

2006 BC Endangered Rivers list
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This year marks the 14th annual BC's Most Endangered Rivers release from the Outdoor Recreation Council. 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

The preparation of this list is the most comprehensive initiative of its kind in Canada. The Outdoor Recreation Council of BC solicited nominations from its 120,000 members that represent most of the conservation and recreation groups in 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 many of BC's best-known river conservationists

I might also add that this list is not meant to be all-inclusive in that our first short-list included several dozen rivers. But the river issues on our final list are those deemed to be most urgent.

With that, I'll review this year's results:

1. (tied) **Cheakamus River**

In August 2005, the Cheakamus River canyon was the site of a major CN derailment resulting in a toxic spill of more than 40,000 litres of caustic soda (sodium hydroxide). This spill had deadly consequences, killing thousands of salmon, steelhead and trout; its effects on local fish stocks will be felt for many years, if not decades. And while more than 500,000 fish were killed, the actual environmental, cultural and economic impacts will be many times greater if the reduced size of future runs is also taken into account.

The spill killed both adult and juvenile fish. Species such as pink, chinook and coho salmon as well as steelhead were particularly hard hit as were other species such as sculpins, lamprey and trout. It's estimated that 90 percent of the fish in the river at the time were killed. In addition, the impacts on the broader ecosystem will be extensive in the adverse impacts on the many wildlife species that depend upon salmon. Also, many people have been affected from a cultural, recreational and/or economic perspective. In short, this may well be the most catastrophic spill that has taken place in BC over the last several decades.

The CN derailment, in combination with the major flood event of 2003, has had a severe impact on the health of this river. The outlook for steelhead stocks is particularly worrisome.

Given the precarious outlook for the river, local fisheries groups are hoping the province will launch an intensive recovery initiative that may include a number of interim measures over the next several years in an effort to rebuild stocks and increase the river's productivity.

Last summer's derailment also shows just how damaging such a toxic spill event can be – from both a short- and long-term perspective. Yet, the river remains susceptible to future spills. While Transport Canada initially imposed an 80-car limit for conventional trains, trains with distributed power (those with engines in front as well as in the body) were still allowed to exceed that number. Yet, it was a distributed power train that dumped its deadly cargo into the river.

In light of the 11 major derailments that CN experienced last year on former BC Rail lines, the Outdoor Recreation Council of BC believes that further precautions must be taken and that car limits should be reviewed and applied along other routes. CN must also further demonstrate that it is, in fact, maintaining its lines to acceptable standards.

Rebuilding the Cheakamus River's fish stocks will prove to be a lengthy and expensive process.

In recent months, some steps have been taken to at least partially address some of the impacts of the spill. Some fish culture operations have been ramped up including the recent release of 25,000 pink salmon fry (as a first instalment). In addition, CN has committed to donations over the next five years to the broader Squamish River watershed, amounting to \$250,000 per year.

However, there is no easy fix to such a catastrophe and much more than this must be done. In addition, CN should be fully responsible for all costs incurred in the development and implementation of an extensive "Cheakamus-specific" recovery plan aimed at restoring the river as quickly as possible.

In particular, such a plan should include in-stream restoration projects ranging from the careful placement of large woody debris (to benefit species such as steelhead and chinook) to the development of additional off-channel habitat (very beneficial to coho). The viability of stream enrichment options that could ultimately result in the increased availability of insects as food for young fish should also be explored. These and other actions could increase stream productivity, which hopefully will enable damaged runs to recover at a quicker rate. Such enhancement activities would also benefit multiple

species and would be seen as a lasting legacy from what has otherwise been a tragic event.

In addition, if there is a need to manipulate and increase flows in future from the upstream Daisy Lake dam in order to benefit fish, then this should be done. If this requires the release of additional water over and above BC Hydro's agreed to Water Use Plan, then BC Hydro should be fully compensated by CN.

The various elements of such a recovery plan, including the pros and cons of steelhead enhancement, should continue to be discussed amongst all stakeholders once the draft plan is released (expected in late spring). While the province has already announced that steelhead recovery plans will focus primarily on natural recolonization (as opposed to hatchery supplementation), it's important to closely monitor the rate and extent to which stocks recover so as to gauge the effectiveness of this approach.

In addition, the total cost of improving the river's productivity and restoring fish stocks will significantly exceed the funds that have been allocated to date. Consequently, the province must take whatever steps are needed to ensure that CN is financially responsible for all associated costs.

Finally, many stewardship groups have done a tremendous job to protect and care for the river. Their input and participation in the recovery process is essential and they should receive all the support and assistance they require as efforts unfold to restore this once prolific waterway.

1. (tied) **Greater Georgia Basin Steelhead streams**

The steelhead has long been a symbol of "super natural" British Columbia. Yet, stocks are in decline or considered "at risk" on a number of streams in the southern part of the province. This is particularly the case for mainland rivers such as the Seymour, Capilano, Coquihalla and Cheakamus as well as streams on Vancouver Island, such as the Englishman and Puntledge. (The Greater Georgia Basin is defined as Johnstone Strait to Juan de Fuca Strait including the east coast of Vancouver Island and adjacent mainland coast and lower Fraser River.)

Many steelhead stocks are at 30-year lows with returns on rivers such as the Englishman, Puntledge, Little Qualicum, Campbell-Quinsam and Nanaimo at just 10 to 15 percent of those observed in the mid-'80s. On Lower Mainland rivers such as the Seymour, steelhead are considered as "an extreme conservation concern". Across much of the Georgia Basin, instead of 10 to 15 mature fish returning to spawn for every 100 smolts that entered the ocean two to three years before, only two to four have been returning in recent years.

There is some reason for hope, however, in that recent returns over the past several weeks have been slightly higher on some river systems than in recent years. Still, the long-term trend remains worrisome.

While ocean conditions are certainly a factor in this decline, the protection of habitat is also a key part of the equation. In fact, increasing freshwater productivity can be helpful in compensating for cyclical reductions in marine survival. Yet riverside habitat along many of these rivers continues to face development pressures that can compound existing problems associated with urbanization, water extraction, water contamination and the destabilization of steep banks.

On a more positive note, some rivers, such as the Englishman, a number of key river-front lands have recently been acquired and protected through the efforts of Nature Trust. On still other rivers, such as the Seymour (where steelhead have been designated as an extreme conservation concern), a formal roundtable of stakeholders, led by the federal Department of Fisheries and Oceans (DFO) and the Seymour Salmonid Society, has been established to aggressively address steelhead-related issues in a holistic way. These are positive occurrences, but the outlook for steelhead on most south coastal streams remains uncertain at best.

As a result of poor steelhead returns, the BC government has imposed restrictive regulations that include the outright closure of a number of rivers. This has dramatically reduced angling efforts throughout the region.

While poor ocean conditions have, without question, influenced the current situation, the deteriorating condition of many freshwater habitats cannot be overlooked – and decades of industrial development combined with the cumulative impacts of urbanization have had a profound impact.

In addition, the possibility of dry conditions, low flows and high water temperatures this summer (similar to last year) could worsen the situation.

While longer-term approaches to controlling greenhouse emissions must be pursued by all levels of government, shorter-term strategies such as the Georgia Basin Steelhead Recovery Action Plan. The plan, released in 2002 by the Pacific Salmon Foundation with funding from the province and meant to stabilize and restore steelhead stocks, is a step in the right direction and must continue to be acted upon. This initiative has identified 58 high-priority watersheds and should be strongly supported by government from both a policy and a funding perspective.

While remaining healthy habitat along these rivers must be protected, efforts to restore previously damaged habitat must also continue. On a positive note, such efforts may be

funded as part of BC's Living Rivers Trust Fund initiative. Habitat restoration projects under such a program could include improvements to spawning terrain, enhanced fish passage on impeded rivers, side channel development and the establishment of conservation flows.

Specific projects that would have significant benefits include improving summer and fall flows on rivers such as the Cowichan, Little Qualicum, Englishman and Theodosia. In a similar vein, the Seymour and Capilano Rivers on the north shore of Vancouver would benefit tremendously from improved water releases from two dams on these waterways that should strive to increase summer and early fall flows. The current low flow conditions that we see regularly each summer takes a significant toll on fish in terms of reduced habitat, more difficult access and unsuitable water temperatures.

In the case of the Capilano River, there are ongoing problems with extremely cold water temperatures in summer months. This is because most of the water released from the Cleveland dam comes from the very bottom of the reservoir, where water is coldest. As a result, water temperatures are several degrees below optimal conditions for fish and hinder the growth and development of young steelhead. There is a need for a mechanism that would allow water to be released from various depths of the reservoir in order to moderate temperatures and boost productivity.

Still other examples of various restoration activities that are needed include the placement of large woody debris on rivers such as the Squamish, Seymour, Chemainus and Englishman. Some work along these lines has already been done along parts of the Seymour, which has helped to provide increased cover and refuge for juvenile steelhead.

The Outdoor Recreation Council of BC is hoping that government will reconsider its planned cuts to the hydrometric monitoring program that would see 20 percent of such stations eliminated. These stations play a crucial role in monitoring and predicting stream flows.

Finally, we have witnessed dramatic improvements in stream productivity associated with the stream enrichment efforts on rivers such as the Keogh near Port Hardy. This has entailed the addition of nitrogen and phosphorous which helps to promote algae growth, resulting in increased insect populations that, in turn, provide additional feed for young fish. On the Keogh, this has helped to significantly increase survival rates for young salmon. Consequently, the government should be encouraged to initiate similar programs on other high-priority watersheds.

In closing, the steelhead, which many view as a sea-going trout but which is, in fact, a salmon, is an incredibly beautiful and strong fish that has garnered a passionate following among river stewards throughout BC. Yet, its endangered status in much of

the Georgia Basin has not received nearly the same profile as other threatened salmon stocks. The fact that Georgia Basin steelhead streams, as a collective, share the number one listing this year will hopefully provide greater awareness and appreciation of the plight of this species, which may help to turn things around for the better.

3. Fraser River

After rising to the number one position last year, the Fraser drops to number three (still remaining in the top five as it has for 13 out of 14 years). While long-standing issues such as sewage and pollution continue to be problems, other emerging issues are also the cause of much concern. Among these: missing sockeye salmon, low summer flows, unchecked agricultural impacts and reduced protection for many urban stream tributaries.

In addition, the river continues to be threatened by rapid urbanization, urban run-off, extensive logging in its headwaters, widespread bank armouring, damaged riparian habitat, gravel extraction and industrial pollution, especially along the North Arm. A number of old contaminated sites continue to be problematic and an array of new development proposals near Iona Spit on the North Arm, ranging from airport expansion to a possible new ferry terminal, also cause concern.

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. 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 majority of respondents expressed concern that many of the most pressing issues facing the Fraser are not being addressed to the extent they should.

One of the most publicized events of 2004 was the mysterious disappearance of large numbers of sockeye salmon before they could return to their spawning grounds. While more than two million sockeye were expected to return to spawn, less than 500,000 actually made it, making this one of the poorest sockeye returns in decades. Similarly, in the fall of 2005, it appears as though another 1.4 million sockeye may have disappeared, although this is a preliminary estimate.

The causes of this, while not yet fully understood, may range from warmer water temperatures to excessive and/or unauthorized fishing. Whatever the reason, these occurrences (on top of similar, but less severe instances in recent years) indicate the need for a more cautious, risk-averse approach to managing the fishery until the causal factors behind these events are fully understood and acted upon to the greatest extent possible. There is also a clear need to allocate additional resources to the DFO so that they can fulfill their management and enforcement obligations. On a positive note, the

DFO did act to limit or curtail fishing opportunities when the conservation of certain salmon stocks appeared to be at stake.

Still another example of the many diverse issues facing the Fraser occurred in early March 2006, when the building of a berm to access Big Island near Rosedale for gravel extraction effectively drained a major back channel, destroying thousands of redds (nests) and millions of alevins (newly-hatched salmon). Had adequate culverts been used or had a bridge been built to access the gravel bar, this would not have happened. The fact that events like this continue to happen has startled and angered many river advocates.

Another long-standing threat to the Fraser pertains to sewage pollution. While there are examples throughout the watershed, many respondents expressed ongoing concern that the Iona treatment plant still provides only primary treatment of sewage. While the plant's effluent is discharged into the Strait of Georgia as opposed to the mainstem of the Fraser, many millions of young salmon pass through the discharge area on their journey to sea. At present, the upgrading of major sewage facilities to secondary treatment levels is not scheduled to be completed until 2030 at earliest, far too long a time in the view of many.

Agricultural impacts along the Fraser and its tributaries throughout the Fraser Valley farmbelt also continue to worsen despite numerous public warnings. Along many of the river's smaller tributaries that run through agricultural settings, there is a complete lack of riparian protection. Other issues relate to the inappropriate use of pesticides and fertilizers. One of the most serious problems in much of the valley centers on the inappropriate disposal of manure during winter months in close proximity to streams. This is a significant issue in that the Fraser Valley has the greatest concentration of farm animals (i.e. sheep, hogs, cows, turkeys and chickens) anywhere in Canada and can generate a volume of untreated waste equivalent to that produced by 800,000 people in a year.

While inappropriate waste disposal poses a problem for rivers and fish, it also raises increasing concerns about the potential for human health implications. Yet this past winter, as in previous years, numerous offences were cited but seldom acted upon, in part because of current policies and/or a lack of available staff.

In terms of mitigating agricultural issues, there must be increased efforts to enforce existing regulations. There is also an urgent need to develop a "best management practices" philosophy throughout the farming community and a need for a plan to better protect and restore streamside vegetation along many key tributaries throughout the Fraser Valley farmbelt. In addition, more vigilance is needed in terms of protecting lands within the Agricultural Land Reserve, especially in light of continuing pressure to remove large parcels for development.

Despite the potential for conflict, agricultural land can present an opportunity to protect stream habitat; farms and fish can co-exist side by side. In an effort to achieve this, farmers are being encouraged to develop “environmental farm plans” (EFPs) which could be very helpful in mitigating various environmental impacts. While holding much promise for the future, this initiative has yet to be widely implemented. Hopefully, it will expand significantly over the next few years.

There is also extensive concern 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 sturgeon. In addition, more than nine million pink salmon spawn in this part of the Fraser mainstem in peak years and million of other fish migrate through this section.

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 new “Heart of the Fraser” campaign was launched last fall with widespread support. A key part of the initiative deals with acquiring key private lands for conservation purposes and is being spearheaded largely by the private and non-government sectors (including groups such as BC Institute of Technology, the Nature Trust, the North Growth Foundation, the Pacific Fisheries Resource Conservation Council and the Outdoor Recreation Council). There will also be extensive efforts to work with First Nations and various governments in the hope that certain key Crown lands might also be better managed or protected. This exciting and innovative initiative could make some tangible headway in the coming year.

Finally, while debate continues over the extent of gravel extraction taking place along parts of the Fraser in an effort to lessen flood risk, senior governments have complicated and worsened the situation by not adequately contributing to the improvement of the Fraser Valley dike system. In our view, it has been unfair to fully offload the financial burden for upgrading and improving dikes onto local governments. Consequently, we hope the newly elected federal government, as well as the province, will initiate a greater investment in the repair and upgrading of dikes, which is the most effective way of preventing flooding events. This would lead to a more integrated and sustainable approach to flood control as opposed to forcing local communities to explore the more invasive option of gravel extraction as the only tool available.

In closing, the Fraser is the heart and soul of our province and the world’s greatest salmon river. 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 a host of 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. 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, as outlined in the Heart of the Fraser initiative (www.heartofthefraser.bcit.ca) would help sustain the exceptional fish and wildlife values that exist along one of the world's most productive river sections".

4. Taku River

Located 100 km south of Atlin, BC's most threatened wilderness river faces the prospect of a proposed mine and access road. Concerns about this proposal have been further heightened by the federal government's tacit approval of this project. In addition, the province recently granted a permit to Redcorp Ventures to develop the controversial Tulsequah mine.

River advocates have expressed concern about acid leechate problems, particularly in light of ongoing leechate (acid mine drainage) problems associated with earlier mining activity in the area. There are also significant concerns about the adverse environmental impacts associated with a proposed 160-km access road that would be built to access the mine.

The Taku drainage is one of BC's most spectacular wilderness areas with significant wildlife and fisheries values. Earlier court decisions ruled that government must adequately address the concerns of the Taku River Tlingit First Nation before a permit for the project was issued. However, the mine and its associated road have continued to edge closer to reality.

The Outdoor Recreation Council of BC believes that environmental and social concerns associated with this project have yet to be adequately addressed. In addition, a comprehensive land-use plan for the area should be developed first, before a project of this scale is considered. A more collaborative working relationship with the Taku River Tlingit First Nation is also needed. In the absence of the above, there is a rapidly growing concern that the adverse impacts of both the mine and its access road will far outweigh the perceived benefits.

5. Coldwater River

While there have been some improvements on the Nicola River system over the past 18 months, significant concerns remain about a key tributary, the Coldwater River. Drought conditions in this area in recent years have eased somewhat and all local stakeholders have participated in developing a water management plan that could improve flow conditions, particularly for the Nicola. The participants in this process are to be commended.

However, because not all issues have been resolved and inadequate flows remain a concern, these river systems remain at risk, particularly the Coldwater where record low summer flows seem to be becoming the norm. This has also resulted in increased summer water temperatures that remain near lethal limits for fish. Also, if snowpacks melt too quickly this spring, this could cause flow-related problems this coming summer.

Due to concerns in past years that centered on excessive water extraction and the adverse impacts this has on fish stocks, the Nicola and Coldwater Rivers have been widely viewed as endangered. These rivers are key tributaries of the renowned Thompson River system and yet, in recent summers, much of the Nicola's flow has been diverted and removed. Furthermore, there are already enough water licenses in place to potentially dewater lower parts of the Coldwater while other tributaries, such as Spius Creek, are also being significantly affected by excessive water extraction.

As a result, fish stocks have been increasingly stressed and, in August of 2004 and 2005, amidst dry, hot conditions, stream temperatures soared to lethal limits. The release of some stored water from Nicola Lake was all that kept the river's salmon runs alive and, as the river's tributaries warmed and withered, juvenile fish were forced to crowd into what little habitat remained.

It must also be noted that steelhead numbers in the entire Thompson system have dwindled significantly. These fish are clearly threatened and about 60 percent of this world-renowned stock originates from the Nicola system. Consequently, there is an urgent need for a watershed-specific steelhead recovery plan developed in consultation with all stakeholders. The development of such a plan is now being spearheaded by the BC Wildlife Federation. To succeed, such a plan will require adequate flows and other habitat improvements. In addition to widespread concerns about steelhead, southern interior coho (many of which return to the Nicola to spawn) are also a species at risk.

In recent years, water use in the Nicola drainage has been relentless, an issue recently highlighted in a special report by the Pacific Fisheries Resource Conservation Council. Based on its own observations, the Outdoor Recreation Council has also concluded that, while some ranch operators have proven to be good stewards and conservers of water, others clearly have not.

But on a more positive note, the BC government recently consolidated the management of water in the province through the creation of the Water Stewardship Division within the Ministry of Environment. This will be helpful in trying to resolve water use issues in areas such as the Nicola River drainage.

Despite concerns about maintaining adequate flows for the Nicola River, requests for new water withdrawals in this area are still being considered by the province. Licenses for thousands of acre feet of water stored in Nicola Lake are pending approval. There is also a proposal for a large, all-season resort development near Juliet Creek in the headwaters of the Coldwater drainage and additional proposals for a resort, subdivision and a golf course near the site of the Merritt Mountain Music Festival that would exert additional pressure on local water resources.

Consequently, any water management plan for this area must respond to a number of key questions: Where will the new licensed water come from? Who will monitor its careful use? What will be left for the river, particularly in light of the increasing frequency of hot, drought-like conditions?

There is some reason for encouragement in that some of these questions are beginning to be addressed - but until there are clear answers, the Outdoor Recreation Council of BC believes that there should be a moratorium on issuing new water licenses for the Nicola system, as well as transfers of currently unused licenses unless these are used for conservation purposes.

In summary, the placement of the Coldwater River on this list reflects the broader need to better manage BC's water resources and, in future, we must strike an appropriate balance between allocating water for development while also ensuring we protect the needs of fish and other aquatic life.

6. Coquitlam River

The Coquitlam has appeared on this list in all years but one. Once again, the major issue continues to be excessive sediment loads, most of which are caused by gravel mining.

There has been some progress in recent years, such as the creation of some significant new off-channel habitat. And we're also encouraged by the possible future construction of a fish ladder at the dam site, which could help to restore lost sockeye runs. In addition, praise should go to BC Hydro for moving ahead with the Water Use Planning process

However, there continues to be major problems with silt and sediment loads from nearby gravel mines and, for much of the winter, silt levels continue to exceed those deemed damaging to fish. The settling pond failure that occurred in 2004 was also a

troublesome event. 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. While some significant funds have been spent by local gravel firms to control silt, there is a clear need to do much more. One need only drive above the gravel mines on a rainy day to see the difference in water quality compared to what exists downstream of the mines. It's estimated that for close to 200 days each year, siltation levels along much of the river are at levels considered harmful to fish.

Other problems in the watershed include rapid urbanization and urban runoff. The prospect of additional bridges combined with an estimated 20,000 to 30,000 new residents on the lower slopes of Burke Mountain, will place added pressure on the river system. Consequently, every step possible must be taken to protect the integrity of the river.

There is some hope, however, that the significant interest in the river shown by some city councillors as well as individuals and citizen groups will be helpful in turning things around for this wonderful local waterway.

7. Chehalis River

This beautiful and productive river, which is a tributary of the Harrison, is threatened by the potential approval of large-scale placer and gravel mining operations in its upper reaches. Under the proposal, mining activity would directly impact up to 1,000 hectares close to the river. Given the steepness of the local terrain and the high amount of precipitation, many believe such activity will significantly damage one of the Lower Mainland's finest waterways.

The Chehalis is a visually spectacular stream with important fisheries values, including significant runs of chinook, chum, coho and pink salmon as well as steelhead, cutthroat and bull char.

Yet, because of steep terrain and significant rain events that can see the river rise dramatically in short periods of time, excessive siltation associated with such mining activity is very likely. This could have a severe impact on the river's fish stocks. Furthermore, the Chehalis hatchery is dependent on the clean waters of the river's mainstem; any change to water quality would seriously disrupt their operations. Finally, there is considerable speculation that the mining proposal could potentially spin off a number of new independent power projects (IPPs) along both the mainstem of the Chehalis as well as on some of its tributaries.

8. Okanagan River

For decades, the Okanagan River has been damaged by channelization, water extraction, urban encroachment, riparian habitat loss and the building of dams and weirs. In many sections, it now resembles more of a ditch than a river. On the bright side, a strong effort is underway to restore this great waterway and some progress has been made. However, key issues remain to be resolved.

For example, there are still serious issues pertaining to water management throughout much of the watershed and particularly along Upper and Middle Vernon Creek, the headwaters of the Okanagan. Among these are the inadequate management of groundwater, the over-allocation of water licenses and the unauthorized removal of surface water.

While the Okanagan River has been seriously affected, it continues to be an ideal candidate for a major habitat restoration initiative that would include a significant “de-engineering” component. If governments move ahead with this, it could dramatically improve the state of the river. Kudos should be given to the many groups and individuals throughout the Okanagan basin that are working to restore the river.

The river conservation community is encouraged that a major restoration initiative is now being considered by staff within the Ministry of Environment; the Okanagan Nation Alliance has been a strong advocate for this. The Outdoor Recreation Council supports the proposal and believes it should be endorsed and funded by both federal and provincial governments. The annual return of significant numbers of sockeye (one of only two significant remaining populations in the Columbia drainage) to the Okanagan River system also reinforces the potential of such a program; the recent re-introduction of sockeye to Skaha Lake is an exciting recent development.

Over time, such a restoration initiative could improve flow regimes, enhance off-channel habitat and improve fish passage. Riparian habitat could also be restored in many areas and would enhance fish values as well as improve wildlife habitat for red-listed species such as the tiger salamander and western screech owl.

Specific fisheries enhancement measures might include the building of setback dykes, land trades, the restoration of meanders, riffle-pool construction and perhaps even the decommissioning of the McIntyre dam. Once again, such an effort could be cornerstone of a new “BC Living Rivers Initiative”.

On a positive note, within Douglas County near the town of Oliver, a habitat restoration project was undertaken a few years ago that created several hundred metres of renewed fisheries habitat. This proved to be very successful and is an example of the restoration possibilities that exist.

9. Kettle River

Threatened by a questionable independent power project, the environmental assessment of the proposed dam on the Kettle River near Christina Lake (southern interior of BC) is now in its final stages.

The proposal, the Cascade Heritage Power Project, calls for the development of a 25 MW run-of-the-river dam on the Kettle River, just above the Cascade Canyon and about 20km east of Grand Forks. It involves constructing a rubber weir above the canyon and some 800 metres of tunnel to a powerhouse at the canyon's base. During low water flows, the amount of water that will be allowed to flow through the canyon will be reduced to four cubic metres per second or less.

An independent socioeconomic survey conducted by Yarnell and Associates (2001) determined that the power project "does not create significant long-term employment opportunities or other benefits for the community... [and is] inconsistent with commitments to respect neighbors, local land-use plans and First Nations" and that "the project would compromise the aesthetic value of the falls and general area, which is essential to the community's economic and social well-being."

Aside from cultural and tourism concerns, there is also the issue of species of fish considered "at risk". The Kettle River is home to at least three red-listed and five blue-listed species of fish. One species, the speckled dace (*Rhinichthys osculus*), is being considered for listing under the federal Species at Risk Act. The bulk, if not all of the Canadian population, is found in the Kettle River watershed. The IPP proponent states that impacts to these species at risk will be minimal, but in the mind of many, any potential risk to species at risk and their habitat is unacceptable.

The Outdoor Recreation Council of BC believes that the Cascade Canyon should be preserved as a Goal 2 (special feature) provincial park as recommended by the Regional Protected Area Team for West Kootenay-Boundary through BC's Protected Area Strategy, and as an Inter-agency Management Committee was considering in the late 1990s.

10. (tied) **Salmon River**

Appearing on the list for the third consecutive time, the Salmon River, whose floodplain is located just outside Fort Langley, is one of the few remaining waterways in the lower Fraser that retains its natural characteristics and meanders. While the river has avoided dredging and straightening to date, it remains under pressure from a variety of sources. In addition, like many south coast streams, spawning coho numbers have dwindled significantly in recent years perhaps hitting a new low this year of less than 2,000 fish. Yet, as recently as the mid '80s, the run was more than 20,000 and historically, is thought to have been in the 60,000 to 100,000 range.

Despite the river's attractive natural attributes, it is endangered as a result of several different threats including:

- pollutants from the excessive use of manure that continue to find their way from nearby farming operations. In fact, nitrate loads have been high enough intermittently that they exceed public health standards which has led to a moratorium on residential development along the stream's middle reaches. Residential development was restricted to cap nitrates and phosphates from septic tanks but little has been done to date to control agricultural run-off. This past year, local river stewards continued to monitor high nitrate and phosphate levels in the river. These findings were repeatedly reported to both provincial and federal fisheries officials but there was no response.
- flash floods in the stream due to runoff from land clearing and use of storm drains that direct water into the stream. This often causes damage during heavy rains due to higher than normal flow volumes.
- falling water tables as a result of land clearing and development. This has reduced the quantity of water that would normally be held in the soil and, through seepage, recharge the stream. Water tables are also being affected by excessive water extraction mostly by agricultural users (berry farms, etc.). If current trends continue, there is concern that the extremely productive middle reaches of the river may become susceptible to the same thing.
- pressure from farmers in the Fort Langley floodplain to dredge the river to improve their drainage
- ongoing interest in removing land from the ALR in the upstream part of the watershed for urban development that would exacerbate the runoff problem and increase the potential for flooding downstream. This in turn could increase pressure to dredge the downstream part of the river.
- ongoing pressure to drain the Fort Langley floodplain so as to grow higher value crops. However, this could also have broader impacts in terms of diverting water flows, altering sediment patterns and impacting the local aquifer.

On the bright side, local river stewardship groups are working hard to protect this waterway but governments must also take strong and immediate action before it's too late to save one of the Lower Mainland's most beautiful local waterways.

10. (tied) **Iskut/Stikine River**

This transboundary river system runs through one of the largest sections of remaining old-growth coastal western hemlock forest remaining on the west coast. These rivers face an array of threats including a proposed independent power project at the Iskut/Forest Kerr Canyon and the proposed trans-boundary Iskut Valley (or Bradfield-Craig) road through the now roadless Craig Headwaters Protected Area.

The main proponent of the road is the State of Alaska, which would benefit from the improved movement of resources and goods. Both Cassiar Watch and the Transboundary Watershed Alliance have recently asked BC Parks to maintain the Craig Headwaters area in its roadless state as a wilderness recreation area. Unfortunately, the draft “management direction statement” that has been developed still includes reference to the possibility of road access.

The Stikine also faces a number of new mining proposals, some of which would occur in the sensitive headwaters area of the river. However, the Tahltan First Nation believes that all development proposals must respect their sovereignty, way of life and traditional land uses; there is growing support amongst the Tahltan for a “significant slowdown in development”. In light of the many projects underway throughout the drainage, there is legitimate concern about cumulative industrial impacts in one of BC’s most beloved watersheds.

Rivers to watch in the year ahead:

1. Ashlu Creek: There was good news for Ashlu Creek last year when the controversial small scale independent power project slated for this waterway was not approved. For this reason, the river was removed from the Most Endangered Rivers list after first appearing in the number six position in 2004. However, because the project’s proponent has recently re-applied to the Squamish Lillooet Regional District for rezoning, the Ashlu must remain a river to watch in the year ahead. Also, the Outdoor Recreation Council of BC is very supportive of the right of regional districts to deny such requests and, in this case, the SLRD came to the reasonable conclusion that, while a number of independent power projects have already gone ahead in this area, there are simply some rivers that should be protected from such developments because of other values.

2. The Sumallo: This beautiful tributary of the Skagit is one of southwestern BC’s best-known trout streams and yet, its headwaters may be threatened in future by possible flow disruptions and excessive water extraction. This is related to the planned, long-term expansion of the Sunshine Valley recreational resort. There are concerns that if the expansion is not properly planned, that this will adversely affect the river’s flow regimes. In anticipation of expansion, resort developers now hold six different water licenses on Trite Creek, a tributary of the Sumallo, as well as a land improvement water

license for the Sumallo itself. If development and the associated extraction of water become excessive, this would affect both the Sumallo and Skagit rivers resulting in greater summer mortality of fish and the possible disruption of bull trout breeding. For this reason, river advocates will be closely monitoring what unfolds along the upper Sumallo and will gather additional baseline data in the year ahead.

3. **Nicomekl:** Another Lower Mainland river threatened by pollution as well as a lack of channel complexity and spawning gravel. Like many south coast rivers, coho stocks have declined markedly in recent years and will continue to be closely monitored.

4. **South coastal coho streams:** In what has been described as a season of death, many coho streams fell silent last fall; it is estimated that only two percent of the fry that emerged in 2002 returned to spawn this past year. While ocean conditions are a key reason, the damage done to the many small streams that constitute coho habitat in southern BC cannot be discounted. In terms of smaller coho streams, there are a number of interesting case studies to watch in the year ahead. Among these are small urban waterways, such as Byrne Creek in Burnaby, which was recently affected by another tragic toxic spill that killed large numbers of cutthroat trout as well as some coho. Others include Muir Creek, just west of Sooke, and Roger Creek in Port Alberni. These could also be indicators of our ability to effectively manage small waterways. As a salmon bearing stream, Muir Creek is an area that has outstanding recreational values and yet, the stream is also located on private forest land where logging controls are much more liberal than on Crown land. Roger Creek faces different issues ranging from urbanization to agricultural-related impacts from hobby farms.

5. **Nechako:** Concerns remains about the lack of an appropriate water use plan for the Kenney Dam that would better simulate natural flow regimes in an effort to protect salmon and sturgeon. There is also concern about a proposal from the Huckleberry Mine to increase the discharge of untreated effluent into the Kenney Reservoir and inevitably into the river. On a positive note, the planned development of a cold-water release facility in the coming years could represent a dramatic step forward. Yet, there is also increasing speculation that plans for the Kemano Completion Project may re-emerge in the not too distant future. For this reason alone, the Nechako remains a river to watch.

6. **Theodosia** In 1999, the province announced its intent to improve flows from a highly destructive diversion and eventually work towards the decommissioning of the dam itself. Progress on both fronts has been scant, although the dam's owners did opt to slightly improve flows on their own in 2002. While there appears to be renewed interest on the part of government to develop a water use plan for this waterway, river advocates will be watching closely for any signs of real progress.

In closing:

“The problems outlined in this year’s list are extensive and diverse, ranging from toxic spills and low summer flows to the need to restore damaged habitats and rebuild threatened fisheries, notes Mark Angelo, Rivers Chair of the Outdoor Recreation Council of BC. “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”.

On a more positive note, the province has stated its intention to increase the support for the Living Rivers Program in the near future to a total of \$21 million. While this is a step forward, significant additional funding will be required in future to ultimately turn things around.