

2012 BC Most Endangered Rivers list

Mark Angelo, CM, OBC

Rivers Chair, Outdoor Recreation Council

This year marks the 20th annual “most endangered rivers” release from the Outdoor Recreation Council (ORC). The preparation of this list is the most comprehensive initiative of its kind in Canada. And while this list focuses on specific river issues, I also believe it does much to inform the general public of the many kinds of threats our rivers face.

Regarding the process used to determine this list, ORC solicited nominations from its 100,000 members, which represent a number of recreation and conservation groups across B.C. In addition, we also received nominations from the general public as well as resource managers from throughout the province. So the list represents the views of those who use and recreate on rivers - as well as those who manage them. A final analysis of nominations was then done by our panel which includes several well known BC river conservationists.

Over the years, the endangered rivers list has done much to profile key issues and has often had a significant and positive impact. The most recent example is the provincial government’s decision, as stated in last year’s throne speech, to ban mining and oil and gas development along the Flathead River, which previously had topped the 2010 endangered rivers list. This news was greeted very positively by river conservationists and the province is to be commended (although such protection for the Flathead has yet to be formalized in perpetuity). Similarly, the Upper Pitt River fell off the list in 2009 for the right reasons after being in the number 1 position previously. The profile this issue received as BC’s most endangered river in 2008 played a key role in the government’s decision not to allow a major power line through a near-by provincial park which at least temporarily killed a very controversial power project proposal. I might also add that this list is not meant to be all inclusive in that our first short-list included several dozen rivers. However, the river issues that made it on to the final list for 2012 are those that are deemed to be most urgent.

With that, I’ll review this year’s results;

1. (tied) – “Sacred headwaters” of the Skeena, Stikine and Nass (threatened by coal bed methane development, new mines and other industrial projects)

In a rugged knot of mountains, in the remote reaches of northern B.C. lies a stunningly beautiful valley known to the local First Nations as the “Sacred Headwaters”. Located on the southern edge of the Spatsizi Wilderness – the Serengeti of Canada – are the headwaters of three of Canada’s most important salmon rivers: the Skeena, Stikine, and Nass.

Contrary to the wishes of local first nations, the B.C. government has stated its intention to open the Sacred Headwaters to industrial development. While there are several controversial projects and new mines underway, one of the most ominous is a proposal by Shell Canada to extract coal-bed methane (CBM) gas from the area’s anthracite deposit across an enormous tenure of close to 400,000 hectares. Should this project go ahead, it would necessitate a network of several thousand wells, linked by roads and pipelines, laid across the landscape of much of the Sacred Headwaters basin.

Because CBM development requires a higher density of wells than conventional gas development, it causes serious impacts on wilderness landscapes. The maze of linear roads and pipelines required will fragment wildlife habitat and inhibit animal movement patterns. There are also disturbance concerns related to industrial machinery, noise from compressors (used to move the gas through pipelines), dust, and gas flaring. Development to such an extent will, in all likelihood, result in impacts relating to sedimentation and pollution.

Another serious potential impact of CBM extraction relates to water. CBM wells often produce vast quantities of “product water” from deep underground that contains high levels of salt and heavy metals. In other parts of North America, disposal of this wastewater has caused serious environmental damage. Although the BC government has said it will require companies to re-inject this waste-water underground, this procedure is largely unproven and carries significant risks, including the potential contamination of aquifers. Given the link between groundwater and surface flows, this could have a dramatic impact on the biological richness of the three great salmon rivers that flow nearby. Wild salmon currently spawn within a stone’s throw of Shell’s proposed drilling sites.

It's not by accident that, to date, no major CBM project has co-existed with healthy salmon populations. Consequently, the Iskut elders, almost all of whom

grew up on the land, have formally called for the end of all industrial activity in the valley and the creation of a Sacred Headwaters Tribal Heritage Area.

On many occasions, starting in the summer of 2005, Iskut men, women and children, together with Tahltan supporters from Telegraph Creek and beyond, have maintained an educational camp at the head of the only road access to the Sacred Headwaters. They have also widely shared an alternative vision of a new era of sustainable stewardship, both for their homeland and the entire northwest quadrant of the province. After more than four years on the line, they are not about to give up.

While a temporary moratorium on coalbed methane development was hailed by conservationists 3 years ago, this is unfortunately slated to end in December, 2012. Consequently, there is a pressing need for government to address this issue – and **“there is widespread support for making this moratorium permanent, which would do much to protect the legacy of the great wild rivers that flow from this area”.**

What’s unfolding in the Sacred Headwaters also highlights the need for governments to be more proactive in protecting productive northern rivers. This is particularly important given that BC’s more southerly salmon rivers are under increasing pressure from impacts relating to climate-change.

In addition, there are also serious concerns about Imperial Metals’ Red Chris copper-gold mine on Todagin Mountain that will see up to 30,000 tons of rock blasted each day, all within reach of the headwaters of the Iskut, a main tributary of the Stikine. Also, Fortune Minerals is pursuing an open pit coal mine on Mt. Klappan just on the edge of Spatsizi Provincial Park. Other issues of concern include the Forest Kerr Creek 195 MW power project and the development of the new Northwest transmission line.

1. (tied) Kokish River -

The Kokish is located on northeastern Vancouver Island in the Regional District of Mount Waddington, approximately 50 km southeast of Port Hardy and 15 km east of Port McNeill. The Kokish River watershed (370 km²) is bounded on the west by the Nimpkish Valley and the east by the Tsitika Valley.

The Kokish River watershed contains two major drainages, the Bonanza River and the East Fork Kokish River, which merge just downstream from Ida Lake. Below the confluence, the 10 kilometer long Kokish River flows through two narrow bedrock-controlled canyons, then widens as it approaches the Telegraph Cove Road and Beaver Cove railway bridges, before discharging into Beaver Cove and the marine waters of Johnstone Strait.

While there were many rivers nominated this year that are dealing with issues relating to independent power projects, the **Kokish has become somewhat of a “poster child”** to many. - The Kokish is threatened by a proposal to build a privately- owned 45 MW hydro power project, with its intake and weir about half a kilometre below Ida Lake and the confluence of the two rivers. Described as run-of-the-river, the project would, in fact, divert more than half of the river flow for almost the full length of the river before passing through turbines and being returned to the river just above tide water.

The Kokish is a significant fisheries river. In fact, the DFO describes has having high and very significant values in that it supports 7 species of anadromous salmonids. While it also has the potential to produce usable energy for the Vancouver Island grid, **its proposed development for hydro power would seriously threaten the survival of salmon runs and especially a rare population of summer-run steelhead.** This is a species that has been reduced (and become increasingly rare) on Vancouver Island streams and which has been extirpated on some as a result of development.

The mitigation and compensation measures offered by the proponents of the proposed development are considered by highly qualified and experienced fisheries experts to be ineffective in reducing the threat to Kokish River salmonids and in preventing the complete collapse of its summer-run steelhead. While the province has issued an environmental certificate for the project, the DFO has expressed its concern about the impact this project will have on fish and the uncertainty over whether the risks are manageable.

Conservationists are hoping that will convince the DFO to withhold their approval. **While the ORC is not necessarily opposed to small scale power projects, this watershed is clearly not the place for such a development.** If such a project on this important fish-bearing stream were to proceed, that would only reinforce the growing public perception and fear that any river is fair game for power development.

It's also important to note that when the IPP initiative relating to small scale hydro came forward in the 1990's, the intent was to focus these projects on non-fish bearing waterways so that they would be as environmentally benign as possible. But given the events unfolding on the Kokish, clearly this premise has been backed away from. In fact, a recent Watershed Watch report states that close to 70% of all hydro IPP's are now found on waterways with known, or suspected, fish populations.

The Kokish is also a significant white water kayaking river. The development of the Kokish for hydro power as proposed would reduce the opportunities for kayakers to run the river to virtually zero.

2. Kitimat River –

The Kitimat has been hard hit over the years from industrial development (including a pulp mill -now gone, a gas pipeline and an aluminum smelter near its estuary), extensive logging practices and some controversial fisheries decisions. In spite of all this, the river continues to function at a fairly productive rate. And while the Kitimat lost its large eulachon run that had been tainted by pulp mill effluent, its estuary continues to teem with wildlife and birds and is one of the most important on the coast.

But now this well known waterway faces a new threat in the form of the proposed 1,170 km long Northern Gateway pipeline - and the fact that this river is so prominent on this year's list reflects the feedback ORC received from a massive number of local residents, first nations and conservation groups. If approved, this pipeline and its blended bitumen cargo will cross well over 1000 watercourses. Some of these crossings will be in the headwaters of the Fraser and Skeena while over 200 of them would occur within the Kitimat watershed. The potential for a spill event is significant and the remote location of the pipeline would make it difficult, if not impossible, to detect a leak until extensive damage has been done. The pipeline would transport up to 525,000 barrels of blended bitumen per day.

The Kitimat River continues to support an important and valuable commercial, first nations and sports fishing industry. It also provides the town of Kitimat with its drinking water and is a waterway with extensive recreational values. While

regional concerns about the pipeline have centered on the Kitimat River, other waterways that could be extensively impacted include the Morice, which joins the Bulkley River near Houston and which runs along a lengthy section of the proposed development.

Note; Just recently, Enbridge stated that it would investigate an alternative route for the pipeline that would take it along the Skeena River to Prince Rupert, which could also be problematic, but no final decision has been made.

3. Peace River

The Peace River is once again threatened by the possibility of a third hydroelectric dam project known as “Site C”. If the dam is eventually built, it would create a smaller reservoir than the other existing dams on the Peace - and Site C is often referred to as a large-scale, run of river type project. Yet, it would still flood more than 80 kilometers of the last largely natural stretch of the Peace River in BC. It would also eliminate roughly half of the available fast-flowing sections that currently exist within the BC reach.

Also, while some refer to the fact that the Peace is already dammed as a way of justifying the project, it’s important to note that **dam-related impacts tend to be cumulative in nature.**

In terms of how this project will be assessed, ORC is a strong advocate of **full-cost accounting** and is very supportive of the need for an extensive public consultation process that allows ample debate while ensuring that environmental and social costs are fully weighed against perceived benefits.

After a series of consultations, BC Hydro also recently invited applications for the planned re-routing of a section of Highway 29 that currently runs along the banks of the river. The Site C Project has also entered a joint harmonized environmental assessment process.

While final approval of this project is still a year or 2 away, the fact that the Peace already appears on this list is a reflection of the concern that many local residents, conservationists and First Nations have. Furthermore, in March of 2007, the BC Treaty 8 Tribal Association passed a motion in strong opposition to the Site C proposal. Since then, more than 20 First Nations from BC, Alberta and the NWT have signed a declaration formally stating their position against the Site C dam. Such widespread opposition from First Nations over such a large geographical area is a key concern.

From an environmental perspective, many believe that the addition of this dam would compound problems for the already severely impacted river and all of those who rely upon it. Since the project site is located in the headwater area of the Mackenzie River watershed, all downstream waterways would be affected.

If Site C goes ahead, it will add to the energy production of the other dams on the Peace River while also providing an unpublicized seasonal amount of energy to the Northwestern United States.

However, the Site C project will also come with a seven to eight **billion dollar price tag** - and it will impact the Mackenzie watershed environment for centuries to come. In this regard, there are a myriad of specific concerns that have been expressed by both British Columbians and Albertans.

Among the many key points mentioned by respondents are as follows;

- Large dams are often the cause of mercury contamination. Bull trout in Williston Lake (the upstream reservoir created by the WAC Bennett dam) have levels of mercury close to 0.6 ppm, which is higher than the Canadian standard for human consumption (0.5ppm). While the existing dams have certainly been a causal factor, the incremental effect of Site C remains unclear at this point.
- The Peace River valley is home to the only class 1 agricultural land in BC north of Quesnel. If Site C is built, a significant portion of this valuable land will be lost.
- Large numbers of rainbow trout, dolly varden, whitefish and grayling are found in this section of the Peace. Numerous birds are also found here (including large numbers of migrating geese and swans) while deer, elk and moose roam the river's banks. There have yet to be adequate studies on how these populations would be impacted.
- a fully operational Site C dam would affect not only the main-stem of the Peace but would also flood 10 kilometers of the Moberly River and 14 kilometers of the Halfway River.
- The Peace/Athabasca Delta has suffered a surprising amount from the two existing upstream dams. The unnatural control of water flow (loss of seasonal fluctuation), and mercury contamination are among the major problems affecting the delta and may be further exacerbated by the construction of another dam.
- Much of the area that would be flooded includes traditional First Nations lands and archeological finds to date have documented First Nations' use of this area dating back at least 10,500 years. In addition, under the 1899 Treaty 8, First

Nations were promised that their traditional way of life in this area would be preserved and protected.

- Many of the people who live in the valley are descendants of the first pioneers to settle here. The flooding of the valley may result in some families being forced to relocate. For others, access to their ranches would have to be re-engineered.

- The land that would be lost is important wildlife habitat and the warmer sub-climate in the valley provides important refuge for many animals during the cold, winter months. Moose, for example, are rarely seen in the valley during summer, but as soon as heavy snows and colder temperatures hit, they become much more common. Vast areas of willow flats would also be inundated, removing much of their food supply.

- The flood zone area forms an irreplaceable part of the 'Yellowstone 2 Yukon' corridor. If this part of the valley is flooded, it will largely sever this corridor, which is important as a migration corridor to many animals.

- If the valley were flooded, many valuable heritage sites, both aboriginal and paleontological, would be destroyed. A report done for BC Hydro (i.e. the Site C Heritage Resource and Inventory Assessment) states that the significance of this cannot be overstressed. It says that the Peace River valley provides a unique window into 10,000 years of history, all of which would be lost.

- The scenic Peace River is currently used by many recreational boaters, canoeists, and campers. Yet, the Site C "Report and Recommendations to the Lieutenant-Governor-in Council" by the British Columbia Utilities Commission stated "the commission concludes that the creation of the reservoir will provide recreational opportunities of a significantly lower quality than the ones that will be lost". As an example, Williston Lake has proven to be of little value even for transportation and, because of driftwood and deadheads, it remains dangerous to this day. In addition, a significant loss to many recreationists would be to truncate the first 80 kilometers from the Hudson's Hope to Fort Vermillion canoe route.

- Silt is collected in the reservoirs created by the two existing dams, which leaves the river downstream depleted of nutrients. The construction of Site C may further worsen this situation.

4. Kettle River – (excessive water extraction, development)

The Kettle River is confronted by an array of threats, the most note-worthy centering around excessive water withdrawal. Just as worrisome, the events unfolding on the Kettle may well foreshadow what other streams in the region might be confronted with in the face of ongoing climate change. The fact that the Kettle is once again prominent on this year's list also, once again, **highlights the importance of updating the provincial Water Act** so that the needs of fish are adequately considered when making decisions around water extraction. There was hope this legislation was to be approved in the spring of 2012 but this has again been delayed at least another year.

Going back to the spring of 2007, despite an above average snow pack, the peak in-freshet run-off was barely noticeable across the entire Kettle River system. In the view of many locals, this was a clear indication of water extraction pressures and yet new proposals have continued to come forward. Among these are new withdrawal proposals for large scale condo developments, golf courses and ever expanding land development and settlement.

Between 2008 and 2010, the Kettle River experienced record low flows on a few occasions (so low at times that locals couldn't even tube down parts of the river). While flows were a bit better in 2011, the summer of 2012 is shaping up to be another possible period of concern. While the overall provincial snowpack is slightly above average, the Okanagan- Kettle snow-load has lagged a bit. Consequently, low seasonal flows may once again be a good possibility by late summer, which usually results in higher water temperatures, increased algal growth and the deterioration of habitat for fish and other aquatic organisms.

To further complicate matters, there is also a proposed water use application from Big White Resort that would extract over 400 million gallons of clean water from the existing Kettle River supply (this would represent a 213% increase in their existing license). This is tied to eventual expansion plans for the ski hill, including new condo development and snow-making, and would entail the construction of upstream storage reservoirs. Under this expansion, the number of bed nights in Big White will increase from 16,000 to somewhere between 32,000 and 47,000. The Ministry of Environment has indicated their intent to approve Big White's new water license upon receipt of expansion approval by the Ministry of Forests, Lands and Natural Resource Operations.

While the water captured by Big White would be only a small percentage of the total freshet, this will, in all likelihood, mean less water will be available for existing downstream residential and agricultural users. Spring flows in the river's

upper reaches play a crucial role in recharging the downstream aquifer. Yet, the government has downplayed the impact of additional extractions - but many who live within the watershed believe Ministry estimates of the percentage amount Big White will extract from freshet flows are artificially low.

Because of this, local stakeholders, such as the village of Midway, have expressed concern about the ecological impacts of Big White's extraction proposals. Among these concerns are impacts to the river associated with anticipated large volumes of urban effluent that would find its way into the Kettle.

In an effort to deal with these impacts, there is a need for the provincial government to establish a Watershed Management Plan for the Kettle River that would provide much needed context for any future water extraction proposals.

This is essential in the view of many given the seemingly unbridled development now taking place within the upper watershed. It's also important to note that there are many authorized licenses that were not fully utilized during last year's period of record low flows and yet, their right to extract water remains in effect. On top of that, there appears to be an increasing number of unauthorized withdrawals.

In light of these pressures, the development of a management plan must recognize that there are clear ecological limits to water withdrawal from the Kettle River system.

On an encouraging note, the Regional District of Kootenay Boundary (RDKB), with the support of gas tax money, has initiated a Kettle River Watershed study that could possibly provide the foundation for developing a suitable watershed management plan in future. In addition, with funding from the Habitat Conservation Trust Foundation, a 3 year study is underway that includes extensive fisheries stock assessment, tagging and monitoring.

In addition, the Province has solicited significant public input on Water Act reform and if public sentiments are in fact acted upon (which is not guaranteed), reformed legislation would strive to better protect stream health and aquatic environments, improve water allocation and regulate groundwater use. These publicly supported changes, if adopted, would represent significant progress - so river conservationists will be watching closely as new legislation is developed and introduced in 2013.

Another area of concern along the Kettle centers on cattle grazing and an apparent relaxation in the requirements of range-use plans that is resulting in

greater degradation of riparian zones and general water quality. These effects are most significant in dry land zones such as those in the Kettle watershed.

Still another issue of concern, and a potential source of new pollution, stems from a proposal by Boss Power to undertake the extensive exploratory drilling with the intent of mining uranium in the Beaverdell area. While uranium mining is currently not allowed in British Columbia by Order in Council, this is being challenged in court and the company still hopes to proceed upon getting a development permit approved.

And finally, west of Midway, more than two kilometers of riparian habitat along the Kettle was severely damaged through the removal of riverside vegetation. This in turn has affected the stability of this reach of the river. The Ministry of Environment has been working with Fox Lumber in the hope that a remediation plan will be developed and implemented – but there has been little action to date.

5. Fraser River (notably the Heart of the Fraser between Hope and Mission)

While the efforts of the Fraser Basin Council to promote sustainability throughout the basin are to be commended and we continue to see environmental gains in the practices of some large riverside communities (such as Surrey and Burnaby), the Fraser continues to face an array of pressures and threats.

On a positive note however, after an alarmingly low sockeye return on 2009, sockeye numbers rebounded with a run of close to 30 million in 2010, the largest run in almost a century. In 2011, runs were expectedly lower given this part of the 4 year cycle but the total run turned out slightly ahead of expectations. Despite these events, habitat issues continue to remain a key concern.

While long standing issues such as sewage and pollution continue to be problematic, there are also a host of emerging issues that are cause for concern. Among these are periodic low flows in most of the last several years, reduced protection for many urban stream tributaries, plans for a new wharf in Richmond to deliver jet fuel, a number of agricultural-related impacts and a growing interest in establishing a water highway for the transport of commercial goods (which would include a series of ports and, in all likelihood, extensive dredging to accommodate container barges) upriver to Hope.

In addition, the river continues to be threatened by impacts associated with rapid urbanization, urban run-off, new transportation corridors, extensive logging in its headwaters, widespread bank armouring, industrial pollution (especially along the north arm), sewage, gravel extraction and rapid development along its most productive stretch between Hope and Mission (known to many as the Heart of the Fraser). There are a number of old contaminated sites that continue to be problematic.

Other areas of concern are found in the North and Middle Arms of the Fraser, 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 proposed airport expansion. On a more encouraging note for the North Arm, due to the recent reduced usage of the Point Grey log booming grounds, there could be an opportunity to restore these brackish marshes back to life if, in fact, there's a will to do so.

All of these issues have played a role in this year's listing and there are increasing concerns about the river's long term health and our commitment to sustainability. And while it's important to note that progress has been made on some fronts over the past decade thanks to the valiant efforts of many stewardship groups, a significant number of respondents expressed concern that some of the most pressing issues facing the Fraser are not being addressed to the extent they could be.

One of many long-standing threats to the Fraser pertains to sewage pollution. While there are other examples elsewhere in the watershed, many respondents expressed ongoing concern that the Iona treatment plant still provides only primary treatment. 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. And in addition to traditional contaminants that are discharged (such as copper and zinc), there are also increasing concerns around "emerging contaminants" 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, although Metro Vancouver has recently indicated this timeframe may be significantly lessened.

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 that run through agricultural settings, there is a lack of riparian protection while other issues relate to the inappropriate use of pesticides and fertilizers. Another significant issue in much of the valley centers on the inappropriate disposal of manure during winter months in close proximity to streams. This is pertinent in that the Fraser Valley has the greatest concentration of farm animals (i.e. sheep, hogs, cows, turkeys and chickens) anywhere in Canada that generate a volume of untreated waste equivalent to what 800,000 people would produce in a year.

While the inappropriate disposal of this waste poses a problem for rivers and fish, there is also potential for human health implications. In terms of mitigating agricultural issues, there should be enhanced efforts to enforce existing regulations. However, it's also important to continue recent efforts to develop a "best management practices" philosophy throughout the farming community. In addition, there is a need for a plan to better protect and restore streamside vegetation along many small (but often key) tributaries throughout the Fraser Valley farm-belt. In addition, there must be greater vigilance in terms of protecting lands within the ALR, especially in light of continuing pressure to remove large parcels for development purposes.

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" (EFP's) which could be very helpful in mitigating various environmental impacts. ORC is fully supportive of this initiative.

There is also extensive concern about the need to better protect the Hope to Mission stretch of the Fraser, which 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 waterway), including all species of salmon as well as Canada's largest population of sturgeon. In addition, up to 20 million pink salmon spawn in this part of the Fraser main-stem in peak years and millions of other fish migrate through this section.

Yet, while this area remains extremely productive in terms of fish habitat and is still largely in its natural state, there is currently no collaborative plan to protect key riparian areas along this part of the river.

In an effort to address this, the "Heart of the Fraser" campaign was launched in 2006 with widespread support and it remains a beacon of hope along part of the

river. A key part of this innovative initiative deals with the acquisition of key private lands for conservation purposes. This is being spearheaded largely by the private and non-government sectors (including groups such as the Rivers Institute at the BC Institute of Technology, the Nature Trust of British Columbia, and the North Growth Foundation).

However, there is also an urgent need for a collaborative vision for the Heart of the Fraser that will identify key environmental and cultural values and hopefully be developed and led by lower Fraser First Nations, in consultation with groups such as the Fraser Basin Council and BCIT's Rivers Institute. In recent months, there have been some fruitful initial discussions in this regard which could yield positive results in the coming years. A hopeful off-shoot of this will be renewed efforts to better manage and protect key crown lands.

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 in turn has 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 recent protection of the McGillivray Slough in 2009 as part of the Bert Brink Wildlife Management Area.

And finally, there's a need for a more integrated approach to reducing the flood risk along parts of the lower Fraser. There are concerns amongst river stewards and scientists that some gravel extraction proposals have been excessive in size for single locations. In addition, when gravel is extracted from various islands and bars, efforts must be made to avoid pink salmon spawning years so as to prevent massive fish mortalities (such as what occurred at the Big Bar site in March of 2006). Furthermore, many believe there is a need for more science-based decisions when choosing amongst gravel extraction options. Last but not least, highly productive side-channel fisheries habitats that are more sheltered from flows (and hence less likely to heal quickly from gravel extractions) should be protected from such activities. Major gravel extraction activities were postponed this past winter.

In closing, ***"The Fraser is the heart and soul of our province and the world's greatest salmon river"*** said Mark Angelo, ORC Rivers Chair. ***"Yet, the river continues to face an array of threats and there are still too many instances where land-use and resource management decisions are made at the expense of***

this great waterway. There is also a need for some additional policy and regulatory changes that will more vigorously address the most pressing issues facing the Fraser.”

“From a habitat protection perspective, there is also strong support for the development of an extensive and collaborative plan for the Fraser River lowlands” said Angelo. ***“This corridor extends from Hope to Mission and such a plan would focus on the proper management and care of key riparian lands. This particular part of the river is a jewel in Vancouver’s own backyard and such a plan would be helpful in sustaining the exceptional fish and wildlife values that exist along one of the world’s most productive river sections”.***

6. Taku River

The spectacular Taku River is the wild ecological heart of the British Columbia – Alaska transboundary region. Most of the watershed lies in Canada, with its vast array of remote headwaters tributaries sprawled across the northwest corner of the province. These tributaries come together to form the mighty main stem Taku, which pours across the international border into Alaska before emptying into the Pacific.

The 4.5 million acre/1.8 million hectare Taku watershed is totally intact, without roads, and virtually pristine. Not coincidentally, it is the number one transboundary wild salmon system, hosting robust stocks of all five Pacific salmon species. As climate change stresses intensify, the Taku watershed is sufficiently vast and diverse, with all its native flora and fauna in place and thriving, and a full range of mountains-to-sea ecotypes interconnected, to be a perfect biological *refugia*. The life giving waters of the Taku have a profound First Nations’ cultural significance. In short, here is one of North America’s premier conservation assets.

Over the past several years, British Columbia and the Taku River Tlingit First Nation crafted a Land Use Plan embracing all of the Canadian side of the watershed. Finalized in summer 2011, the plan protects a significant portion of the heretofore unprotected watershed, including the main stem Taku and its Inklin and Nakina tributaries. The Taku River Tlingit in particular deserve credit for bringing about this noteworthy conservation success.

Unfortunately the plan allows a mining district within the watershed in what is, from an environmental perspective, the worst possible location. The Tulsequah River is a major Taku tributary, joining the main stem just before it crosses into Alaska. There is a large block of mineral tenures at this juncture. Small scale mining occurred in the Tulsequah Valley into the 1950s. The long abandoned mine site has been bleeding acid into the Tulsequah River ever since. The pollution is not sufficient to cause far reaching impacts, but it's a vivid warning that the sulfide geology of the area, if disturbed by renewed, larger scale mining, will threaten downstream waters.

For the Taku, its best salmon habitat, a classic maze of winding streams and backwaters vital to rearing juvenile salmon, is immediately downstream of the Tulsequah Valley. And virtually all of some two million salmon leaving or returning to the Taku system annually must pass the Tulsequah juncture. Here is where two mine projects are now proposed by Chieftain Metals. Efforts to raise capital and get the projects permitted are advancing vigorously.

Initial development is scheduled to start this year. Mining at Tulsequah would undermine the conservation gains of the Land Use Plan. It will mean construction of a road into the ecosystem, and industrial barging impacting river habitat. Water pollution problems will be inevitable. Operational failures – a tailings impoundment blow out, for example, by no means unlikely in a remote, seismically active, high precipitation region – could have catastrophic consequences. Chieftain's proposal is the only present threat to the entire watershed.

The Taku is at a crossroads. Mining can be initiated in the watershed, bringing the short term profits of resource extraction. And with infrastructure in place, more development will surely follow. Or the Taku can remain as it is, one of the continent's top salmon strongholds, a wild river sustaining fish, wildlife, and people that depend on them for generations to come.

7. Elk River

Located in the southeast corner of the province, the Elk River sustains a thriving population of genetically pure west slope cutthroat and bull trout and has been designated by the Province as a "classified water" in an effort to protect this 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 region, helping to connect Banff National Park to the north and the nearby Flathead River Valley and Waterton-Glacier International Peace Park to the south.

Yet, despite its amazing natural values, there are ample reasons for concern for the river's future. The human footprint adjacent to the river continues to grow rapidly. Most notably, there are 5 large strip coal mines with plans to increase production and another 6 are on the horizon. There is a direct correlation between levels of selenium loading in a receiving watershed and the amount of waste rock exposed to surface. The legacy waste rock dumps are the major reason for increasing levels of selenium now found in the river. Selenium levels are frequently found to be above provincial thresholds for population level effects on aquatic species. It is uncertain at what point we will move past the tipping point for significant adverse effects on local aquatic species. We may already have passed this point in some of the smaller tributary streams. To its credit, Teck Coal agrees that transformative change is necessary to address this problem. But without the Province taking a lead, it continues to be business as usual in terms of permitting new mine exploration programs and assessing environmental impacts of proposed new mines in isolation.

In addition, other existing (or proposed) developments are adding to the cumulative impacts affecting the river. Among these are 2 coalbed methane experimentation schemes (with tenures totaling over 600sq/km), forestry activities, resort development (ski and golf), and highway related impacts (i.e. Hwy 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 that has been identified as crossing a critical wildlife corridor was twinned with little, if any consideration for wildlife connectivity.

While coal mining and other developments in the Elk River watershed will no doubt continue, **there are still a number of steps that can, and should, be taken in an effort to better protect fisheries and wildlife values.**

An independent scientific analysis should be undertaken to establish key baseline data that could be used to assess cumulative impacts associated with planned new developments. The ever increasing selenium trend must be reversed. Existing

and future mining development must take measures to significantly limit selenium loading in the Elk River.

There must also be enhanced efforts on the part of all industrial operations to follow “best management practices”. In addition, a planning process for the area should be initiated with all stakeholders that would strive to establish a wildlife management area/corridor on the relatively undisturbed west side of the river in order to protect critical wildlife migration routes.

8. Big Silver Creek (near Harrison Lake) –

Big Silver Creek is the site of one of three independent power projects being proposed near Harrison Lake east of Vancouver. Total power production for the 4 projects would amount to 79 megawatts and entail up to 29 kilometers of power lines.

However, BC’s paddling community views Big Silver Creek as one of the finest paddling destinations in the province and there are widespread concerns that the proposed development would adversely impact flows while also detracting from extremely high recreational and scenic values. In fact, many view Big Silver as perhaps the most scenic, high value paddling experience in the lower mainland, particularly after the tragic loss of the Ashlu River to a similar hydro scheme a few years ago.

In addition, Big Silver, along with Trethaway, is a fish-bearing stream supporting rainbow trout, Dolly Varden, steelhead, cutthroat trout, coho and sockeye.

To the credit of Cloudworks Energy Inc., they have chosen to voluntarily submit their proposal to the environmental assessment process (this was not required of them in that the Big Silver project does not meet the 50 MW threshold). However, based on the review of past projects, a number of recreational and environmental groups are concerned that the review process itself will not stop, or significantly alter the project.

There are also concerns that recreational values, which are so abundant on Big Silver Creek, are often not adequately assessed or appreciated in the environmental assessment process.

9. Coquitlam River -

The Coquitlam has appeared on this list many times - and the major issue continues to revolve around excessive sediment loads, most of which is caused by gravel mining.

On a positive note, there has been some progress in recent years such as the creation of some significant new off-channel habitat. ORC is also encouraged that the feasibility of sockeye re-introduction is being examined. In addition, praise should go to BC Hydro for moving ahead with the Water Use Planning process and Coquitlam's River Aggregate Committee has also done some excellent work.

Regarding the latter, the City has recently completed an assessment of the Partridge, Mantle and Fulawka Creek watersheds, identified serious drainage issues along with possible solutions. As a result, the City will soon be upsizing municipal culverts that are undersized and will work the Province to address stability issues. However, while these events are encouraging, the bottom line is that there continues to be major problems with silt and sediment loads from nearby gravel mines and, during much of the winter, silt levels continue to exceed those deemed damaging to fish. As a result, there continues to be a need for a thorough review of current gravel operations and the strict enforcement of existing environmental legislation.

And while some significant funds have been spent by local gravel firms in an effort to control silt, there is a need to do more. One need only drive above the gravel mines on a rainy day to see the difference in water quality there as opposed what exists downstream of the mines. And for many days of the year, particularly during the rainy months of winter, siltation levels along much of the river are considered to be at levels deemed harmful to fish. This also highlights the need for a set of river-related indicators to be developed, and regularly monitored, so that local authorities can better assess what progress, if any, is being made.

On another encouraging note, the local, multi-stakeholder aggregate committee has given some consideration to a long standing proposal to divert water that enters the mine sites from surrounding terrain. If this were done, that potentially could lessen the amount of water that accumulates and becomes silt-laden within the gravel pit area. Under such a scenario, the reduced amount of water would then, in all likelihood, make the additional engineering solutions to control run-off from the mines more viable. The work of this committee, which includes gravel industry representation, is important to the future health of the river and their efforts are to be commended.

If silt-related (and other issues) that plague the Coquitlam are to be fully resolved, Metro Vancouver, BC Hydro, the Province, local government and Fisheries and Oceans Canada must all decide to act in unison for the good of the river. As part of this, they must develop an appropriate strategy for the river corridor below the dam and demand that the silt and sediment issue associated with the gravel mines be fully addressed.

Other problems in the watershed include rapid urbanization and urban runoff. Consequently, every step possible must be taken to protect the integrity of the river in the face of such development. There is some hope, however, that the significant interest in the river that is being shown by some members of Coquitlam City Council, as well as a plethora of individuals and citizen groups, will be helpful in turning things around for this wonderful local waterway.

Others to watch in the year ahead;

Flathead River – On the good-news front, last year’s throne speech stated that the Flathead River, once BC’s most endangered only a few years ago, would now be protected from projects such as the Cline open pit coal mine proposal. As a result, the Flathead mining and energy ban became law in November 2011. Conservationists rejoiced and the Flathead fell off the endangered rivers list for the right reasons. But sadly, the Flathead is slated for industrial logging that could begin this summer. And, while we previously thought that quarrying licenses would be bought out, it seems that the B.C. government has just given the green light to some significant quarrying operations that could threaten habitat for at-risk bull trout and westslope cutthroat trout. Consequently, the river is clearly not yet protected to the extent we had hoped and remains on the “watch list” for 2012.

Bute Inlet rivers and streams

Bute Inlet’s major rivers and tributaries are among the most productive watersheds remaining in the world, with healthy and diverse anadromous fish populations and a wilderness environment that also supports an abundance of terrestrial wildlife. They are also highly vulnerable.

Plutonic Power, with financial backing from General Electric, has plans for the largest private hydroelectric development in Canadian history at Bute Inlet. The Bute drainages presently threatened include the Homathko River, with seven tributaries proposed for diversion, including Coola Creek, Scar Creek, Whitemantle Creek, Brew Creek, Jewakwa River, Heakamie River, and Gargoyle Creek; the Southgate River, with six diversions proposed at Southgate River 1, Allaire River, Southgate River 2, Raleigh Creek, Icewall Creek, and Elliot River. The Orford River drainage will have river diversions at the North Orford, East Orford and Algard Rivers; and the Bear River (southwest of the Homathko drainage) is also planned for diversion.

Bute Inlet's ecosystems will, in all likelihood, be changed forever if these seventeen wilderness rivers are dammed with up to 95% of their flow being diverted into 88 km of pipelines, along with developments that include 144 km of either new and upgraded industrial roads, 110 bridges, 16 powerhouses, substations, and 443 km of high voltage transmission lines. The cumulative impacts include damage to important habitat for threatened wildlife, including grizzly bear, mountain goat, marbled murrelets, tailed frogs, eulachon, all five species of pacific salmon and other fish, including significant populations of cutthroat, dolly varden and bull trout. Impacts will also limit public access and dramatically reduce the world-class recreation values of BC's highest mountains, wild glacial rivers and ocean.

Plutonic Power and Magma Energy recently announced a proposal which would see the two companies merging. Magma Energy is a Vancouver company with international interests and renewable energy projects in the US, Iceland, Peru, Argentina and Chile. The merger will result in a larger, more financially viable organization.

When Plutonic placed the Bute Inlet project on-hold temporarily, concerns arose about the possible loss of the Joint Review Panel appointed to conduct the environmental assessment of the project. This is the highest level of review under the Canadian Environmental Assessment Act. However, while the Honourable Peter Kent, Environment Minister, did disband the Panel, he also promised that, if and when the project proceeds, a new panel will be appointed to conduct the same review.

Despite the delay, the massive scope of the project along with the potential impacts that would accompany it – and the fact that the project is still alive – supports the inclusion of the Bute Inlet as an issue to watch in the year ahead.

In closing, according to Mark Angelo, Rivers Chair of the ORC, ***“the issues outlined in this year’s list are extensive and diverse, ranging from the importance of pro-actively protecting productive salmon rivers to ensuring adequate water management policies are in place. Furthermore, these issues highlight the fact that you cannot separate the health of our fish stocks from the health of our rivers; they are completely inter-dependent. And within any given watershed, if river habitat is destroyed or significantly damaged, you lose any chance you may have to protect or rebuild fish stocks. Yet, while the waterways on this year’s list face many habitat-related problems, things can still be turned around if there is a strong enough will to do so”.***
