

Comments to the Senate Standing Committee on Energy, the Environment, and Natural Resources Regarding Changes to the Navigable Waters Protection Act in Bill C-10, Budget Implementation Act

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INTRODUCTION

The Navigable Waters Protection Act (NWPA) is a key trigger for Canadian Environmental Assessment Act screenings, and in some cases, the only trigger. While never intended to protect the public interest in conservation by preventing undue damage to natural ecosystems, the NWPA has come to be relied upon for exactly that purpose. In BC, recent changes to the NWPA contribute to a disturbing trend of environmental deregulation decisions, an increased threat to species and ecosystems, and an apparent disregard for the public interest.

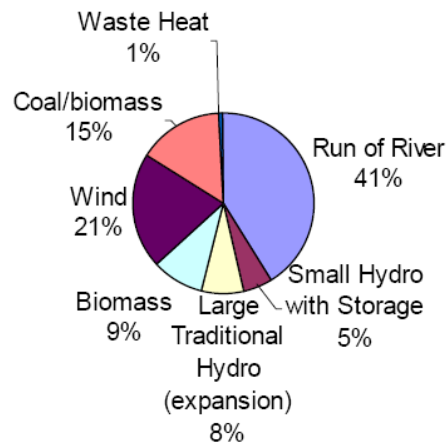
This testimony seeks to alert this committee to the critical need for meaningful federal environmental protection laws and oversight, in particular, to counter acutely destructive provincial and federal deregulation of hydroelectric power development in BC.

While not dealing specifically with the broader social implications of changes to the NWPA, Watershed Watch also shares the concerns of previous witnesses on increased loss of public access to public waterways that may result from the recent changes to the NWPA (Appendix A).

HYDROELECTRIC POWER DEVELOPMENT IN BRITISH COLUMBIA

The majority of new electricity generation in BC comes from privately-owned river diversion projects, also known as “run-of-river” or “micro-hydro”. These projects typically consist of a small dam or “weir” which backs up the river or creek into a small reservoir, allowing it to be diverted into a pipeline or tunnel, often for several kilometres before water passes through turbines (generating electricity) after which it is allowed to flow back to the river. Besides damming and diverting significant amounts of water (up to 95% of mean annual discharge) from significant stretches of many rivers, all private river diversion projects also require a transmission line, a transmission line right of way, and access roads.

Capacity (MW) by Type from 2006 Call for Power



Electrical energy capacity (megawatts) from BC's 2006 "Call for Power".

Source: Douglas 2007 and reference therein¹

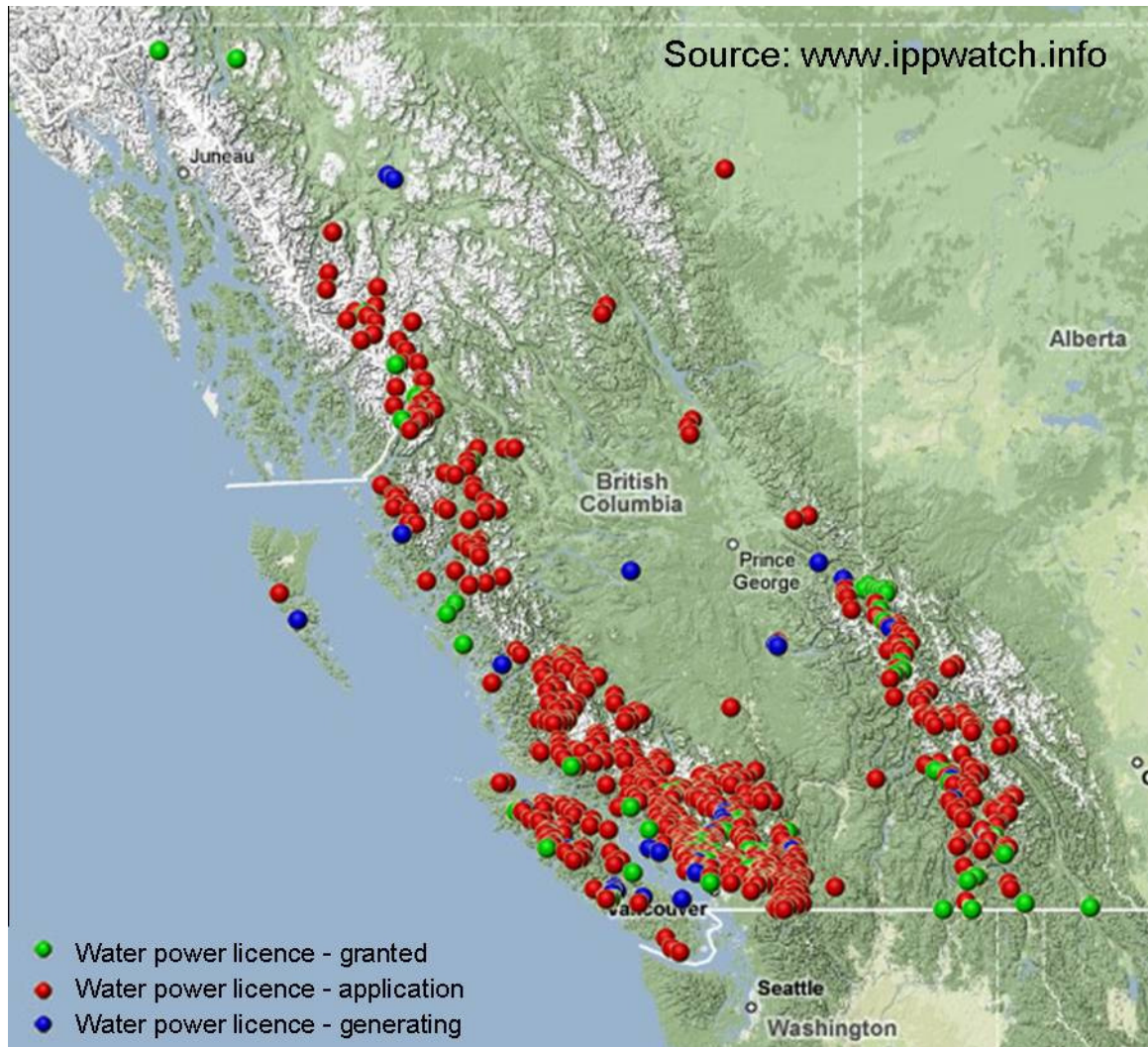
Individual diversions range from relatively small (1 MW) to very large (e.g. 700 MW). The largest single proposed diversion in BC, on the Klinaklini River, would consist of a 30 m high "weir" and a 10 m wide by 16.5 km long diversion tunnel. Smaller projects are also increasingly clustered in confined areas, such as the massive Bute Inlet project proposed for BC's south coast, a single project slated to dam and divert 17 rivers and streams (every major tributary flowing into Bute Inlet; nearly 100 km of diverted waterways; Appendix B).

As of May 2009 in British Columbia:

- Over 700 water license applications have been filed for private hydroelectric power development;
- Over 80 private hydroelectric power projects have been approved (since 2002), with many of these already under construction;
- Dozens more are well into the permitting/approvals process;
- ***No overall strategic planning has been endorsed by government for development of hydroelectricity that would minimize environmental impacts while maximizing energy benefits.***
- ***No meaningful public debate has taken place on the merits and risks of the BC Energy Plan, and local governments and stakeholders are increasingly alienated from what little planning occurs.***

¹ Douglas, T. 2007. "Green" Hydro Power: Understanding Impacts, Approvals, and Sustainability of Run-of-River Independent Power Projects in British Columbia. Watershed Watch Salmon Society. <http://www.watershed-watch.org/publications/files/Run-of-River-long.pdf>

Water Power licenses in British Columbia



DEREGULATION OF RENEWABLE ENERGY DEVELOPMENT IN BC

In 2002 the BC Government overturned the BC Environmental Assessment Act, which was passed in 1996 “as the result of a successful multi-stakeholder process, and was broadly supported by industry and environmental groups at the time.”²

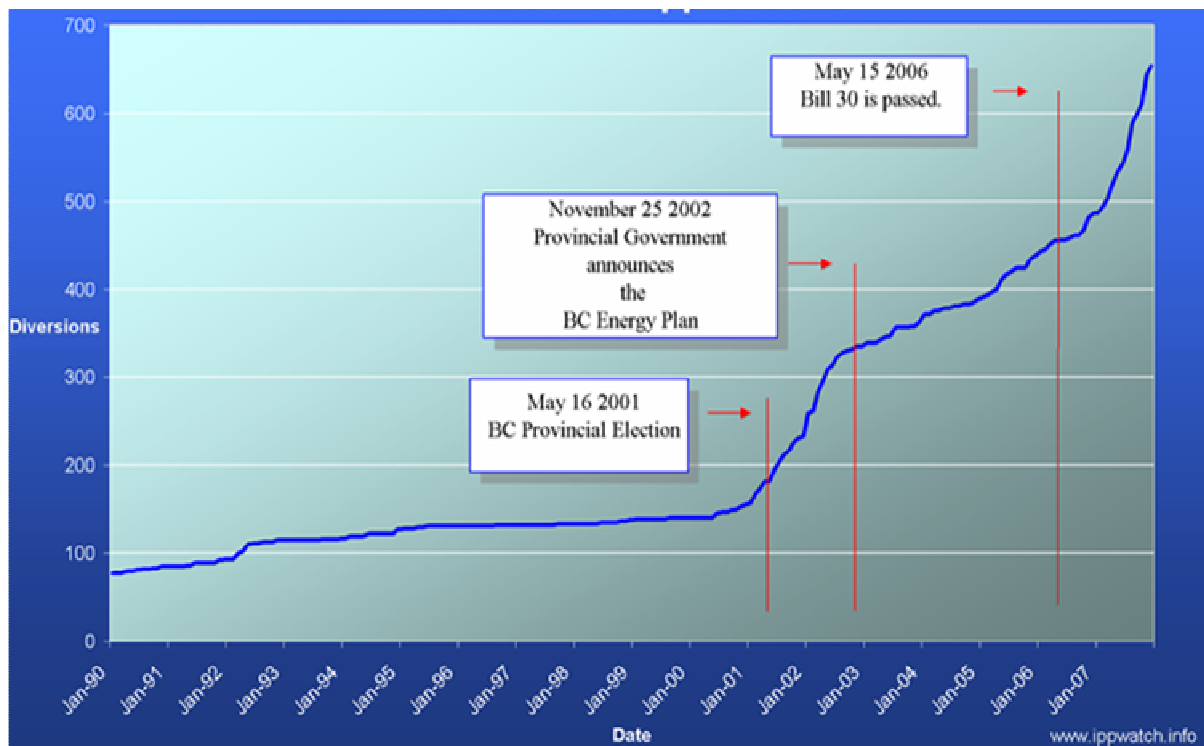
They passed a *new* Environmental Assessment Act (Bill 38) and a *new* set of regulations governing environmental assessments. Among many other things, the new Act and Regulations did the following:

- Reduced the number of projects that are subject to the provincial EA process by increasing the thresholds for review;
- Increased the threshold for a reviewable hydroelectric power project from 20 to 50 megawatts (MW);
- Introduced substantial powers of ministerial discretion in decisions as to whether or not to apply the Act to specific projects;
- Decreased the allowable time frame for EAs to be completed from 2 years, down to 6 months;
- Decreed that reviews must reflect the policies of the provincial government;

In 2006 the BC Government decreed that local governments (regional districts and municipalities) may not apply zoning decisions to renewable energy development on Crown Lands when they passed Bill 30 (Miscellaneous Statutes Amendment Act), containing an amendment to the Utilities Commission Act. No planning process was put in place, at any level of government, to effectively replace the land-use planning function of local governments in the planning and siting of hydroelectric power development. Several BC municipalities have since demanded a moratorium on new approvals for hydroelectric power development until such planning occurs.³

² West Coast Environmental Law. May 2002, updated Nov. 2004. *Deregulation Backgrounder. Bill 38: The New Environmental Assessment Act.* <http://www.wcel.org/deregulation/bill38.pdf>

³ A majority of local government representatives belonging to the Association of Vancouver Island and Coastal Communities (AVICC) passed three separate resolutions in April 2009 calling for an integrated sustainable energy plan for British Columbia, with two of those resolutions calling for a moratorium on private run-of-river power projects in B.C. until such a plan is in place.



Water licenses and applications in British Columbia as of January 2008.

ENVIRONMENTAL IMPACTS

Renewable energy development, along with dramatic energy conservation and efficiency, is necessary to reduce consumption of fossil fuels that are contributing to global warming. However, like all development, renewables (including hydroelectric) carry environmental impacts. These impacts vary with the size, location, and type of project, but the following impacts are typical of most river diversion projects:

- Wildlife
 - Grizzly bears – sensitive to linear disturbances (e.g. roads and transmission line rights-of-way) that fragment their habitat and increase their susceptibility to hunters and fatal conflicts with humans. (SARA status: Special Concern);
 - Mountain goats – Construction often takes place in sub-alpine areas (mountain goat habitat) - helicopter traffic and blasting have detrimental impacts on mountain goats, especially during kidding season;
 - Marbled murrelets – Forest-nesting seabirds that are killed by flying into transmission lines. Dr. Alan Burger, BC's leading marbled murrelet ecologist, has said that significant mortalities to these birds are guaranteed to occur as a result of the major transmission lines being erected on BC's

coast to service new river diversion projects. (SARA status: threatened). (Appendix C)

- NOTE: British Columbia does not currently have legislation to reliably address the conservation of wildlife and plants. Concerns about impacts on terrestrial species are thus often poorly addressed in planning to mitigate impacts of run-of-river projects. For example, British Columbia does not have comparable legislation to the federal Species At Risk Act (SARA).
- Riparian ecosystems – Diverting up to 95% of a stream or river's flow into a tunnel or pipeline for several kilometres can have severe consequences for rare and specialized plants and animals in the immediate vicinity of the affected stream bed, especially those dependent on the spray and mist emanating from these waterways. Current environmental assessments of so-called micro-hydro projects do not adequately address these sensitive ecosystems and species. See Appendix D for expert testimony.
- Fish and aquatic ecosystems – Removing water from fish-bearing streams can impact aquatic ecosystems including both resident fish and migratory fish (salmon) in the following ways:
 - Significantly decreased availability of spawning and rearing habitats and foraging opportunities;
 - Increased predation risk and competition for habitat and food;
 - Increased thermal stress (higher water temperatures in summer and lower temperatures in winter including increased icing at higher elevations and latitudes);
 - Stranding and other stresses associated with sudden changes in stream flow (hydrologically known as peaking and ramping);
 - Impacts associated with road building and stream crossings, such as increased sedimentation from erosion, and interruption of natural habitat-forming processes through bank armouring and channelization;
 - While some proponents cite meeting requirements for conservation flows where fish are present, independent hydrologist Dr. Peter Ward recently raised significant concerns about the adequacy of these requirements and also of monitoring rigour needed to ensure private power companies comply with existing (and likely weak) requirements for fish flows⁴:
 - Every litre of water that is diverted from the stream or river provides additional revenue to shareholders. As such there is a tremendous financial incentive for power companies to minimize the amount of water they leave in the stream/river for fish and other riparian ecosystem values.
 - Common methods for monitoring these conservation flows are unlikely to provide the level of accuracy required by government.
 - Instream flows that are set for fish conservation are typically so low that they are rarely encountered under natural conditions.

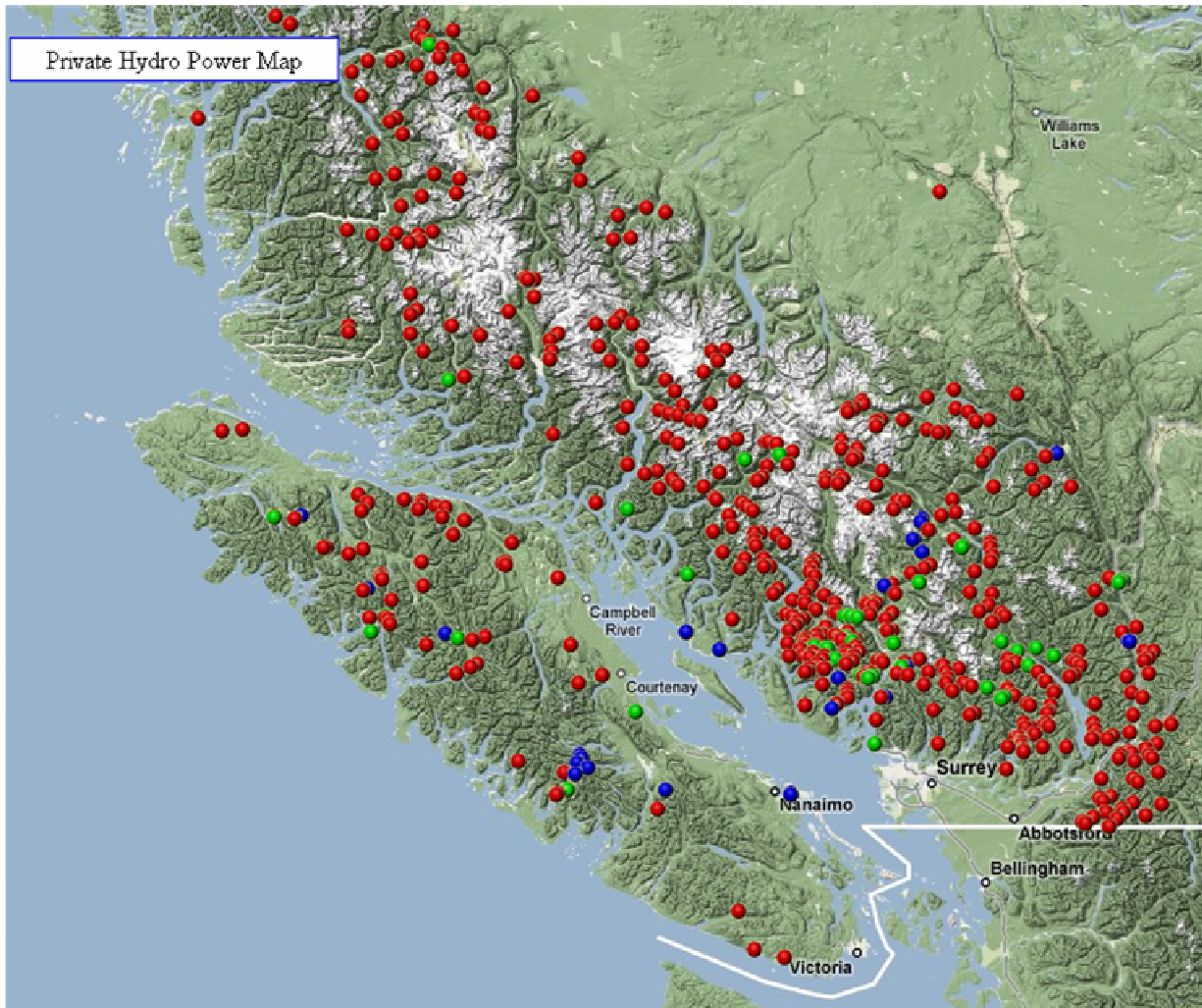
⁴ Personal communication between Dr. Peter R.B. Ward and Watershed Watch on Nov. 24, 2008. Full report in preparation for public release in 2009.

- Government monitoring to ensure that power producers comply with their conditions of license regarding environmental flows is at best inadequate, and at worst, non-existent.
 - See Appendix E for an excerpt from the report.
- Cumulative environmental impacts (from Douglas 2007):

*Of all possible impacts, cumulative impacts are currently one of the biggest concerns. The term ‘cumulative impact’ refers to combined effects on the environment from separate activities, including other hydroelectricity projects and other land uses, such as forestry and agriculture. While small numbers of projects may have acceptable impacts, larger numbers might not, and the degree and types of cumulative impacts are very poorly understood. Concern about cumulative impacts has been prompted because of the large and growing number of projects concentrated in certain areas of the province—areas that are attractive to power producers because of their high densities of suitable rivers and streams, and their proximity to existing transmission grids. While run-of-river power projects can be environmentally sustainable, their green status becomes questionable when entire landscapes are affected by multiple power lines, roads and water diversions. **BC currently has no strategic planning process to manage the cumulative impacts of these projects, or to ensure that development avoids sensitive areas with high environmental values.***

Cumulative impacts are currently only addressed for hydroelectric projects under federal EAs at the “comprehensive” and “review panel” levels, but not at the “screening” level. And even where cumulative impacts are “considered,” such considerations are typically narrow. The threshold for a “comprehensive” federal EA for hydroelectric projects is 200 MW. Cumulative environmental impacts are not currently considered in provincial EAs.

The need for cumulative impact assessment is particularly pressing in southwest BC, where the density of hydropower development proposals is the highest (see map, below).



Southwest BC contains the highest concentration of approved and potential private hydroelectric power projects in the province. Source: www.ippwatch.info.

CONCLUSION

At present, hydroelectric power development in BC is poorly regulated and poorly coordinated at all levels of government. Bill 30 (provincial) exacerbates the situation by removing municipal and regional authority in zoning decisions.

Citizens and organizations seeking to protect the public interest in ecological sustainability have come to rely on the NWPA in order to trigger federal environmental assessments (EAs) in order to protect ecological values in our rivers and valleys. With the NWPA now critically weakened, there is an even more urgent need for proper environmental protection laws and oversight. The federal government is uniquely situated to enable this purpose owing to its constitutional jurisdiction over "navigable" waters, and its ability to enforce the Fisheries Act and Species at Risk Act.

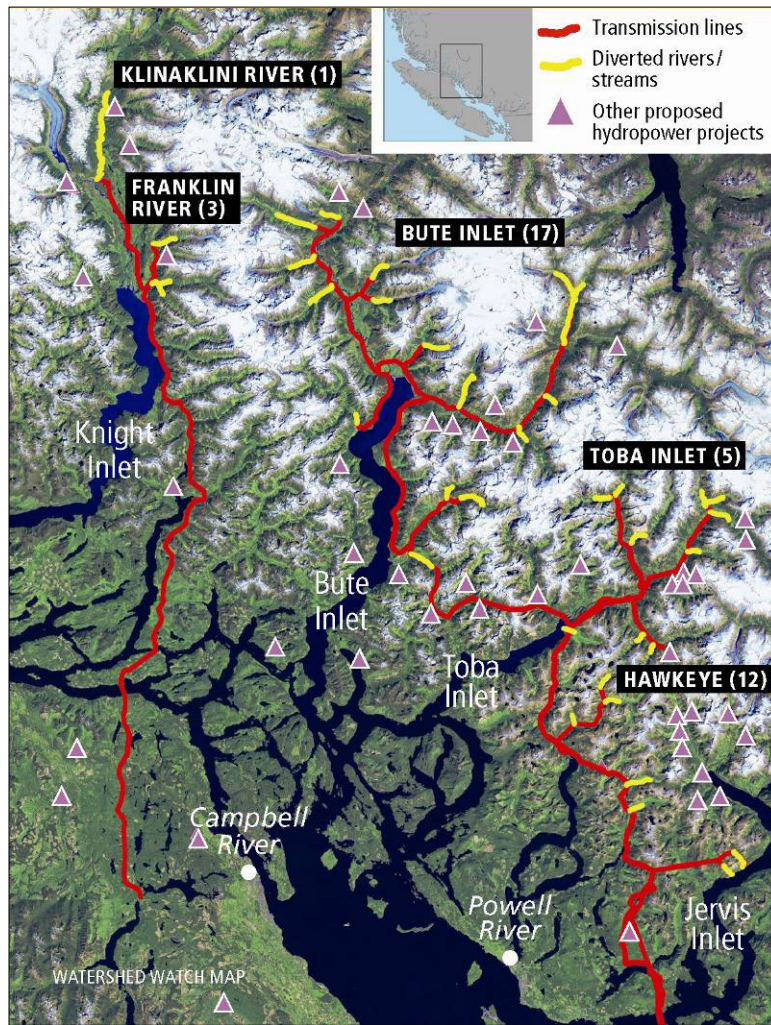
APPENDIX A – Basic values and principles

Watershed Watch Salmon Society supports the following recommendation made by the Canadian Rivers Network in their testimony before the Senate Standing Committee on Energy, Environment, and Natural Resources on May 7, 2009:

We would ask that your report from these hearings speak to the following values and principles, which were entrenched in the NWPA and have been supported by our courts for 127 years:

- 1) The public right of navigation is an ancient right that pre-dates confederation. It is a basic Canadian freedom.*
- 2) The Crown, our government, is the guardian of the public right of navigation. This is a matter of public trust.*
- 3) The public right of navigation is one of the pillars of environmental protection in place on our waterways. The NWPA as a trigger for CEAA is appropriate and important.*
- 4) Our waterways are public places and should not be privatized. Our water is public and should not be privatized.*
- 5) As the NWPA establishes in principle and as our courts have found in case law, the government should not qualify the public right of navigation. If navigation is possible, then there is a public right to navigate and that right must be protected.*
- 6) The public was not adequately consulted on this issue. The implications of these NWPA amendments have not been adequately studied. Further study, involving more comprehensive public review and detailed legal analysis, should be conducted now, not five years from now.*

APPENDIX B – Proposed infrastructure for the Bute Inlet Hydroelectric Project and adjacent projects on BC's south coast



Over 250 applications have been submitted for private power projects on BC's south coast, with dozens already approved or under construction. Yet this development has not been subject to any rigorous land use planning. Some of the major projects on the BC south coast are:

Bute Inlet: 17 river diversions and 1027 MW capacity; hundreds of km of new roads and transmission lines. (Plutonic Power)

East Toba/Montrose: Two river diversions with combined 196 MW capacity; 148 km transmission line and extensive new roads; *currently under construction.* (Plutonic Power)

Upper Toba: Three river diversions with combined 166 MW capacity; *recently approved.* (Plutonic Power)

Knight Inlet: Three river diversions, 121 MW capacity; future proposal with no detailed info at this time. (Plutonic Power)

Toba/Powell Lake/Jervis Inlet: Twelve river diversions with a total 180 MW capacity; the same company is also studying another 22 sites in the immediate area for future projects. (Hawkeye Energy)

Klinaklini River at Knight Inlet – One massive river diversion with a 30m-high dam and 700 MW generating capacity; connected to a 180 km transmission line with aerial crossing to Vancouver Island over Johnstone Strait. (Kleana Power)

Project infrastructure and information is viewable in an interactive *Google Earth* file and animated flyover video at http://www.watershed-watch.org/programs/green_power.html.

APPENDIX C – Likely impacts of proposed transmission lines on marbled murrelets nesting in Bute Inlet, British Columbia, by Dr. Alan Burger

These "run of the river" power projects pose a significant threat to the Marbled Murrelet, a threatened species in Canada which is also covered by the federal Species at Risk Act and is provincially "Red-listed". The watersheds surrounding Bute Inlet are known to support some of the highest concentrations of nesting Marbled Murrelets on the southern mainland, and many other proposed coastal power projects threaten this species. These projects pose three levels of threat to the murrelet. First, the roads, power-line corridors and construction camps remove large swaths of important and irreplaceable nesting habitat. Second, the fragmentation of the forest increases the risk of nest predation by crows, ravens and jays which are known to be important nest predators along forest edges. Third, and most alarming, is the risk of collisions by flying murrelets with the many kilometres of power-lines these projects will produce. Murrelets fly into the forest in dark twilight. Being seabirds they are not very maneuverable in flight and they fly very fast. The risks of fatal collisions with power lines are high. The power companies might say they can mitigate these problems but they cannot. Neither the current provincial or federal governments are taking these threats to murrelets seriously, and Environment Canada is muzzling the Marbled Murrelet Recovery Team on this issue. These cannot be considered "green" projects if they cause so much collateral damage to the environment.

Dr. Alan Burger

Wildlife researcher

Associate Professor (Adjunct), Biology Dept., University of Victoria, BC.

May 1, 2009 (personal communication via email)

Dr Burger has been doing research on Marbled Murrelets in B.C. since 1990 and has served on the Canadian Marbled Murrelet Recovery Team since 1991.

APPENDIX D – Life in the Spray Zone: Impacts of river and stream diversions on riparian ecosystems

Waterfalls, cataracts, cascades, and wet canyons are striking physical features that are among the hallmarks of British Columbia. But they are more than water and rock. The constant spray and perpetually moist, shady and cool conditions result in unusual ecosystems with a rich assemblage of moisture-loving organisms. These features are small but significant nodes of diversity and specialisation, especially in our mountainous forested landscapes.

Although small and generally overlooked, particularly noteworthy are the non-vascular plants. These diminutive plants, which reproduce with spores, include the mosses, liverworts, and lichens. They thrive on the wet rocks, dripfaces, and mist-drenched trees and logs of waterfall spray zones and humid canyons. These habitats shelter many rare species of such plants and are critical habitat for several species endemic to our part of the planet. We suspect that many specialised invertebrates also live in these habitats, in addition to better known vertebrates such as the dipper and tailed frog.

Current environmental assessments of so-called microhydro projects do not adequately address these sensitive ecosystems and species.

- *These small obscure organisms are not usually included in environmental assessments, which emphasize impacts on vertebrates—especially fish and mammals.*
- *Even when they are documented in areas proposed for development, these organisms are not adequately protected by existing legislation and development plans are seldom changed to accommodate them.*
- *If these sensitive species and ecosystems do happen to get noticed, “mitigation” is typically prescribed. But in these circumstances mitigation would mean re-creating the waterfall or wet canyon and its microclimate—which isn’t going to happen.*
- *The current process promotes progressive erosion of key habitats for rare and regionally endemic species.*

Jim Pojar, Ph.D.

Forest Ecologist

Trustee – Skeena Wild Conservation Trust

Patrick Williston, M.Sc.

Botanist

Gentian Botanical Consultants

Smithers, B.C.

May 4, 2009 (personal communication via email)

APPENDIX E – Select comments from Dr. Peter Ward on instream flow monitoring for private river diversion projects in BC

“Presently the operators of projects are in a situation where there are hundreds of thousands of dollars at stake in the additional production of energy, arising from setting the environmental flow by-pass too low or too high. In the absence of adequate compliance monitoring, the environmental flow by-pass may be set low by unscrupulous operators. Setting the by pass flow too low allows additional production at the plant, which benefits the IPP, but is a violation of the license.

There is also no procedure for [the BC Ministry of Environment] to check on compliance of the turbine diversion flows with the licensed amount. Methods need to be suggested, such as computing flows from daily energy production using an agreed gross efficiency value, so that daily flows can be computed, listed and sent off as part of the compliance record.

Compliance staff should be retained at [the Ministry] with both a clerical and field technician capability. The field technicians should be trained in hydrology, and be equipped with the necessary hardware to check on flow compliance for environmental flows.”

Dr. Peter R.B. Ward, P. Eng.

Ward & Associates, Ltd.

Vancouver, B.C.

Nov. 24, 2008 (via email) – full report in preparation for release in 2009.