An introduction to the members of the National Aboriginal Council on Species at Risk: "To Protect and Preserve the Sacred Circle of Life". pp. 3, Assembly of First Nations, Ottawa, Ontario, Canada.
- AFN. 2005b. Overview of the Species At Risk Act. pp. 11, Assembly of First Nations, Ottawa, Ontario, Canada.
- COSEWIC. 2005. COSEWIC Aboriginal Traditional Knowledge Subcommittee: general information for potential members. pp. 2, Assembly of First Nations, Ottawa, Ontario, Canada.
- d'Eca, M. 2005. The National Aboriginal Council on Species at Risk: providing a national Aboriginal perspective on species at risk issues. pp. 7, Report prepared by Michael d'Eca, legal research and policy advisor to NACOSAR, Ottawa, Ontario, Canada. 11 November 2005.
- AFN. 2005c. National Aboriginal organization contact sheet, including NACOSAR members (updated 25 January 2005). pp. 3, Assembly of First Nations, Ottawa, Ontario, Canada.
- AFN. 2005d. Spreadsheet with contact information for members/nominees for ATK SC, COSEWIC & NACOSAR. pp. 1, Assembly of First Nations, Ottawa, Ontario, Canada.
- AFN. 2005e. Assembly of First Nations Chiefs Committee on Environmental Stewardship (updated 11 January 2006). pp. 1, Assembly of First Nations, Ottawa, Ontario, Canada.
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- AFN. 2005f. Assembly of First Nations - National Fisheries Committee (updated 12 January 2006). pp. 4, Assembly of First Nations, Ottawa, Ontario, Canada.

Appendix II. Template for conducting interviews with Members of AFN National Fisheries Committee.

**AFN – Effects of *Species At Risk Act* (SARA) on First Nations' Fisheries
AFN National Fisheries Committee
Interview Notes**

Interviewee: _____

Province/Territory: _____ Region: _____

1. **Introduction** – Coppaway/Crawford/AFN Contract
 - Purpose of Survey - we are working for them, their participation
 - 7 questions, maybe 15 minutes of their time
2. **Introduction** – Them (FN, Fisheries, AFN National Fisheries Committee)
3. In general, **top 3 concerns** about effect of SARA on First Nations' fisheries
4. Are you aware of any **reports** that have been prepared by FNs or PTOs on the effects of SARA on FN resources in general, and fisheries in particular
5. Are you aware of any **Provincial (Territorial) Endangered Species Legislation** that interacts with Federal SARA implementation.
6. **Case studies for analysis of SARA on FN fisheries**
 - List as many FN/PTOs as aware of
 - Current or proposed SARA implementation
 - We need to select 8 case studies across 4 regions (Pacific, Arctic, Inland, Atlantic)
7. **Anything else you think we should know or consider in this review/analysis?**

Appendix III. Summarized results of interviews with members of AFN National Fisheries Committee on Effects of SARA on First Nations Fisheries Interview Summary.

General Summary:

Surveys Completed: 6

Atlantic: 2

Inland: 3 (1 Ontario, 2 British Columbia) \

Pacific: 0

Arctic: 1 (Yukon inland)

N.B I have compiled this summary based on the areas that the respondents were located and indicated the basis of their First Nations fisheries were located.

Atlantic

Rick Simon (NFLD/LAB)

Alexander McDonald (NS)

2. Introductions:

- Fisheries - Commercial fisheries tend to be marine
 - Lobster, halibut, snow crab, tuna, sword fish, scallops, assorted other marine fish
- Subsistence fisheries
 - Salomon, stripped bass, trout, eels, smelt, shad

3. Concerns:

1. Obstruction of harvest by DFO
2. Impact on the Salmon fisheries
3. Infringement of Treaty rights, and the right to manage fisheries

4. Reports:

- None in the east
- Both referred to British Columbia and **Byron Louis**

5. Provincial Legislation interaction

- East coast salmon rivers are protected under provincial legislation

6. Case study analysis

- Atlantic Policy Congress
 - www.apcfnc.ca
 - Cheryl Knockwood was referred to me (yet to contact)

7. Other considerations:

- Fishing agreements
- Marshall agreement/ management of resources
- Lack of unity among chiefs in region
- Sharing, information/resources

N.B many bands in the Atlantic region have there own management plans.

Inland

Paul Jones (Ontario)

Arnie Narcisse (British Columbia)

Ken Malloway (British Columbia)

2. Introductions:

- Fisheries – Commercial white fish, by catch of lake trout
 - No commercial fishery on Fraser River
- Subsistence fishery- many other species
 - BC salmon, on Fraser River system

3. Concerns:

Ontario

1. Potential to remove money, no compensation
2. Province, First Nation question of exemption, and potential loss of land usage
3. No consultation

British Columbia (strongly support SARA)

1. Not powerful enough
2. Direct FN representation
3. too much power in hands of the minister
4. Wild salmon policy
5. Thomson Coho

4. Reports:

Byron Lewis

5. Provincial Legislation interaction

Ontario

Non Indigenous species

BC

White Sturgeon recreational fishery issue

Stickle back

Dace

Okanagan Sockeye

6. Case study analysis

Ontario

UOI

Chiefs of Ontario

AIAI

N.B indicated that individual FNs would not be able to consider this issue due to money

issues

BC

White sturgeon

Thompson Coho

7. Other considerations:

Ontario

North Shore (Batchewanna)

AOFRC

Consultation

Nothing on habitat within SARA, needs to be defined

Timelines

Who will make decisions?

BC

Coastal/inland divide on salmon fisheries

1300 fishing licenses in Sholo nation, biggest FN fishery

DFO clause for barter and trade

Arctic

Carl Sidney (Yukon)

2. Introductions:

Fisheries- subsistence fisheries

salmon (chinook, chum)

grayling

sucker

whitefish

trout

pike

ling cod

3. Concerns:
 1. Nothing in SARA that allows to have a species removed from the list
 2. Committee COSEWIC, there is no aboriginal appointment
4. Reports
None as know
5. Provincial Legislation interaction
No
6. Case study analysis
Bering cisco, not endangered but on list
7. Other considerations
Wild salmon policy
Yukon environmental board
Land claim agreements in Yukon
14 FNs
11 have settled there agreements

Appendix IV. Website URLs that contained information on the SARA process, with special reference to the SARA Public Registry, COSEWIC and the role of DFO related to SARA for aquatic species in Canada.

A. Species at Risk Act - Public Registry

http://www.sararegistry.gc.ca/default_e.cfm

1. Species At Risk Act

http://www.sararegistry.gc.ca/the_act/SARA_e.pdf

B. Environment Canada (EC)

<http://www.ec.gc.ca/envhome.html>

1. Environment Canada - Species At Risk

http://www.speciesatrisk.gc.ca/default_e.cfm

a. Environment Canada - Species at Risk - Canada's Strategy

http://www.speciesatrisk.gc.ca/Q4_e.cfm

2. SARA Recovery Team

www.speciesatrisk.gc.ca/recovery/

3. Environment Canada - Canadian Wildlife Service - National Site

http://www.cws-scf.ec.gc.ca/index_e.cfm/

a. Environment Canada - Canadian Wildlife Service - SARA site

<http://www.cws-scf.ec.gc.ca/theme.cfm?lang=e&category=12>

b. Habitat Stewardship Program (HSP) for Species at Risk

<http://www.cws-scf.ec.gc.ca/hsp-pih/>

C. Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

http://www.cosewic.gc.ca/eng/sct5/index_e.cfm

1. COSEWIC Candidate Species List

http://www.cosewic.gc.ca/eng/sct3/sct3_1_e.cfm

D. Fisheries & Oceans Canada (DFO)

http://www.dfo-mpo.gc.ca/home-accueil_e.htm

1. Fisheries & Oceans Canada - Canada's Species at Risk Act (SARA)

http://www.dfo-mpo.gc.ca/species-especes/home_e.asp

2. Fisheries & Oceans Canada - Regions

http://www.dfo-mpo.gc.ca/regions_e.htm

a. Fisheries & Oceans Canada - Pacific Region

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

(1) Fisheries & Oceans Canada - Pacific Region - Species at Risk Act (SARA)

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

(2) Fisheries & Oceans Canada - Pacific Region - Consultation Secretariat

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

(a) Fisheries & Oceans Canada - Pacific Region - Consultation Secretariat - *Species at Risk Act*

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

b. Fisheries & Oceans Canada - Central & Arctic Region

http://www.dfo-mpo.gc.ca/regions/central/index_e.htm

c. Fisheries & Oceans Canada - Quebec Region

<http://www.gc.dfo-mpo.gc.ca/en/main/Default.htm>

d. Fisheries & Oceans Canada - Gulf Region

<http://www.glf.dfo-mpo.gc.ca/index-e.html>

e. Fisheries & Oceans Canada - Maritime Region

<http://www.mar.dfo-mpo.gc.ca/e/homepg.htm>

(1) Maritime Species at Risk Website

http://www.mar.dfo-mpo.gc.ca/masaro/english/Main_Page.html

f. Fisheries & Oceans Canada - Newfoundland and Labrador Region

http://www.nfl.dfo-mpo.gc.ca/home_accueil.asp?Lang=English

E. Parks Canada

http://www.pc.gc.ca/index_e.asp

1. Parks Canada - Species at Risk

http://www.pc.gc.ca/nature/eep-sar/index_e.asp

F. Interdepartmental Recovery Fund

http://www.cws-scf.ec.gc.ca/irf-fir/index_e.cfm

G. Endangered Species Recovery Fund

http://www.speciesatrisk.gc.ca/support/esrf_frep/default_e.cfm

Appendix V. Wildlife Management Boards (WMBs) that have expressed an interest in COSEWIC's activities (COSEWIC 2006f).

British Columbia (BC)

Nisga'a Wildlife Committee (NWC) & Joint Fisheries Management Committee (NJFMC)

NWC - terrestrial mammals, non-migratory birds, reptiles, amphibians, non-anadromous fish in non-tidal waters

NJFMC - marine mammals, fish, marine inverts, aquatic plants

Director of Fisheries & Wildlife: Harry Nyce, Sr.

Nisga'a Lisims Government

P.O. Box 231

New Aiyansh BC

V0J 1A0

Phone: (250)633-3000

Toll free: (866) 633-0888

Fax: (250) 633-2367

eagle1@nisgaa.net

web site: www.nisgaalisims.ca

Yukon (YT)

Wildlife Management Advisory Council - North Slope (WMAC-NS)

All species in North Slope settlement area.

Chair: Lindsay Staples

Secretariat: Michelle Sicotte

P.O. Box 31539

Whitehorse, Yukon

Y1A 6K8

Phone: (867) 633-5476

Fax: (867) 633-6900

wmacns@web.ca

web site: www.taiga.net/wmac

Yukon Fish and Wildlife Management Board (YFWMB)

All species in the Yukon (except the north slope area).

Chair: Dan McDiarmid

Executive director: Christine Cleghorn

2nd Floor, 106 Main Street (Burns Building)

Box 31104, Whitehorse YK

Y1A 5P7

Phone: (867) 667-5835

Fax: (867) 393-6947

ccleghorn@yknet.ca

web site: www.yfwmb.yk.ca/

Northwest Territories (NT)

Fisheries Joint Management Committee (FJMC)

Marine Fish and Mammals in coastal waters of the Western Arctic.
Joint Secretariat - Inuvialuit Renewable Resources Committees

Chair: Robert Bell

Resource person: Kevin Bill

Box 2120

Inuvik, NT X0E 0T0

Phone: (867) 777-2828

Fax: (867) 777-2610

fjmc@jointsec.nt.ca

robert.bell@sasktel.net

Gwich'in Renewable Resources Board (GRRB)

All species in the Gwich'in settlement area.

Chair: Robert Charlie

Executive director: Jari Heikkila

PO Box 2240

105 Distributor St.

Inuvik NT, X0E 0T0

Phone: (867) 777-3429

Fax: (867) 777-4260

jari.heikkila@grrb.nt.ca

web site: www.grrb.nt.ca

Sahtu Renewable Resources Board (SRRB)

All species in the Sahtu settlement area.

Chair : Walter Bayha

executive director: Jody Snortland

PO Box 134

Tulita, NT

X0E 0K0

Phone: (867) 588-4040

Fax: (867) 588-3324

director@srrb.nt.ca

web site: www.srrb.nt.ca

Wildlife Management Advisory Council - Northwest Territories (WMAC-NWT)

All Species in Inuvialuit.

Chair: Larry Carpenter

Resource person: Katherine Thiesenhausen

P.O. Box 2120

Inuvik, NT

X0E 0T0

Phone: (867) 777-2828

Fax: (867) 777-2610

wmacnwt@jointsec.nt.ca

Nunavut (NU)

Nunavut Wildlife Management Board (NWMB)

All Species in Nunavut.

Chairperson: Joe Tigullaraq

Wildlife Management Biologist: Erin Calder

P.O. Box 1379

Iqaluit NU

X0A 0H0

Phone: (867) 975-7300

Fax: (867) 975-7320

ecalder@nwmb.com

web site: www.nwmb.com

Quebec (QC)

Hunting, Fishing and Trapping Coordinating Committee (HFTCC)

All species in the James Bay and Northern Quebec Settlement Area.

Chair: Mr. Johnny Peters

Secretary-Treasurer: Nicole Gougeon

383 rue St. Jacques Suite C220, Mezzanine Level

Montreal QC H2Y 1N9

Phone: (514) 284-2151

Fax: (514) 284-0039

n.gougeon@cccpp-hftcc.com

web site: www.cccpp-hftcc.com

Appendix VI. Summary information for aquatic species which have been assigned a ranking of 'High' on the COSEWIC Candidate List, and have previously been the subject of fisheries. Special note is made of relationships to ongoing First Nations' fisheries, where these exist.

Pacific

Eulachon (*Haleichthys pacificus*)

Information source: DFO (2005o)

- For reasons unknown, eulachon abundance have shown a declining trend in many rivers throughout their distribution in recent years.
- There was a sudden drop in returns to several rivers in 1994, most notably in the Fraser and Columbia. Eulachon have virtually disappeared in California and in the last two years they have not been seen in several BC rivers.
- Factors hypothesized to have detrimental effects on eulachon returns can be broken down into "in-river" and "marine" effects. In-river effects may include: habitat loss, pollution, directed fisheries, logging, and marine mammal predation.
- Marine effects may include: oceanographic changes due to global warming or other factors, bycatch from commercial fisheries, changes in food abundance or distribution, and predation.
- DFO negotiates approximately 74 agreements annually with 145 First Nations in British Columbia and the Yukon.
- Eulachons are of continuing importance to First Nations who harvest them for food, social and ceremonial purposes.
- Eulachons are eaten fresh, or often smoked, dried, salted or made into grease.
- Eulachon grease is an important First Nations food source, it is widely bartered among communities and is given as gifts in potlatch ceremonies.

Shortspine thornyhead (*Sebastolobus alascanus*)

Information source: DFO (2005p)

- Deep-water fishery for thornyhead species started in the early 1990s along the Pacific coast of British Columbia (BC)
- The BC longspine thornyhead fishery has been a directed commercial fishery for only about 10 years. Prior to this, a small market for large shortspine thornyheads existed locally and abroad, but the low price did not justify serious effort.
- Increasing demand for thornyheads originated in Japan, where whole fish are used in wedding ceremonies and the frozen flesh is sold as an expensive delicacy. (DFO 2005p)

Silvergrey rockfish (*Sebastes brevispinis*)

Information source: DFO (2006a)

- The silvergrey is harvested year round by trawl, troll, longline, jig or trap.
- Slope: these species are also found closely associated with the bottom, but generally in deeper waters of the continental shelf or on the continental slope.
- Silvergray, rougheye, and shortraker are the most commonly caught species in this assemblage, but generally make up a small proportion of the sport harvest.
- These species are all long-lived, with some exceeding 150 years of age.
- Important component of the rockfish catch in coastal B.C.'s commercial trawl fishery; ranges from southern California to the Bering Sea.
- Adults tend to be captured in waters 100-375 metres deep.
- The principal area of commercial abundance is the coastal area of B.C., although minor fisheries exist in Washington and southeastern Alaska.
- Status of the stock is unknown.
- Abundance surveys are impractical because of the relatively small size of the individual stocks and their affinity for depths partially unreachable by trawlers.

- Future outlook for the silvergray rockfish is unknown, although harvests are expected to remain at their current level as the stocks are probably close to maximum exploitation at present.

Yellowtail rockfish (*Sebastes flavidus*)

Information source: DFO (2006a)

- Yellowtail rockfish ranges from southern California to the Gulf of Alaska. The principal area of commercial abundance is northern California to northern B.C.
- In both Boundary and Coastal yellowtail stocks, population biomass appears to be decreasing and recruitment appears to have been poor during the 1990s. Assessments are imprecise, however, due to the lack of an appropriate index of abundance.
- Yellowtail rockfish are caught in a directed trawl fishery. They are also a bycatch of fisheries for hake, other rockfish and ling cod (*Ophiodon elongatus*). Commercial catches are made at depths of 100-200 metres using bottom and mid-water trawls. The hook-and-line fishery produces minor landings.
- The southern Boundary stock appears to be declining in abundance, principally due to poor recruitment in recent years. Although considerably fewer data are available for the Coastal stock, it also appears to be declining in abundance after a sustained period of poor recruitment.

Atlantic

American plaice (*Hippoglossoides platessoides*)

Information source: DFO (2005q)

- Bottom dwelling flatfish. In the western Atlantic, the species ranges from USA waters to the Arctic, with the largest population occurring on the Grand Bank off Newfoundland.
- Through the 1980's the majority of this fishery occurred in the offshore. Both offshore and inshore catch declined substantially in the early 1990's and since 1995 the offshore catch has constituted less than 50% of the total. The stock has been under moratorium since September 1993.
- This assessment is based solely on analyses of survey indices and trends in catch. There has been insufficient sampling of the commercial catch during much of the 1990's to calculate catch at age. In addition commercial sampling in recent years has not been representative of the entire bycatch, with little or no sampling of fixed gear catches. This means that it has not been possible to explore the use of age structured models to estimate total population size.

Atlantic halibut (*Hippoglossus hippoglossus*)

Information source: DFO (2004b)

- Most halibut are found between these limits, with notable concentrations occurring along the edges of Georges Bank, Sable Island Bank, Banquereau Bank, Grand Bank, the Flemish Cap, and Anticosti Island. Inshore concentrations are known to occur off Cape Sable Island (Nova Scotia), around Grand Manan Island in the mouth of the Bay of Fundy, and even in the Minas Basin at the head of the Bay of Fundy.
- Present day longliners are equipped with machinery which reduces the amount of labour involved in setting and hauling the lines.
- Many halibut are now taken as by catch by vessels fishing with towed nets (otter trawls) for other species. There is concern among fishermen that these net fisheries are catching many small immature fish thus reducing the reproductive potential of the halibut stocks. Given that halibut is now the most highly prized flatfish in the northwest Atlantic, this is a real concern. At present there is no directed management scheme for the Canadian northwest Atlantic halibut stock. It is managed under the general category of flatfish which includes a number of different species for which one total allowable catch is determined each year. There are no restrictions on the-size of halibut landed.

Deepwater redfish (*Sebastes mentella*)

Information source: (NOAA 1999a)

- The redfish is a slow growing, long-lived, ovoviviparous species
- Common name redfish refers both to the Acadian redfish (*Sebastes fasciatus*) and the deepwater redfish (*Sebastes mentella*). The two species are difficult to discriminate at all life stages and as a matter of fisheries practice are usually combined.
- Deepwater redfish range from the Gulf of Maine to Europe.
- US Exploitation of redfish began in the mid 1930s and peak landings (60,000 mt) were made in 1941. After the start-up period, the fishery stabilized yielding 7,000-19,000 mt from 1953 through 1980; Based on the overfishing criterion of current fishing mortality, US populations redfish are not classified as overfished or approaching an overfished condition.

Ocean pout (*Macrozoarces americanus*)

Information source: (NOAA 1999b)

- Also known as eel pout or muttonfish, is a cool-temperate species found on the Atlantic continental shelf of North America between Labrador and the southern Grand Banks and Virginia.
- Ocean pout were discarded from catches until the 1930s. Since then, there has been an inconsistent US commercial fishery for ocean pout.
- During the late 1960s and early 1970s, distantwater foreign fishing vessels heavily exploited the species
- Although ocean pout abundance has fluctuated around the long-term average, recent estimates suggest that abundance has declined. The population is considered fully exploited.

Pollack (*Pollachius virens*)

Information source: (NOAA 2004)

- In the Northwest Atlantic, they are most abundant on the western Scotian Shelf and in the Gulf of Maine.
- Traditionally, pollock were taken as bycatch in the demersal otter trawl fishery, but directed otter trawl effort increased steadily during the 1980s, peaking in 1986 and 1987. Directed effort by Canadian and U.S. trawlers has since declined substantially. Similar trends have also occurred in the U.S. winter gill net fishery.
- Overall the US stock is considered to be fully exploited.

Appendix VII. Summary information for aquatic species (mostly fishes and mammals) that are in preparation or under review by COSEWIC for aquatic species under the jurisdiction of DFO.

Pacific

Chinook salmon, *Oncorhynchus tshawytscha* (Okanagan population)

The following is paraphrased from "Emergency assessment of chinook salmon, *Oncorhynchus tshawytscha* (Okanagan population) - May 4, 2005" (COSEWIC 2005b)

"On March 26, 2005 the Committee on the Status of Endangered Wildlife in Canada received a request for an Emergency Assessment of the Okanagan Population of Chinook Salmon from Mr. Howie Wright on behalf of the Okanagan Nation Alliance Fisheries Department. The request was accompanied by a submission which included elements integrating substantial Aboriginal Traditional Knowledge. The Chair of COSEWIC, Dr. Marco Festa-Bianchet, established an Emergency Assessment Subcommittee in accordance with COSEWIC operations and procedures and notified the Minister of the Environment on April 4." (COSEWIC 2005b)

"First, COSEWIC agreed that the Okanagan population of Chinook salmon is a Designatable Unit because it is the only population of Columbia River Chinook in Canada. Therefore it meets the definition of 'Wildlife Species' under The Species at Risk Act. Then, COSEWIC considered that the number of mature individuals in the population justifies the designation of Chinook salmon - Okanagan Population as Endangered. The approved criterion applied is that of 'Very small population'. The number of anadromous spawners has rarely exceeded 50 salmon a year since 1935. A recent estimate of non-sea-going spawners was less than 150 fish, of which 99% were males." (COSEWIC 2005b)

"The available evidence clearly indicates that the conservation status of the Okanagan population of Chinook salmon warrants an Emergency Listing under Section 29(1) of SARA. Consequently, on May 4, 2005, COSEWIC passed the following motion: 'The Okanagan Chinook salmon is facing an imminent threat to its survival, such that an Emergency Listing of the Species as Endangered is warranted'." (COSEWIC 2005b)

Designated Endangered in an emergency assessment on May 4, 2005.

"Reason for Designation. The Chinook salmon (Okanagan population) are the only remaining Columbia Basin population of Chinook salmon in Canada, and are distinct from all other Canadian Chinook salmon populations. They consist of anadromous salmon that migrate to and from the Pacific Ocean through the Columbia River, and also individuals that remain in Osoyoos Lake. The Chinook salmon (Okanagan population) once occupied the area from Osoyoos Lake to Okanagan Lake, but McIntyre Dam has limited access to only the area below the dam and in Osoyoos Lake. As well as this habitat loss, the population was depleted by historic overfishing in the Columbia River and juvenile and adult mortality due to dams downstream on the Columbia River. Fisheries exploitation in the ocean, deterioration in the quality of the remaining Canadian habitat, and new predators and competitors such as non-native fishes also contributed to the current depleted state of the population. Hatchery projects in the Columbia system may be having detrimental genetic impacts on the current population. With spawning numbers as low as 50 adults, the population faces many stochastic risks. It is unlikely that fish from elsewhere in the Columbia River Basin will contribute to recovery of the Canadian Okanagan population, because these populations are also far below their historic abundances. Already severely depleted, the Chinook salmon (Okanagan population) is now at imminent risk of extinction due to the impending increased exploitation in Columbia River fisheries in 2005."

Arctic**Arctic charr (*Salvelinus alpinus*)**

New report; no information available on COSEWIC or SARA.

Inland**Westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) - Alberta population**

Information source: COSEWIC Species Search

Status: Threatened

Last Examination and Change: May 2005 (New)

Reason for Designation: This assessment only considered the remaining genetically pure populations within the native range in Alberta. Such populations have become severely isolated and depressed as a result of habitat loss and degradation, exploitation and especially hybridization with introduced species. The rate of hybridization indicates that this population could be at greater risk, however there was not enough information available at the time of the assessment.

Status History: Designated Threatened in May 2005. Assessment based on a new status report.

Lake sturgeon (*Acipenser fulvescens*) - Western populations

Information source: COSEWIC Species Search

Status: Endangered

Last Examination and Change: May 2005 (Reassigned)

Canadian Occurrence: AB, SK, MB

Reason for Designation: The Western Canadian populations of this species have experienced an overall decline estimated to be at least 77% in the latter decades of the 20th century due to exploitation, and habitat loss and degradation related to dams, impoundments and changes in patterns of water use.

Status History: The species was considered a single unit and designated Not at Risk in April 1986. When the species was split into separate units in May 2005, the "Western populations" unit was designated Endangered. Last assessment based on an update status report.

Lake sturgeon (*Acipenser fulvescens*) - Great Lakes and Western St. Lawrence River populations

Information source: COSEWIC Species Search

Status: Special Concern

Last Examination and Change: May 2005 (Reassigned)

Canadian Occurrence: ON, QC

Reason for Designation: A very large commercial fishery in the Great Lakes between the mid-1800s and early 1900s (i.e. 3-5 generations ago) reduced to a small fraction of their original size. Some of these populations are estimated to still be at very low levels. Populations are estimated to be declining in parts of the Ottawa River, and disappearing from many of its tributaries, due to dams. There has been a recent decline in the population in the St. Lawrence River likely due to overexploitation. Populations are currently impacted by the direct and indirect effects of dams, contaminants and invasive species. Poaching and genetic contamination through stocking and aquaculture programs might also hamper recovery. However, there are also a number of populations that are stable or showing modest increases and the species still occurs at many locations.

Status History: The species was considered a single unit and designated Not at Risk in April 1986. When the species was split into separate units in May 2005, the "Great Lakes and Western St. Lawrence River populations" unit was designated Special Concern. Last assessment based on an update status report.

Lake sturgeon (*Acipenser fulvescens*) - Rainy River-Lake of the Woods populations

Information source: COSEWIC Species Search

Status: Special Concern

Last Examination and Change: May 2005 (Reassigned)

Canadian Occurrence: ON

Reason for Designation: Historically, populations in the designatable unit supported a substantial fishery, which led to a severe decline, however recovery has been sustained since 1970. For this population, dams have not impeded access to important stretches of sustainable habitat.

Status History: The species was considered a single unit and designated Not at Risk in April 1986. When the species was split into separate units in May 2005, the "Rainy River-Lake of the Woods populations" unit was designated Special Concern. Last assessment based on an update status report.

Lake sturgeon (*Acipenser fulvescens*) - Southern Hudson Bay and James Bay populations

Status: Special Concern

Last Examination and Change: May 2005 (Reassigned)

Canadian Occurrence: MB, ON, QC

Reason for Designation: There are limited population data available for this designatable unit. There have been declines in habitat, and possibly populations decline related to exploitation and the multitude of dams. The increased access to relatively unimpacted populations, and the likelihood of increased hydroelectric development in some areas are causes for concern for this designatable unit.

Status History: The species was considered a single unit and designated Not at Risk in April 1986. When the species was split into separate units in May 2005, the "Southern Hudson Bay and James Bay populations" unit was designated Special Concern. Last assessment based on an update status report.

Atlantic**American eel (*Anguilla anguilla*)**

New report; no information available on COSEWIC or SARA

Atlantic salmon (*Salmo salar*) - Inner Bay of Fundy populations

Information source: COSEWIC Species Search

Status: Endangered

Last Examination and Change: May 2001 (New)

Canadian Occurrence: NB, NS, Atlantic Ocean

Reason for Designation: Numbers comprising the Inner Bay of Fundy populations of this medium-sized, schooling, anadromous fish may be less than 500. Populations of wild salmon in the region have all declined since the 1920s, and data for the Stewiacke and Big Salmon Rivers indicate declines of 90% in recent years. Threats include habitat alteration by forestry and agricultural practices, damming of rivers and estuaries, bycatch in shad and herring fisheries, competition from conspecifics that have escaped from aquaculture, and illegal fishing.

Status History: Designated Endangered in May 2001. Assessment based on a new status report.

Appendix VIII. Summary information for aquatic species that have been assessed as species at risk by COSEWIC, and their current status under the SARA process administered by DFO.

Pacific

Bocaccio (*Sebastes paucispinis*)

SARA Public Registry:

http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=740#18

Last COSEWIC Assessment: November 2002

Last COSEWIC Designation: Threatened

SARA Status: **Under consideration**

"Bocaccio is one of over 35 species of rockfish found in marine waters off British Columbia (B.C.). It is distinguished from other rockfish (*Sebastes* spp.) by its large jaw. It ranges in colour from olive orange to burnt orange or brown on the back, becoming pink to red on the underside. Other common names for bocaccio include rock salmon, salmon rockfish, Pacific red snapper, Pacific snapper, and Oregon snapper. This report treats all the bocaccio of the BC coast as a single population; there has been no research to address evolutionarily significant units within BC."

"SUMMARY OF STATUS REPORT. In this report, all bocaccio in B.C., are considered to be a single population or ESU, although this hypothesis remains untested and U.S. data show genetic differences between California and Washington. The biology and demography of bocaccio are poorly known in B.C. because they have had a limited economic role in the fishery. The trawl fishery harvests bocaccio from the edge of the continental shelf from Alaska to the Washington State borders. The commercial and recreational fisheries probably kill over 74,000 individuals per year; this is largely due to the trawl fisheries. The best data set is taken from the west coast of Vancouver Island (U.S.-based survey) and indicates a decline of over 90% in the past 10 years and 95% in the past 20 years for data up to 2001. There is also a well documented decline of bocaccio in adjacent U.S. waters, where individuals may be part of the same population. Lack of a fishery-independent index and difficulty in interpreting fishery-dependent statistics makes the status of the population uncertain in the rest of B.C." (COSEWIC 2002b, p.32)

"Aboriginal and recreational catches are probably negligible at present, but recreational catches could increase as the recreational fishery grows and shifts to targeting on non-salmonid species." (COSEWIC 2002b, p.v)

"Bocaccio were part of aboriginal fisheries, have played a minor economic role in B.C. fisheries, and may become of interest to some anglers as rockfishes attract greater attention." (COSEWIC 2002b, p.vi)

"Detailed catch data from rockfish fisheries by First Nations are not available. However, a First Nations spokesperson indicated that bocaccio have always been a part of the aboriginal fisheries on the west coast of Vancouver Island (A. Amos, pers. comm. Appendix 1). Results from middens are inconclusive owing to the difficulty in identifying rockfish remains to species." (COSEWIC 2002b, p.7)

"In BC, the recent annual commercial harvest of about 295 t (1996-2000) translates into approximately 74,000 individuals. There is additional hook-and-line discard, and recreational and First Nations catch. The growing recreational fishery for groundfish could pose a long-term threat. As in the U.S., difficulties with recruitment are not well understood." (COSEWIC 2002b, p.31)

Coho salmon (*Oncorhynchus kisutch*) - Interior Fraser population

SARA Public Registry:

http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=716

Last COSEWIC Assessment: May 2002

Last COSEWIC Designation: Endangered

SARA Status: **Under consideration**

"Coho salmon is one of seven species of the genus *Oncorhynchus* native to North America. Adult coho usually weigh from 2 - 5 kg (45 - 70 cm in length) and only rarely exceed 9 kg. Most coho spend their first year in freshwater and the next 18 months in the ocean before returning to freshwater to spawn and die. Jacks (precocious males) that spend only six months in the ocean are found in some populations."

"SUMMARY OF STATUS REPORT. Coho salmon are an important species, contributing to catches along the Pacific coast of North America. However, coho numbers are declining throughout much of their range, particularly in the northwestern United States and southern BC. This report focuses on coho salmon from the interior Fraser River of British Columbia. Coho in this region originated from populations that survived glaciation in Columbia River refugia. Since coho are now extinct in the upper Columbia, interior Fraser River coho are genetically distinct from other surviving coho salmon.

Coho salmon from the interior Fraser River constitute an Evolutionarily Significant Unit. The total population is comprised of at least five subpopulations (North Thompson, South Thompson, lower Thompson/Nicola, Fraser canyon, and upper Fraser). Genetic exchange among streams within subpopulations is much greater than among subpopulations. There is a concern that if the total population becomes too fragmented, genetic exchange within the total population may be insufficient to be assured of long-term survival.

The time series of reliable abundance estimates is 25 years duration for coho from the North and South Thompson drainages, 16 years from the lower Thompson/Nicola, and only 3 years for the Fraser canyon and upper Fraser tributaries. We have less confidence in the lower Thompson/Nicola time series than we do for the North and South Thompson. Spawner numbers in the North and South Thompson watersheds peaked in the mid-1980's, declined until about 1996, and have been stable or increasing since then. On average, North and South Thompson coho declined in numbers by ~60% during the 10-year period from 1990-2000. There were four years (1991, 1995, 1997, and 1998) when productivity was so low that some populations may not have been able to replace themselves, even if fishing mortality had been zero. Although spawner numbers in 1999 and 2000 exceeded parental escapements, numbers were still critically low. Three consecutive strong returns are necessary to have confidence in any improvement in status. The recent size of the total interior Fraser coho population was estimated by averaging spawner estimates for each subpopulation (area) during 1998-2000. Slightly more than half of recent estimates of the total population of 24,000 occur within the North and South Thompson watersheds. Natural spawning is thought to be responsible for producing most of the fish escaping to the interior Fraser in recent years (~20,000 of 24,000 total) although in the lower Thompson/Nicola area, hatchery-origin fish outnumber wild coho. There is no evidence that the extent of occurrence has changed, although spawners were seen in fewer streams as populations declined.

Overfishing, changing marine conditions, and habitat perturbations all contributed to declines in numbers of coho salmon in the interior Fraser. Excessive fishing resulted when harvest rates were not reduced quickly in response to climate-driven reductions in marine survival. Coho declines were often related to the intensity of human disturbance in the watershed. Fishing pressures have been reduced dramatically the last several years, and this combined with an apparent stabilization in marine survivals resulted in improved returns. The outlook for interior Fraser coho is highly uncertain and depends on impacts due to fishing, habitat perturbations, and climate related changes in survival. A return to higher survivals experienced until 1997, combined with continued low fishing pressures and no additional habitat impacts, would produce rapid increases in escapements and rebuilding. In contrast, if survivals return to low levels such as those recorded in 1998, spawner numbers will decrease, eventually

resulting in extinction. Since there is no consensus about future marine survivals, an extremely cautious approach to fisheries and habitat management will be required to ensure the long-term viability of populations of coho salmon from the interior Fraser River watershed of BC.” (COSEWIC 2002b)

“Aboriginal Traditional Knowledge (ATK), sometimes referred to as Traditional Ecological Knowledge, describes the knowledge originating with First Nations peoples pertaining to their immediate environments, and the cultural practices that build on that knowledge (Ford and Martinez 2000). Communities with a long history of resource use can acquire a deep but qualitative knowledge about the resource that they depend upon (Kurien 1998).

Interior Fraser coho return to spawn primarily within the traditional territories of the Secwepemc people (North and South Thompson and Clearwater rivers) and of the Nlaka'pmux, Ske'xmx and Okanagan people of the upper Fraser canyon and Nicola valley. Some coho spawning also takes place within the traditional territories of the St'at'imc, (Lillooet/Bridge River areas) and Tsilhqot'in (Chilcotin river system). The Secwepemc Fisheries Commission (SFC) and the Nicola Valley Stewardship and Fisheries Authority (NWFSa) represent bands with knowledge of traditional fisheries. In addition, there are various bands not affiliated with these organizations that also possess ATK. ATK pertaining to some natural resources in the interior Fraser has been assembled (e.g. Turner et al. 2000) but no thorough review of ATK has been undertaken for salmon. Irvine et al. (2000) review issues concerning the role of ATK in the assessment of interior Fraser coho salmon.” (COSEWIC 2002b, p.13)

“Coho salmon remain an economically important species, contributing to commercial, recreational, and aboriginal catches along the Pacific coast of North America.” (COSEWIC 2002b, p.24)

Sockeye Salmon (*Oncorhynchus nerka*) - (Sakinaw Lake population)

SARA Public Registry:

http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=729

Last COSEWIC Assessment: May 2003

Last COSEWIC Designation: Endangered

SARA Status: **Not listed**

“Sockeye salmon is one of seven species of the genus *Oncorhynchus* native to North America. In the ocean, adults have a slender, streamlined, silvery body and grow to an average of 3 kg. They undergo a distinctive transformation of external colour and body shape during their migration from the ocean back to the freshwater ecosystem from which they originated. The head becomes pale green in colour and the body becomes scarlet. Males also develop a hump, teeth and a sharply hooked jaw. The adults die soon after spawning but their progeny remain for several years in the freshwater environment (usually a lake) before migrating to the ocean. Dependence on nursery lake habitat, which is discontinuous by its nature, requires precise homing that divides the sockeye salmon species into isolated populations. The isolated populations typically evolve unique migratory, spawning and rearing behaviours as adaptations that improve survival in the natal freshwater environment. This differentiation into finely tuned, locally adapted populations accounts for the high productivity and commercial importance of the species; it also means that these populations would be very difficult, if not impossible to replace should they be lost.”

“SUMMARY OF STATUS REPORT. Sakinaw Lake sockeye salmon (Sakinaw sockeye) warrant designation as an Evolutionarily Significant Unit (or COSEWIC Nationally Significant Population) based on the two-part test developed to define salmonid “species” under the US Endangered Species Act. Protein electrophoresis and molecular DNA analyses indicate that Sakinaw sockeye are substantially reproductively isolated from other populations. Their distinctive life history characteristics (early and protracted river-entry timing, extended lake residence prior to spawning, small body size, low fecundity and large smolt size) suggest that they are also evolutionarily distinct from other sockeye populations in the Pacific Northwest and Alaska. The evidence for

very restricted gene flow between Sakinaw and other populations and the distance to the nearest extant sockeye population both confirm that there is virtually no possibility of natural rescue from neighbouring sockeye populations. All previous attempts to transplant sockeye to Sakinaw Lake have almost certainly failed. Consequently, we cannot be optimistic about prospects for re-establishing a sockeye run to Sakinaw Lake should the native population be lost.

The persistence of Sakinaw sockeye is threatened by two primary factors: mortality from fisheries, and degradation of freshwater habitat. At present, fishing mortality is probably the single greatest threat. Overfishing can be considered the proximate cause of decline in the sense that fishing effort was not reduced significantly until 1998, and Sakinaw sockeye continue to be killed in fisheries despite the observed decline in spawning escapements to Sakinaw Lake that began in 1987. Sakinaw sockeye are captured together with sockeye and pink salmon from more productive populations in mixed-stock fisheries during their return migration through Johnstone and Georgia straits. It is evident that "passive management" and (limited) artificial supplementation have been inadequate to restore Sakinaw sockeye in the face of this fishing mortality. Further changes to fisheries will be necessary to promote recovery.

Sakinaw sockeye likely became increasingly vulnerable to overfishing in mixedstock fisheries as their natural productivity was eroded by habitat degradation within Sakinaw Lake. The spawning beaches have been degraded by historic logging, milling and booming. The lake was dammed at the outlet to transport logs to the ocean, and log storage near the outlet has sometimes blocked adult salmon migration. Development of residential lots and recreational boating along the shore of Sakinaw Lake has more recently degraded spawning beaches further as stream flows have been diverted to prevent flooding and a boat ramp was constructed through the middle of one of the major spawning beaches. Domestic water use throughout the drainage contributes to reduced summer flows that can adversely affect adult migration into the lake; low water levels remain a serious concern. However recent attempts to restore spawning beaches and to improve fish passage at the dam appear to have set the stage for recovery. If present trends continue, the Sakinaw sockeye will likely go extinct in the near future. The trend in smoothed escapement data from 1988 to 2002 indicates a reduction of 99% over 3 generations (12 years). The total number of mature individuals (all of which die after spawning) has averaged less than 80 (range 14 to 122) over the last full generation (4 years; 1999-2002). Adult numbers averaged 5,000 individuals historically. Thus, the reduction to less than 80 adults is drastic, and there is no margin for further decline." (COSEWIC 2003a, p.27)

"Sockeye salmon are economically the most important species of Pacific salmon, contributing to commercial, recreational, and aboriginal catches along the Pacific coast of North America." (COSEWIC 2003a, p.vii)

"The Sakinaw Lake sockeye salmon is designated as endangered by COSEWIC. In January 2005, a final decision was made by the Government of Canada to not list Sakinaw Lake sockeye salmon under the Species at Risk Act (SARA), due to the significant socio-economic impacts on sockeye fishers and coastal communities." (DFO 2005r)

Beginning in 2002, Fisheries and Oceans Canada put in place conservation measures to protect late run sockeye (including Sakinaw Lake sockeye). Additional measures have been established to further protect these populations.

- Captive Broodstock Program
- Sakinaw Lake Fishway and Water Storage Potential Improvements
- Spawning Habitat Assessment and Restoration
- Assessment of Adult Marine Survival and Migration Route
- Smolt Assessment
- Adult Enumeration, Predator Monitoring and Acoustic Tagging" (DFO 2005r)

"On April 21, 2004, the GIC acknowledged receipt of the assessments of 79 species that had been assessed by COSEWIC in its meetings of May 2002, November 2002 and May 2003. This action initiated a nine-month timeline during which the GIC may decide whether or not to add these 79 species to Schedule 1 of SARA, or to refer species back to COSEWIC for further

consideration or information. Of these 79 species, the GIC has decided, on the recommendation of the Minister of the Environment, to add 73 species to Schedule 1 but not to add the **Cultus** Lake and **Sakinaw Lake** populations of Pacific sockeye salmon, the polar bear, the Northwestern population of the grizzly bear and the Western population of the wolverine." (CSAR 2005b, p.88)

"The **Cultus** and **Sakinaw** populations of Pacific sockeye salmon are not added to Schedule 1 because of the unacceptably high social and economic costs that the commercial fishing and recreational fishing sectors, some Aboriginal peoples, coastal communities and others would face if these species were added to Schedule 1. Although the overall health and resiliency of Pacific sockeye salmon is dependent on its overall genetic diversity, of which these two populations are a component, these two populations represent a small fraction of one percent of all BC sockeye salmon populations. Threats to these two populations include incidental catch in mixed-stock fisheries, predation by marine mammals or other fish, insufficient water to the migratory pathway (in the case of **Sakinaw**), habitat degradation, and unfavourable environmental conditions such as pre-spawn mortality related to early entry into rivers and a parasite (in the case of **Cultus**)."

(CSAR 2005b, p.96)

"The strongest and most widespread opposition to listing received during consultations related to the proposed recommendation not to add the **Sakinaw** and **Cultus** populations of Pacific sockeye salmon to Schedule 1. Commercial harvesters and recreational fishers expressed concern that further conservation measures for these populations will further restrict mixed-stock fisheries in the Fraser River, Juan de Fuca and Johnstone and Georgia Straits, resulting in severe social and economic hardship. Aboriginal peoples in inland areas consider these populations to be culturally important because of their historic role in meeting food, social and ceremonial needs, and thus support their listing, while Aboriginal people in the marine environment who are more closely associated with the mixed stock fishing oppose the listings because of potential restrictions on mixed-stock fisheries." (CSAR 2005b, p.102)

"More than 50 responses were received from groups and individuals, primarily in response to the proposed recommendations not to add the two sockeye salmon populations to Schedule 1. A number of individuals and groups, including the Sierra Club, British Columbia Aboriginal Fisheries Commission, and Soowahlie First Nation are critical of these decisions. They believe, for example, that the estimated costs from listing the sockeye populations are exaggerated and that not listing will cause these populations to become extinct. Many individuals and associations, primarily from the fishing industry sector, strongly support the decision not to add to Schedule 1. They feel that the estimated costs are understated, and that listing these populations would bring significant negative economic consequences to the commercial fishing sector and coastal communities of British Columbia. The British Columbia chapter of the Sierra Club of Canada has requested that a decision regarding **Cultus** and **Sakinaw** sockeye salmon be deferred until such time as the Government has an opportunity to establish whether there is any basis to the justifications for the Minister's reasons for recommending not listing these populations. They have suggested that in order to establish the facts there should be a full public review of the socioeconomic analyses." (CSAR 2005b, p.103)

"After consideration of results from consultations, analysis of biological and socio-economic impacts, and comments received during publication of proposed recommendations in the Canada Gazette, Part I, the Minister of the Environment has recommended that **Cultus** and **Sakinaw** populations of Pacific sockeye salmon, as well as the polar bear, the Northwestern population of the grizzly bear and the Western population of the wolverine, not be added to Schedule 1 of SARA, and the assessment for speckled dace be referred back to COSEWIC for further information and consideration. The explanations for these recommendations are outlined in the Alternatives section, above." (CSAR 2005b, p.104)

"The decision not to add the **Cultus** and **Sakinaw** populations of Pacific sockeye salmon to Schedule 1 will mean that some level of killing, harming, capturing or taking of these populations,

will continue since they may be intercepted in mixed-stock sockeye fisheries. Recognizing that harvesting by the fisheries has been identified as one of the key threat to these populations, and given their precarious status, continued fishing will pose an ongoing threat to these two populations. However, Fisheries and Oceans Canada will continue to implement a departmental action plan for the protection and recovery of these populations, including a continuation of stringent fishery restrictions and habitat restoration and broodstock protection programs. Recovery strategies for the two populations are under development. These will be completed in 2005, and will be used to guide future recovery efforts. Although the overall health and resiliency of Pacific sockeye salmon is dependent on the genetic diversity that individual populations represent, these two populations represent a small fraction of one percent of all BC sockeye salmon populations. Nevertheless, should these populations disappear, their loss would add to the cumulative decline of Canada's biodiversity." (CSAR 2005b, p.104)

Sockeye Salmon (*Oncorhynchus nerka*) - (Cultus Lake population)

SARA Public Registry:

http://www.sararegistry.gc.ca/status/showDocument_e.cfm?id=167

Last COSEWIC Assessment: May 2003

Last COSEWIC Designation: Endangered

SARA Status: **Not listed**

"Cultus sockeye are one of the most intensively studied salmon populations in the world. Research on spawner abundance, lake characteristics and juvenile production began with scientists at the Pacific Biological Station in the 1920's (e.g., Foerster 1929a, 1929b, 1929c, 1934, 1936; Ricker 1935, 1937, 1938c) and has continued with the work of the International Pacific Salmon Fisheries Commission (e.g., Howard 1948; Cooper 1952) and the Department of Fisheries and Oceans (DFO) (e.g., Ricker 1952). DFO has maintained a field laboratory and research program on the shore of Cultus Lake since 1925. Thus, there are a wealth of data on lake limnology and fish community structure as well as abundance information for the sockeye fry, smolt and adult life stages, upon which this report is based."

"SUMMARY OF STATUS REPORT. Sockeye salmon is one of seven species of the genus *Oncorhynchus* native to North America. This status report evaluates the genetically distinct sockeye population that occupies Cultus Lake, located in the coastal lowland portion of the Fraser River watershed in British Columbia. Cultus sockeye are genetically distinct from other sockeye populations in the Fraser River and in other parts of their global range. The population serves as a keystone species for the local ecosystem, and is scientifically important both from the perspective of science history as well as the long time series of assessment data available for the population and its habitat. The population is important to many segments of Canadian society, and is fundamental to the well-being of the Soowahlie Band and the Sto:lo First Nation. Cultus sockeye utilize Cultus Lake for breeding, egg incubation and the rearing of juveniles. It is a small (6.3 km² surface area) monomictic lake with a high seasonal average photosynthetic rate and a productive zooplankton community that is an exceptional food resource for juvenile sockeye. The watershed is heavily developed for recreational, residential and agricultural uses, with recreation predominant.

Cultus sockeye mature primarily in their fourth year of life - after almost two years in freshwater and more than two years in marine environments. Adults migrate from the open ocean into the Strait of Georgia in August where they remain for up to eight weeks. Normally, they resume their migration into the Fraser River and Cultus Lake in September and continue migrating into the lake until December. Recently, the onset of the riverine migration has been earlier and has resulted in elevated mortality levels. The numbers of Cultus sockeye adults are known since 1925. Abundance was generally strong but variable until the late 1960's, when spawner numbers collapsed in two cycles and began a sustained decline in a third cycle. Since the early 1990's, abundance has declined dramatically on all four cycles; the most recent populations on all cycles have been among the lowest ever observed. In the last three generations (12 years; 1991-2002), the adult spawner population declined by 36%, a rate of 3.3%

per year across all cycles. When recent increases in prespawn mortality are considered, the rate of decline in the population's reproductive potential (effective spawners) over the last three generations is 92%. Current population levels are a small fraction of the most conservative estimate of the productive capacity of the population. Similar declines have been recorded in assessments of the fry and smolt populations and the total adult return. Over-exploitation by the fisheries, recent increases in the level of prespawn mortality associated with the early migration, and reductions in marine survival from the

El Nino events in the 1990's have contributed to the collapse of this population. Changes in freshwater habitat may have played a contributing role but are unlikely to be a primary factor in the collapse. Capture and killing of Cultus sockeye in the fishery has exceeded sustainable levels almost continuously for over four decades. Capture has averaged 67% and has frequently exceeded 80%, and even 90%, of the adult population when sustainable levels would be less than 56%. From 1995 to 2002, the migration of adult Cultus and other late run sockeye from the Strait of Georgia into the Fraser River has been progressively earlier. While the cause of the early migration is unknown, its consequences have been dramatic. The early migration of adults has been associated with high levels of adult mortality along the freshwater migratory route and high mortality in the lake before spawning. These mortalities are caused by heavy infestations of *Parvicapsula minibicornis*, a parasite that attacks the kidneys and gills (St-Hilaire et al. 2001). Although the parasite occurs in most Fraser River sockeye populations, it has caused significant mortality only among early migrating late-run sockeye, including Cultus sockeye.

The outlook for Cultus Lake sockeye is uncertain. Its persistence will depend on whether the early migration phenomenon continues in the future, on the level of capture and killing by the fisheries, on marine survival conditions, and on habitat conditions. Current low levels of abundance leave it vulnerable to random changes in the marine and freshwater environments, endemic parasites such as *Salmincola californiensis*, abundant lake predator populations and anthropogenic factors that could reduce the population's productivity when abundances are low, thus increasing the probability of extinction. If prespawn mortality exceeds 90%, and without any killing by the fisheries, the probability of extinction of the population is estimated to be 50% in three generations (12 years) and 100% in 25 generations (100 years)." (COSEWIC 2003b, p.40)

"The population is important to many segments of Canadian society: it is fundamental to the culture and well-being of the neighbouring Soowahlie Band and the Sto:lo First Nation; it is of recreational and commercial interest to fishers; and it is of intellectual, cultural and recreational interest to many naturalists and tourists." (COSEWIC 2003b, p.vii)

"Cultus sockeye are also of significance to human culture. They are especially important to the Soowahlie Band of the Sto:lo First Nation. This band occupies the land that borders both sides of Sweltzer Creek, the sole access to Cultus Lake. The presence of sockeye in Cultus Lake was a principle determinant in the Band's settlement of the area and played a role in their survival for thousands of years. Today, the sockeye continue to be of cultural and spiritual importance to the community. Sockeye are featured on the band totem and in the band's expressions and dances; they are important to the band's economic opportunities for the future. The current Chief, Doug Kelly, was a co-petitioner (with Ken Wilson) in 2002 of the COSEWIC emergency assessment of Cultus sockeye." (COSEWIC 2003b, p.38)

"The Cultus Lake sockeye salmon is designated as endangered by COSEWIC. In January 2005, a final decision was made by the Government of Canada to not list Cultus Lake sockeye salmon under the Species at Risk Act (SARA), due to the significant socio-economic impacts on sockeye fishers and coastal communities." (DFO 2005s)

"Beginning in 1998, Fisheries and Oceans Canada put in place conservation measures to protect late run sockeye (including Cultus Lake sockeye). With the help of a number of partners, additional measures will further protect these populations. These measures include:

- Captive Breeding Program
- Predator Removal

- Milfoil Removal
 - Smolt Assessment
 - Assessment of Adult Marine Survival and Migration Route”
- (DFO 2005s)

N.B. See sockeye salmon (*Oncorhynchus nerka*) - (Sakinaw Lake population) above for explanation of why Cultus Lake sockeye salmon was not listed.

Northern Abalone (*Haliotis kamtschatkana*)

SARA Public Registry:

http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=603

Environment Canada's Species at Risk:

http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=603

Last COSEWIC Assessment: May 2000

Last COSEWIC Designation: Threatened

SARA Status: **Threatened**

Reason for Designation: A patchily distributed marine mollusc found along the west coast.

Highly prized for harvesting, it continues to decline since complete closure of the fishery in 1990, probably as a result of continued high levels of poaching. There is evidence that the decline and fragmentation of the population are impairing the reproductive ability of the species even though there persists a reservoir of reproductive adults.

Status History: Designated Threatened in April 1999. Status re-examined and confirmed in May 2000. Last assessment based on an existing status report.

“The mollusc is found along the Pacific Coast from Alaska to Turtle Bay, Baja California (Mexico). Abalone were apparently fairly abundant in the early 1970s, since the sea otter - a major predator species - had been extirpated, and no significant abalone fisheries were in operation. The mollusc may have expanded its distribution to more open habitats in the absence of these sources of mortality. The abalone fishery for export began in British Columbia in 1975 and peaked in 1977-78, before a quota was set (in 1979); the fishery was closed in 1990 to conserve the declining abalone stocks. Surveys by Fisheries and Oceans Canada at indicator sites, during 1979-97, indicated a continued decline of abalone densities on the central coast of B.C. Total abalone density declined 43.75% between the 1993 and 1997 surveys.”

“There are two main limiting factors for the Northern Abalone. First, poaching of abalone continues to be a major problem. The northern abalone is vulnerable to over-exploitation because this species has a short larval period, is slow growing, relatively long-lived (and therefore matures slowly), sedentary and has low or sporadic recruitment. Mature individuals which tend to accumulate in shallow water, are easily accessible to harvesters. Samples from abalone illegally harvested during 1995-98 suggested that poachers removed mostly large mature abalone, but with no regard for the minimum legal size limit of 100mm shell length. Without size and fishing rate controls, illegal harvesting not only depletes already depressed abalone stocks, but also reduces their reproductive potential, by removal of large mature abalone, and hinders attempts to rehabilitate abalone populations through fishery closure. It has been suggested that the current illegal harvest may be comparable to the 1989 quota fishery. Enforcement is difficult, but without reductions in illegal harvest, protection of brood stock, a continued closure of the fishery, and other effective rehabilitation methods, abalone population abundance will likely remain low or more likely continue to decline in most areas of B.C.. Also, reintroduction of the sea otter to the coast of British Columbia has been successful, and the range and abundance of this predator are expanding. If the otter regains all of its historical range, this will include virtually all of the habitat presently occupied by the abalone. Abalone can coexist with sea otters, but at a relatively low density; the more cryptically coloured individuals tend to survive longest.”

"The Northern Abalone is the only invertebrate species for which all fishing in British Columbia is totally banned, under the Fisheries Act. However, poaching continues to be a serious problem, because demand for abalone is high around the world. The effectiveness of enforcement measures may ultimately determine whether abalone stocks will have the opportunity to recover."

Inland

Shortjaw Cisco (*Coregonus zenithicus*)

SARA Public Registry:

http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=82#19

Last COSEWIC Assessment: May 2003

Last COSEWIC Designation: Threatened

SARA Status: **Threatened**

Status Criteria: Qualifies for Special Concern but designated Threatened due to overall population declines in North America, especially in the Great Lakes and larger lakes such as Lake Nipigon and Great Slave Lake, that have left the remaining populations fragmented.

Reason for Designation: This species has been extirpated from lakes Huron and Erie and is in decline in Lake Superior and Great Slave Lake. It is still present in Lake Nipigon and numerous smaller lakes where its status is not well known. Threats include fishing, introduction of exotics and climate change.

Status History: Designated Threatened in April 1987. Status re-examined and confirmed in May 2003. Last assessment based on an update status report.

"The shortjaw cisco (*Coregonus zenithicus*) is a widespread species in the salmonid subfamily, Coregoninae. Originally described from Lake Superior at Duluth, Minnesota by Jordan and Evermann in 1909, it was subsequently discovered in most of the Laurentian Great Lakes and many smaller lakes in central North America. Large specimens generally approach 300 g in mass, and exceptionally large fish can reach 1.0 kg. The biology is best known in the Great Lakes (including Lake Nipigon) where the species was once a major component of vigorous food fisheries, occupying intermediate depths of 20-180 m."

"EVALUATION. The absence of *Coregonus zenithicus* from Lakes Michigan (since 1975), Huron (since 1982), and Erie (since 1957) supports a conclusion that the species has been extirpated in these lakes (Todd 1985). The great and gradual decline of the species in Lake Superior throughout this century, coupled with its extirpation in the lower Great Lakes, should be viewed with alarm. And, the introduction of smelt into at least some of the remaining habitat of the shortjaw cisco in Canada could ultimately be detrimental to the species. The species is vulnerable to excessive food harvest, habitat degradation, and introduced exotic species throughout its range. Assessments of population abundance are especially needed from most of the Canadian lakes in which the species is extant in addition to Lake Superior. Previously considered by the U.S. Fish and Wildlife Service as a Category 2 species for potential listing under the U.S. Endangered Species Act, the species currently occupies an indeterminate status following elimination of these categories (Department of Interior 1996). Presently, the U.S. Fish and Wildlife Service is considering the shortjaw cisco for designation as a candidate for potential listing as Threatened or Endangered, and, in support of this potential designation, is considered as a "Species at Risk" by the U.S. Geological Survey for priority in research. The shortjaw cisco was designated as "Threatened" by the Committee on Status of Endangered Wildlife in Canada (Houston 1988), considered as "May Be at Risk" by the Province of Alberta (Steinhilber and Ruhde 2001), listed as "Threatened" by the Michigan Department of Natural Resources (MIDNR 1974, Latta 1998), and listed as "Endangered" by the Wisconsin Department of Natural Resources (WDNR 1975). "Threatened" status is recommended for this species throughout its range." (COSEWIC 2003c, p.13)

"The Shortjaw Cisco is associated with the Great Lakes, but is widely distributed throughout central Canada. The species once inhabited lakes Huron, Michigan, Superior, and Nipigon, but is no longer found in lakes Huron and Michigan. It has been reported in at least 22 other lakes outside of the Great Lakes, from Ontario, Manitoba, Saskatchewan, Alberta, and the Northwest Territories. The Shortjaw Cisco is believed to be in decline in the Great Lakes region. It is no longer found in Lake Michigan, and populations are estimated to have declined significantly in lakes Huron and Superior. Population trends in other lakes throughout its range are generally unknown."

"Over-exploitation in food fisheries in the early 1900s likely led to the decline of this species in lakes Huron and Michigan. In the last 30 years, competition and predation from Rainbow Smelt and Alewives, two introduced exotic fish species, has had a negative impact on Shortjaw Cisco populations. Other threats include habitat loss and degradation as a result of urban, agricultural, and industrial activities."

"Species that have been designated at risk by COSEWIC since the Species at Risk Act (SARA) was written must be added to Schedule 1 through a regulatory amendment. Information on this procedure, including the public consultation process, is available on the SARA Public Registry. If the Shortjaw Cisco is added to Schedule 1, it will benefit from the protections afforded by SARA. More information about SARA, including how it protects individual species, is available in the Species at Risk Act: A Guide."

"The Minister of the Environment, on the advice of the Minister of Fisheries and Oceans, is recommending that the assessments for Atlantic Cod (Arctic population), Bocaccio Rockfish, Cusk, Harbour Porpoise (Northwest Atlantic population), **Shortjaw Cisco**, and the Lake Winnipeg Physa be returned to COSEWIC for further information or consideration." (CSAR 2005a, p.4042)

"The assessment for the **Shortjaw Cisco** lacks Aboriginal traditional knowledge and also applies a single designatable unit when there is insufficient information to do so." (CSAR 2005a, p.4043)

"COSEWIC will be asked to review and respond as to whether appropriate and clear speciation and definition of designatable units have been used for Atlantic Cod (Arctic population), **Shortjaw Cisco**, Harbour Porpoise (Northwest Atlantic population), and the Lake Winnipeg Physa, whether there has been appropriate use of available abundance data and distributional information for Bocaccio, Cusk, Harbour Porpoise (Northwest Atlantic population) and the Lake Winnipeg Physa, and whether Aboriginal traditional knowledge has been duly considered in the case of Atlantic Cod (Arctic population) and the **Shortjaw Cisco**." (CSAR 2005a, p.4043)

"Responses on whether or not to list the **Shortjaw Cisco** ranged from general support for listing, conditional support for listing based on the development of sound management decisions, and rejection of listing based on a lack of credible scientific data and the lack of recognition of First Nation treaty rights. The commercial and sport fishing sectors are concerned that listing would negatively impact directed or bycatch fisheries. First Nations are opposed to listing until more information becomes available about this species and the potential impacts on their fishing activities. The Government of Ontario is concerned that listing this species will negatively impact First Nations' fisheries, as well as fisheries in Lake Nipigon, Lake Huron, and Lake Superior. The governments of Saskatchewan, Alberta, and Northwest Territories support listing the **Shortjaw Cisco**." (CSAR 2005a, p.4049)

"Assessments for six species are being proposed for return to COSEWIC for further consideration or information. Where there is concern about whether a population is a designatable unit or not or where validation of threats is needed, such as for the Lake Winnipeg Physa, **Shortjaw Cisco**, and the Arctic population of Atlantic Cod, further consideration by COSEWIC may be helpful to substantiate or clarify the assessment such that a reasonable analysis of next steps by governments and stakeholders can take place. If, for example, a species is reconsidered and more research is needed to substantiate the existence of the species or threats, resources that

would have been targeted to protect and recover that species could be redirected to species that do exist and for which threats can be validated and addressed.” (CSAR 2005a, p.4051)

Atlantic

Atlantic Salmon (*Salmo salar*) - Inner Bay of Fundy populations

SARA Public Registry:

http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=672

Last COSEWIC Assessment: May 2001

Last COSEWIC Designation: Endangered

SARA Status: **Endangered**

“This population of the Atlantic Salmon spawns in those rivers of Nova Scotia and New Brunswick that drain into the Minas Basin and Chignecto Bay, as far south as the Black River in New Brunswick. After these salmon go to sea, they remain in the Bay of Fundy, at least until late autumn, but it is not known where they spend the winter. These populations have declined by 90% or more in abundance: they were estimated at 40,000 adults in some years, but have declined to less than 500 in 1998 and less than 250 in 1999.”

“Population growth appears to be limited by marine survival rather than freshwater production capacity. The cause of the collapse of marine survival is unknown, but may be due to ecological changes in the Bay of Fundy, such as those brought about by tidal barriers placed at the mouths of several rivers and streams. Commercial salmon farms may also be a factor in the decline, since they may attract predators, alter habitat, obstruct migration or harbor disease.”

“The Atlantic Salmon Inner Bay of Fundy populations is protected under the federal Species at Risk Act (SARA). More information about SARA, including how it protects individual species, is available in the Species at Risk Act: A Guide. Atlantic Salmon is protected by the Canada National Parks Act where it occurs in Fundy National Park. The federal Fisheries Act prohibits destruction of fish habitat.”