

Summary of *Species at Risk Act* Management Scenarios: Upper Fraser River White Sturgeon Designatable Unit

Management scenarios describe alternative management approaches to mitigate human threats to a species in the event that it is, or is not, listed under the *Species at Risk Act* (SARA). The management scenarios for the Upper Fraser River White Sturgeon designatable unit (DU) were developed in consultation with Fisheries and Oceans Canada staff from Resource Management, Conservation and Protection, and Fisheries Protection Program as well as staff from the Province of British Columbia. First Nation and stakeholder input were considered in the development of the management scenarios.

The scenarios are not a binding commitment, rather, they represent the most reasonable and feasible approaches which may be undertaken to recover the species, given the best information currently available. Management of the species will rely on an adaptive and iterative process that systematically incorporates the lessons learned from scientific or technical information, policies and practices, and other new information as it arises. As such, measures identified here are subject to change as more scientific or technical information becomes available.

Management Scenario 0: Baseline

This scenario describes measures that were in place during the 2017 fishing season when development of these management scenarios commenced. The Baseline Scenario sets the standard from which the changes described in the other scenarios will be measured.

Management Scenario 1: Do Not List

This scenario outlines mitigation measures to be implemented under other legislation (e.g., *Fisheries Act*) if the Upper Fraser River White Sturgeon is declined for listing under Schedule 1 of SARA.

Note: under a Do Not List Scenario, the Nechako River nationally significant population (NSP) and the Upper Fraser River NSP would be delisted from Schedule 1 of SARA. SARA prohibitions would no longer apply to these populations.

Management Scenario 2: List

This scenario outlines measures in addition to the baseline scenario that would be implemented if the species is listed as Endangered under SARA with general prohibitions in place with limited scope to issue Section 73 permits and Section 83 exemptions for indirect harm. Such proposed activities are detailed here.

Note that measures are generally interpreted to be incremental, as they advance from the Baseline, to Do Not List, and to List.

1. GENERAL SARA REQUIREMENTS

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1.1. Currently Implemented Measures

The Nechako River and Upper Fraser River White Sturgeon Nationally Significant Populations (NSPs) are listed under SARA, therefore general SARA requirements apply. Under SARA (S.32), it is prohibited to kill, harm, harass, capture, take, possess, collect, buy, sell or trade Nechako River and Upper Fraser River White Sturgeon NSPs. A recovery strategy that identified critical habitat to the extent possible was published in 2014 and Critical Habitat Protection Orders made under subsections 58(4) and (5) were put in place in 2016. An action plan is due in 2019 and progress towards recovery strategy and action plan implementation must be reported every five years.

Funding is available for recovery projects benefiting species at risk listed under SARA. Through this funding, implementation and stewardship activities have been undertaken for the Nechako River and Upper Fraser River NSPs including: Nechako River White Sturgeon Recovery Initiative; conservation aquaculture in Nechako; Emergency Boat Kit Program; research and monitoring on early life stages, juveniles and adults; and, experimental spawning substrate restoration.

The Middle Fraser River NSP portion of the Upper Fraser River DU is not listed under SARA; therefore, the general SARA requirements do not apply.

1.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
SARA General Prohibitions	<ul style="list-style-type: none"> • Not applicable • Nechako and Upper Fraser NSPs delisted: <ul style="list-style-type: none"> ○ SARA prohibitions no longer apply 	<ul style="list-style-type: none"> • SARA prohibitions apply
SARA Recovery Planning	<ul style="list-style-type: none"> • Not applicable • Nechako and Upper Fraser NSPs delisted: <ul style="list-style-type: none"> ○ SARA recovery planning no longer occurs 	<ul style="list-style-type: none"> • A recovery strategy must be developed, identifying critical habitat • An action plan must follow the recovery strategy • Progress towards recovery strategy and action plan implementation must be reported every five years
SARA Implementation and Stewardship	<ul style="list-style-type: none"> • Not applicable¹ • Nechako and Upper Fraser NSPs delisted: <ul style="list-style-type: none"> ○ SARA implementation and stewardship no longer occurs 	<ul style="list-style-type: none"> • Federal SARA funding available for recovery implementation projects benefitting species at risk • Partner with interested First Nations and organizations on recovery implementation

¹ Other sectors, governments and organizations may continue to provide funding for the management and recovery of the species; however, it will not be eligible for federal SARA funding

2. LOSS OF HABITAT QUALITY AND QUANTITY

Managed by Fisheries and Oceans Canada and B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development

2.1. Currently Implemented Measures

The *Fisheries Act* prohibits serious harm to fish, which is defined as “the death of fish or any permanent alteration to, or destruction of, fish habitat.” The Act requires that projects avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada. Proponents can request DFO review projects near water to assess if the works, undertakings or activities are likely to cause serious harm to fish, provide advice to avoid and mitigate effects of activities on fish and fish habitat and, where appropriate, authorize serious harm to fish. DFO also manages habitat occurrence processes, supports fish habitat restoration and enhancement programs, and develops regulatory partnerships to support the management of fish and fish habitat. SARA prohibitions apply to the Nechako River and Upper Fraser River nationally significant populations and are taken into consideration in regulatory review and assessment of activities.

The Province of British Columbia develops Best Management Practices where appropriate (in collaboration with DFO), and regulates: changes in and about a stream, forest and range practices on BC Crown land, applications for new major mines and major expansion projects, agricultural waste management, water licences, and release of deleterious substances.

2.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Federal review of projects near water	<ul style="list-style-type: none"> • Consider designating important White Sturgeon habitat as Environmentally Sensitive Areas (ESAs) • Development of species-specific guidance or BMPs to avoid impacts to habitats (e.g., timing windows, dredging guidelines) 	<ul style="list-style-type: none"> • Consider SARA requirements in regulatory review and assessment of activities: <ul style="list-style-type: none"> ○ It is prohibited to kill, harm, harass, capture, take, possess, collect, buy, sell or trade a species listed as Endangered under SARA (s.32) ○ It is prohibited to destroy any part of the critical habitat of a species listed as Endangered under SARA (s.58) • Development of species-specific guidance or BMPs to avoid impacts to habitats (e.g., timing windows, dredging guidelines)
Critical habitat protection	<ul style="list-style-type: none"> • Repeal Critical Habitat Protection Order for Nechako and Upper Fraser NSPs 	<ul style="list-style-type: none"> • Identify critical habitat in all remaining areas in a recovery strategy and protect it through a Critical Habitat Protection Order • Assess whether critical habitat identified for Nechako and Upper Fraser portions of the DU should be updated
Restoration activities and scientific research related to habitat	<ul style="list-style-type: none"> • Same as baseline • SARA prohibitions and permitting requirements no longer apply to Nechako and Upper Fraser portions of the DU 	<ul style="list-style-type: none"> • SARA permits (s. 73) may authorize activities benefiting the species (e.g., restoration, enhancement, research on habitat) if several pre-conditions are satisfied
All other activities	<ul style="list-style-type: none"> • Same as baseline 	<ul style="list-style-type: none"> • Same as baseline

3. DIRECTED FOOD, SOCIAL AND CEREMONIAL WHITE STURGEON FISHERY

Managed by Fisheries and Oceans Canada and B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development

3.1. Currently Implemented Measures

Directed food, social and ceremonial (FSC) White Sturgeon fisheries are not currently licenced by DFO or the province of BC. A limited unlicenced fishery is known to occur in the mid Fraser River.

3.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Directed food, social and ceremonial White Sturgeon fishery	<ul style="list-style-type: none">• Same as baseline in the Fraser River above Williams Lake and in the Nechako River• Licences for limited FSC harvest of White Sturgeon would be managed on requests from First Nations (downstream of Williams Lake)	<ul style="list-style-type: none">• SARA prohibitions apply• Same as baseline – not licenced

4. BYCATCH OF WHITE STURGEON IN FOOD, SOCIAL AND CEREMONIAL SALMON FISHERIES

Managed by Fisheries and Oceans Canada

4.1. Currently Implemented Measures

White Sturgeon is bycaught in licenced FSC sockeye, chinook and pink salmon fisheries. White Sturgeon encounter rate and risk of harm in set nets is higher than in other gear types which include dip nets, beach seine, snagging, hook and line, and fish wheel within the geographic distribution of the Upper Fraser River White Sturgeon DU. In the Nechako and Fraser River above Williams Lake, FSC salmon fisheries have a licence condition to release sturgeon to the water alive and unharmed (non-retention). In the Fraser River below Williams Lake, FSC salmon fisheries have a licence condition to release non-target species. FSC salmon fisheries are monitored using census, survey and observer vehicle patrols. C&P spot patrols occur.

SARA prohibitions currently apply to White Sturgeon in Upper Fraser and Nechako (but not Middle Fraser) NSPs. To reduce harm to bycaught White Sturgeon, seven First Nations participate in an Emergency Boat Kit Program in the Nechako and Upper Fraser River NSPs. The Emergency Boat Kit Program is managed by CSTC and a community bycatch monitor is hired in each of the seven communities. Tl'azt'en uses data collected from Catch Monitors to make management decisions on how to reduce White Sturgeon encounters.

4.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Bycatch of White Sturgeon in FSC salmon fisheries	<ul style="list-style-type: none"> • Increase awareness of White Sturgeon conservation • Nechako and Upper Fraser First Nations may no longer participate in Emergency Boat Kit Program due to lack of opportunity for SARA funding (HSP, AFSAR) • Modify licence condition in Nechako River and Upper Fraser River fisheries (SARA prohibitions no longer apply) 	<ul style="list-style-type: none"> • SARA prohibitions apply • Explore issuance of SARA permits or SARA compliant fishing licences, where appropriate • Collaboratively increase awareness of White Sturgeon conservation with First Nation communities • Learn from work done by Nechako White Sturgeon Recovery Initiative – e.g., implement the Emergency Boat Kit Program throughout the Upper Fraser DU • Expand existing catch monitoring programs and include specific reporting requirements for White Sturgeon bycatch throughout the DU (funding dependent)

5. BYCATCH OF WHITE STURGEON IN DEMONSTRATION FISHERIES

Managed by Fisheries and Oceans Canada

5.1. Currently Implemented Measures

Demonstration fisheries are relatively recent (after 2007). They often occur in areas with no White Sturgeon and typically use selective gear. There is one demonstration fishery in Kamloops Lake using a purse seine and gill net; one demonstration fishery in Fraser Lake using a seine and an occasional demonstration fishery in Fraser River near Williams Lake using a fish wheel and dip net. The Fraser Lake fishery has a licence condition that “it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell, or trade Nechako or Upper Fraser White Sturgeon as they are listed as an endangered species under SARA unless a specific SARA permit or agreement is in place. It is mandatory to release all White Sturgeon if/when an encounter occurs including any sturgeon that are found dead. All White Sturgeon encounters in the Nechako and Upper Fraser FSC fisheries are to be accurately reported through catch monitoring programs.” The other fisheries have a licence condition to release non-target species. All demonstration fisheries have monitors on site and all landings are reported.

5.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Bycatch of White Sturgeon in Economic Opportunity/ Demo fisheries	<ul style="list-style-type: none"> • Increase awareness of White Sturgeon conservation • Modify licence condition (SARA prohibitions no longer apply) 	<ul style="list-style-type: none"> • SARA prohibitions apply • Explore issuance of SARA permits or SARA compliant fishing licences, where appropriate • Increase awareness of White Sturgeon conservation • Expand the Emergency Boat Kit Program to all demonstration fisheries in the Upper Fraser River DU • Modify licence condition to include SARA prohibitions for the Middle Fraser portion of the DU • Once knowledge of important White Sturgeon habitats improves, fishing plans will be revisited

6. RECREATIONAL CATCH AND RELEASE FISHERY TARGETING WHITE STURGEON (MIDDLE FRASER RIVER)

Managed by B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development

6.1. Currently Implemented Measures

The recreational catch and release fishery for White Sturgeon is closed in the Nechako River and Upper Fraser River above Williams Lake Creek. In the Middle Fraser River below Williams Lake Creek, a provincially-managed recreational catch and release fishery for White Sturgeon occurs. Within this area, seasonal closures occur from September 15 to July 15 in Region 5 above the border with Region 3. A year-round fishery is largely concentrated in a 10 km area around Lillooet in Region 3. There are 25 guides operating in Region 3; no guiding is permitted in Region 5. The limited spatial distribution of the fishery and the apparent stable trend in the Middle Fraser River White Sturgeon population would suggest this fishery is operating within expected limits of fishing sustainability.

The recreational catch and release fishery for White Sturgeon requires a B.C. general fishing license and a Sturgeon conservation surcharge (1 day, 8 day, annual). An angling guide license is required for guides and assistants. Regulations require non-retention of White Sturgeon, following handling guidelines, and use of single barbless hooks. The fishery is monitored through mandatory catch reporting for guides and assistants, mail-out and electronic angler surveys to sturgeon surcharge purchasers, aerial angler count and access point angler interviews. The Sturgeon conservation surcharge and other provincial funding supports the majority of Middle Fraser River monitoring and research including PIT tagging and population monitoring of White Sturgeon as well as awareness and enhanced fishery implementation and enforcement.

6.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Region 7 and Region 5 (upstream of Williams Lake Creek)	<ul style="list-style-type: none"> Same as baseline. 	<ul style="list-style-type: none"> Same as baseline.
Region 5 (downstream of Williams Lake Creek) and Region 3	<ul style="list-style-type: none"> Either no change or possible change to no fishing between Williams Lake Creek and Hell’s Gate during spawning and/or overwintering period 	<ul style="list-style-type: none"> SARA prohibitions apply Closed Additional DFO C&P resources required for patrols and enforcement

7. BYCATCH OF WHITE STURGEON IN RECREATIONAL SALMON FISHERIES

Managed by Fisheries and Oceans Canada

7.1. *Currently Implemented Measures*

A general fishing license and salmon surcharge are required for recreational salmon fishing. Bycatch of White Sturgeon is occasional because gear used in recreational salmon fishing is typically not conducive to catching White Sturgeon. No White Sturgeon may be retained in the recreational fishery.

7.2. *New Measures under “Do Not List” and “List” Scenarios*

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2)
Bycatch of White Sturgeon in recreational salmon fisheries	<ul style="list-style-type: none">• Increase awareness of White Sturgeon conservation	<ul style="list-style-type: none">• Same as Scenario 1• SARA prohibitions apply

8. BYCATCH OF WHITE STURGEON IN RECREATIONAL RESIDENT FISH FISHERIES

Managed by B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development

8.1. *Currently Implemented Measures*

A general fishing license is required for recreational resident fish (freshwater) fishing. Bycatch of White Sturgeon is occasional because gear used in recreational resident fish fishing is typically not conducive to catching White Sturgeon. No White Sturgeon may be retained in the recreational fishery.

8.2. *New Measures under “Do Not List” and “List” Scenarios*

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Bycatch of White Sturgeon in recreational resident fish fisheries	<ul style="list-style-type: none">• Same as baseline	<ul style="list-style-type: none">• SARA prohibitions apply• Same as baseline

9. POACHING OF WHITE STURGEON

Responsibility of Fisheries and Oceans Canada and B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development

9.1. Currently Implemented Measures

Poaching of White Sturgeon is thought to be rare. All salmon directed sports fisheries are daylight hours only to reduce poaching. DFO Fisheries Officers (C&P) and BC Conservation Officers (COs) respond to reports from DFO's 'Observe, Record, Report' hotline or BC's 'Report all poachers and polluters' line.

9.2. New Measures under "Do Not List" and "List" Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Illegal fishery targeting White Sturgeon	<ul style="list-style-type: none">• Increase awareness of White Sturgeon conservation	<ul style="list-style-type: none">• SARA prohibitions apply• Increase awareness of White Sturgeon conservation• Additional C&P resources required for patrols and enforcement

10. SCIENTIFIC RESEARCH ON WHITE STURGEON

Responsibility of Fisheries and Oceans Canada, B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development, and B.C. Ministry of Environment and Climate Change Strategy

10.1. Currently Implemented Measures

Throughout the Upper Fraser River White Sturgeon DU, a provincial fish collection permit is required for scientific activities. In the Upper Fraser River NSP and Nechako NSP portions of the Upper Fraser River DU, SARA prohibitions and permitting requirements apply. Ongoing scientific research includes:

- Juvenile indexing and monitoring programs to increase understanding of distribution, movement, survival and behaviours of juvenile White Sturgeon in the Nechako River and Upper Fraser River
- Field studies, lab studies and geofluvial modelling leading to experimental spawning substrate remediation in 2011 and cleaning in 2016 on the Nechako River at Vanderhoof
- Spawn monitoring including egg mats and radio and acoustic telemetry to document spawning activity in the Nechako River spawning reach and to confirm spawning White Sturgeon are using remediated zones of the reach
- Research on larval habitat requirements
- Limited adult and juvenile monitoring in the Middle Fraser River to increase understanding of distribution, movement, survival and behaviours of White Sturgeon, including introgression and movement of hatchery juveniles both within and outside of the natural range of the Nechako population

10.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Scientific research	<ul style="list-style-type: none"> • SARA prohibitions and permitting requirements no longer apply in Nechako and Upper Fraser NSPs • Baseline measures that apply to all areas continue to apply • Ongoing scientific research may be led by BC 	<ul style="list-style-type: none"> • SARA prohibitions and permitting requirements apply • Baseline measures that apply to all areas continue to apply • Additional federal funding available for recovery implementation projects including scientific research relating to the conservation of the species

11. REDUCED OR ALTERED FOOD SUPPLY

Managed by Fisheries and Oceans Canada

11.1. Currently Implemented Measures

Implementation of Canada’s [Wild Salmon Policy](#):

- Canada’s *Policy for Conservation of Wild Pacific Salmon* (WSP) guides the conservation and management of Pacific salmon with a goal to restore and maintain healthy and diverse salmon populations and habitat and ecosystem integrity.
- Implementation plan including conducting scientific work on identifying, assessing, and monitoring conservation units in partnership with others is being developed.

Cooperate on management, research and enhancement of Pacific salmon stocks:

- U.S. and Canada have joint conservation and harvest sharing [agreements](#) (Pacific Salmon Treaty) to prevent over-fishing and optimize production

Implement [Southern Salmon Integrated Fisheries Management Plan](#):

- IFMPs guide and plan sustainable use of marine resources by documenting stock assessment, scientific research, and management objectives, using a precautionary approach
- The *Southern Salmon Integrated Fisheries Management Plan* guides management of Fraser River and southern BC salmon stocks. Specifically:
 - Section 2 and throughout: provides scientific information for conservation and management of salmon resources by conservation unit
 - Section 5.3.16: guides implementation of the Salmonid Enhancement Program including operation of hatcheries, fishways, spawning and rearing channels to rebuild or enhance chinook, sockeye, pink, coho and chum salmon
 - Section 6: outlines management objectives for stocks of concern
 - Section 13: outlines management plans for each species or stock, including stock assessment information, allocation plans and harvest levels
- Implement the *Fishery Monitoring and Catch Reporting* (sections 8, 10.1, 11.1, 12.1):
 - Guides maintenance of reliable catch data required for the sustainable use of fishery resources, including catch monitoring and a compliance plan
- Implement the *Policy for Selective Fishing in Canada’s Pacific Fisheries* (section 12.10):
 - Guides development of strategies to harvest available abundances of large, healthy stocks while ensuring conservation of smaller stocks of concern through selective fishing

11.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
All activities	<ul style="list-style-type: none"> • Same as baseline 	<ul style="list-style-type: none"> • Same as baseline • Fish stocks, including those that are food for white sturgeon, are managed under policies by DFO that take into account the status of the stock and its role in ecosystem processes. For example, one of the objectives under the <i>Wild Salmon Policy</i> is to maintain habitat and ecosystem integrity including food for predators which would be considered when developing integrated strategic plans for a stock. If a salmon stock is identified as an attribute of critical habitat (in a recovery strategy), this would also be considered when developing the integrated strategic plan.

12. HATCHERY AND AQUACULTURE EFFECTS

Managed by Fisheries and Oceans Canada and B.C. Ministry of Forest, Lands, Natural Resource Operations and Rural Development

12.1. Currently Implemented Measures

The Nechako White Sturgeon Conservation Centre was established in 2014 as a short term solution to address recruitment failure of White Sturgeon in the Nechako River. Pilot hatchery operations were undertaken prior to the Centre opening. The Centre was built with funding from Rio Tinto Alcan, BC and others. It is operated by the Freshwater Fisheries Society of BC and is under the responsible authorities of DFO and BC FLNRORD. Hatchery activities following annual Nechako River White Sturgeon Technical Working Group endorsed plans are exempted by the White Sturgeon recovery strategy (2014) from SARA general prohibitions as per SARA s. 83(4).

Hatchery supplementation is carefully managed through an adaptive and science-based approach to ensure hatchery produced White Sturgeon represent the genetic diversity of the Nechako stock and do not overwhelm the genetics of stocks downstream. Mitigation and management measure include:

- Following established fish health, handling, culture and transport guidelines
- Maximizing genetic diversity of hatchery fish
- Supporting imprinting by locating the Centre at Vanderhoof and using river water from the spawning reach in Vanderhoof to rear hatchery fish
- Marking and tagging all released hatchery fish
- Culling of surplus individuals, if required, a routine element of regular hatchery operations for any species
- Providing surplus eggs and larvae for lab and field experiments supporting recovering
- Juvenile monitoring
- Initiating research on historic distribution and monitoring migration of hatchery-origin individuals both within and outside of the natural range of the Nechako population

Options for long term spawning habitat restoration and recruitment restoration are being investigated.

Commercial aquaculture of White Sturgeon is considered low risk at this time.

12.2. New Measures under “Do Not List” and “List” Scenarios

ACTIVITY	DO NOT LIST (Scenario 1)	LIST (Scenario 2) (SARA Prohibitions Apply)
Conservation aquaculture for White Sturgeon	<ul style="list-style-type: none"> • SARA prohibitions and permitting requirements no longer apply in Nechako and Upper Fraser NSPs • Continued adaptive and science-based approach to address recruitment failure through hatchery supplementation and ensure potential impacts are mitigated 	<ul style="list-style-type: none"> • Continued adaptive and science-based approach to address recruitment failure through hatchery supplementation and ensure potential impacts are mitigated