



## 2013 ENDANGERED RIVERS LIST BACKGROUND

### Introduction

This is the 21st year in which the Outdoor Recreation Council of BC (ORC) has published its list of endangered rivers on which the continuation of outdoor recreation, on or by streams of one kind or another, is threatened by impacts to the river itself or through human-activities to its surrounding environment.

This year ORC improved its nomination and selection process in two ways.

First, a standardized nomination form, for persons concerned about outdoor recreation on BC's rivers, was developed to provide the selection committee with essential information about a river considered to be endangered. This form was made available on ORC's website.

Secondly, an on-line questionnaire, ancillary to the newly standardized form, was also made available on the ORC website. The latter tool made it very straightforward to justify a nomination and it became the preferred way to make a nomination. Many people found it convenient to use the questionnaire.

In addition, ORC's Endangered Rivers Committee was expanded and formalized. The committee now includes persons having particular expertise in river ecology, fluvial geomorphology, their natural and human habitats and their recreation attributes and potential. These committee members also include recreationalists and advocates known across the Province for their rigor and dedication.

Given the continued improvements in the decision-making process, the committee has been able to ensure that the rivers on the 2013 endangered list fully reflect the nominations made.

With the new process, the 2013 selection has resulted in a slightly-shorter list than has been the case in recent years. Nevertheless, it is important to note that the issues of previous years have not been forgotten and there are outstanding concerns that would likely be included with more research. For example, there are issues and locations that have not made the list this year that are likely to show up in subsequent years. These include the Northern Gateway Pipeline, or low flows issuing in the south-central interior such as those affecting the Kettle River, which ORC will continue to follow. However this year's list focuses on those issues deemed to be most critical at this point in time.

### 1. The Peace River

#### *About the nominations of the Peace*

The concerns expressed in the very-large number of nominations submitted for the Peace River for 2013 have been nothing short of overwhelming. Nominations for the Peace this year far outnumbered those for any other river. These

nominations, many of them providing considerable detail, have come from a variety of individuals such as members of local First Nations, biologists, ranchers and guides, and many residents of the area. In addition, folks from outside of the Peace country have registered their concern. These tended to be visitors familiar with the area who have come to enjoy the many different kinds of outdoor recreation on, and by, the river in its present state. What was especially noteworthy is that several of the nominations came from people who have either been involved in land use planning in the area in the past, had been directly involved in the construction of the earlier dams on the Peace River, or who were formerly employed by the BC Government to conserve and protect the area's ecosystems. As a result many of the nominations were extremely well informed about the river, its history and its surroundings.

The Peace has been featured near the top of ORC's Endangered Rivers List since it was first nominated in 2008.

***What is the threat to the Peace and which sections will be impacted?***

The primary threat to the Peace River is BC Hydro's current plan to build a 60 m high and 1050 m long earth fill dam and hydro-electric generating station on the Peace River at Site C. The dam would be located downstream of the confluence with the Moberly River and, literally, on the southern outskirts of Fort St. John. Site C is intended to generate 1,100 MW for BC's electricity grid. The newly proposed dam would be the third impoundment on the Peace River and it would flood an additional 83 km of the stream including key riparian areas and rich valley bottoms.. The impoundment would reach as far upstream as the tailrace of the Dinosaur Reservoir at the Peace Canyon Dam, which was the second impoundment, constructed in 1980, about 23 km below the W.A.C. Bennett Dam, to a point below the confluence with the Moberly.

The Peace is also a significant part of the headwaters of the Mackenzie and this reach of the River includes most of the remaining undammed length of this stream in BC! The dam would result in a widening of the river to about three times its present width and its backwatering effect would also flood about 10 km of the lower Moberly River and 14 km of the Halfway River. The project would also require the realignment of several sections of Highway 29 and the construction of two 77 km transmission lines to connect Site C to the Peace Canyon complex.

In the past the provincial government has stated that the additional power for this dam will be required to supply the growth in general demand for electricity in BC in the near future. However, according to BC Hydro's most-recent forecast, BC now has a substantial surplus of power that is expected to last for a number of years. It has also been suggested that the Site C project may be necessary to supply the very-large amounts of power which might be required for the liquefied natural gas (LNG) projects planned for the north coast of the Province; however, with the declining prices of natural gas and the imminent glut of hydrocarbon-based energy throughout North America, it is questionable if these LNG projects will even proceed.

### ***Anticipated impacts and threats to cultural and ecosystem values of the Peace River***

The specific impacts to the river which would threaten recreation include the following:

- The flooding of 83 km of the Peace River Valley and creation of a large; reservoir;
- The flooding of up to 10 km of the Moberly River valley and up to 14 km of the Halfway River valley;
- Varying reservoir water levels would result in constant shoreline erosion and the strong likelihood of sloughing or slumping of shoreline banks (In reservoirs the establishment of stable banks at new winter and summer lake levels takes many years);
- Excessive turbidity in the water both in the reservoir and downstream; there will also be extensive amounts of floating debris from flooded forests;
- The loss of fish habitat for goldeye, migratory Arctic grayling in the Moberly River, migratory bull trout that spawn in the Halfway River and mountain whitefish that rely on Peace River habitat;
- Destruction of habitat for moose, deer, elk, black and grizzly bears on the Peace River islands and adjacent to the present river;
- The loss of mule deer winter range in high-snow years;
- Loss of habitat for several key bird species, such as Cape May, Canada and Bay-breasted Warblers, Yellow Rail and Nelson's Sparrow;
- Destruction of riparian areas and wetlands adjacent to 83 km of the river;
- The resultant loss of biodiversity in the entire reservoir region;
- Loss of approximately 5,000 ha of boreal forest as well as 5,000 ha of high quality farmland;
- Loss of cultural and historic sites such as native burial grounds and the site of an early settlers' fort; and,
- Possible impact on local climates due to a radical change in the unique geography of the only low-elevation corridor through the Rockies which allows warm Pacific air to flow eastwards.

### ***Potential loss of social and outdoor-recreation opportunities***

- Aboriginal and non-aboriginal fishing opportunities would be detrimentally impacted due to changes in the river resulting from flooding, including significantly increased siltation and changes to water temperature. The fishery will change from grayling, rainbow trout and bull trout to a coarse-fish species assemblage of walleye and northern pike;
- Degradation of canoeing, kayaking and paddling opportunities;

- Loss of white water kayaking between the Peace Canyon Dam and Hudson's Hope;
- Loss of hunting and trapping opportunities in the Peace River valley;
- Loss of wildlife viewing and bird watching opportunities;
- Loss of camp sites in the reservoir area and loss of islands in the river;
- Flooding of fossil sites;
- Loss of prehistoric sites with dinosaur footprints;
- Flooding of the Rocky Mountain Fort site, the first European settlement east of the Rockies in 1794; and,
- Essential destruction of one of the most visually-attractive and much-visited landscapes in the Province.

### ***Recommendations***

There are several very large questions overhanging the perceived need for the proposed Site C Dam and the power its facility would generate. In the ORC's opinion, the need for extra generating capacity of 1,100 MW has not been adequately justified, whether for general electricity demand in the Province or for supporting development of LNG projects. ORC recommends that any power requirements for LNG projects that do proceed are provided by purchasing power on the open market or through the use of natural gas, whether on or off the site of the planned LNG plants. To build Site C just to power an LNG plant, that may or may not, proceed is an unacceptable economic and environmental subsidy that ORC does not support. With respect to projections of future increased demand for power for other industrial and for residential purposes in the Province, ORC would like to see a thorough review of future demand estimates by the BC Utilities Commission to verify these estimates.

## **No. 2 - The Lower Fraser River (A Canadian Heritage River)**

### ***The Fraser River from Hope to Mission***

Known as the Heart of the Fraser, the Hope to Mission stretch of the river is one of the most productive stretches of river in the world. This section sustains more than 30 species of fish, more than any other BC fresh-waterway, including all species of salmon as well as Canada's largest population of sturgeon. In addition, up to 10 million pink salmon spawn in this part of the Fraser main-stem in peak years and it is the principal migration corridor for billions of other juvenile salmonids as they migrate through this reach of stream to the ocean.

This stretch is also known as the gravel reach and gravel extraction, ostensibly for flood protection, is a major concern. There is a need to better protect the gravel reach with an integrated approach to reducing the flood risk. In a recent report by Dr. Michael Church, professor emeritus at UBC and a world renowned river geomorphologist, Dr Church determined that the accumulation of gravel in this reach of the river over time is relatively slow and regular gravel removal for

flood prevention was not justified. There is also clear empirical evidence, presented to government by river stewards and scientists, that some past gravel extractions have been excessive in certain locations. In any event, future large-scale gravel extractions should be avoided during pink salmon spawning years so as to prevent possible massive fish mortalities such as occurred at the Big Bar site in March of 2006. Furthermore, many believe there is a need for more science-based decisions when it comes to flood control options. At no point has the provincial government provided any empirical or modelled evidence that sediment (silt, sand, gravel) accumulation has affected the design profile of the dikes in the gravel reach over the last 50 years. Last but not least, highly-productive side-channel fisheries habitats that are more sheltered from flows, hence less likely to heal quickly from gravel extractions, should be protected from such activities.

To try and address this and other human-induced impacts to this section of the Fraser, the “Heart of the Fraser” campaign was launched in 2006 by various groups such as the International River Foundation, the Rivers Institute at the BC Institute of Technology, the Nature Trust of British Columbia and the North Growth Foundation. The “Heart of the Fraser” initiative has received widespread support from the public, scientists and government alike. A key part of this initiative deals with the acquisition of private lands for conservation purposes. This is being spearheaded largely by the private and non-government sectors including the groups mentioned above.

The “Heart of the Fraser” project is one of the most exciting conservation initiatives in Canada and some major headway has already been made with the purchase and protection of much of the Harrison Knob, which has since been turned over by the Nature Trust to the Skowlitz First Nation to manage in perpetuity. The acquisition and protection of the Tom Berry Ranch property near Hope in the fall of 2007 was also good news for the river as was the protection of the McGillivray Slough in 2009 as part of the Bert Brink Wildlife Management Area.

As a complement to this initiative, there is also an urgent need for a collaborative vision/plan for the Heart of the Fraser that will identify key environmental and cultural values. Hopefully, much of this will be developed and led by lower Fraser First Nations, in consultation with other groups. It is to be hoped that an off-shoot of this will be renewed efforts to better manage and protect key crown lands, including the protection of important habitat features in Tree Farm Licence 43. Efforts to manage these attributes were attempted in the 1990s through the Protected Area Strategy, and failed at the time.

### ***The Fraser River from Mission to the Strait of Georgia***

The lower Fraser River downstream of Mission continues to be plagued by many long-standing issues, such as sewage discharges and other types of pollution, which remain problematic. There are also a host of other, emerging, issues. These include reduced protection for many urban stream tributaries (i.e. the shift from Streamside Protection Regulations to Riparian Area Regulations), plans to

deliver jet fuel by tanker to a new wharf upstream from the Massey Tunnel in Richmond, a number of agricultural-related impacts and a proposal to export coal from the US through the Fraser Surrey Docks. Furthermore the river continues to be threatened by impacts associated with rapid urbanization, urban run-off, new transportation corridors, and widespread bank armouring.

Other areas of concern are found in the North and Middle Arms of the Fraser River, along with the continued regression of the outer delta marshes, which provide important habitat to juvenile salmon as well as large numbers of waterfowl. This situation may further worsen in light of an array of new development proposals near Iona Spit on the North Arm, including a proposed airport expansion onto the salt marsh by Sturgeon Bank and Port Metro Vancouver's proposal to double the capacity of the container terminal at Deltaport on Roberts Bank.

There have been certain environmental gains in the practices of some large riverside communities, such as Burnaby, Surrey and Maple Ridge, and groups such as the Fraser Basin Council continue to promote sustainability throughout the watershed, but the lower Fraser River still faces an array of pressures and threats. The recent loss of the Fraser River Estuary Management Program (FREMP), part of the mandate of which was to review developments on the Fraser below Kanaka Creek, makes this even more problematic.

One of many long-standing threats to the Fraser pertains to sewage pollution. The Iona treatment plant still provides primary treatment only and, while this plant's effluent is discharged into the Strait of Georgia as opposed to the main-stem of the river, many millions of young Fraser River salmon pass through the discharge area on their journey out to sea. This discharge contains high levels of traditional contaminants that can be toxic to aquatic life such as copper and zinc but there are also concerns around the high levels of "emerging contaminants"—including pharmaceuticals and chemicals found in personal care products, endocrine disruptors, chemical fire retardants, glyphosates, caffeine—that are not filtered out, or contained, by current sewage treatment practices. At present, the upgrading of the Iona sewage facility to secondary treatment levels is not scheduled to be completed until 2030.

Agricultural impacts along the Fraser and its tributaries throughout the Fraser Valley farm-belt also continue to be problematic. Along many of the river's smaller tributaries there is a lack of riparian protection and there is inappropriate use of pesticides and fertilizers. Another significant issue in much of the lower Fraser Valley centers on the inappropriate disposal of manure during winter months in close proximity to streams. The Fraser Valley has the greatest concentration of farm animals anywhere in Canada. While the inappropriate disposal of this waste poses a problem for rivers and fish, there are also human health implications.

In terms of mitigating agricultural issues, there should be enhanced efforts to enforce existing regulations. It is also important to continue recent efforts to develop a "best management practices" philosophy throughout the farming

community. A plan is also needed to better protect and restore streamside vegetation along many small (but often key) tributaries throughout the Fraser Valley farm-belt.

On a positive note, despite the potential for conflict, agricultural land also presents a real opportunity to protect stream habitat and ORC believes that farms and fish can co-exist side by side. In an effort to achieve this, farmers are being encouraged to develop environmental farm plans which could be very helpful in mitigating various environmental impacts. ORC fully supports this initiative.

In closing, it is important to note that the Fraser it is one of the very few rivers in BC which is part of the Canadian Heritage Rivers system, the mandate of which is to conserve rivers with outstanding natural, cultural and recreational heritage. While this status does not necessarily ensure adequate conservation efforts, it is surely a powerful incentive for such measures to be undertaken.

### **3. The Elk River**

Located in the southeast corner of the province, the Elk River is severely threatened by high levels of selenium (which is toxic to aquatic life) leaching from nearby open-pit coal mines. This has sparked wide-spread concern because the river sustains a thriving population of genetically pure west-slope cut-throat and bull trout (both of which have been classified as “species of special concern” by the BC Conservation Data Centre) and the river has been designated by the Province as a “classified water” in an effort to protect its unique fishery. The Elk River valley also serves as a critically important wildlife migration corridor and is a vital part of the Yellowstone to Yukon (Y2Y) initiative, intended to connect Banff National Park to the north and the nearby Flathead River Valley and Waterton-Glacier International Peace Park to the south. The river is also one of BC’s premier recreational paddling streams.

Yet, despite the river’s amazing natural values, there are ample reasons for concern over the future of this waterway. First and foremost, the concentration of selenium found in the river downstream from the coal mines is seven to ten times that of natural levels found upstream of the mines. Such levels are known to cause health problems in both humans and domestic animals and exceed the values known to result in toxicity and abnormal development in fish.

While impacts to the river from existing development are a serious problem, the human footprint adjacent to the Elk continues to grow. Most notably, there are five-large strip coal mines, with plans to increase production (There are plans for another six coal mines on the horizon). There is also a clear and direct correlation between levels of selenium loading in a receiving watershed and the amount of waste rock exposed to surface. The run-off from “legacy” waste rock dumps are the major source of increasing levels of selenium now found in the river.

To its credit, Teck Coal agrees that transformative change is necessary to address this problem and has commenced a multi-year plan to try and achieve

this. The Province has also recently stated that no new mines would be approved until the selenium issue is resolved. However, pollution levels continue to rise and the issue has become so serious that clean-up efforts must be ramped up in a much more expedited fashion so that the current trend is reversed.

In addition, other existing (or proposed) developments are adding to the cumulative impacts affecting the river. Among these are two coalbed methane experimentation schemes (with tenures totalling over 600 sq/km), forestry activities, resort development (ski and golf), and highway related impacts (*i.e.*, widening of Highways 3 and 43).

As part of the rush to get shovels in the ground under “Canada’s Economic Action Plan,” a section of Highway 3, identified as crossing a critical wildlife corridor, was twinned with little if any consideration for wildlife connectivity.

There must also be enhanced efforts on the part of all industrial operations to follow “best management practices”. A planning process for the area, engaging all stake-holders, must also be initiated. The primary objective would be to establish a wildlife management area/corridor on the relatively undisturbed west side of the river in order to protect critical wildlife migration routes.

### **Rivers to watch – The Coquitlam River**

For the first time in many years, the Coquitlam River has not been included on the list of endangered rivers. This is because improvements have been made in the management of this river that, if continued, bode well for this river’s future. These include the establishment of a multi-stakeholder watershed round-table and the launching of a river monitoring program this past year. Despite these initiatives, the river will remain on a “river to watch list” for the years ahead because for many years, there was widespread concern about excessive sediment loads entrained into the river from nearby gravel mines; this is a concern that may have eased a bit with these new initiatives but has not been totally alleviated.

Also on a positive note, there has been other progress in recent years, such as, the creation of some significant off-channel habitats below the dam that are now being utilized by salmon as spawning and rearing habitats. ORC is also encouraged that the feasibility of sockeye re-introduction into the system is still being examined.

However, there continue to be some perceived problems with regards silt and sediment loading from nearby gravel mines although, perhaps, not as severe as was the case a few years ago. Recent sampling and monitoring efforts by the City of Coquitlam indicated conditions may be improving. But a number of local respondents and river advocates expressed the view that, while monitoring efforts to assess silt loads should continue, they should also be done in a continuous-ongoing, real-time basis that would provide information at all times of day and night as well as during high-precipitation events. This approach may well provide a truer, and more re-assuring, picture than the current limited sampling done at specific times.

If silt-related, and other issues that have plagued the Coquitlam River in the past are to be permanently resolved, Metro Vancouver, BC Hydro, the Province, local government and Fisheries & Oceans Canada will all have to act in unison for the good of the river. That said, it's the goal of ORC to see rivers fall off the endangered rivers list for the right reasons and there is, clearly, progress along the Coquitlam River.

### **Rivers to watch - Tamihi Creek**

Tamihi Creek in the Chilliwack River Valley represents one of the nearly 1,000 waterways (rivers, creeks and lakes) threatened by Independent Power Projects (IPP's). Most of these waterways are in scenic places, often in remote areas, with an assortment of important values. A large number of these waterways are used for recreation, of which Tamihi Creek is one. This stream contains three notable paddling stretches, ranging from Class III+ to V+ whitewater, all of which are threatened by the dewatering of the creek for independent hydro. Unfortunately the same things that make waterways desirable for paddling (gradient and flow), make them attractive for power. There are also other effects from run-of-river hydropower. Among these are spontaneous water releases that have detrimental effects on fish populations (as seen on the Ashlu and Mamquam Rivers). In addition, alterations and fluctuations in pH and water temperatures and increased siltation in downstream sections of the river (below the power facilities) can adversely affect fish. In drainages with multiple run-of-river projects, these impacts are often realized in a compounded fashion. In many cases, run-of-river hydro generates small amounts of power and, often, only during times of year when it's not required, mainly the spring and fall. Perhaps most importantly, the prospect of IPP development on Tamihi Creek highlights the need to establish "no-go places" for those waterways that have exceptional recreational and/or natural values. To many, Tamihi Creek is becoming a "poster child" of sorts, emphasizing the need for better regional planning when it comes to IPP development; something that has been sorely missing to date.

### **ORC's concerns regarding amendments to the Fisheries Act, the Canadian Environmental Assessment Act and the Navigable Waters Protection Act**

ORC is extremely concerned about recent amendments to the environmental legislation in Canada which has governed the environmental protection of fish and fish habitat, recreational values and water quality on thousands of rivers and streams for decades. We are referring here to recent amendments to the federal *Fisheries Act*, the *Canadian Environmental Assessment Act* and the *Navigable Waters Protection Act*. Prior to these amendments taking place, issues such as the impact of planned resource development and extraction activities (e.g. mining, logging, hydroelectric and real estate development) on First Nations' rights, title and access to resources, as well as recreational fishing opportunities, canoeing, kayaking and white-water rafting, and drinking water quality, were required to be addressed through a fairly comprehensive environmental assessment procedure. This took into account the impacts of these proposed projects on those activities and resources.

However the recent amendments have removed the requirement for project proponents to address these issues on literally tens of thousands of streams, rivers and lakes across Canada, thus tipping the balance in favour of resource development and job growth. ORC is concerned that, so long as economic development and profit are given priority over the right of Canadians to recreate and enjoy nature, the list of endangered rivers in Canada will only continue to grow, rather than shrink as we would hope they would. Canadians, especially those that engage in and value outdoor activities, deserve more consideration for the values they hold dear. ORC urges governments at all levels, whether municipal, provincial, territorial, First Nations or federal, to give serious future consideration to the protection of the values that our members, and the Canadian public generally, want for themselves and future generations. Following the upcoming BC Provincial election, ORC is also hoping the Province will finally move forward with the long awaited modernization of the century-old Water Act and work to ensure that any decisions relating to the allocation and extraction of water under the NEW Act take into account the long-term needs of people and fish over short-term needs to satisfy resource development and extraction opportunities.

April 5, 2013

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