Outdoor Recreation Council of British Columbia

2016 Endangered Rivers - Backgrounder

Methodology

2016 is the third year that nominations for the Endangered Rivers list have been based on a web-based survey prescribed by the Outdoor Recreation Council (the Council). Following surveys in 2013 and 2014 there was no survey in 2015.

For the 2016 Endangered Rivers Survey the Council made two changes. The first change was to reduce the number of questions and simplify the procedure for responders. Secondly we solicited nominations for endangered rivers in each of the principal regions of the province rather than provide one list for endangered rivers in the province as a whole.

The questions which we asked persons nominating rivers to answer are the following:

- The name of the river or stream
- Impacts, threats and issues related to the river nominated
- Impacts on outdoor recreation and specific activities threatened
- The name of the group or individual making the nomination, his or her background
- Their experience with the area or the basis for their knowledge of the river being nominated

This process is intended to establish not only the nature of the threat but also the credibility of the person making the nomination and the level of knowledge they can be presumed to bring to it.

During the recent nomination period, in February and March 2016, nominations were received from individuals, large groups and ORC's member organizations. Nominations were then reviewed by ORC's Endangered Rivers committee which includes several of BC's best known river specialists.

This Backgrounder was developed after the nominations had been summarized and reviewed by ORC's Endangered Rivers Committee. Comments on the principal rivers and streams nominated for 2016 are set out below.

Lower Mainland and Sunshine Coast - Seymour River

Impacts, threats and issues

On December 7th, 2014, a catastrophic landslide dumped approximately 50,000 cubic meters of rock into the upstream end of the lower canyon of the Seymour River. The backwater created by the slide increased water levels by almost 10 meters, creating a large pool that washed out the Twin Bridges Recreational Trail approximately 400 meters upstream of the slide. Due to safety issues the Twin Bridge was removed.

Most of the productive salmon habitat and spawning grounds lie in the reaches above the lower canyon. Consequently, efforts to mitigate the effects of the slide began almost immediately after the event. To examine whether or not the rock slide had indeed produced a barrier to fish both migrating downstream from and upstream to the productive area, acoustic and radio tagging projects were initiated. Receivers were placed on the upstream and downstream ends of the slide along the Seymour River. Seaward migrating juvenile steelhead and upstream migrating adult coho and steelhead were tagged and receiver stations were in place to record the passage of any marked fish. To date no migrating fish have been recorded on either receiver supporting the hypothesis that the slide debris is in fact a fish barrier.

Loss of outdoor recreation activities

The slide has had a catastrophic effect for migrating salmon which can no longer access 14 km of spawning and rearing grounds upstream. If nothing is done to mitigate the issue, the rare runs of early coho and summer steelhead found on the Seymour will be remnant populations by 2019. As keystone species, losing salmonids on the river will have a devastating impact on the entire ecosystem in the Seymour watershed. In addition, these runs are unique and very significant in the south coast region. There is only one other early coho run on the Capilano and only two other summer steelhead runs in the entire Lower Mainland. Regarding the latter, the closest of these is at the upper end of the Fraser Valley (Coquihalla and Silver Hope).

Recreation activities that will be lost include recreational fishing, which has closed on the river due to the impact of the slide. Canoeing and kayaking that once took place throughout the river has been reduced to the lower reaches of the canyon. Hiking and biking on the trail system have been disrupted.

Bird and animal watching opportunities have been greatly reduced above the rock slide. The elimination of salmon and steelhead above the slide has resulted in many bird and animal species looking to other watersheds for food.

Proposed remedy

A plan has been agreed to in principal by all levels of Government (Fisheries & Oceans Canada, First Nations, BC Ministry of Forests, Lands & Natural Resource Operations, Metro Vancouver and the District of North Vancouver) to reshape the rock slide using scaling crews, low velocity explosives and high river flows to once again allow adult and juvenile migration through the Seymour Canyon. It is estimated that this project will take two to five years and it is expensive. The per day expense is approximately $5,000 - $7,000, price per work event (assuming five day work period) is $30,000, the per year cost (assuming eight work events) is $240,000 and the overall budget for a five year project is estimated at $1,200,000. ORC believes both the Province and Fisheries and Oceans Canada should be major partners and contributors to this effort.

The Seymour Salmonid Society has been the steward of the Seymour River watershed since 1987. The Society is currently negotiating with all levels of government to secure support and funding for the project. The Society is also pursuing funding through

private donations as well as funding organizations like Pacific Salmon Foundation, Habitat Conservation Trust Fund and the Fresh Water Fishing Society of BC.

Additional notes by Brian Smith, Manager of the Seymour Hatchery

Research by Don McCubbing, a senior fisheries researcher with Instream Fisheries Research of Vancouver and Squamish, has shown that most Seymour River steelhead smolts are age two; some smolts are age three and a few age four. For winter steelhead, the most recent spawn above the slide location occurred in 2014. Most smolts produced from this spawn will attempt to leave the river in 2016, however they will not likely be able to move past the rock slide in its current state. Adult steelhead typically return to their natal streams in two to three years, thus the majority of the latest migrants would return in 2018 and 2019. After 2019, the Seymour will be almost devoid of winter steelhead with the possible exception of offspring from the few adults that typically spawned in the canyon below the slide zone or in the lower river.

The final spawning of any adult summer run steelhead above the canyon would have occurred in 2015. Most smolts from this spawn would leave in 2017 and return as adults in 2019. In recent years, most adult Seymour River summer steelhead have been at sea for two years and a few months when they come back to spawn in the river. Therefore, most 2015 brood adult summer steelhead would return in 2019. The hatchery-produced summer steelhead from 2015 brood will leave as smolts in 2016 and most adults will return in 2018; a few will appear in 2019.

As it stands, it is possible 2014 was the last year wild coho spawned in the tributaries and main-stem of the upper Seymour River. Those fry will emerge in spring 2015 and would leave as smolts in the spring of 2016. However, current acoustic tagging of juvenile salmonids in the stream indicates no smolts are able to pass the rock slide. If they are able to navigate past the slide debris, some four year-olds that spent an extra year in the river before leaving as smolts will return in 2018. Ultimately, after 2017 coho will be a remnant population in the Seymour River. The same will be true of winter steelhead after 2019 or 2020 and summer steelhead after 2019 or 2020. It is obvious that migration through the Seymour River canyon must be re-established.

Lower Mainland and Sunshine Coast - Lower Fraser River

Background

The Fraser River has been included on ORC's Endangered Rivers list every year since 1993 when the list was first published. This year is no exception. However the main emphasis this year is on the Lower Fraser and the estuary.

The Lower Fraser faces numerous development and industrial pressures as well as urbanization and pollution. The Fraser is also experiencing significant impacts from climate change. In the summer of 2015 the river was especially warm. Changing climatic conditions could push more and more native species northward over time. In support of this, recent studies have indicated that aboriginal fish catches could diminish by up to 50 per cent by 2050 as marine species move up the coast in search of cooler waters.

Canoe Pass, Lower Fraser River *Photo by Shutterstock*

Impacts, threats and issues

The number of projects under way or planned which are likely to have serious adverse impacts on the Lower Fraser and the estuary is daunting. They include the following:

- The three-berth container terminal proposed by Port Metro Vancouver (the Port) for Roberts Bank Terminal 2. This terminal, which will be built on a new island to be constructed on Roberts bank and connected to the current terminals by causeway, will double the size of the existing Roberts Bank container port. This project is currently undergoing a federal environmental assessment.
- The Massey Tunnel replacement project. The $3.5-billion 10 lane bridge replacement for the George Massey tunnel will result in a massive increase of vehicle traffic into South Delta and is likely to permit larger ships to move upstream to terminals in Surrey and New Westminster.
- WesPac's LNG marine jetty project. WesPac is proposing to construct and operate a Liquefied Natural Gas (LNG) marine jetty at Tilbury Island, adjacent to FortisBC's existing Tilbury LNG Plant. The proposed jetty would include a dock and loading platform with a berth for docking a single LNG barge or carrier to be loaded with LNG for local or offshore delivery.
- The jet fuel delivery system and terminal being developed by the Vancouver Airport Fuel Facilities Corporation (VAFFC). Following a BC environmental

assessment this project was approved. The passage of tankers carrying the jet fuel in the south arm of the Fraser is an extreme threat to marine life and habitat.

- The direct-transfer coal facility proposed for the Surrey-Fraser Docks;
- A possible fourth runway for Vancouver International Airport which could extend onto the salt marshes of Sturgeon Bank.

These projects are in addition to the regular diversion, dredging and channelling of the lower river which inevitably contribute to the destruction of riparian, wetland, and estuary habitat.

Significantly, in 1988 a jet-fuel facility project on the river in Richmond was rejected by an environmental-panel review on the grounds that highly toxic and flammable fuels posed an unacceptable risk to public safety. Yet in 2014, the jet-fuel offloading, storage, and transfer facility and connecting pipeline to Vancouver International Airport were approved by the provincial government for the banks of the Fraser River's south arm in Richmond.

The Port is the largest in Canada and it is accountable to the Minister of Transport under the Canada Marine Act. It manages more than 16,000 hectares of water, over 1,000 hectares of land, and about 350 kilometres of shoreline, from Roberts Bank and the Fraser River to Burrard Inlet. Its mandate includes planning, real estate, safety, project environmental review, permitting, and infrastructure development designed to facilitate trade through Canada's west coast gateway. Yet the cumulative effects of development on the Fraser estuary's world-class fish and wildlife do not appear to be to be the priority that they should.

Moving further upriver, there are concerns about the many pressures facing the gravel reach between Hope and Mission. Among these are industrial development, urbanization and agricultural expansion. This same section is considered the most productive of the entire river and is often referred to as the Heart of the Fraser. There is an urgent need for a collaborative plan in order to protect key habitats.

Loss of outdoor recreation activities

The most significant loss of outdoor recreation opportunities will be the impact on the fishery. Several of the projects listed above carry the risk of killing off resident marine life. Combined with such effects as the reduction of steelhead due to the by-catch in the Lower Fraser the numbers of fish on the spawning grounds are at risk of being seriously reduced.

The overall scope of these projects will inevitably lead to a loss of enjoyment of fishing, swimming, canoeing, bird watching and the contemplation of nature.

The major expansion of the port facilities on Roberts Bank is likely to have a significant impact on the foraging habitat for migratory birds in Canada's most significant Important Bird Area and the increase in ship traffic from this and the other developments listed above is likely to discourage orcas and other marine mammal species from coming to this part of the Gulf of Georgia, with consequent impacts on wildlife viewing including whale watching.

In the early 2000s, even the provincial government was interested in producing annual reports on environmental trends in B.C., including biodiversity, climate change, toxic contaminants, water, and human health. It was not long before staff were fired and departments closed. The demands of energy and the rush to become a “gateway” to the world took priority over environmental concerns.

A comprehensive environmental-sustainability plan, based on the cumulative effects of all proposed development projects, is urgently needed to protect the ecological integrity of the Fraser River estuary and the wildlife that depend on its habitats. The best means of achieving this overall perspective and regulatory role is the creation of a new and stronger Fraser River Estuary *Ecological* Management Program.

Remedies

The Fraser estuary is in deep trouble. The integrity of every hectare of this once magnificent wildlife habitat is threatened by the many cumulative developments. With a provincial land-use agenda driven by transportation and port interests, the low-lying delta lands of the estuary need a plan. If the Fraser River salmon and the shorebirds of the Pacific Flyway are to survive, the cumulative impacts of these ports, airports, industrial complexes, rail lines, highways, and bridges must be considered.

The multi-agency Fraser River Estuary Management Program (FREMP), together with the Burrard Inlet Environmental Action Program (BIEAP), was once responsible for such tasks as baseline mapping of estuary habitat and coordinating project-review applications. When FREMP and BIEAP were closed down in 2013, after 28 years of operation, the role of coordinating project reviews was handed to the Port, which ironically is the leading proponent of development in aquatic habitat in the Lower Mainland. The conflict of interest is obvious.

The Port’s lead role as review coordinator was meant to be temporary. Three years later, the Port still conducts environmental assessments while simultaneously driving many major building projects in the Fraser Delta.

A new coordinating multi-agency group is urgently needed to address the environmental challenges of the Fraser River estuary and its surrounding lands and waters. In the view of many who provided input on the Fraser, such an approach would be preferable, and with less conflict, than having Port Metro Vancouver be the lead over environmental reviews and approvals. A stronger, more effective Fraser River Estuary Management Program (FREMP) would be backed with realistic financial support, adequate staff, and the power to ensure meaningful environmental assessments on all large projects. Its responsibility would be nothing less than the ongoing survival of the area’s native wildlife and the habitats needed to support them, with consequent benefits to outdoor recreation. The Fraser is the world’s greatest salmon river, and it is in the top 50 heritage rivers globally. The estuary is critical habitat for fish and wildlife and a BirdLife International Important Bird Area, host to internationally significant flocks of birds migrating on the Pacific Flyway and Canada’s largest wintering habitat for waterfowl and birds of prey, and a regular foraging area for endangered southern resident orcas.

In addition, there must be renewed efforts to initiate a process that would work toward the development of a collaborative plan for the Heart of the Fraser, one of the most

productive stretches of river in the world. The aim of such a plan would be to protect key habitats while the opportunity still exists.

And finally, given the toll that climate change is taking on the Fraser and so many other waterways, all levels of government must continue to work as aggressively as possible in dealing with this issue.

Vancouver Island - Cowichan River

The Cowichan is a moderately sized river on southern Vancouver Island which originates in Cowichan Lake, flowing east towards its end at Cowichan Bay. Its drainage basin is 795 square kilometres in size.

The river is widely considered one of the finest sports fishing rivers in British Columbia for salmon, steelhead and brown trout. It is also the centre of Cowichan River Provincial Park, The park area is home to hundreds of animal species: small and large mammals, including the native Vancouver Island ermine, an endangered species, and more than 200 species of birds.

The Cowichan River was nominated as a Canadian Heritage River in 1999 and designated in 2003.

Impacts, threats and issues

In the decade leading up to 2014, water levels dropped considerably possibly due to climate change to the point where fish were trucked up the river and the Cowichan Valley Regional District instituted water restrictions for residents. Water from the river is used in the pulp and paper mill operated by Catalyst Paper in nearby Crofton.

The Cowichan has experienced an increasing trend of drought-affected late spring and summer flows, particularly since 2003. Low seasonal inflows to Cowichan Lake from June to September mean that the Catalyst Paper Corporation has been unable to maintain sufficient lake storage to support its mandated seven cubic meters per second release to the river, while its weir is operational, typically from May through September. As a result, the Cowichan's world renowned resident rainbow and brown trout species and summer/fall Chinook runs, have been put increasingly at risk by low, warm water conditions.

Loss of outdoor recreation activities

About seven kilometres after exiting Cowichan Lake, the river drops over Skutz Falls, a small waterfall that is often visited when fish are climbing the fish ladder constructed beside the falls. Below the falls, are swimming areas. Downstream, the river flows through Marie Canyon, a popular kayaking run.

The Cowichan is especially popular in the summer for river tubing. People float from the Catalyst weir to Little Beach which takes around two and half hours.

River angling and boating recreation, including paddling opportunities and especially tubing, have been negatively affected by reduced river flows in the late spring through summer period. Lower river flows have also allowed invasive plants species like Japanese knotweed to colonize drying gravel bars more easily, from which they are

gradually crowding-out native willow and red osier dogwood in the river's riparian corridor.

Proposed remedies

The BC Conservation Foundation (BCCF) has worked in many Vancouver Island watersheds since 1998, and in the Cowichan River for 18 years. The BCCF has been principally focused on conservation of Cowichan steelhead during this period, but in the last several years it has also been involved with fall Chinook population studies. These have included rearing habitat preferences, limiting factors and restoration opportunities. Most importantly, there is a clear opportunity to take positive action on the Cowichan in that a weir currently exists at the river's outlet which holds back water so that a steady supply can be provided to the Catalyst Paper mill in Crofton. Mark Angelo, ORC's Rivers Chair, has suggested that if the weir was nominally raised, water spillage from the lake would be lessened in winter allowing for more water to be held back and dispensed to the river in summer months, which would increase flows and lessen water temperatures. There also appear to be e ample opportunities to pull together a coalition to cover the significant funding required for this undertaking. In addition to Catalyst Paper as a major beneficiary, other potential contributors include the regional district, the Province, Fisheries and Oceans Canada, the Pacific Salmon Commission, and various fisheries-related foundations.

Vancouver Island - Shawnigan Creek

Background

Shawnigan Creek on southern Vancouver Island is not only important to Shawnigan Lake and its entire ecosystem, it is also vital for the fishery in the Goldstream River as an occasional source of coho salmon brood stock. Shawnigan Creek was the site of a major effort by the Mill Creek Bay and District Conservation Society to establish a significant coho run in the late 1970s using fish from Goldstream and their successful efforts have been widely admired. Recent coho returns have sometimes numbered 5000 fish and in some years, even exceeded that of Goldstream.

Shawnigan Creek has several impassable falls which presented a challenge. To get around the falls the group devised a trap system where the fish could be held on return. Fish were held in an open pen, netted, sorted and placed in special transportation tanks. These tanks were driven to various locations along the creek, so that maturing fish could spawn in the system. In times of low returns on the Goldstream River, the Shawnigan project has supplied broodstock coho many times over the years.

Impacts, threats and issues

Shawnigan Creek's fishery is now potentially in jeopardy as a result of a 50 year permit issued by the Province in 2013 for the establishment of a major contaminated soil dump in close proximity to the creek. The selected site could receive up to 100,000 tons of contaminated soil annually for an eventual total of 5 million tons. While this could potentially threaten the aquatic ecosystem of the creek itself, there are also concerns that it could jeopardize the water quality of Shawnigan Lake that several thousand nearby residents depend upon for their drinking water. The Province and the operator of

the soil dump claim that runoff from the site is within provincial guidelines, while Shawnigan Lake residents have recent results that show elevated levels of iron, manganese and sulphurs in the run-off from the site

Loss of outdoor recreation activities

For the South Vancouver Island Anglers Coalition this issue strikes very close to home. In 2012 Shawnigan Creek had an unexpected surprise with 5,000 mature Coho, which is an incredible achievement. With another successful return of over 2,300 Coho in 2015 this return surpassed the Goldstream River and many other streams and rivers in the Greater Victoria region. This story is incredible because a small unpaid group of volunteers who created a run in a stream that never had one.

Proposed remedy

There should be no place for the dumping of contaminated materials if it jeopardizes Pacific salmon bearing creeks, and the fish must be protected as part of the Fisheries Act of Canada. The Shawnigan Residents Association (SRA) and Cowichan Valley Regional District (CVRD) have made application to the BC Supreme Court to try to get the MoE permit cancelled so as to protect the drinking water of the residents of Shawnigan Lake.

From ORC's perspective however, the most important point is that we have to take a much more precautionary approach to locating facilities such as contaminated soil dumps. And while there is a need for such facilities, they should not be located close to rivers and streams.

Thompson - Okanagan - Thompson River

Impacts, threats and issues

The Thompson River steelhead run takes place between September and December. These summer/fall steelhead are much larger, and stronger, than steelhead found in the Lower Fraser tributaries. When returning from the ocean, they have to endure the rugged terrain through the Fraser Canyon, so the ones that make it back are the toughest in the population. It is a fishery that challenges and deters anglers, who have to deal with icy rocks, freezing water and the lack of success. Steelhead that are caught must be released.

In 2016 the Thompson River steelhead return is estimated to be 440 spawners. This is an all-time low. Long gone are the days of 5,000 fish returns. This world renowned run of trophy steelhead is dying. Projecting the last 20 years forward indicates that the Thompson River steelhead will disappear in the next 10 to 15 years. The steelhead are impacted by the commercial chum fishery in the Lower Fraser, by First Nations gill nets and by other fisheries. The Lower Fraser by-catch of steelhead is reducing total fish on the spawning grounds.

Water from the Thompson is also used for crops in the area and the agricultural run-off from local farmlands can contain pesticides as well as bio-solids which can contain toxic elements. Discharge from the paper mill in Kamloops contains other chemicals. The salmon and steelhead stocks are also impacted by pollution of the Fraser River near

Vancouver, through which they must travel in order to reach the Thompson. Tributaries of the Thompson are experiencing low water conditions, in part due to agriculture. There are also increasing concerns being expressed about industrial development proposals such as the Ajax mine in Kamloops.

Loss of outdoor recreation activities

In the 1960s and 1970s there was a large recreational steelhead fishery which was a major economic driver for the Spences Bridge region. Things have since changed dramatically with few, if any, sportsfishers now frequenting the area and contributing to the economy. Many people no longer fish as they want nothing to do with the extinction of this internationally prized fish. Others choose not to go because, in many years, there is no retention while in other years, there is a total fishing closure.

Proposed remedies

The Thompson steelhead run is considered an extreme conservation concern and its precarious state highlights the need for a more precautionary and selective approach to the overall salmon fishery. Past efforts including catch and release regulations, habitat rehabilitation and encouraging other user groups to fish selectively have not reversed the downward trend. It's imperative that a **comprehensive recovery program** be developed with full participation by all user groups and both Fisheries and Oceans Canada and provincial fisheries. Tough decisions may have to be made regarding closures and eliminating non selective fisheries.

Considering that the remaining run may be insufficient to be self-sustaining, an emergency temporary augmentation program may be required. If this was to occur, the genetic uniqueness of these fish would have to be assured and the Spius Creek hatchery could potentially be used. If numbers improve sufficiently after perhaps two cycles of augmentation, then the program could and should cease. It's appreciated that hatchery augmentation is a very controversial issue but past differences could hopefully be bridged if determined that this is what is required to ensure these iconic creatures don't slide into oblivion.

In addition, water licences and water extraction rates on various tributaries must be more closely monitored to ensure adequate flows remain for fish. Also a hatchery for steelhead at Spences Bridge would provide year round work as well as supplement the fish in the river and renew the local economy.

The precedent for drastic actions was established when protection for severely depleted Thompson River coho and Cultus Lake sockeye was required. Unfortunately these same measures have not been implemented for Thompson River steelhead, which suggests a double standard may be assumed.

Additional notes

The Steelhead Society of British Columbia (SSBC) is concerned with the conservation of wild steelhead and wild river systems in the province. The SSBC works with various groups including First Nations, Federal and Provincial Governments, other NGO's, and consulting firms to seek the best possible options for wild steelhead within BC. The SSBC has raised money for steelhead stream and habitat restoration as well as being a voice for concern for potential threats or impacts faced by those systems. The SSBC is

dedicated to protecting wild stocks as well as educating anglers and the public alike about the importance keeping our wild systems wild. The SSBC has been involved in projects across the Lower Mainland, Thompson/Okanagan, and northern parts of the province, all focused on the maintenance of wild steelhead rivers and stocks.

Northern Region - Skeena Estuary

Impacts, threats and issues

Photo by Brian Huntington

The mouth of the Skeena River is the last of the largely intact major North American salmon estuaries south of the Alaska BC border having limited industrialization and landscape change. The Pacific North West liquified natural gas (LNG) marine transportation project (the Project) proposes to encroach onto Flora Bank, one of the more productive areas of the Skeena River estuary, in order to load LNG into ships for offshore markets. This is likely to permanently affect the northern exit of the Skeena River, BC`s most important remaining-intact salmon estuary. The Project has been viewed by First Nations, scientists and many in the general public as unacceptable due to the extent of damage it almost certainly will inflict on salmon and steelhead stocks of the Skeena River. The eel grass beds have been proven to provide important rearing and holding habitat for juvenile salmon and probably other species of fish, such as herring and eulachon.

First Nations, environmental groups and some area residents have focused on a concern that the Project will harm eelgrass beds on Flora Bank. The Bank, adjacent to Lelu Island, is considered prime fish-rearing habitat, which was a conclusion reached by the Government of Canada as long ago as 1973.

Loss of outdoor recreation activities

Of the outstanding issues, the disruption of migration patterns of juvenile salmonids and the likelihood of predation, due to the proposed large bridge, jetty, berthing and loading platforms, and the associated bed armoring with rip-rap, that would pass along the north

and west perimeters of Flora Bank, would be significant. The dominant impact will be that the Project places a large semi-permeable barrier across the western portion of Flora Bank for fish migration and the impact will be exacerbated by associated predation on juvenile salmonids and other commercial, recreational and aboriginal fish species.

Besides fly fishing and drift fishing, such activities as boating camping, hiking and wilderness viewing also take place in this area

Proposed remedy

Given the flawed nature of the original federal assessment, a more thorough investigation is required. In addition, given the sensitivity of the eel grass beds on Flora Bank and their importance to salmon as confirmed by more than 100 fisheries scientists in both Canada and the US, infrastructure development should not proceed in this specific location.

Additional notes

The Lax Kw'alaams First Nation, which rejected a $1.15-billion benefit package from the company and the BC Government in the spring of 2015, commissioned its own study by a team that included Simon Fraser University aquatic ecologist Jonathan Moore. It found the project was on the doorstep of an exceptionally abundant feeding ground for juvenile salmon and the LNG terminal could pose risks to the salmon.

Northern Region - Peace River

Background

The Peace River topped the Endangered Rivers list in 2013 and 2014 because of the proposed Site C dam. Clearing of the land and forest in preparation for the dam and the reservoir has already begun in spite of legal actions and unresolved court cases brought by the First Nations in the area who will be directly affected by the dam.

Impacts, threats and issues

In the region of Hudson's Hope the Peace has already been impacted by two dams (the WAC Bennett and Peace Canyon dams) which have had detrimental effects on the wildlife and riparian areas of the region. The Site C dam will flood over 17,000 acres of forested areas, including important wetlands and birthing grounds which are crucial to migratory and seasonal animals. The unnatural rising and falling river levels have created massive sloughing along the silt-rich banks of the Peace River and, if the Site C dam and reservoir are built, the sloughing problem will become much worse.

The Site C Dam will destroy 107 kilometres of rich river valley: 83 km on the Peace River and a combined 25 km on its major tributaries, the Halfway and Moberly Rivers. The dam will destroy fish, bird and wildlife habitat, increasing mercury content in the resulting reservoir, and flooding thousands of acres of prime agricultural land. This dam will remove the last free-flowing stretch of the Peace River in BC.

Site C will eliminate critical habitat for ungulates, birds, fish and fur bearers; it will negatively impact recreation on a stunningly beautiful stretch of river; and it will infringe on First Nations' treaty rights The Peace is lined by clay soils and the banks are very steep and treed in many areas. BC Hydro plans to log all banks of 70% slope or less, thus causing significant destabilization to the clay slopes. This will make it unsafe for recreationalists on the river. Additionally it will destroy fish and wildlife habitat which will have far reaching effects, for miles beyond the riverbank.

The Site C dam will cause changes to the flow of the river and interfere with passage of fish, as well as wildlife on land. The construction underway has already damaged riparian areas and changed the landscape.

Loss of outdoor recreation opportunities

For recreation, loss of the river above Ft. St. John will mean loss of canoeing, scenic values, and wildlife habitat. And of course agricultural land will be lost. Although this is not strictly a recreation value, it is a very important issue.

Building this dam will harm rare plants and other biodiversity, make fishing unsafe for at least a generation and severely undermine indigenous peoples' use of the valley. Construction of dam will impact the natural migration across the river of all big game. They currently cross in several areas as they can walk across and may have to swim a small stretch.

The flooding will eradicate spring calving grounds for moose, deer and elk, and remove prime habitat for a range of wildlife species - from grizzly bears, wolves, ungulates and bull trout to myriad bird species, such as osprey, eagles and trumpeter swans.

Remedies

The tragedy of the Site C dam project is that it has not been independently established that additional power is needed in BC at this time. In fact BC is currently enjoying a surplus of power from renewable energy sources and the BC Government is offering to

supply part of that surplus to Alberta by way of proposed new transmission lines. That would assist Alberta to replace part of its coal fired electricity production.

Among its final recommendations the National Energy Board, which assessed the project from an environmental standpoint, recommended that the question of whether the additional power is required should be placed before the BC Utilities Commission, BC Hydro's regulator. That remains the most appropriate remedy. The Project is still being challenged in the courts by First Nations and the months ahead will determine if the project can, in fact, be halted or slowed in any way.

Jeremy McCall/Mark Angelo
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