FINAL FACTUAL RECORD FOR SUBMISSION SEM-97-001
(BC Aboriginal Fisheries Commission et al.)

Prepared in Accordance with Article 15 of the North American Agreement on Environmental Cooperation

This factual record was prepared by the Secretariat of the Commission for Environmental Cooperation. Should the Council vote to make the factual record publicly available, release of the factual record should not be construed to constitute endorsement of its content by the Council or by any of the Parties.

30 May 2000

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Key to Documents Referenced

The Factual Record includes information from several sources. The following table provides the full titles of many of the more frequently cited sources as well as the abbreviated references used in the Factual Record.

A. Submissions, Responses and CEC Documents

Abbreviated Title	Full Title of Document Referenced
Submitters' April 1997 Submission	*Submission to the Commission on* [sic] *Environmental Cooperation Pursuant to Article 14 of the North American Agreement on Environmental Cooperation,* Submitted by B.C. Aboriginal Fisheries Commission, British Columbia Wildlife Federation, Trail Wildlife Association, Steelhead Society, Trout Unlimited (Spokane Chapter), Sierra Club (U.S.), Pacific Coast Federation of Fishermen's Association, Institute for Fisheries Resources. Represented by Sierra Legal Defence Fund and Sierra Club Legal Defense Fund, April 1997
Canada's July 1997 Response	*Submission on Enforcement Matters (SEM-97-001) By Sierra Legal Defence Fund/Sierra Club Legal Defense Fund, Canadian Response*, July 1997
Submitters' September 1997 Reply to Canada's Response	*Reply to the Canadian Response to the Submission on Enforcement Matters*, Submitted by B.C. Aboriginal Fisheries Commission, British Columbia Wildlife Federation, Trail Wildlife Association, Steelhead Society, Trout Unlimited (Spokane Chapter), Sierra Club (U.S.), Pacific Coast Federation of Fishermen's Association, Institute for Fisheries Resources. Represented by Sierra Legal Defence Fund and Sierra Club Legal Defense Fund, 10 September 1997
Secretariat's 27 April 1998 Notification to Council	*Notification of the Secretariat to the Council for the Development of a Factual Record in accordance with Articles 14 and 15 of the North American Agreement on Environmental Cooperation*, 27 April 1998
Council Resolution 98-07	*Instruction to the Secretariat of the Commission for Environmental Cooperation on the Preparation of a Factual Record Regarding the "Effective Enforcement of s. 35(1) of the Fisheries Act with respect to certain hydro-electric installations in British Columbia, Canada (SEM-97-001),"* CEC Council, Mérida, 24 June 1998
Submitters' January 1999 Speaking Points	*CEC Submission SEM 97-001, Speaking Points of the Submitting Parties*, Prepared by Sierra Legal Defence Fund, 26 January 1999
3 February 1999 Questions	*Commission for Environmental Cooperation Draft Factual Record Under Articles 14 and 15, SEM-97-001, Expert Group Questions*, 3 February 1999
BC Hydro's February 1999 Submission	*Expert Group, Commission for Environmental Cooperation Draft Factual Record Under Articles 14 and 15 SEM-97-001, BC Hydro and Power Authority Written Submission*, 4 February 1999

Submitters' February 1999 Submission	*Submission to the Expert Group Convened to Investigate Submission No. SEM-97-001 Under Article 14 of the North American Agreement on Environmental Cooperation,* Submitted by B.C. Aboriginal Fisheries Commission, British Columbia Wildlife Federation, T. Buck Suzuki Foundation, Trail Wildlife Association, United Fishermen's and Allied Workers Union, Steelhead Society, Trout Unlimited (Spokane, WA Chapter), Sierra Club (U.S.), Pacific Coast Federation of Fishermen's Association, Institute for Fisheries Resources. Represented by Sierra Legal Defence Fund and Earthjustice Legal Defense Fund, 24 February 1999
WUP Management Committee's March 1999 Submission	*Provision of Information to the Independent Experts of the Secretariat of the Commission for Environmental Cooperation Under Article 21 of the North American Agreement on Environmental Cooperation*, Water Use Plan Management Committee (Ministry of Employment and Investment; BC Fisheries; Department of Fisheries and Oceans; Ministry of Environment, Lands and Parks; BC Hydro; and Crown Corporations Secretariat), March 1999
Canada's March 1999 Submission	*Provision of Information to the Independent Experts of the Secretariat of the Commission for Environmental Co-operation* [sic] *Under Article 21 of the North American Agreement on Environmental Co-operation* [sic], Habitat and Enhancement Branch, Department of Fisheries and Oceans, Pacific Region, 17 March 1999
MELP's March 1999 Presentation	*Presentation to the Panel of Experts for the Council of* [sic] *Environmental Cooperation, North American Agreement on Environmental Cooperation*, Ministry of Environment, Lands and Parks, Enforcement and Environmental Emergencies Program, 19 March 1999
Submitters' 22 March 1999 Submission	*Submission to the Expert Group Convened to Investigate Submission No. SEM-97-001 Under Article 14 of the North American Agreement on [Environmental] Cooperation,* Submitted by B.C. Aboriginal Fisheries Commission, British Columbia Wildlife Federation, Trail Wildlife Association, Steelhead Society, Trout Unlimited (Spokane Chapter), Sierra Club (U.S.), Pacific Coast Federation of Fishermen's Association, Institute for Fisheries Resources. Represented by Sierra Legal Defence Fund and Earthjustice Legal Defense Fund, 22 March 1999
ACFN's March 1999 Submission	*Submission of the Athabasca Chipewyan First Nation to the Expert Panel Established in Submission 97-001 to the Commission on* [sic] *Environmental Cooperation*, Athabasca Chipewyan First Nation (ACFN), 22 March 1999
Submitters' 24 March 1999 Submission	*Submission in Response to the Submissions of the Government of Canada, BC Hydro, and the Water Use Plannning Management Committee in the Factual Record Preparation for SEM-97-001 Under Articles 14 and 15 of the North American Agreement on Environmental Cooperation,* Submitted by British Columbia Wildlife Federation, Trail Wildlife Association, Steelhead Society, Trout Unlimited (Spokane Chapter), Sierra Club (U.S.), Pacific Coast Federation of Fishermen's Association, Institute for Fisheries Resources. Represented by Sierra Legal Defence Fund and Earthjustice Legal Defense Fund, 24 March 1999
21 April 1999 Questions	21 April 1999 letter with follow-up questions from David L. Markell, Head, Submissions on Enforcement Matters Unit, Commission for Environmental Cooperation

11 June 1999 Response to 21 April 1999 Questions	*Responses to the Questions posed by the Independent Experts of the Secretariat of the Commission for Environmental Cooperation* (Fisheries and Oceans Canada (DFO) responds to questions #1–4, and the Water Use Plannning Management Committee, comprised of representatives from the Government of British Columbia, DFO and BC Hydro, responds to questions #5–9), 11 June 1999
Canada's September 1999 Response (SEM-98-004)	*Response of the Government of Canada to a Submission on Enforcement Matters Under Articles 14 and 15 of the North American Agreement on Environmental Cooperation, Submission No. SEM-98-004 of June 29, 1998 by the Sierra Club of British Columbia, the Environmental Mining Council of British Columbia and the Taku Wilderness Association*, 8 September 1999
B. Background Materials	
1986 Habitat Management Policy	*The Department of Fisheries and Oceans Policy for the Management of Fish Habitat,* Department of Fisheries and Oceans, Ottawa, Ontario, 1986
Government Response to ESOR	*Government Response to BC Hydro's Electric System Operations Review,* Province of British Columbia, April 1995
1995 Subsection 35(2) Directive	*Directive on the Issuance of Subsection 35(2) Authorizations,* 25 May 1995
EMS for Aquatic Resources	*Environmental Management System for Aquatic Resources,* BC Hydro, June 1995
ASC Report	*The Alouette Stakeholder Committee: Process, Analysis and Recommendations, Final Report,* McDaniels Research Ltd., Vancouver, B.C., September 1996
DFO's 30 January 1997 Letter	30 January 1997 letter from E.A. Perry, Executive Director, Habitat and Enhancement Branch, DFO to Dr. J. O'Riordan, Assistant Deputy Minister, Environment and Lands, Regions Division, MELP
1998 C&P Guidelines	*Habitat Conservation and Protection Guidelines, Developed from the Policy for the Management of Fish Habitat (1986),* Department of Fisheries and Oceans, 2d ed., 1998
1998 HADD Decision Framework	*Decision Framework for the Determination and Authorization of Harmful Alteration Disruption or Destruction of Fish Habitat,* DFO, Habitat Management Branch, 1998
BCWF's 4 April 1998 Letter	4 April 1998 letter from John B. Holdstock, BC Wildlife Federation, to Hon. David Anderson, Minister, Fisheries and Oceans Canada, and Hon. Cathy McGregor, Minister, Environment, Lands and Parks
Minister Farnworth's 4 November 1998 Letter	4 November 1998 letter from Mike Farnworth, Minister, Ministry of Employment and Investment, British Columbia, to Mr. Michael Costello, President and Chief Executive Officer, BC Hydro
Indian Claims Commission Report	*Athabasca Chipewyan First Nation Inquiry, Report On: WAC Bennett Dam and Damage to Indian Reserve No. 201 Claim*, Indian Claims Commission, March 1998
IRC Report	*Four Year Review of the North American Agreement on Environmental Cooperation: Report of the Independent Review Committee,* Independent Review Committee of the NAAEC, June 1998
1999 WUP Guidelines	*Water Use Plan Guidelines,* Province of British Columbia, dated December 1998 but released February 1999
1999 Draft Compliance & Enforcement Policy	*Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy, Draft,* Department of Fisheries and Oceans & Department of the Environment, July 1999

Introduction

1. Under Article 14, the Secretariat of the Commission for Environmental Cooperation (CEC) may consider a submission from any non-governmental organization or person asserting that a Party to the North American Agreement on Environmental Cooperation (NAAEC) "is failing to effectively enforce its environmental law." When the Secretariat determines that the requirements of Article 14(1) have been met, it decides in accordance with Article 14(2) whether the submission merits a response from the concerned Party. In light of the response provided by that Party, the Secretariat may notify the Council that development of a factual record is warranted, in accordance with Article 15. The Council may, by a two-thirds vote, instruct the Secretariat to prepare a factual record. The final Factual Record is made publicly available upon a two-thirds vote of the Council.

2. On 2 April 1997 the Sierra Legal Defence Fund and the Sierra Club Legal Defense Fund (now Earthjustice) jointly filed a submission with the Secretariat, pursuant to Article 14 of the NAAEC (the "Submitters' April 1997 Submission"). The Submission was filed on behalf of the following non-governmental organizations from Canada and the United States: the BC Aboriginal Fisheries Commission, the British Columbia Wildlife Federation, the Steelhead Society, the Trail Wildlife Association, Trout Unlimited (Spokane Chapter), the Pacific Coast Federation of Fishermen's Associations, the Sierra Club (Washington, D.C.) and the Institute for Fisheries Resources (collectively, the "Submitters").

3. The Submitters allege that, *inter alia*, the Government of Canada ("Canada") is failing to effectively enforce s. 35(1) of the federal *Fisheries Act* against BC Hydro and Power Authority ("BC Hydro"), and that this failure "permits and condones the ongoing destruction of fish and fish habitat in B.C.… ." (Submitters' April 1997 Submission, p. 2). Among other assertions, the Submitters claim that the fact that Canada has "only laid two charges" against BC Hydro since 1990, "despite clear and well documented evidence that Hydro's operations have damaged fish habitat on numerous occasions," constitutes a failure to effectively enforce s. 35(1) of the *Fisheries Act.* (Submitters' April 1997 Submission, p. 1). Section 35(1) of the *Fisheries Act* provides that: "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat."

4. BC Hydro is a Crown Corporation wholly owned by the government of the Province of British Columbia which built, owns, maintains, and operates a system of hydroelectric dams across the Province. (Submitters' April 1997 Submission, p.1).

5. Canada submitted its response in July 1997 (hereinafter Canada's July 1997 Response). In its response, Canada urged that the concept of "effective enforcement" be interpreted broadly, not based solely on the level of prosecutions pursued for alleged violations of s. 35(1) of the *Fisheries Act.* (Canada's July 1997 Response, p. 2). Canada reviewed its wide variety of enforcement responses to the harm to fish habitat caused by BC Hydro operations and asserted that the decision concerning

whether a factual record should be developed should be made in light of this broad array of responses. Canada submitted that its enforcement efforts constituted enforcement of its environmental laws in full compliance with its obligations under the NAAEC. (Canada's July 1997 Response, p. 1).

6. The Secretariat notified the Council on 27 April 1998 that development of a factual record was warranted. The Secretariat agreed with Canada that a broad definition of enforcement is contemplated by the NAAEC. (Secretariat's 27 April 1998 Notification to Council, p. 2). The Secretariat identified several gaps in information concerning the nature of the Party's enforcement activities and their effectiveness in ensuring compliance with s. 35(1) of the *Fisheries Act.* In advising that a factual record should be developed, the Notification stated as follows:

> Additional information is required before an evaluation can be made that Canada is effectively enforcing its environmental laws. It is recommended that a factual record be developed in order to assemble further factual information regarding the enforcement activity undertaken by Canada and the effectiveness of that activity in ensuring compliance with section 35(1) of the *Fisheries Act.* (Secretariat's 27 April 1998 Notification to Council, p. 3. See also pp. 12–14).

7. In Council Resolution 98-07, the Council directed that the Secretariat prepare a factual record. The Council Resolution provides as follows:

> **Instruction to the Secretariat of the Commission for Environmental Cooperation on the Preparation of a Factual Record Regarding the "Effective Enforcement of s. 35(1) of the *Fisheries Act* with respect to certain hydro-electric installations in British Columbia, Canada (SEM-97-001)"**
>
> THE COUNCIL:
>
> SUPPORTIVE of the process provided for in Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* (NAAEC) regarding submissions on enforcement matters and the preparation of factual records;
>
> CONSIDERING the submission filed on the above-mentioned matter by the BC Aboriginal Fisheries Commission, British Columbia Wildlife Federation, Trail Wildlife Association, Steelhead Society, Trout Unlimited (Spokane Chapter), Sierra Club (U.S.), Pacific Coast Federation of Fishermen's Association and the Institute for Fisheries Resources, represented by Sierra Legal Defence Fund and Sierra Club Legal Defense Fund, and in light of the response provided by the Government of Canada;
>
> HAVING REVIEWED the recommendation from the Secretariat of 27 April 1998, to proceed with the development of a factual record;
>
> HEREBY UNANIMOUSLY RESOLVES:

> TO INSTRUCT the Secretariat to develop a factual record in accordance with Article 15 of the NAAEC and the *Guidelines for Submissions on Enforcement Matters under Articles 14 and 15 of the North American Agreement on Environmental Cooperation* with respect to the submission referred to in the title of this resolution;
>
> TO DIRECT the Secretariat, in developing the factual record, to consider whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record;
>
> TO FURTHER DIRECT the Secretariat, in developing the factual record, not to consider issues that are within the scope of the pending judicial proceeding before the British Columbia Court of Appeal in *R.* v. *British Columbia Hydro and Power Authority*, specifically those issues relating to the BC Hydro facilities in the Bridge River hydroelectric system, comprised of Lajoie, Terzaghi, and Seton dams and their respective reservoirs.

8. Article 15 of the NAAEC identifies the types of information the Secretariat should consider in preparing factual records. It provides as follows:

> In preparing a factual record, the Secretariat shall consider any information furnished by a Party and may consider any relevant technical, scientific, or other information:
>
> (a) that is publicly available;
>
> (b) submitted by interested non-governmental organizations or persons;
>
> (c) submitted by the Joint Public Advisory Committee (JPAC); or
>
> (d) developed by the Secretariat or by independent experts.

Guideline 11.1 similarly requires that the Secretariat consider information furnished by a Party and it authorizes the Secretariat to consider information from other sources and to develop information on its own.

9. The Secretariat took several steps to solicit information from the Party (Canada) and to obtain technical, scientific, and other information from interested non-governmental organizations or persons and the JPAC. Among other efforts, the Secretariat sought information from the public in general, and from four parties with particular interest in, and expertise relating to, the Submission: the Party, the Submitters, the Province of British Columbia, and BC Hydro. The Secretariat provided specific notice to the JPAC of the instructions received from the Council for the development of a draft factual record, and requested that JPAC submit any relevant information. The Secretariat also developed information itself and obtained information from an Expert Group it established. This Expert Group was comprised of recognized experts on fish habitat issues, dam operations, and compliance and enforcement. Section III.A below summarizes the process the Secretariat used to

develop information and provides additional information concerning the Expert Group.

10. Guideline 12.1 provides that draft and final factual records will contain four types of information:

> 12.1 Draft and final factual records prepared by the Secretariat will contain:
>
> (a) a summary of the submission that initiated the process;
>
> (b) a summary of the response, if any, provided by the concerned Party;
>
> (c) a summary of any other relevant factual information; and
>
> (d) the facts presented by the Secretariat with respect to the matters raised in the submission.

The remainder of this Factual Record provides these types of information. Section I provides a summary of the Submission. Section II provides a summary of the Response. Section III provides a summary of other relevant factual information and the facts presented by the Secretariat with respect to the matters raised in the Submission. In particular, this section contains two parts. It first summarizes the process the Secretariat used to develop information. It then includes information that was publicly available, submitted by interested parties, or developed by the Secretariat or by independent experts.

I. A Summary of the Submission[1]

11. The Submitters' April 1997 Submission (the "Submission") states that s. 35(1) and s. 40(1) of the federal *Fisheries Act* "make it an offence to carry on any work that results in the harmful alteration of fish habitat." (Submitters' April 1997 Submission, p. 1). As noted above, s. 35(1) of the *Fisheries Act* provides that: "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat." Section 40(1) makes a contravention of s. 35(1) an offence punishable on summary conviction or an indictable offence.

12. The Submission notes that s. 35(2) of the *Fisheries Act* creates an exception to s. 35(1) by permitting the alteration, disruption or destruction of fish habitat by any means authorized by the Minister of Fisheries and Oceans (the "Minister") or under regulations made under the Act. (Submitters' April 1997 Submission, p. 9).

13. The Submission asserts that BC Hydro has "consistently and routinely violated [federal *Fisheries Act*] section 35(1)," and that the regular operation of its dams

[1] While the Submission raises a variety of issues, the Secretariat's 27 April 1998 Notification to Council indicated that a factual record was appropriate "only in respect of the alleged failure to effectively enforce section 35 of the *Fisheries Act*." (Secretariat's 27 April 1998 Notification to Council, p. 3). Council's direction in Resolution 98-07 is consistent with this Notification. As a result, the Factual Record focuses only on this assertion in the Submission.

"causes consistent and substantial damage to fish and fish habitat." (Submitters' April 1997 Submission, p.1). The Submission further asserts that "[t]he Minister has not issued any authorizations pursuant to s. 35(2)… that permit Hydro to damage fish habitat, nor are there any regulations under the Act that exempt Hydro from complying with s.35(1)." (Submitters' April 1997 Submission, p. 9). Other statements in the Submission asserting that BC Hydro operations harm fish habitat include the following: "[h]ydro-electric dams operated by Hydro play a significant role in the alteration and destruction of fish habitat" and "Hydro's operations result in significant damage to, and degradation of, fish habitat on a repeated and consistent basis." (Submitters' April 1997 Submission, pp. 3, 9).

14. The Submission asserts that many fish stocks in British Columbia have already gone extinct, and that an even greater number of stocks are at risk of extinction. The Submission cites hydropower development as one of the primary factors contributing to these declines. (Submitters' April 1997 Submission, p. 2). The Submission further asserts that there are significant costs to such declines:

> The extinction of fish stocks is an irreversible loss. Each stock possesses unique genetic information that determines the timing of its spawning runs, and that also dictates the stock's return to its original spawning bed. That genetic information is lost when a stock becomes extinct. (Submitters' April 1997 Submission, p. 2).

The Submission claims that the loss of fish habitat and fisheries populations have harmed human populations as well:

> The decline in the fisheries has had a significant impact on communities and individuals which depend on fisheries for their livelihoods and cultural identities. First Nations, who enjoy a constitutionally protected aboriginal right to fish, and fisheries dependent communities up and down the coast have faced the severe decline, or loss, of a traditional livelihood. The harmful alteration of fish habitat has reduced recreational fishing opportunities, and threatens the livelihoods of people working in the recreational fishing industry. (Submitters' April 1997 Submission, pp. 2–3).

15. The Submission asserts that BC Hydro dams harm fish habitat in at least seven ways:

- "Reduced Flows,"
- "Rapid Flow Fluctuation,"
- "Inadequate Flushing Flows,"
- "Altered Water Quality,"
- "Entrainment,"
- "Flow Diversion," and
- "Reservoir Drawdown." (Submitters' April 1997 Submission, pp. 3–4).

These harmful impacts sometimes caused by hydroelectric operations are discussed in more detail below.

16. The Submission lists six specific instances in which it asserts that BC Hydro's operations' "harming fish and fish habitat are well known to both Hydro and government agencies." (Submitters' April 1997 Submission, p. 5). These instances involve Keenleyside Dam/Norns Creek fan, Cranberry Creek, Revelstoke Dam, Cheakamus River, Shuswap Falls Project, and Downton Lake. (Submitters' April 1997 Submission, p. 5). Several of these situations are discussed in more detail in the Expert Group Report, attached as Appendix 8.

17. The Submission indicates that these six specific incidents "illustrate the nature and extent of the damage to fish and fish habitat caused by Hydro's operations across the Province." (Submitters' April 1997 Submission, p. 6). In Appendix A, the Submission provides a "comprehensive review" of the alleged impact of Hydro's operations at each of 33 facilities. (Submitters' April 1997 Submission, Appendix A).

18. The Submission asserts that "[BC] Hydro itself has concluded that many of its projects violate the *Fisheries Act*" because various impacts of BC Hydro's operations harm fish habitat, such as inadequate instream flows, rapid fluctuation of flows, entrainment of fish, passing fish over spillways, and operation of reservoirs. (Submitters' April 1997 Submission, p. 6).

The Submission asserts that Canada, in particular its Department of Fisheries and Oceans ("DFO"), the federal department responsible for the administration of the *Fisheries Act*, is aware of violations of the *Fisheries Act*, and "has received frequent correspondence from various Submitting Parties identifying both general concerns regarding the impact of hydropower production on fish habitat, and specific evidence that Hydro has contravened s. 35(1)." (Submitters' April 1997 Submission, pp. 9–10).

19. The Submission alleges that the Party has failed to effectively enforce the *Fisheries Act*. It states: "DFO… has failed, and continues to fail, to enforce s. 35(1) against Hydro." (Submitters' April 1997 Submission, p. 10). In particular, it asserts that DFO has "only laid two isolated charges… against [BC] Hydro since 1990, despite clear and well documented evidence that Hydro's operations have damaged fish habitat on numerous occasions." (Submitters' April 1997 Submission, p. 1). The Submitters conclude that "[t]his submission provides clear evidence that the Federal Government is failing to enforce s. 35(1)." The Submission states that:

> In light of… the clear evidence of a decline in fish populations and habitat, this enforcement record reveals a consistent failure by the Federal Government to effectively enforce s. 35(1) against [BC] Hydro… . (Submitters' April 1997 Submission, p. 10).

20. The Submitters assert that "[t]he Federal Government has enforced s. 35(1) against other individuals whose actions have caused single incidents of damage that pale in comparison to that caused by [BC] Hydro throughout B.C. on an ongoing basis." (Submitters' April 1997 Submission, p. 13). They further assert that "[w]hile the Federal Government therefore appears willing to enforce s. 35(1) against some individuals, its failure to enforce that section against Hydro amounts to an effective exemption of Hydro from compliance with the law." (Submitters' April 1997 Submission, p. 13).

21. The Submitters claim that licenses issued to BC Hydro under the British Columbia *Water Act* have not been effective in preventing harm to habitat or violations of *Fisheries Act* s. 35(1). Specifically, they assert that "less than 7% of those [British Columbia *Water Act*] licenses contain any measures to protect the environment… ." (Submitters' April 1997 Submission, p. 6). They also assert that BC Hydro has "frequently violated the terms of some of its water licenses." (Submitters' April 1997 Submission, p. 6).

II. A Summary of the Canadian Response

22. In Canada's July 1997 Response (the "Response"), Canada states that it is effectively enforcing its environmental laws. (Canada's July 1997 Response, pp. 2, 13).

23. Canada asserts that the concept of effective enforcement under the NAAEC is broad. It states that "Article 5 of the NAAEC recognizes that enforcement encompasses actions broader than just prosecution and provides a non-exhaustive list of appropriate enforcement actions." (Canada's July 1997 Response, pp. 2, 13). Canada claims that the Submitters' definition of effective enforcement is too limited in that it "equates enforcement directly with legal and judicial sanctions." (Canada's July 1997 Response, p. 2, 13). It further asserts that the Submission "fails to appreciate the comprehensive approach recognized in Article 5 and followed by Canada." (Canada's July 1997 Response, pp. 2, 13).

24. Canada indicates that it "has determined that a range of compliance activities, from voluntary compliance and compliance agreements to legal and judicial sanctions, are the most productive in terms of providing for the long-term protection of the environment with respect to fish and fish habitat." (Canada's July 1997 Response, p. 2). Canada offers its perspective on the relative effectiveness of different compliance approaches as follows:

> In any regulatory regime, compliance and enforcement are comprised of a series of measures which can range from voluntary compliance to legal and judicial sanctions. Voluntary compliance and compliance agreements and undertakings are deemed by Canada to be the most productive in terms of providing for long-term protection of the environment with respect to fish and fish habitat. The compliance methods being employed

> by Canada in British Columbia recognize the integrated and complex nature of the BCH system and of the related fish and fish habitat issues. (Canada's July 1997 Response, p. 14).

Canada states:

> As a result of this approach, a clear record of ongoing cooperative, comprehensive, and productive studies and projects to enhance fisheries is evident… The reports and studies [generated by Canada, the Province of British Columbia, and BC Hydro] highlight a number of complex issues which these parties are intent upon resolving. To the extent that they lead to solutions through cooperation, voluntary compliance, negotiation, publicity and persuasion, more compelling enforcement is often unnecessary. (Canada's July 1997 Response, p. 2).

Canada describes its future plans with respect to use of different compliance promotion strategies as follows:

> Canada intends to continue to pursue… cooperative solutions with B.C. and BCH, and to use prosecutions judiciously. (Canada's July 1997 Response, p. 15).

25. Canada indicates that "[m]ore compelling enforcement options are available, such as authorizing terms and conditions, flow opinions, administrative orders, and ultimately prosecutions, and indeed Canada has made use of these more compelling instruments when required, as illustrated in Table 1." (Canada's July 1997 Response, p. 15. The table referenced is reproduced in paragraph 27 below).

With respect to use of such more compelling options, Canada states:

> Canada does not hesitate to utilize the full power of its laws to protect fish and fish habitat, where the exercise of these powers is deemed by Canada to be the appropriate response. Canada's use of more compelling enforcement options is evident and contributes to a history of significant enforcement activity under the *Fisheries Act*. (Canada's July 1997 Response, p. 2. See also p. 15).

26. Canada asserts:

> Enforcement through prosecutions is a last resort after cooperation and persuasion have failed. Immediate and widespread use of prosecution would be ineffective and counterproductive. Prosecutions can be destructive of cooperative relations and wasteful of limited resources that might better be used to produce solutions. (Canada's July 1997 Response, p. 15).

27. As part of its Response, Canada includes a table entitled "Orders and authorizations Issued to BC Hydro since 1990." (Canada's July 1997 Response, pp.16–17, Table 1).

This table, reproduced below, lists two types of authorizations, those issued under *Fisheries Act* s. 35(2) and those issued under *Fisheries Act* s. 32. Section 35(2) authorizations authorize harmful alteration, disruption, or destruction of fish habitat. Section 32 authorizations authorize destruction of fish. The Table also lists s. 22(3) minimum flow orders. (Canada's July 1997 Response, pp. 16, 17).

Table 1: Orders and authorizations Issued to BC Hydro since 1990 [TAB 37] Ss. 35(2) authorizations: harmful alteration, disruption or destruction of fish habitat S. 32 authorizations: destruction of fish Ss. 22(3) orders: minimum flow orders
HABITAT MANAGEMENT UNIT, FRASER RIVER DIVISION, NEW WESTMINSTER Ss. 22(3) Order: May 2, 1997: Letter from Al Lill, (DFO, A/RDG) to Michael Costello (BCH, President and CEO) regarding *Fisheries Act* flow order on the Cheakamus River (Daisy Lake Dam). DFO issues an order to BCH pursuant to s. 22(3) of the *Fisheries Act* for the release of water from the Daisy Lake Dam into the Cheakamus River equal to a minimum of 45 percent of the previous days inflow, into Daisy Lake, with a minimum daily flow of 5 cms released from Daisy Lake Reservoir.
MID-FRASER HABITAT MANAGEMENT UNIT, FRASER RIVER DIVISION, KAMLOOPS Ss. 35(2) Authorization: March 18, 1993: Letter from Heather Stalberg (DFO, Kamloops) to Paul Higgins (BCH, Burnaby) regarding dredging Wilsey Dam forebay, Shuswap River. September 12, 1993: Letter from Byril Kurtz (DFO, Salmon Arm) to Jim Scouras (BCH, Burnaby) regarding replacement of penstock #2 in Wilsey Dam, Shuswap River. October 29, 1993: Letter from Heather Stalberg (DFO) to Jim Scouras (BCH, Burnaby) regarding dredging Wilsey Dam forebay, Shuswap River.
EASTERN B.C. UNIT, HABITAT MANAGEMENT, VANCOUVER Ss. 35(2) and 32 Authorizations: March 28, 1994: Letter from Gordon Ennis (DFO, Chief, Eastern B.C. Unit) to Hugh Smith and Paul Adams (BCH, Burnaby) regarding ss. 35(2) *Fisheries Act* authorization for Norns Creek Fan (pilot recontouring plan discharge reductions from Hugh Keenleyside Dam). DFO authorizes under ss. 35(2) the alteration of habitat in order to provide more abundant spawning habitat for rainbow trout downstream of Hugh Keenleyside Dam. December 23, 1994: Letter from Gordon Ennis (DFO) to Hugh Smith and Paul Adams (BCH, Burnaby) regarding Columbia River flows/levels. DFO authorizes under ss. 35(2) a flow decrease to 44,000 cfs below Hugh Keenleyside Dam contingent on monitoring and funding of a remedial measures program to offset the impacts caused by dewatering of whitefish eggs. December 30, 1994: Letter from Gordon Ennis (DFO) to Hugh Smith and Paul Adams (BCH, Burnaby) regarding Columbia River flows/levels DFO provides notification to BCH that their stated intent to reduce the flow from 44,000 cfs (above) to 32,000 cfs at Hugh Keenleyside Dam on December 31, 1994 will not be authorized except under strict conditions, and alerted BCH to possible prosecutions under the *Fisheries Act*. Flow was reduced and whitefish eggs dewatered and killed. A legal investigation was initiated by the province (MELP); however, no charges were laid. November 30, 1995: Letter from Gordon Ennis (DFO) to Paul Adams (BCH, Burnaby) regarding Columbia

River flow/levels. DFO authorizes under ss. 35(2) a flow reduction to 10,000 cfs for emergency flood control purposes. This was contingent on monitoring and was effective until December 7, 1995.

February 13, 1996: Letter from Gordon Ennis (DFO) to Paul Adams (BCH, Burnaby) regarding Columbia River flow/levels. DFO authorizes a critical dewatering of fish habitat caused by a flow reduction of 15,000 cfs for emergency flood control purposes. This was contingent on mitigation and monitoring, and was effective until February 12, 1996. DFO also requested voluntary action to "alleviate impacts and/or survey brood year juvenile strength [of mountain whitefish]".

December 2, 1996: Letter from Gordon Ennis (DFO) to Walter Udell and Paul Adams (BCH, Burnaby) regarding authorizations pursuant to ss. 35(2) and 32 of the *Fisheries Act*for Seven Mile Unit 4 Project. DFO authorizes works at Seven Mile relating to the installation and operation of a fourth turbine (Unit 4). Authorization conditions included removal of migration barriers, habitat enhancement for rainbow trout and bull trout at adjacent watercourses, monitoring activities and flow releases for the support of fish.

Ss. 22(3) Order:

February 9, 1995: Letter from Louis Tousignant (DFO, RDG) to John Sheehan (BCH, President and CEO) regarding *Fisheries Act*flow order on the Columbia River. On February 9, 1995, DFO receives notification from BCH that they had decided, without authorization, to lower flows in the Columbia River from the Hugh Keenleyside Dam from 24,000 cfs to 18,000 cfs. DFO was of the opinion that this reduction in flow would not protect the eggs of kokanee salmon, mountain whitefish, and rainbow trout that were present in the Columbia River. DFO therefore ordered, pursuant to ss. 22(3) of the *Fisheries Act*, an increase of discharge of water from Hugh Keenleyside Dam to 24,000 cfs.

May 5, 1995: Letter from Paul Adams (BCH, Burnaby) to Gordon Ennis (DFO) regarding BCH remedial works. BCH confirms their commitment to compensation for the February, 1995 flow reduction.

October 25, 1995: Letter from Brian Tobin to Glen Clark which includes background information leading to the flow order; replies to the BC position (including the statement… "We do not accept that the [Columbia River] Treaty provides BC Hydro immunity from the environmental provisions of the Canadian legislation"); and states Brian Tobin's belief that DFO has the constitutional and legislative responsibility to protect the fisheries resource tempered by the Department's "…desire to work cooperatively with BC Hydro and key provincial agencies in ensuring the conservation and protection of our fisheries."

Letter to BC Hydro Requesting Flows:

March 18, 1993: Letter (double registered) from Gordon Ennis (DFO) to Gary Young (BCH, System Control Centre) regarding flows necessary to protect Norns Fan spawners. The letter states that: (1) DFO field staff observed dewatered redds March 18, 1993; (2) DFO does not approve or support any flow regime from Hugh Keenleyside Dam that impacts spawning habitat or threatens the safety of ova; and, (3) BCH is to submit to DFO a flow proposal to address spawning and incubation requirements and a mitigation plan to protect existing redds and/or ova.

S. 32 CHARGES:
Since 1990 there have been a total of 7 agencies/corporations charged (total of 10 counts) under s. 32 of the *Fisheries Act*. BCH was charged twice with a total of 5 counts.

28. Canada identifies a total of five "[e]nforcement and [c]ompliance [s]trategies" in addition to prosecutions: 1) New Projects, 2) Emergency Operations, 3) Regional Technical Committees, 4) Water Use Planning Initiative, and 5) Water Quality Guidelines. (Canada's July 1997 Response, pp. 18–21). These five strategies are summarized in paragraphs 29–33 below.

29. New Projects. Canada describes its strategy for new projects, also referred to as "new and changing operations," as involving three main features: 1) "thorough assessment" of such projects pursuant to the habitat protection provisions of the *Fisheries Act*, the *Canadian Environmental Assessment Act* (CEAA), the DFO Policy for the Management of Fish Habitat, and the DFO Habitat Conservation and Protection Guidelines; 2) requiring the proponent to submit mitigation, compensation, and monitoring plans; and 3) when *Fisheries Act* and CEAA responsibilities are satisfactorily addressed, issuance of ss. 32 and 35(2) authorizations as appropriate. (Canada's July 1997 Response, p. 18). Canada's approach to new projects is discussed in more detail in Section III.B.3.4 below.

30. Emergency Operations. Canada describes its approach to emergency situations as involving four features: 1) Canada applies s. 7(1)(c) of the CEAA and issues as appropriate *Fisheries Act* s. 22 flow orders or s. 35(2) authorizations to deal with any harmful alteration, disruption or destruction of fish habitat; 2) it negotiates mitigation and compensation measures to the extent possible, considering the situation; 3) it usually requires monitoring to document any impacts and the effectiveness of mitigation; and 4) once the emergency is over, Canada "requests the proponent to develop appropriate mitigation procedures and compensation measures to the satisfaction of DFO in anticipation of a similar future emergency." (Canada's July 1997 Response, p. 18). Canada's approach to emergencies is discussed in more detail in Section III.B.3.5 below.

31. Regional Technical Committees. Canada describes Regional Technical Committees (RTCs) as an outgrowth of an umbrella committee established in 1988 by the BC Ministry of Environment Lands and Parks (MELP), BC Hydro, and Canada to look at fish and hydroelectric issues. (Canada's July 1997 Response, p. 18). Canada indicates that a Steering Committee was formed to deal with policy level issues, and RTCs were created to address technical issues. Canada advises that the RTCs were "tasked primarily with identifying existing fisheries concerns and reviewing mitigation and enhancement options at existing hydro facilities in relation to the Electric System Operation[s] Review." (Canada's July 1997 Response, p. 19). Canada reports that it is

> presently working with provincial water licensing authorities in the review of B.C. Provincial water licenses for hydroelectric projects that were issued mostly during the 1960s and the informal agreement on the lower Campbell River to determine if these provincial licenses adequately address the existing requirements for fish protection. (Canada's July 1997 Response, p. 19).

Canada's participation in these committees is discussed in more detail in Section III.B.3.6 below.

32. Water Use Planning (WUP) Initiative. Canada identifies the Water Use Planning (WUP) initiative as a fourth compliance and enforcement strategy. The Province of British Columbia launched the WUP initiative in November 1996, to "deal with the

fish and other non-power issues at all the hydroelectric facilities, where the priority issue is fish." (Canada's July 1997 Response, p. 20). Canada describes the process as follows:

> The process will involve a review of the BCH water licenses, and the development of water use plans for each of the facilities. The plans will likely mean, where required, reallocation of water for fish and mitigative measures (e.g., habitat restoration, etc.), to resolve the long-standing fish impact issues. The plans will also result in changes to the water licenses, and changes to the hydro facility System Operating Orders (Canada's July 1997 Response, p. 20).

Canada explains that the WUP process came about for three reasons:

> 1. The Electric System Operation[s] Review undertaken by BCH, and the provincial response to the Review, that the fish issues had not been adequately addressed.
> 2. The findings of the Ward review indicated that some operations may not be in compliance with the terms of their licenses. […]
> 3. Public concern over high profile habitat impacts, e.g. the loss of spawning gravel habitat in Campbell River[;] forced spills; the Downton Lake deep drawdown; and the draft Alouette and Campbell River Water Use Plans. (Canada's July 1997 Response, p. 20).

Canada provides the following information concerning the timetable for implementation of the WUP initiative:

> When the WUP was announced in November 1996, ten hydroelectric developments were identified as first priorities for review over the following three years: Cheakamus, Campbell, Bridge, Stave, Shuswap, Puntledge, Buntzen, Ash, Jordan, and Walter Hardman. At the same time, B.C. announced that all of BCH's 34 facilities would be reviewed over the next five years leading to new water use plans and revisions to the water licenses. (Canada's July 1997 Response, p. 20).

Canada indicates that a Guideline document "is being prepared… to give some direction in preparing water use plans." (Canada's July 1997 Response, p. 20). As discussed below, such a document was issued in February 1999. Canada's approach to the WUP initiative is discussed in more detail in Section III.B.3.2 below.

33. Water Quality Guidelines. Water Quality Guidelines are the fifth compliance and enforcement strategy Canada identifies in its Response. Canada indicates that it "has been working on the development of Water Quality Guidelines" in partnership with the Province. (Canada's July 1997 Response, p. 21). More specifically, Canada indicates that it is working on the development and implementation of the BC Water Quality Guideline for Dissolved Gas Supersaturating, and that this guideline is ready for imminent publication. (Canada's July 1997 Response, p. 21). Additional

information concerning Water Quality Guidelines is provided in Section III.B.3.7 below.

34. As noted above, the Submission provides information on seven types of harmful impacts that hydroelectric operations may have on fish habitat. These seven types of impacts, again, are as follows:

- "Reduced Flows,"
- "Rapid Flow Fluctuation,"
- "Inadequate Flushing Flows,"
- "Altered Water Quality,"
- "Entrainment,"
- "Flow Diversion," and
- "Reservoir Drawdown." (Submitters' April 1997 Submission, pp. 3–4).

In response to the information contained in the Submission, Canada provides information on each of the seven impacts that hydro operations may have on fish habitat, including Canada's perspective on these impacts. (Canada's July 1997 Response, pp. 23–25).

Canada makes three overall statements. First, it asserts that each of the seven types of harm that dams may cause to fish habitat "ha[s] the possibility of resulting in HADD [harmful alteration, disruption or destruction] of fish habitat depending upon the particular situation and circumstance, however that is not to say that any one of the installations is actually producing any or all of the aforementioned [seven] impacts." Second, it states that "[t]he purpose of the Water Use Planning Process is to investigate impacts at each facility and develop proposals for operational changes that take into consideration the system wide effects of facility specific changes." Third, it indicates "[w]here impacts are currently understood, or clearly demonstrated, a range of activities have been undertaken to try to mitigate the impacts." (Canada's July 1997 Response, p. 22).

Canada then addresses each of these seven impacts in detail:

> **1. *Submitted:*** *Reduced Flows: A reduction in the flow released downstream of a facility can result in decreased habitat quantity due to a reduction in stream volume and total wetted area in the stream. Reduced flows may also cause a change in stream temperature, depending on the depth of outflow to the reservoir thermocline and the exchange rate in the river.*
>
> **Canada's Response:**
>
> Reduced Flows: The Submitters' statements are, as far as they go, correct. However, Canada, B.C., and BCH are also considering other possible impacts of reduced flows including:

a) less flushing of fines from downstream gravels;
b) reduced velocities for smolt downstream migration;
c) magnified surface and substrate ice build-up;
d) altered suitability of velocities and depths for spawning; and
e) less waste dilution.

It should be noted however, that in certain circumstances, reduced flows can provide some benefits, e.g. improved over winter survival and early fry rearing under stabilized flows.

2. *Submitted:* *Rapid Flow Fluctuation: The rate of change of flow through a dam is known as the ramping rate. A ramping rate that is too high during flow increase may displace fish from favored habitats, while a rapid decrease in flows can leave fish and benthic invertebrates (food sources) out of water or trapped in isolated pools. Rapid changes in flow can also disrupt fish spawning activity.*

Canada's Response:

High ramping rates do not necessarily cause a HADD of fish habitat as channel geometry and fish utilization dictate the amount of habitat affected. For example, the Revelstoke Dam has one of the highest ramping rates in the province, but the trapezoidal channel shape, habitat characteristics, and predominance of adult fish over juveniles and eggs suggest that the ramping does not cause a HADD. A mitigated ramping rate alleviates some stranding concerns, and these are adopted for certain BCH operations. For example, during the 1996 spill at GM Shrum on the Peace River, salvage efforts found only a limited number of fish stranded after ramping rates were held to 10 cm/hr, as measured by the stage downstream. However, flow fluctuations, regardless of rate of change, may give rise to egg desiccation in dewatered spawning areas.

3. *Submitted:* *Inadequate Flushing Flows: Inadequate flushing flows can reduce productivity by permitting sediment buildup. At higher discharges, a river reconditions its natural channel, and flushes out accumulated sediment. The limited and regulated flow regimes at many of Hydro's dams do not incorporate flushing flows.*

Canada's Response:

Inadequate Flushing Flows: As above for "reduced flows", this problem can create a HADD. In rivers such as the Columbia River, that have relatively little sediment input, frequent high flows and lack of flushing flows are not seen to be a problem. Where problems are created, compensation may be possible by loosening the substrate through the use of scarification. BCH is conducting a pilot scarification project which

may partially compensate for sediment accumulation and substrate armoring.

4. *Submitted:* *Altered Water Quality: When water is impounded, water temperature, dissolved oxygen content, total gas pressure, sediment and nutrient levels, pH and dissolved metal concentrations can all change. Aquatic organisms that depend on physical water parameters, including both fish and the species they feed on, can be adversely affected by these changes in water quality.*

Canada's Response:

Altered Water Quality: The submitters' arguments are generally valid. Not all of the concerns apply to all facilities, but many probably occur in some form at some facilities. DFO is participating in the management of some of these concerns. For example, DFO, together with B.C., BCH, and Cominco, are participating in a TGP reduction exercise by examining TGP production of spillways, ports, and turbines at various dams, and determining which configurations generate the least TGP. A TGP model, similar to one developed for Bonneville Power Administration, is being developed for operations on the Canadian portion of the Columbia River.

5. *Submitted:* *Entrainment: Fish that inhabit waters in the proximity of power intakes or spillways run the risk of being drawn into turbines or over spillways. For fish that become entrained in turbines, mortality or severe wounding may result from contact with rudder blades. In addition, death may result from the sudden water pressure drop as water passes through the turbine, which can result in impacts similar to those of gas bubble disease.*

Canada's Response:

Entrainment: Entrainment can be a problem at dams. Mitigation in the form of fish screens or other fish avoidance devices can be prohibitively expensive. However, sometimes operational changes, such as voluntary measures taken at the WAC Bennett Dam, can reduce entrainment problems. Strictly speaking this is not a HADD and therefore not subject to regulation under Subsection 35 (1) of the Fisheries Act. The impact in this case is directly on the fish itself and not its habitat.

6. *Submitted:* *Flow Diversion: Diversion of water from one stream for use in power generation in another basin can cause the harmful lowering of flows and interfere in the ability of fish to identify and return to home streams when spawning.*

Canada's Response:

Flow Diversion: The flow diversion concerns centre on the small power projects on the lower mainland and Vancouver Island. These will be subjected to the WUP process. There are no transbasin water diversions in Eastern B.C. from BCH operations, though subbasin water diversions occur at two small hydroelectric operations, Walter Hardman/Cranberry Creek and Whatshan Dam, dewatering portions of the stream bed.

7. *Submitted:* *Reservoir Drawdown: Drawdown of a storage reservoir typically reduces productivity in the shallow, littoral areas of the lake by periodically drying out these areas. This results in mortality of aquatic vegetation and bottom-dwelling organisms that comprise the aquatic food chain. In lakes with fish species that spawn along the shorelines, reservoir drawdown may either prevent spawning or result in the stranding of eggs depending on the extent and timing of the drawdown. Many fish species depend on tributary habitat for spawning and/or rearing, and decreased lake levels may inhibit tributary access for these species. Finally, reservoir drawdown may reduce water quality due to wave-induced mobilization of sediment in the drawdown zone.*

Canada's Response:

Reservoir Drawdown: The submitters' arguments are generally valid. DFO, B.C., and BCH are also considering whether continual reservoir level fluctuation can result in stranding of fish, preclusion of littoral vegetation development, reduced invertebrate production, and shoreline sloughing from wave wash and associated sediment release. (Canada's July 1997 Response, pp. 23–25).

35. Canada provides information on each of the 39 specific incidents of harm to fish habitat in violation of s. 35(1) alleged in the Submission. (Canada's July 1997 Response, pp. 25–58). Information on several of these incidents is discussed in some detail in the Expert Group Report, attached as Appendix 8.

36. Canada summarizes the federal/provincial relationship on the administration of the *Fisheries Act*. (Canada's July 1997 Response, p. 6). Canada notes that it is a federal state. It indicates that the *Constitution Act, 1867* sets out the responsibilities of the federal and provincial governments. It further indicates there is "shared legislative jurisdiction" between these two levels of government "with respect to laws in relation to environmental matters." In particular, Canada reports that BC Hydro "generally falls within provincial jurisdiction, but is subject to federal legislation of general application such as the *Fisheries Act.*" (Canada's July 1997 Response, p. 6).

Canada advises that either the federal or the provincial level of government may carry out compliance activities related to protection of fish habitat. Canada describes the respective authorities and responsibilities of these two levels of government:

> Compliance activities related to protection of fish habitat can be carried out by either the provincial or federal level of government. In the case of B.C., provincial compliance activity may be carried out under provincial legislation or under powers exercised by the province under the federal *Fisheries Act*. Federal compliance activity is rooted in the constitutional responsibility for fisheries and is expressed through the *Fisheries Act*. Collectively these compliance activities are identified as "enforcement" under Article 5 of the NAAEC. (Canada's July 1997 Response, p. 6).

Canada highlights the importance of a cooperative relationship between provincial and federal authorities in protecting fish habitat and promoting compliance with relevant legal requirements, stating:

> In B.C., anadromous and marine species and their habitats are managed by Canada, while B.C. exercises responsibility for managing freshwater species. B.C. also undertakes certain activities with respect to management of freshwater habitats, although Canada retains responsibility for administering the habitat protection provisions of the *Fisheries Act*. The result is a complex administrative environment where cooperation, common goals, and good faith are essential. (Canada's July 1997 Response, p. 7).

Canada indicates that while there is a partnership between the Province and the federal government, Canada remains ultimately responsible for administering the habitat protection provisions of the *Fisheries Act*. (Canada's July 1997 Response, p. 7).

37. Canada describes the BC Hydro system as an "integrated operating system, requiring complex coordination." (Canada's July 1997 Response, p. 8). It notes that this "huge system" is inter-provincial and international in scope. It further notes that the BC Hydro facilities were built mostly in the 1960s and predate the 1977 enactment of the Habitat Protection provisions of the *Fisheries Act* and the entry into force of the NAAEC in 1994. (Canada's July 1997 Response, p. 8; 11 May 2000 Comments of Canada, Appendix 10). Canada summarizes the challenge posed by the size and complexity of the system to Canada's fulfilling its responsibility under the *Fisheries Act* to protect fish habitat:

> In general, it is difficult to institute changes to instantly promote or protect any one of many competing interests or values served by the system and jurisdictions. However, despite this overlay of complexity, Canada does not hesitate to utilize the full power of its laws to protect fish and fish habitat where the exercise of these powers is deemed by Canada to be the appropriate response. (Canada's July 1997 Response, p. 8).

III. A Summary of Other Relevant Information, And Facts Presented by the Secretariat[2]

A. An Overview of the Process Used to Solicit and Develop Information

38. The Submission presents a particularly challenging context in which to obtain information relating to whether a Party is failing to effectively enforce its environmental laws.[3] It involves a substantial number of hydroelectric operations, located in different parts of the Province of British Columbia. (Appendix 7 contains a map of the BC Hydro System). The Submitters claim that these hydroelectric operations are harming fish habitat, and thereby violating Canadian environmental law, in several different ways (reduced flows, rapid flow fluctuation, flow diversion, etc.). In reply, Canada has identified a wide array of responses to the operations' alleged violations of the *Fisheries Act*.

39. The Secretariat retained the services of Stephen Owen, Lam Professor of Law & Public Policy at the University of Victoria, to assist it in developing a process for obtaining information in light of this complicated context. Professor Owen had developed an understanding of the citizen submission process through his designation by Canada as a "senior environmental expert" to serve on the Independent Review Committee (IRC) that conducted a four-year review of the operation and effectiveness of the CEC. (Council Resolution 97-06). Professor Owen is widely recognized for his expertise on process design. He has held a series of high level positions in British Columbia. A brief summary of Professor Owen's background, taken from the IRC report, is provided below:

> Stephen Owen is the Lam Professor of Law and Public Policy and the Director of the Institute for Dispute Resolution at the University of Victoria. He is also a Commissioner of the Law Commission of Canada. Professor Owen has previously been the Deputy Attorney General, Commissioner of Resources and Environment, Ombudsman, and Executive Director of the Legal Services Society of British Columbia. He has been an advisor to numerous international agencies on environmental, human rights and conflict resolution issues in Africa, Southeast Asia, Latin America and Eastern Europe; and was President of the International Ombudsman Institute from 1988 to 1992, representing

[2] As discussed above, the Secretariat has consolidated into a single section the summary of other relevant factual information and facts it is presenting. Thus, this Section of the Factual Record contains information referenced in Guideline 12.1(c) & (d). Documents referenced in this Section are available for consultation in the Secretariat's Montreal office, as are other documents submitted in connection with this Submission.

[3] For the notion that the issue of environmental enforcement is inherently quite complex, *see* Johnson, Pierre-Marc and Andre Beaulieu. 1996. *The Environment and NAFTA: Understanding and Implementing the New Continental Law*, 193. Washington D.C.: Island Press (observing that "[e]nvironmental enforcement is an enormously complex issue").

> Ombuds offices in more than 60 countries. (IRC Report, Annex 2, para. 54).

40. Because the Submission and Response raise a series of complex, highly technical issues, the Secretariat convened an Expert Group comprised of individuals with expertise in three relevant areas:

- William Best, an expert in hydroelectric operations. Mr. Best is a graduate of the University of British Columbia Faculty of Applied Science in Electrical Engineering and a member of the Association of Professional Engineers of British Columbia. He has served as a member of the Executive Committee of the Canadian Electrical Association and as a Director of the Canadian Institute of Energy and of the Northwest Public Power Association. Mr. Best also has been a Commissioner of the BC Utilities Commission. Mr. Best served for more than 30 years as an official with BC Hydro, where he held a series of high-ranking positions. He was a senior BC Hydro executive in the following positions: Vice President, Electrical Operations (July 1975–1981), Vice President, Corporate (March 1981–April 1984), Executive Vice President, Business Operations (April 1984–October 1985), Senior Vice President, System Development and Research (October 1985–December 1986), Vice President, System Planning (December 1986–December 1987), Vice President, Customer Services (January 1988–April 1988), and Vice President (April 1988–September 1988).

- Dean David Cohen, an expert in regulatory and compliance matters. Dean Cohen obtained his Bachelor of Science degree at McGill University, his LL.B. at the University of Toronto, and his LL.M at Yale Law School. He served as Dean of the University of Victoria School of Law from July 1994 until May 1999, at which point he resigned to become the Dean of Pace University's School of Law. Dean Cohen teaches in the areas of law and regulatory policy and has written extensively in a range of areas including environmental policy and regulation.

- Michael Healey, an expert in fish habitat-related issues. Professor Healey received Bachelors of Science (B.Sc.) and Masters of Science (M.Sc.) degrees in Zoology from the University of British Columbia in 1964 and 1966 and a Ph.D. in Natural History from Aberdeen, Scotland in 1969. Professor Healey is Professor in the Institute for Resources and Environment, the Fisheries Centre and the Department of Earth and Ocean Sciences, UBC. From 1990 to 1995 he was Director of the Westwater Research Centre at UBC. Prior to 1990, Professor Healey was a senior research scientist with the Department of Fisheries and Oceans. Professor Healey has 25 years of experience as a government scientist and academic in research and analysis of fish populations and fisheries-related scientific issues. He has served as a consultant to government and industry in Canada and the United States on the management of fish and fish habitat.

The Expert Group produced a report containing information it developed. This report is attached to the Factual Record as Appendix 8. The Factual Record also incorporates information developed by the Expert Group, as referenced below.

41. The Secretariat identified four key stakeholders in this Factual Record process: Canada, the Submitters, the Province of British Columbia and BC Hydro (collectively, the "Stakeholders"). The Submitters and Canada have an obvious, particularly strong interest in the Factual Record process in their respective capacities as the parties that launched the process and the Party whose enforcement practices are under review. The Province of British Columbia's role as a partner in many of Canada's initiatives and its independent responsibilities for water resources management, including regulation of BC Hydro operations, gives it a key interest. BC Hydro, the operator of the dams at issue, has a strong interest as well. The Secretariat made several efforts to obtain information from each of these Stakeholders.

42. In a letter dated 18 December 1998, the Secretariat invited the four Stakeholders to provide information both orally and in writing. (The documents referenced in this paragraph are attached as Appendix 1.) The Secretariat indicated that it would accept written comments until 23 February 1999. The Secretariat further advised the Stakeholders that it was convening an Expert Group to assist it, and the Secretariat invited each of the four Stakeholders to meet with, and present information to, the Expert Group during the week of 11 January 1999. As noted below, the Secretariat subsequently extended both the time period for submitting comments and the time for the Stakeholders to meet with the Expert Group.

43. The Secretariat sent out two other documents to the Stakeholders on 18 December 1998, in addition to the introductory letter referenced in the preceding paragraph. The Secretariat distributed a Synopsis (Appendix 2), which provided an overview of the Article 14 process and the process the Secretariat intended to use to develop information for consideration in the Factual Record. The Synopsis states:

> It is the Secretariat's responsibility, pursuant to the instruction of the Council, to prepare a draft factual record relating to the effectiveness of Canada's enforcement practices. In doing so, the Secretariat will review the information the Submitters and Canada have already provided. The Secretariat will develop additional information by, among other activities, reviewing the legal and policy context associated with the alleged violations, developing information by working with independent experts, and obtaining information from interested stakeholders.
>
> In particular, an Expert Group will be convened and asked to provide information concerning the effectiveness of the Canadian approach to enforcement. Further, stakeholders (e.g., the Submitters, Canada, British Columbia, and BC Hydro) will have the opportunity to provide information concerning the effectiveness of the Canadian approach to

> enforcement. Each of the major stakeholders listed above will have an opportunity to meet with, and provide information to, the independent experts in mid-January during the experts' initial round of meetings. The Secretariat also will accept written comments on the effectiveness of Canadian enforcement efforts until February 23, 1999. (Appendix 2, para. 2).

44. The Secretariat also distributed a document on 18 December 1998 entitled Scope of Inquiry (Appendix 3), to focus the information-gathering process and thereby enhance the efficiency and effectiveness of the effort to develop information. The Scope of Inquiry specifically outlined the types of information the Secretariat was interested in developing:

> This document is intended to promote development of information regarding whether Canada has been effectively enforcing its environmental laws.
>
> …Specific BC Hydro operations for which the Secretariat is seeking information are identified in the Submission and in the Response. Please be aware that the Council directed the Secretariat not to consider issues relating to the BC Hydro facilities in the Bridge River hydroelectric system, comprised of the Lajoie, Terzaghi, and Seton dams and their respective reservoirs. Therefore, the Secretariat is not seeking information with respect to these facilities or their respective reservoirs.
>
> As indicated above, the focus of the Secretariat's information-gathering process is on whether Canada has been effectively enforcing its environmental laws. The following types of information, especially information beyond that already provided to the Secretariat, are particularly relevant:
>
> - Information concerning the nature of the incidents or alleged violations identified in the Submission and Response and their impacts on fish habitat;
> - Information relating to the nature of the Canadian responses to these incidents; and
> - Information relating to the effectiveness of these responses. Such information may include, among other things, information relating to the strengths and weaknesses of a particular response or responses in: a) preventing harmful impacts from continuing, reducing the severity of continuing impacts, and/or reducing the likelihood of impacts continuing; b) preventing harmful impacts from recurring in the future, reducing the likelihood of recurrence, and/or reducing the impact of any future incidents; or c) repairing or otherwise redressing any adverse impact to fish habitat caused by incidents. (Appendix 3, para. 1–2).

The Secretariat included additional detail in the Scope of Inquiry concerning the types of information it was interested in developing by quoting excerpts from its April 1998 Notification to Council:

> The following five excerpts, quoted directly from the Secretariat Recommendation to the Council for development of a Factual Record, illustrate the types of issues that persist regarding the Submitters' allegations. The text in **bold** (which is, again, quoted from the Secretariat's earlier document) in particular suggests the kinds of information that will be especially relevant to the question of the effectiveness of the Canadian approaches.
>
> 1. The Submitters allege that in the summer of 1996, BC Hydro dewatered Cranberry Creek, killing and stranding trout over a 10 km section. Canada's Response states that the Walter Hardman development, which affects Cranberry Creek, is a priority for the WUP initiative, and that DFO has participated in the development of interim operating orders, which are not yet in effect. **It is not clear from the Response what specific enforcement action Canada undertook (and the effectiveness of that action) in response to the incident at Cranberry Creek. Without the benefit of that information, including information in respect of Canada's enforcement policies, it is difficult to evaluate whether there has been effective enforcement with respect to the incident at Cranberry Creek or the other specified incidents in the Submission.**
>
> 2. Similar questions apply to allegations which relate to ongoing operational problems. For example, the Submission suggests that with respect to the Shuswap Falls project, negative effects have resulted from low winter flows, dewatering, rapid flow ions, increased sediment levels, and reduced access, as well as impacts on benthic productivity. In response, Canada lists a number of actions taken, including the following: (a) commissioning a study on the impacts of ramping down on flows; (b) the development of a rule curve which BC Hydro is currently declining to use; (c) DFO's verbal statement to BC Hydro that the flow regime proposed by BC Hydro is unacceptable; and (d) DFO's request to BC Hydro for additional time to monitor work such as flash board removal. In addition, Canada refers to a request by the BC Ministry of Environment, Lands and Parks, not acceded to by BC Hydro, that the impacts of ramping on invertebrates be examined. **Again, little information is provided on the effectiveness of these actions to ensure compliance with the law.**
>
> 3. The Submission states that the Bennett Dam and the G.M. Shrum Station are associated with a decline in fish productivity, rapid flow fluctuations causing strandings, elevated gas levels and sedimentation. Canada responds that:

> DFO was not involved at the time of construction in the 1960s. BC Hydro has not requested *Fisheries Act* authorization for the project. DFO's Eastern BC Habitat Unit was formed in 1990, two decades after operations were established at these facilities.

These statements do not appear germane to the issue of whether Canada is failing to currently effectively enforce its environmental laws. Canada's Response does not appear to be directed to the allegation of a present, continuing failure to effectively enforce its law. More information is therefore required. Canada also asserts that the negative impacts of facilities at the Bennett Dam are offset, at least in part, by the Peace/Williston Compensation Program. It is unclear that compensation is of any relevance to the effective enforcement of Canada's environmental laws.

4. Another example is the allegation respecting the Keenleyside Dam. The Submission states that complete shut down of flows in April 1990 dewatered and stranded rainbow trout and kokanee fry on the Norns Creek fan. Canada has responded that this event cannot be the subject of an Article 14 submission, since it occurred before the NAAEC came into force. The Secretariat concurs, and recommends that a factual record not be prepared in respect of this specific allegation.

However, if a situation arising in the past continues to exist, it may be the subject of an Article 14 submission. For example, if BC Hydro operations continue to damage fish habitat, it makes no difference if those activities were commenced prior to the entry into force of the NAAEC. As noted above, the Secretariat recognizes that a present duty to enforce may originate from a situation which continues to exist. **If the construction of facilities in the past has led to a state of affairs which "has not ceased to exist," then the facts surrounding this condition may be the subject of a factual inquiry.**

5. In asserting that Canada has failed to effectively enforce s. 35(1) of the *Fisheries Act*, the Submitters point to the fact that only two prosecutions have been undertaken against BC Hydro since 1990. Canada, in its response, suggests that it undertakes a variety of activities which, when taken together, constitute effective enforcement of its environmental law. The Secretariat is mindful of the varied principles and approaches that can be applied to a definition or application of the term "effective enforcement". For example, under certain circumstances, other enforcement measures may be deemed more effective in securing compliance than an exclusive reliance on prosecutions. **In that regard, it is not clear how Canada selects its enforcement responses to secure compliance with its environmental law.**

In summary, Canada's response does not disclose sufficient factual information regarding the specific enforcement activity undertaken

> **by Canada in each of the alleged incidents and the effectiveness of that activity in ensuring compliance with its environmental law.** (Appendix 3, para. 2–4).

In sum, the 18 December 1998 Scope of Inquiry sought to promote efficient provision of information for consideration as part of the Factual Record through its reference to the April 1998 Notification to Council. This Notification identified two key types of information—information concerning the nature of Canada's enforcement activities and information concerning the effectiveness of those activities in ensuring compliance with Canadian environmental law.

45. On 22 January 1999 a letter was sent to the Stakeholders notifying them that the Factual Record would focus particular attention on a limited subset of six BC Hydro facilities:

- W.A.C. Bennett/Peace Canyon,
- Keenleyside,
- Shuswap Falls,
- Cheakamus,
- Walter Hardman, and
- John Hart. (22 January 1999 Letter, Appendix 1).

The letter explained the focus as follows:

> The experts believe that a focus on these facilities will enable them to develop information concerning the primary types of adverse impacts on fish habitat sometimes caused by hydroelectric operations and the full range of Canada's responses. Further, this focus will enable the experts to develop information concerning the system as a whole and it will capture the major watersheds involved. The experts are interested in developing information concerning the nature of the impacts on fish habitat caused by the BC Hydro operations' alleged non-compliance, the types of actions the government has taken to reduce the impacts, and the extent to which the government's actions and BC Hydro's efforts have been successful in reducing impacts. (22 January 1999 Letter, Appendix 1).

The letter requested that the Stakeholders identify any other facilities that should be selected.

46. The Expert Group met on 26 January 1999 in Vancouver. The Sierra Legal Defence Fund (SLDF) presented information to the Expert Group. The other Stakeholders were invited to attend and observe. BC Hydro representatives were present.

47. A set of written Questions was distributed to the Stakeholders on 3 February 1999 ("3 February 1999 Questions," contained in Appendix 4).

48. The Expert Group met in the afternoon of 10 February 1999 in Vancouver. BC Hydro presented information to the Expert Group during this meeting. Other Stakeholders were invited to attend and observe and Provincial officials did so.

49. The Secretariat made efforts to schedule presentations by Canada and the Province of British Columbia to the Expert Group. One such presentation was scheduled for 11 February 1999, for example, but this presentation was postponed at Canada's request. No such presentation was ever made.

50. On 18 February 1999 a letter was sent to the Stakeholders indicating that due to the changes in meeting dates, the date for submitting written submissions to the Expert Group and Secretariat had been extended from 23 February 1999 to 8 March 1999. (See 18 February 1999 Letter, Appendix 1). The date for submitting written submissions to the Expert Group and Secretariat was later extended from 8 March 1999 to 22 March 1999. Written submissions were received from Canada, BC Hydro, the Province of British Columbia, SLDF, Earthjustice, the Water Use Plan Management Committee (made up of members from Canada, BC Hydro and the Province of British Columbia), and the Athabasca Chipewyan First Nation.

51. On 21 April 1999 a letter was sent from the Secretariat to Canada and the Province of British Columbia requesting follow-up information based on the information provided in their March 1999 Submissions (the "21 April 1999 Questions"). A copy of this letter was sent to BC Hydro and the Submitters. The Secretariat received a response to this request, dated 11 June 1999 ("11 June 1999 Response to 21 April 1999 Questions"). This response was drafted by DFO (responses to questions #1–4) and the Water Use Plan Management Committee (responses to questions #5–9). The Secretariat considered the information referenced in this paragraph and the preceding one, as well as other information furnished by Canada and others.

52. Because much of the Factual Record, based on the Council Resolution, concerns the nature of Canadian enforcement efforts and the effectiveness of those efforts, the Secretariat contacted the government of Canada on several occasions in an effort to schedule meetings with knowledgeable government officials in order to make the Factual Record as comprehensive and accurate as possible. Such meetings never occurred and the Secretariat developed as accurate and complete a Factual Record as possible under these circumstances.

53. In addition to its efforts to obtain information from the Stakeholders, the Secretariat took several actions to keep other interested parties apprised of the status of the Factual Record process. The Secretariat notified the public of its opportunity to participate in the process. The Secretariat placed the documents referenced above (the 18 December letter, the Synopsis, and the Scope of Inquiry, etc.) on the CEC website and it established a document repository in Victoria, British Columbia. On 19 January 1999 the Secretariat sent a memorandum to the Joint Public Advisory

Committee (JPAC) requesting submission of any information that might prove relevant for the preparation of the Factual Record.

B. Presentation of Technical, Scientific, and Other Information That was Publicly Available, Submitted to the Secretariat, or Developed by the Secretariat or by Independent Experts

54. As noted above (see paras. 6, 44 above), the Secretariat's 27 April 1998 Notification to Council indicates that a factual record should be developed for this submission in order to obtain more information concerning the nature and effectiveness of Canada's enforcement practices intended to address the harm to fish habitat caused by BC Hydro operations. The Secretariat presents here four of the central facts concerning these topics that are covered in more detail below.

- First, in recent years Canada has used a variety of enforcement strategies in an effort to promote BC Hydro's compliance with *Fisheries Act* s. 35(1) by reducing the harm to fish habitat caused by BC Hydro operations. Some progress has been made through these efforts to address situations in which harm has occurred or is occurring. The Water Use Planning (WUP) process, discussed below and currently underway, has been initiated in large part because of the view that more such action is possible and appropriate.

- Second, the WUP process, officially launched in 1996, occupies a critical place in the governments' "tool box" of strategies for effectively enforcing *Fisheries Act* s. 35(1) by "resolving" harm to fish habitat caused by BC Hydro operations. WUP is a "major new initiative" that Canada believes holds great promise for addressing fish habitat impacts of hydroelectric facilities. This initiative is intended to result in adoption of a water use plan for each of BC Hydro's hydroelectric facilities within a five-year period. The water use plans will, among other things, re-allocate water for purposes of protecting fish and fish habitat in order to "resolve the long-standing fish impact issues." (Canada's July 1997 Response, pp. 9, 10).

- Third, there are several issues relating to the effectiveness of the WUP process. Canada asserts that effective enforcement of s. 35(1) is measured by achievement of No Net Loss (NNL) (see, for example, para. 72 below), and it claims that through WUP NNL will be achieved (see, for example, para. 82 below). Canada states that "[f]acility operations that are in accordance with the terms and conditions of an approved WUP will be in compliance with… the *Fisheries Act*" (WUP Management Committee's March 1999 Submission, p. 12).

  The Submitters claim that BC Hydro operations will continue to cause harm to fish habitat and continue to violate *Fisheries Act* s. 35(1) following completion

of the WUP process. The Submitters' view is that activities that harm fish habitat violate s. 35(1) unless Canada issues an authorization under s. 35(2) that authorizes such harm:

> [E]ffective enforcement of section 35 occurs only when harm to fish habitat is prevented, or is authorized [under s. 35(2)] after environmental assessment—the legislative scheme clearly contemplated by section 35. (Submitters' January 1999 Speaking Points, p. 3).

The Submitters assert that the WUP process will not produce compliance with s. 35(1) because, in their view, the WUP process does not meet the requirements of s. 35(2) and the *Canadian Environmental Assessment Act* (CEAA). The "deficiencies" the Submitters believe exist in the WUP process are discussed below. Questions about the WUP process raised by the Expert Group are covered below as well.

- A final introductory point, also about the WUP process, flows from the essential character of the process as an ongoing, iterative effort. The governments do not promise that the WUP process, including adoption of water use plans, will be a panacea or provide a quick fix that eliminates or minimizes harm to fish habitat from BC Hydro operations. Instead, they indicate that WUP represents a systematic, comprehensive approach to addressing fish habitat and other issues associated with hydroelectric operations by first improving understanding of the impacts, and then considering options for addressing them, all through a consultative process.

  The governments, for example, make the point several times that significant gaps in understanding exist relating to fish habitat, the harmful impacts dams have on fish habitat, and the relative merits of different possible approaches for resolving such impacts. (See, for example, para. 129 below). A key objective of WUP is to identify such gaps and fill them. Further, "adaptive management" approaches will be needed as strategies are tried, monitored, and refined in light of lessons learned.

  Thus, in short, while efforts have been made (and are ongoing) to develop necessary information, [4] and while various interim efforts to address particular harmful impacts have been launched and are ongoing, inherently WUP is a

[4] For the fact that, aside from WUP, efforts to fill data gaps have occurred and are ongoing, see, for example, *The Downton Reservoir Operation Summary Related to May 1996 Planned Reservoir Drawdown* ("Downton Report"), provided as an appendix to the WUP Management Committee's March 1999 Submission. This Report notes that BC Hydro has "made some creditable progress towards evaluation of the fish impacts in some parts of the system." It identifies, *inter alia*, the Fish Flow Overview Report, which "examined 33 BC Hydro hydroelectric projects… and attempted to examine the fish flow impacts of each project, and to prioritize areas for a further study based on three factors: operational significance, potential biological improvements, and level of concern from public and agencies." (Downton Report, p. 21). Other work to develop information has been done since the 1995 release of the Government Response to ESOR as well. The WUP Management Committee states that "[d]ata gaps are beginning to be addressed. ….The Water Use Plan Program, with its emphasis on information collection, is also designed to address these gaps." (WUP Management Committee's March 1999 Submission, p. 6; see also p. 16).

long-term process with development of critical information and adjustments over time key components. The WUP Management Committee notes this point in its March 1999 Submission. It states that the WUP program "is in its initial stages and its biggest benefits are yet to come." (WUP Management Committee's March 1999 Submission, p. 27). The lesson for this Factual Record flowing from this central feature of the WUP process is that important information relevant to the effectiveness of WUP does not yet exist. Information concerning the effectiveness of WUP will emerge over time as data are gathered, WUP plans are developed for various BC Hydro facilities, *Fisheries Act* s. 35(2) authorizations are (or are not) issued, operational and other changes are made, and the results are monitored and used to generate appropriate refinements of approach. Much of the work of WUP lies in the future; information relevant to the effectiveness of this approach can only be developed then as well. The WUP Management Committee identifies the need for monitoring as an inherent feature of WUPs. The Expert Group identifies several specific elements of WUP that should be monitored in particular.

55. The remainder of this section of the Factual Record is organized into five sub-sections. The first two provide important contextual information. Of these, the first provides background information on BC Hydro operations and the types of harm such operations may cause to fish habitat. The second provides background information concerning the appropriate scope of the inquiry to implement the Council's direction in Council Resolution 98–07 "to consider whether [Canada] 'is failing to effectively enforce its environmental law,'" notably *Fisheries Act* s. 35(1).

The third sub-section provides information concerning the more significant Canadian enforcement responses. The fourth contains a summary of the Expert Group's review of enforcement involving the six BC Hydro facilities selected for relatively in-depth review. The details of the Experts' review are covered in the Expert Group Report, attached as Appendix 8. This Expert Group Report provides information relating to the harm to fish habitat caused by these BC Hydro facilities, Canada's enforcement efforts to reduce or eliminate such harm, and the effectiveness of such efforts. The final sub-section of the Factual Record summarizes Canada's approaches to enforcement with respect to the s. 35(1) prohibition against harming fish habitat. The Factual Record, including this Section, contains information provided or developed by various parties. It also includes information developed by the Secretariat. To state explicitly a point that is implicit in the presentation of information, inclusion of information from various parties does not necessarily mean that the Secretariat shares the views expressed. Instead, the content and structure of the Factual Record are intended to provide the reader with a coherent presentation of relevant factual information, including the perspectives of various parties, relating to the issues involved.

1.0 Background on BC Hydro Operations and the Types of Harm Such Operations May Cause to Fish Habitat[5]

1.1 Historical

56. Development of water resources in British Columbia dates back to the mid-1800s when several small hydro plants were constructed on southern Vancouver Island. In the late 1890s West Kootenay Power Company began construction of its system of plants on the Kootenay River in the interior of the province. During the early 1900s the BC Electric Railway Company undertook hydroelectric development on several tributaries to the Fraser River in B.C.'s lower mainland and beginning in 1927 it started its Bridge River Development.

57. In the 1960s the BC provincial government, through the newly formed Provincial Crown Corporation BC Hydro and Power Authority (BC Hydro), undertook the massive hydroelectric development of the Peace and Columbia Rivers. The successful negotiation of the Columbia River Treaty between Canada and the United States was a key element of this development. By 1972, ten years from its inception, BC Hydro had increased its power supply by more than 125 percent. Today more than 80% of B.C.'s electricity is produced by the hydroelectric facilities on the Peace and Columbia Rivers.

1.2 The BC Hydro System Today

58. The BC Hydro system today serves more than 1.5 million residential, commercial and industrial customers in areas that contain more than 94% of the Province's population. The utility produces 43,000 million to 54,000 million kWh annually depending on precipitation. Approximately 90% of the total installed BC Hydro generating capacity is hydroelectric. The hydroelectric component comprises 61 dams at 43 locations. There are 34 hydroelectric generating facilities. (See map of the BC Hydro System, Appendix 7). The major hydro projects on the Peace and Columbia rivers account for more than 80% of BC Hydro's electricity generation.[6]

59. In addition to providing electricity to British Columbia consumers BC Hydro participates in electricity trade with Alberta and the western United States through high voltage tie lines. BC Hydro also operates water storage facilities on the Columbia River system in Canada in accordance with the Columbia River Treaty provisions.

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[5] The information provided in this section was developed by the Expert Group and is taken, with some modifications, from pp. 3–8 of the Expert Group Report, attached as Appendix 8 to the Factual Record. Information relating to the issues covered in this section was provided by others as well. (See, for example, BC Hydro's 4 February 1999 Submission, pp. 5-8).

[6] Canada provided additional contextual information in its 11 May 2000 comments on the draft Factual Record, attached as Appendix 10.

1.3 Overview of BC Hydro System Operations

60. The primary objective of BC Hydro operations is to maintain an adequate and reliable supply of electricity to its British Columbia consumers and to meet its supply obligations to export customers outside the Province. A further, significant obligation is to operate its water storage facilities on the Columbia River in accordance with agreements reached under the Columbia River Treaty. A secondary objective is to market surplus electricity obtained through fortuitous water conditions and prudent reservoir management at the best obtainable price, normally in the export market.

61. Because the BC Hydro generation mix is predominantly hydroelectric, the amount of water that can be captured, stored, and released through its turbine generators determines the amount of electricity that can be produced. While water can be (and is) stored, electricity cannot be, so at any given time the amount being generated must equal the amount being consumed. The amount of water flowing into the reservoir systems is dependent on the precipitation in the related watershed over the year. The amount of water that can be stored in the reservoirs, routed through the generator turbines (as opposed to spilling past the turbines), and converted into electricity will depend on the size of the reservoir storage and how that storage is managed throughout the year. Good reservoir management from a power production perspective means accurate measurement of the water in the watershed (snow depths and water content of the snow) and good predictions about what volumes of water will flow into the reservoir during specific time intervals. The objective from a power production perspective is to have the reservoirs drawn down in the spring to such a level that the spring melt will just fill the reservoirs. If the inflows are greater than expected, water may have to be spilled. If the reservoir does not refill, the hydraulic head will be less than optimal for efficient generation and the facility output will be reduced. These reservoir decisions are made using historical stream flow, snow course, and meteorological data.

62. With a large, electrically integrated system like BC Hydro's, the operators are able to offset poor water conditions at one hydroelectric site by using favorable water conditions at another site. For example, should the reservoir at one site be lower than optimal the operators can increase generation from other hydro sites where water conditions are better than normal. Similarly, available thermal or electricity imports can be utilized. The BC Hydro reservoirs are located on different river systems widely dispersed throughout a province with normally diverse weather conditions. This diversity of water conditions at BC Hydro reservoirs is a significant strength.

63. A factor adding to the flexibility and complexity of the BC Hydro system is the storage and controlled release of water into the Canadian section of the Columbia River under the terms and conditions of the Columbia River Treaty. Effectively, BC Hydro and the Bonneville Power Administration, a United States federal agency, are hydraulically and electrically linked through the Columbia River System and the integrated electrical transmission network. Reservoir levels and flow rates on the

Columbia River, and other river systems in British Columbia, are affected by the Columbia River Treaty operations.

64. The BC Hydro reservoirs are very large, particularly the Williston and Kinbasket reservoirs on the Peace and Columbia rivers. Smaller reservoirs cycle annually, *i.e.*, they are drawn down to a minimum level and refilled in one, twelve month period. The large Peace and Columbia reservoirs cycle over a three to four year period. It would take three to four years of poor water conditions to draw these reservoirs down to their minimum design levels. But it would also take three to four years of good water conditions to refill them. The longer cycling period means less susceptibility to short term low stream flow conditions and greater overall flexibility in generation.

1.4 Impacts of Hydroelectric Operations on Fish Habitat

65. The original construction and subsequent operations of the components of a hydroelectric system—dams, storage reservoirs, river diversions, spillways and hydroelectric turbines and generators—have significant impacts on the environment and on humans and other creatures that depend on a healthy environment. This Factual Record focuses specifically on the impact of BC Hydro hydroelectric facilities and operations on fish and fish habitat. These facilities and other operations have other impacts as well, including impacts on transportation, agriculture, industry, recreation, and consumption.

66. The range of impacts of hydroelectric facilities and operations on fish and fish habitat includes the following:[7]

- Blockage of upstream and downstream movements of resident and migratory fish. Stream fishes often undertake significant migrations upstream and downstream for the purposes of breeding or feeding. Construction of a dam usually completely blocks these normal movements. Although some species and populations are able to adjust to the new situation, others cannot and this may significantly reduce the productive potential of the river.

- Entrainment of fish into penstocks, turbines and spillways. (Entrainment refers to the process by which small fish are sucked into turbines and spillways by the flow of water.) Entrainment can kill or injure fish and displace them into unsuitable habitats.

- High concentrations of dissolved gas in water created by turbines and spillways and by algal blooms in reservoirs. Gas saturation above 100% can cause gas bubble disease in fish. Below dams, elevated Total Gas Pressure (TGP) is caused by water plunging off spillways carrying air bubbles deep into the pool

[7] Information on the generalized effects of hydroelectric production on fish and aquatic ecosystems is also provided in *Government Response to BC Hydro's Electric System Operations Review*, Attachment 4 (April 1995).

below the spillway. The bubbles deep in the pool dissolve in the water because of the greater pressure at depth, increasing the concentration of gas in the water to more than 100% saturation. A similar phenomenon can occur in lakes when there is an intense bloom of algae producing lots of oxygen which raises the gas pressure in the surface waters of the lake above 100% saturation. High TGP can cause death or injury of fish because, when they are in water with elevated TGP, their body fluids become supersaturated with gas so that when they move to water with lower TGP the excess gas they have absorbed forms bubbles in their blood and other tissues (like a diver getting the "bends"). It is important to note that the effects of high TGP are uncertain in nature.

- Toxicity created by decomposition of organic material in reservoirs, *e.g.*, low dissolved oxygen, methylation of mercury.

- Excessive water turbidity created by sloughing reservoir and river banks, which reduces visibility for fish looking for food, reduces the light penetration into lake and river waters so that plant growth is inhibited, and can smother spawning beds and thereby suffocate eggs and fry in the bottom gravels.

- Loss of spawning and nursery areas beneath reservoirs and by scouring of gravels downstream of facilities. Reservoirs often flood historic spawning and nursery habitats for stream dwelling fishes. Reservoirs block downstream movement of gravels from above dams so that when bottom gravels are scoured out downstream they are not replaced and spawning habitat is lost.

- Insufficient water releases or large fluctuations in water releases so that fish and ova are exposed and destroyed. Operation of dams typically changes the daily and seasonal hydrograph downstream. Usually the high flows are reduced because these are used to fill the reservoir so that floodplain habitats that would normally be flooded during freshet remain dry. These marginal habitats are often important spawning and nursery habitats for some fishes. Flow below hydro dams can also be highly variable on an hourly basis as demand for electricity changes throughout the day. These rapid short-term fluctuations in water flow can wash fish out of reaches of the river or leave them stranded in marginal pools when the water drops rapidly. The seasonal activities of fishes and other aquatic organisms and their movements are usually adapted to the natural seasonal changes in flow of the river so that the changes brought about by dam operation can disrupt natural life processes in fishes and other organisms.

- Changes to water temperature affecting fish, ova incubation and the ability of rivers and reservoirs to sustain plant and animal life upon which fish depend for food. Temperature changes impact fish in several ways. Discharge from reservoirs is often warmer in winter than the natural river. In the winter higher temperatures result in greater metabolic rates in fish which means that they need more food. Higher winter temperatures also mean that eggs develop too

fast. In the summer, reservoir discharges can be either warmer or cooler than the natural river, again having implications for metabolism, growth, food production and survival. The implications of temperature are complex. Some temperature impacts are beneficial and some are harmful. For example the surface waters of a reservoir can be impoverished in summer due to temperature stratification and the trapping of nutrients in deep water. On the other hand, a reservoir may be more productive than the stream it replaced because of warmer temperatures, being more open to sunlight, and the fact that nutrients are trapped in the reservoir to be recycled year after year.

- Trapping of nutrients in reservoirs so that downstream productivity is reduced. Although a reservoir may be more productive than the stream it replaced, the river downstream may be reduced in productivity because the reservoir traps nutrients that would normally have flowed downstream.

- Trapping of sediments in reservoirs so that downstream river channels are deprived of sediment and become degraded. This was mentioned above with respect to spawning gravels but, in fact, the whole structure of the river downstream from a dam can be changed by the trapping of sediments in the reservoir. (See further elaboration below). Changes in the sediment dynamics of the river coupled with changes in the seasonal flow regimes below dams mean that the two factors most responsible for the character of a river (sediments and flow) are dramatically altered by dams.

- Poor littoral productivity in reservoirs due to large seasonal drawdown and unnatural cycles of drawdown. The littoral zone of a reservoir is the marginal area of the reservoir down to the depth that light can stimulate plant growth. When this zone remains wetted it is the most productive zone of the reservoir because of good growing conditions for plants and the availability of nutrients from the bottom. When the reservoir level is varied dramatically, as it often is in hydropower reservoirs, this zone is alternately wetted and dried out so that it ceases to be productive. As the reservoir is lowered, the mud on the bottom is exposed and can be stirred up by waves making the near-shore waters very turbid. This further reduces productivity by reducing the amount of light that can penetrate into the water. Drawing down the reservoir can also expose eggs and cause them to die.

- Blockage of fish migration into and out of reservoir tributaries due to draw down and debris and sediment accumulation at tributary mouths. Drawing down the reservoir can also make it difficult or impossible for fish to get into tributaries because the tributary does not have a defined channel across the exposed bottom sediments.

- Armoring, simplification and freezing of river channel morphology downstream of dams due to loss of high discharge ("flushing flows") events. The natural variations in flow of an undammed river produces a more sinuous

main channel with more side channels which are important for nursery and spawning habitat. Dams reduce the dominant flow. This results in a straighter and simpler channel which is poorer habitat for fish. The lack of annual high or "flushing flows" can result in armoring of the bottom substrates creating a pavement-like bottom that is not good for spawning or food production.

- Loss of side channel and off-channel habitats due to reduced flows and/or altered hydrographs. The flow pattern below dams is often much less variable seasonally than in the natural stream so that seasonal channels on the floodplain are seldom invaded by flood flows. As a result these secondary channels, which can be important seasonal fish habitat, become choked with vegetation and blocked by debris so that much higher flows are needed to "reactivate" them. Often these channels are completely lost as seasonal fish habitat.

- Blockage of fish migration into and out of tributaries downstream of dams due to debris and sediment accumulation at tributary mouths and/or alterations to seasonal flow regimes. Dominant river flows also serve to clear away debris and sediment accumulation at tributary mouths. When the river's peak flows are reduced, access to tributaries can become permanently blocked.

67. While all of the impacts listed above may not exist, or be significant, at each of BC Hydro's 61 dams/reservoirs involving 34 hydroelectric facilities, it is undisputed that many of BC Hydro's hydroelectric operations cause harm to fish habitat in one or more of these ways. (See, for example, DFO. 1991. Impacts of the Operation of Existing Hydroelectric Developments on Fishery Resources in British Columbia. In Anadromous Salmon Vol. 1. Vancouver, B.C.: DFO; and Submitters' April 1997 Submission, Attachments 2, and 6–14).[8]

2.0 Background on the Scope of Information Developed Concerning the Assertions of "Failures to Effectively Enforce" Fisheries Act Section 35(1)

68. A key step in developing a factual record is to determine the scope of information to be considered for inclusion. Council Resolution 98-07 directs the Secretariat to consider, for this Factual Record, whether Canada is failing to effectively enforce its environmental law, notably *Fisheries Act* s. 35(1), with respect to BC Hydro operations, as follows:

> [T]he Secretariat, in developing the factual record, [is] to consider whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of the NAAEC on 1

[8] According to information provided by BC Hydro and offered by Canada in its 11 May 2000 comments, BC Hydro facilities impact only 2% of all salmon-bearing streams in British Columbia. (See Appendix 10). The Secretariat's understanding is that the 2% estimate was developed by BC Hydro or by a consultant to BC Hydro, based on escapement information available for several years following dam construction.

> January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record.

69. The NAAEC does not define the phrase "effectively enforce." Various provisions, such as Articles 5 and 45, are relevant to understanding the meaning of this phrase. Article 5, entitled "Government Enforcement Actions," states that each Party "shall effectively enforce its environmental laws… through appropriate governmental actions" and it provides a list of such actions. Article 45 indicates circumstances in which a Party has not failed to effectively enforce its environmental law.

70. The Secretariat indicated in its 27 April 1998 Notification of the Secretariat to the Council for the Development of a Factual Record in accordance with Articles 14 and 15 of the North American Agreement on Environmental Cooperation ("Secretariat's 27 April 1998 Notification to Council") that the term "enforcement" should be given a broad definition. In particular, the Secretariat stated that the term "enforcement" should cover more than prosecution-related activities:

> Canada's assertion that it employs a variety of regulatory measures, inclusive of prosecution, to effectively enforce its laws is consistent with the broad construct of "effective enforcement" articulated in Article 5 of the NAAEC and in other jurisdictions. Consequently, a lack of prosecutions under s. 35 of the *Fisheries Act* may not be dispositive of the issue regarding Canada's enforcement of its environmental laws. (Secretariat's 27 April 1998 Notification to Council, pp. 2–3).

71. In its 27 April 1998 Notification to Council the Secretariat identified two primary types of information that should be developed concerning Canada's "enforcement" practices. First, the Secretariat stated that information should be developed concerning the nature and extent of Canada's enforcement activities. Second, it stated that information should be developed concerning the effectiveness of those strategies in ensuring compliance with s. 35(1) of the *Fisheries Act.* The Notification, for example, provides:

> Additional information is required before an evaluation can be made that Canada is effectively enforcing its environmental laws. It is recommended that a factual record be developed in order to assemble further factual information regarding the enforcement activity undertaken by Canada and the effectiveness of that activity in ensuring compliance with section 35(1) of the *Fisheries Act*. (Secretariat's 27 April 1998 Notification, p. 3).

72. The Stakeholders provided information relevant to the meaning of the term "effective enforcement." For example, Canada's July 1999 Draft Fisheries Act Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy ("1999 Draft Compliance & Enforcement Policy") addresses the purpose of taking enforcement measures:

> The desired result [of an enforcement measure] is compliance with the Act within the shortest possible time and with no further occurrence of violations in order to protect fish and fish habitat. (1999 Draft Compliance & Enforcement Policy, p. 17).

In its March 1999 Submission, Canada discusses the concept of "effective enforcement" in the specific context of hydro operations. It asserts that Canada's enforcement would be effective if it achieved No Net Loss of the productive capacity of habitats supporting the fisheries resources:

> Generally, achieving No Net Loss is what DFO would consider to be "effective enforcement" regarding hydro dams, or any other industries, in Canada. This would achieve the intent of the *Fisheries Act* s. 35. (Canada's March 1999 Submission, p.2).

The principle of No Net Loss is discussed below.

73. The Submitters consider compliance with the underlying environmental law as an indicator of effective enforcement. The Submitters suggest that, in addition, such compliance must result in achievement of the substantive purpose of the law in order to constitute effective enforcement:

> The starting point for considering what constitutes effective enforcement of environmental laws begins with an analysis of the environmental law or regulation itself. If the intent and purpose of an environmental law or regulation is to protect an environmental value, the provision is effectively enforced when that value is actually protected. Stated another way, enforcement of an environmental law is not "effective" unless enforcement actions achieve the substantive purpose of the law in question. (Submitters' 22 March 1999 Submission, p. 2).

Applying this conceptual framework to s. 35(1) of the *Fisheries Act*, the Submitters state that "the actions that Canada has cited as enforcement of section 35 must be evaluated on the basis of whether they achieve the substantive purpose of section 35." (Submitters' January 1999 Speaking Points, p. 4). Specifically, the Submitters assert:

> [E]ffective enforcement of section 35 occurs only when harm to fish habitat is prevented, or is authorized [under s. 35(2)] after environmental assessment—the legislative scheme clearly contemplated by section 35. (Submitters' 22 March 1999 Submission, p.2).

74. BC Hydro states that "[t]he test of effectiveness is… the degree of success in protecting fish habitat." (BC Hydro's February 1999 Submission, p. 16). BC Hydro expresses the view that enforcement need not produce invariable compliance in order to be effective.

> We believe "effective enforcement" of the *Fisheries Act* in the context of hydro-electric operations means managing the fundamental tension between hydroelectric generation and the *Act*, focusing on overall fish habitat, and recognising that perfect and invariable compliance is impossible. (BC Hydro's February 1999 Submission, p. 1).

75. The Expert Group provides the following information concerning the meaning of the term "effective:"

> There are at least two types of facts relevant to the concept of effective enforcement. The first involves facts relating to what is being done, in other words facts relating to the "enforcement" actions being undertaken and the resources being devoted to enforcement. The second type of facts relate to whether the enforcement actions being undertaken are effective, i.e., are the enforcement actions eliminating or reducing the violations of law, here the harmful impacts on fish and fish habitat. (Expert Group Report, para. 25).

76. It is worth noting that the challenge of determining the types of information relevant to whether enforcement practices are "effective" is currently receiving considerable attention from various levels of government as well as from other interested parties. The CEC itself is currently working on this issue. The Commission has had a formal project underway since 1997 to determine the indicators or types of information relevant to whether enforcement practices are "effective." This project on indicators of effective environmental enforcement is being undertaken under the guidance of the North American Working Group on Environmental Enforcement and Compliance Cooperation (EWG). This Group, comprised of senior-level environmental enforcement officials representing national, state and provincial agencies, was formally constituted by the CEC Council in 1996. The Group held a multi-stakeholder dialogue on this issue in 1998 and published in 1999 the proceedings of the dialogue as well as a series of background papers on compliance indicators.[9] This is a long-term project whose objectives include "explor[ing] the feasibility [of] North American indicators of effective environmental enforcement policies, programs and strategies," and "support[ing] the development of more effective indicators." [10]

77. Consistent with its coverage of the issue of "effective enforcement" in the 27 April 1998 Notification to Council (see para. 71 above), the Secretariat has obtained and developed information relating to, *inter alia*, (1) the nature of enforcement activity undertaken by Canada, and (2) the effectiveness of that activity in ensuring compliance with s. 35(1) of the *Fisheries Act*.

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[9] *Indicators of Effective Environmental Enforcement: Proceedings of a North American Dialogue*, Commission for Environmental Cooperation, March 1999, p. v-vi.

[10] Commission for Environmental Cooperation, North American Agenda for Action 1999-2001: A Three-Year Program Plan for the Commission for Environmental Cooperation, p. 113.

78. These types of information are important information for anyone seeking to decide whether Canada is effectively enforcing its environmental laws within the meaning of the NAAEC. An important purpose of a factual record is to provide information that may assist the public in assessing whether or not a Party is failing to effectively enforce its environmental laws within the meaning of the NAAEC.[11]

3.0 Information on Significant Canadian Enforcement Responses Concerning the Statutory Prohibition Against Harming Fish Habitat

79. Canada's March 1999 Submission describes a number of activities that the federal government is currently undertaking to enforce s. 35(1) of the *Fisheries Act*. This section first provides information concerning a "guiding principle" for much of Canada's work in the realm of protecting fish habitat, notably the concept of "no net loss" and the related concept of "net gain." It then provides information on six types of specific activities:

- Water Use Planning,
- Prosecutions and Related Actions,
- Environmental Assessments,
- Emergency Response Procedures,
- Regional Technical Committees, and
- Water Quality Guidelines.

3.1 The Concepts of "No Net Loss" and "Net Gain"

80. As a general matter, the principle of "No Net Loss" (NNL) is a central or "guiding" one in Canada's approach to protecting and conserving fish habitat. (See, for example, 1998 C&P Guidelines, p. 1 (characterizing NNL as a "Guiding Principle"); and DFO's Annual Report to Parliament on the Administration and Enforcement of the Fish Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act* for the period of April 1, 1996 to March 31, 1997 (noting that NNL is "[t]he primary guiding principle" for DFO's Habitat Management Program)).

81. As noted above, Canada gauges effective enforcement of *Fisheries Act* s. 35(1) by the extent to which Canada achieves NNL:

> Generally, achieving No Net Loss is what DFO would consider to be 'effective enforcement' regarding hydro dams, or any other industries, in Canada. This would achieve the intent of *Fisheries Act* s. 35. (Canada's March 1999 Submission, p.2).

[11] See e.g., Determination in SEM-95-002 (8 December 1995).

As the quote reflects, this is true for hydroelectric operations as well as for other activities.

In Section 1.6 of its March 1999 Submission, Canada asserts the following:

> The most important yardstick regarding effective enforcement is the effect on the resource; this is essentially the same yardstick as the No Net Loss principle of DFO: i.e. is the situation improving for fish and fish habitat regarding hydro facilities?

82. In a 30 January 1997 letter to the Province of British Columbia, DFO indicated that it plans to ensure achievement of NNL and produce a net gain to fisheries resources through participation in the WUP process. (The WUP process is discussed in Section III.B.3.2 below):

> [W]ith respect to applying the National "Policy for the Management of Fish Habitat" to the WUP process, as a general objective DFO will seek to achieve an overall net gain to the fisheries resources of British Columbia. We feel that this objective will be achieved by ensuring a no net loss of the existing productive capacity of fish habitats, and restoring potential productive fish habitats in systems impacted by hydroelectric facilities. (30 January 1997 letter from E.A. Perry, Executive Director, Habitat and Enhancement Branch, DFO to Dr. J. O'Riordan, Assistant Deputy Minister, Environment and Lands, Regions Division, MELP)("DFO's 30 January 1997 Letter").

83. This section covers four issues relating to the NNL principle. First, it provides information concerning what the principle means. Next, it provides information on some of the policies Canada has adopted to achieve NNL. Third, it provides information concerning its application in the context of BC Hydro's facilities. Fourth, it provides information concerning the use of NNL to measure effective enforcement of s. 35(1).

3.1(1) A Brief Overview of the Guiding Principle of No Net Loss

84. Canada first articulated and described the NNL principle in 1986, in its Policy for the Management of Fish Habitat. This 1986 Policy defines the NNL principle as preventing further reductions to Canada's fisheries resources due to habitat loss or damage:

> Under this principle, the Department will strive to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada's fisheries resources due to habitat loss or damage may be prevented. (1986 Habitat Management Policy, p. 14)

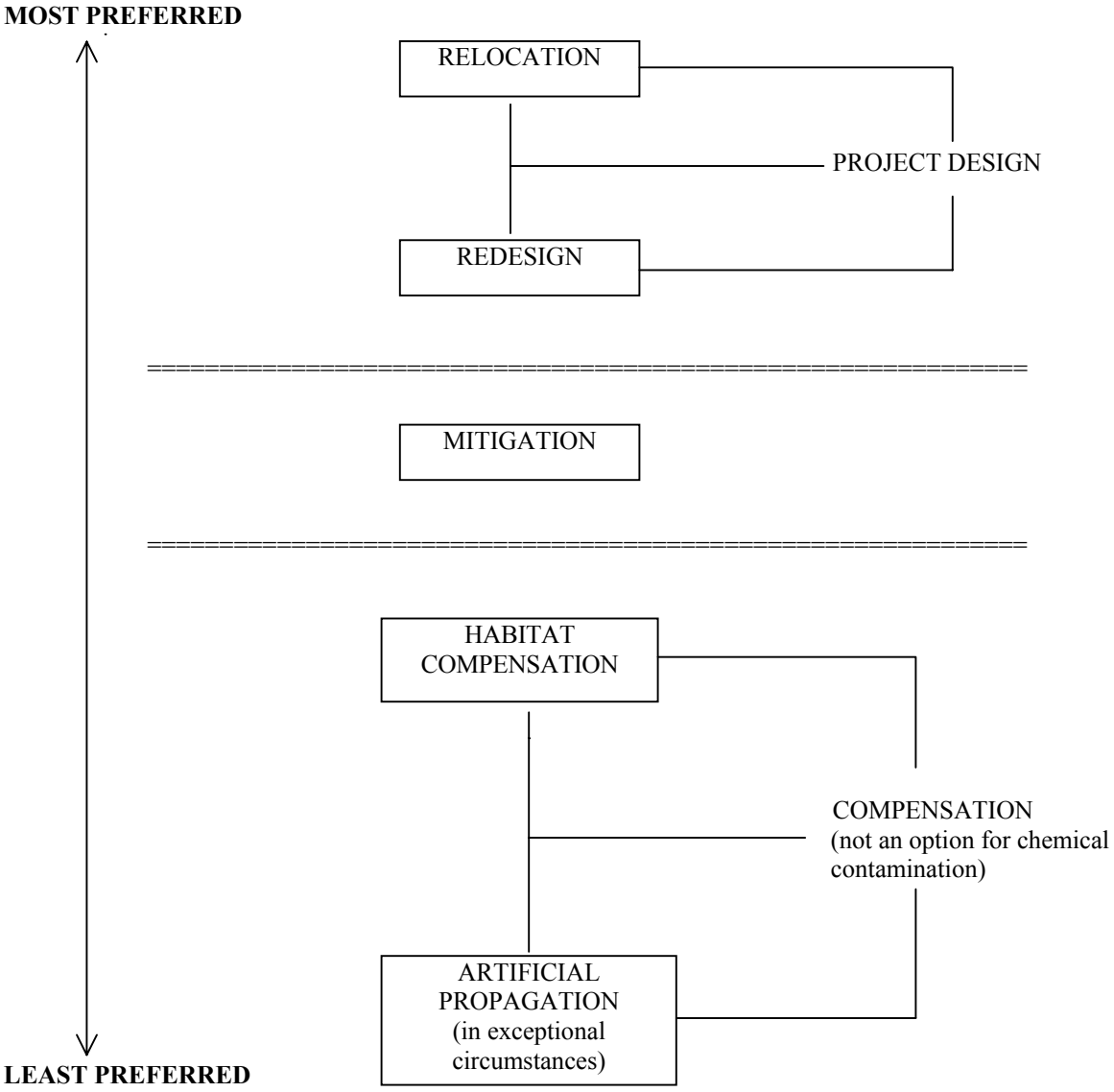
The overall objective of the 1986 Habitat Management Policy is to achieve a net gain of habitat for Canada's fisheries resources. The 1986 Policy indicates that Canada will achieve this objective by conserving existing fish habitat "using a **NO NET LOSS** guiding principle," among other strategies. (1986 Habitat Management Policy, pp. 2, 12–14, emphasis in original). Canada also will seek, *inter alia*, to restore damaged fish habitats. (1986 Habitat Management Policy, pp. 14–15).

85. The 1986 Habitat Management Policy articulates a hierarchy of preferences for achieving NNL:

> Fisheries management objectives will be a major consideration in deciding what offsetting proposals would be acceptable to achieve **NO NET LOSS**. First, preference would be to maintain without disruption the natural productive capacity of the habitat(s) in question by avoiding any loss or alteration at the site of a proposed project or activity. Only after it proves impossible or impractical to maintain the same level of habitat productive capacity would the Department accede to compensatory options—like-for-like compensation, off-site replacement habitat, or an increase in the productivity of existing habitat for the affected stock. In those rare cases where it is not technically feasible to avoid potential damage to habitats, or to compensate for the habitat itself, the Department would consider proposals to compensate in the form of artificial production to supplement the fishery resource, subject to certain conditions… . (1986 Habitat Management Policy, pp. 4, 25–26, emphasis in original).

86. Canada's 1998 Habitat Protection and Conservation Guidelines contain a figure depicting this hierarchy.

Figure 1: <u>Options for Habitat Conservation and Protection</u>



87. Canada has developed a series of policies to provide further guidance on the implementation of the NNL guiding principle since issuing the original 1986 Habitat Management Policy. These policies include, among others:

- Directive on the Issuance of Subsection 35(2) Authorizations, Department of Fisheries and Oceans, 25 May 1995 (the "1995 Subsection 35(2) Directive");
- Habitat Conservation and Protection Guidelines, Department of Fisheries and Oceans, 1998 (the "1998 C&P Guidelines"), superceding the 1994 Habitat Conservation and Protection Guidelines; and
- Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat, Department of Fisheries

and Oceans, Habitat Management Branch, 1998 (the "1998 HADD Decision Framework").

Information from some of these policies is provided below.

3.1(2) Strategies to Achieve No Net Loss: The 1998 Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat

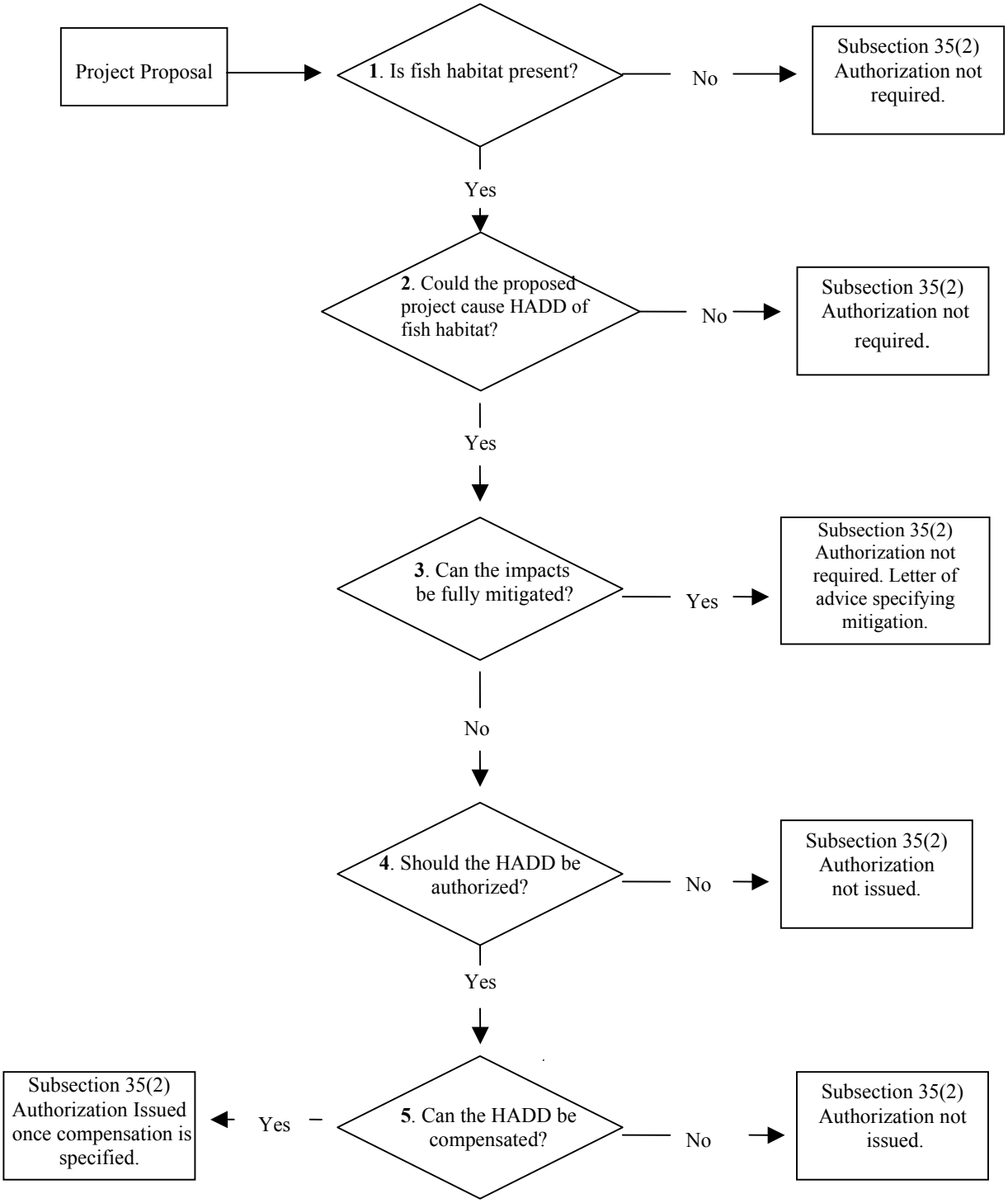
88. The 1998 HADD Decision Framework is one of the Canadian policies developed to apply the NNL principle. Canada indicates that it generally follows this Decision Framework. (11 June 1999 Response to 21 April 1999 Questions, p. 2). The Expert Group notes that NNL is "largely implemented" through this Decision Framework. (Expert Group Report, para. 38).

89. The 1998 HADD Decision Framework indicates that, in Canada's view, s. 35(2) authorizations are an important regulatory tool—such authorizations make legal activities that otherwise might be illegal because of the harm they cause to fish habitat. If there is likely to be a harmful alteration, disruption or destruction of fish habitat, "then a Subsection 35(2) authorization is required in order for the project to proceed without risking contravention of Subsection 35(1)." (1998 HADD Decision Framework, p. 4). As the 1998 HADD Decision Framework states elsewhere, s. 35(2) "qualifies" the s. 35(1) prohibition against harming fish habitat, "in that it allows for the authorization by the Minister of Fisheries and Oceans, or through regulation, of the alteration, disruption or destruction of fish habitat." (1998 HADD Decision Framework, p. 1; See also 1998 HADD Decision Framework, p. 15, 1998 C&P Guidelines, p. 16). That is, if a project could cause harm to fish habitat and thereby violate *Fisheries Act* s. 35(1), Canada will consider issuing a s. 35(2) authorization as a way to minimize and compensate for such harm and, legally, make the residual harm legal.

90. The 1998 HADD Decision Framework indicates that Canada's approach to applying the NNL principle involves evaluating two basic questions in reviewing projects:
- Is a HADD likely to result?
- If so, should a s. 35(2) authorization be issued? (1998 HADD Decision Framework, Executive Summary)

91. The 1998 HADD Decision Framework includes a figure depicting the decision framework for the determination and authorization of HADDs.

Figure 2: A Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat[12]



[12] This figure also appears as Figure 1 on page 5 of the 1998 Habitat Conservation and Protection Guidelines, DFO (2nd ed. 1998).

92. The first question of whether a HADD is likely to result is, in turn, broken down into three subsidiary questions:

1) Is fish habitat present?
2) If so, could the project cause a HADD?
3) If so, can impacts from the project be fully mitigated to prevent such a HADD?

If no fish habitat is present, the *Fisheries Act* does not apply. Similarly, if fish habitat is present but the project has no potential to cause a HADD, then, again, there is no possible violation of s. 35(1) and no s. 35(2) authorization is needed. (1998 HADD Decision Framework, p. 2). Finally, the 1998 HADD Decision Framework explains that if mitigation measures are likely to prevent a HADD, then a s. 35(2) authorization is not required.

93. The 1998 HADD Decision Framework reflects Canada's strong preference for identifying ways to avoid HADDs rather than compensating for them because of the inherent uncertainties associated with the effectiveness of the latter approach:

> Even though a proponent may be willing to undertake compensation, issuance of a Subsection 35(2) authorization with compensation specified is viewed as the least preferred approach. Because the success of compensation in maintaining productive capacity is not always certain, the preferred approach… is to fully mitigate impacts to such an extent that a HADD is not likely to result. The first step in applying the hierarchy is to try to avoid impacts through relocation or redesign of the project. If impacts remain, then the next step is to identify specific mitigation measures, such as timing windows. If a HADD is still expected to occur then the manager determines if appropriate compensation is possible. (1998 HADD Decision Framework, p. 17).

Other policies make this point as well. For example, Canada's 1995 Subsection 35(2) Directive states:

> [T]he first preference is to maintain the productive capacity of the habitats in question by avoiding any loss or harmful alteration through project relocation, redesign or mitigation. Only after it becomes impossible or impractical to maintain the same level of habitat productive capacity would the exploration of compensatory options be considered. (1995 Subsection 35(2) Directive, p. 3)

94. The 1998 HADD Decision Framework provides information relevant to determining whether fish habitat is present and whether the proposed project could cause HADD of fish habitat.

- It elaborates on the definition of "fish habitat." *Fisheries Act* s. 34 defines "fish habitat" as "spawning grounds and nursery, rearing, food supply, and migration

areas on which fish depend directly or indirectly in order to carry out their life processes." The 1998 HADD Decision Framework states that fish habitat is "comprised of those physical, chemical and biological attributes of the environment (e.g., substrate type and structure, aquatic macrophytes, water depth, water velocity, water temperature, dissolved oxygen, riparian vegetation, etc.) which are required by fish to carry out their life processes (e.g., spawning, nursery, rearing, feeding, overwintering, migration)." (1998 HADD Decision Framework, Executive Summary & pp. 5–6; See also 1998 C&P Guidelines, pp. 1–2).

- After noting that the *Fisheries Act* does not define what constitutes a HADD, the 1998 HADD Decision Framework provides the following definition: "HADD of fish habitat is defined here as: *any change in fish habitat that reduces its capacity to support one or more life processes of fish*." (1998 HADD Decision Framework, Executive Summary & p. 6, emphasis in original).

  In other words, a HADD results when "there is a change in the physical, chemical, biological attributes of fish habitat" that renders the habitat "less suitable, or unsuitable, for supporting one or more life processes of fish." (1998 HADD Decision Framework, p. 7). Implicit in this model is the "assumption… that, as a result of the reduced capacity of the habitat to support the life processes of fish, there will *also* be a loss in the capacity of the habitat to *produce* fish." (1998 HADD Decision Framework, p. 7, emphasis in original).

- The 1998 HADD Decision Framework defines the differences among "harmful alteration," "disruption," and "destruction" as follows:

  > These conditions do differ, and are differentiated essentially by the severity of impacts and their duration, as follows:
  >
  > - **harmful alteration** - any change to fish habitat that *indefinitely* reduces its capacity to support one or more life processes of fish *but does not completely eliminate the habitat*;
  > - **disruption** - any change to fish habitat occurring for a *limited period* which reduces its capacity to support one or more life processes of fish; and
  > - **destruction** - any *permanent* change of fish habitat which *completely eliminates* its capacity to support one or more life processes of fish. (1998 HADD Decision Framework, p. 6, emphasis in original).

- The 1998 HADD Decision Framework explains the types of information needed to determine whether fish habitat is present:

  > [C]ertain bio-physical information (e.g., water velocity, flow, stream width/depth, channel features, water temperature, oxygen levels, substrate, vegetation, etc.) is normally required by habitat managers to

> determine the presence, type, quality and quantity of fish habitat present at the project site or in an area impacted by a project.
>
> In addition, generally all species and life stages of fish contributing to a fishery, and their use of the habitat must also be known to determine how the bio-physical attributes of the habitat(s) meet the requirements of the fish species. (1998 HADD Decision Framework, p. 6).

- The 1998 HADD Decision Framework indicates that in evaluating HADDs, it is important to understand the specific project proposed as well as the "species and life stages of fish present which contribute to a fishery, and types of habitat present." (1998 HADD Decision Framework, p. 10). DFO lists the "principal factors" to consider in determining if a HADD of fish habitat is likely to result. These factors include:

> 1. environmental (fish habitat) information;
> 2. fish species, and their respective life stages, use of the habitat, and their sensitivities to habitat changes;
> 3. project impacts to bio-physical attributes such as substrate, aquatic or riparian vegetation, flow, sedimentation, hydrology, water quality (e.g., temperature, turbidity, oxygenation), etc.;
> 4. the type and extent of habitat impacted (spatial context);
> 5. timing of project construction/operation in relation to habitat utilisation;
> 6. details of the project (construction and operation);
> 7. change to the integrity of the habitat, that is whether post-project conditions will lead to future habitat impacts (e.g., erosion);
> 8. short- and long-term impacts to key habitat components and life processes of fish, through the application of conceptual models; and, where appropriate,
> 9. mitigation measures available to avoid or reduce the impacts. (1998 HADD Decision Framework, p. 9).

- The 1998 HADD Decision Framework notes that different fish species require different types of fish habitat:

> [E]ach [fish] species requires specific physical, chemical and biological conditions that must be taken into consideration in the assessment of impacts of project proposals. (1998 HADD Decision Framework, p. 7)

- The 1998 HADD Decision Framework notes that: "[A]ny change in habitat, no matter how minor, could be expected to have some effect on fish habitat attributes which support life processes of fish; however, in making a determination of the likelihood of a HADD, habitat managers should determine if, in their professional judgement, such effects would be expected to result in a

reduction in the habitat's capacity to produce fish, relative to the fishery or potential fishery in question." (1998 HADD Decision Framework, p. 14).

- The 1998 HADD Decision Framework lists types of projects generally considered likely to result in HADD of fish habitat. It includes "dams" among those types of projects for which "a conclusion that a HADD is likely to result would usually be reached." (1998 HADD Decision Framework, p. 12).

95. For situations in which fish habitat is present and a project could cause a HADD, the 1998 HADD Decision Framework lists the considerations relevant to whether a s. 35(2) authorization should be issued:

> - the acceptability of the HADD of fish habitat;
> - fisheries management or fish population objectives;
> - whether the habitat is supporting an active fishery—where there is no active fishery, there may be more flexibility in the timing of the implementation of compensation;
> - importance of the habitat—as per the 1998 C&P Guidelines, whether the impacted habitat type is in low supply and/or may be of high value to fish production;
> - whether the effects of the HADD will be temporary or permanent;
> - whether the HADD will cause a significant change in the capacity of the habitat to produce fish—either because the project will result in a relatively large change, or a small but significant, or cumulative change;
> - the availability of technically feasible habitat compensation options, as well as evidence of past success in efforts to compensate for the loss of the type of habitat impacted by the project;
> - compatibility with the hierarchy of preference for compensation options, as per the 1998 C&P Guidelines; and
> - whether the authorization would set a precedent that could lead to future cumulative impacts. (1998 HADD Decision Framework, p. 15).

The conditions under which a s. 35(2) authorization should be issued are more fully described in the 1998 C&P Guidelines. The details, for example, regarding habitat compensation agreements, if required, are discussed at pp. 17–18.

96. The 1998 HADD Decision Framework provides information on the process for considering whether to issue a s. 35(2) authorization, once Canada has determined that fish habitat is present and the proposed project could cause HADD of fish and fish habitat. It provides that "[u]nder the CEAA, DFO is required to conduct an environmental assessment of most project proposals prior to issuing a *Fisheries Act* Subsection 35(2) authorization." (1998 HADD Decision Framework, p. 18). The 1998 HADD Decision Framework explains Canada's application of the CEAA to s. 35(2) authorizations as follows:

> Prior to issuing an authorization, a CEAA environmental assessment must be completed and the conclusion must be that, after taking into account any mitigation measures, the adverse environmental effects are not significant, or, if they are significant, they are justifiable in the circumstances. For the purposes of an environmental assessment made under the CEAA, the CEA Act defines the term "mitigation" such that it includes both mitigation and compensation, as defined in the Habitat Management Policy. Generally, in those situations where a habitat manager has concluded that a likely HADD can be mitigated and/or compensated to achieve No Net Loss then the manager would also conclude that impacts to fish habitat are not considered significant pursuant to CEAA and issue a Subsection 35(2) authorization with appropriate conditions.
>
> If the decision is that the likely HADD is unacceptable (i.e., DFO is not prepared to issue a Subsection 35(2) authorization), DFO would terminate the CEAA assessment and not issue the authorization. (1998 HADD Decision Framework, p. 19).

97. The 1998 HADD Decision Framework outlines a special process for certain situations in which Canadian officials believe that it is not appropriate to issue a s. 35(2) authorization because of the impacts of the project:

> [I]n certain cases (e.g., major projects that have potential for significant environmental and fish habitat impacts, and/or socio-economic policy implications), the following general approach may be appropriate: DFO would inform the proponent of its decision not to issue a Subsection 35(2) authorization and indicate that if the proponent wishes to pursue the project, DFO would be prepared to make written representation to the Minister of Environment that the project go to a CEAA panel. In so doing, it should be made clear to the proponent that DFO will maintain its position, when making submissions to the CEAA panel, that there are unacceptable impacts to fish habitat associated with the project. Subsequent to the release of the panel's report, DFO's decision as to whether or not an authorization will be issued, and the appropriate compensation, if any, to be applied, would be based on the recommendations set out in the panel report, as approved by Governor in Council.
>
> By taking this general approach, DFO officials would be able to make their decisions based on the nature and extent of impacts to fish habitat. It would provide a formal, open, public process for other factors, such as socio-economic considerations, to be examined and provide the Minister with a broader, supportable rationale for authorizing, or not authorizing, a HADD likely to result from such major projects. (1998 HADD Decision Framework, p. 19).

As covered in more detail in the WUP section below, one of the questions raised by the Submitters is whether the WUP process is consistent with the CEAA process. One of the issues in the context of the quoted passage is whether the WUP process contemplates that DFO officials will maintain the focus on fish habitat issues described above. A second issue is whether WUP will incorporate the process described above when DFO officials decide that the impacts on fish habitat, viewed on their own, would warrant rejection of s. 35(2).

98. The 1998 HADD Decision Framework provides that authorizations are not necessarily issued for every project. It states that Canada is "not obliged to issue an authorization in situations where adverse impacts to fish habitat are judged to be unacceptable." (1998 HADD Decision Framework, p. 15; See also 1995 Subsection 35(2) Directive, p. 4). The 1998 HADD Decision Framework indicates that cumulative effects are considered in deciding whether to issue an authorization and may lead to a decision not to issue one:

> Cumulative effects… may influence the decision about whether a HADD will be authorized. …The uncertainty about acceptable levels of development and the risk of establishing precedents leading to significant cumulative effects will normally cause habitat managers to recommend against issuing a Subsection 35(2) authorization. (1998 HADD Decision Framework, p. 16).

3.1(3) Application of No Net Loss in the Context of BC Hydro Facilities

99. Canada states that it measures the effectiveness of its enforcement efforts based on whether BC Hydro operations achieve No Net Loss. To quote from Canada's March 1999 Submission once again:

> Generally, achieving No Net Loss is what DFO would consider to be "effective enforcement" regarding hydro dams, or any other industries, in Canada. This would achieve the intent of the *Fisheries Act* s. 35. (Canada's March 1999 Submission, p.2)

100. The previous section of the Factual Record summarizes Canada's definition of NNL. It also covers Canada's strategy for achieving it. Key elements of this strategy include assessing whether projects could harm fish habitat, seeking to eliminate such impacts whenever possible, and considering issuance of s. 35(2) authorizations when impacts cannot be avoided. The 1986 Habitat Management Policy, which created the NNL guiding principle, indicates that it "applies to proposed works and undertakings and it will not be applied retroactively to approved or completed projects." (1986 Habitat Management Policy, pp. 4, 14). Other policies also suggest a focus on proposed projects. (See, for example, 1998 HADD Decision Framework, p. 1 (applies to "project proposals"); and 1998 C&P Guidelines, p. 1 (apply to "proposed works and undertaking[s]")).

101. In light of Canada's expressed goal of achieving NNL for BC Hydro operations, and particularly because the policies cited in paragraph 100 appear to deal primarily with new project proposals, Canada was asked a number of questions relating to how it determines NNL for BC Hydro operations, particularly with respect to the six facilities for which the Expert Group developed relatively in-depth information. Based on the information provided, the Expert Group states that there is not sufficient information for outside reviews of whether No Net Loss is being achieved "at individual facilities or for the hydroelectric system as a whole." (Appendix 8, para. 54). One of the questions asked is as follows:

> What is the process or model utilized to calculate or determine No Net Loss in relation to the six facilities that the experts have identified to be of interest? (21 April 1999 Questions, Question #1)

102. In its response, Canada indicates that it calculates or determines NNL for the six facilities of interest by using a variety of information to assess impacts of the projects and it generally follows the 1998 HADD Decision Framework (described above):

> The model used by Fisheries and Oceans Canada (F&OC) to calculate or determine No Net Loss in relation to the six facilities of interest is to assess the impacts of the project on fish and fish habitat. This assessment incorporates available fisheries, biophysical, facilities management information as well as the professional judgement of qualified experts in the field. Subsequent steps followed in this process generally follow the F&OC Policy directive entitled "Decision Framework for the Determination and Authorization of a Harmful Alteration, Disruption or Destruction of Fish Habitat." (11 June 1999 Response to 21 April 1999 Questions, p. 2).

103. In its March 1999 Submission, Canada stated that it has "tentatively identified **baseline**, **improved** and **restored** scenarios for most facilities." (Canada's March 1999 Submission, p. 29, emphasis in original). Canada was asked to provide these scenarios:

> In the DFO Submission, DFO indicated that it has "tentatively identified baseline, improved and restored scenarios for most facilities" and that the baseline condition is "in full compliance with the *Fisheries Act*." Please provide each of those scenarios for the six facilities of interest and outline how it is determined that the baseline condition is in full compliance with the *Fisheries Act*. (21 April 1999 Questions, Question #5)

In its response to Question #5 of the 21 April 1999 Questions, the WUP Management Committee describes development of these scenarios as follows:

> In preparation for Water Use Planning the fisheries agencies (F&OC, MELP Fisheries, and BC Fisheries) held several meetings involving

> regional staff. BC Hydro fisheries staff were also involved in these discussions. The purpose of these meetings was to assess the impacts of operations at the various hydro facilities and to determine strategies to offset those impacts. Efforts were made to compile all available information of fish and fish habitat in those systems and this information was made available at those meetings. As a result of those consultations, strategies involving changes to flows, habitat enhancement opportunities, and other mitigative measures were identified for each facility. The baseline, improved and restored scenarios were developed based on existing data and professional judgement by experts familiar with the systems.
>
> This information has been useful as a planning tool, to provide guidance for development of the overall WUP Program for BC Hydro facilities. It was and is intended that once individual WUPs were initiated, further study would enable the fisheries agencies to assess the validity of the baseline conditions identified and redefine them if appropriate.

The Expert Group states that the scenarios requested in the 21 April 1999 Questions, Question # 5 were not provided:

> We have been told that baseline, improved and restored scenarios were tentatively identified for most BC Hydro facilities. (Canada's 11 June 1999 Response to 21 April 1999 Questions, p. 9; Canada's March 1999 Submission, Section 3.1). We have requested these scenarios for the six facilities (Question #5 of 21 April 1999 Questions) but they have not been provided. As a result, it is not clear what Canada considers to be baseline (or better) conditions for these particular facilities, or when these conditions were set. (Appendix 8, para. 49).

104. Canada was asked what year it uses as the baseline year from which to calculate losses and gains for each of the six facilities identified to be of particular interest:

> What year is utilized as the baseline year in the No Net Loss model from which habitat losses and gains are subtracted or added? (21 April 1999 Questions, Question #1(a)).

Canada provided the baseline year for two facilities: John Hart (1995); and the Ruskin facility on the Stave River (1989) (11 June 1999 Response to 21 April 1999 Questions, p. 2). Canada states that the baseline year is "the year in which specific problems at a facility result in assessments and/or actions by F&OC to address these problems." Canada states further that "[t]he baseline year will be different for each facility." The additional baseline years requested were not provided.

105. Canada was asked to provide a detailed sample NNL calculation for a facility, preferably one of the six of interest:

Please provide a detailed sample No Net Loss calculation for a facility, preferably one of the six facilities of interest, for which No Net Loss has been calculated. (21 April 1999 Questions, Question #1(d)).

106. The response to this request is as follows:

The calculation of a habitat balance sheet for existing hydro facilities is a complex undertaking. At hydro facilities, variability of flows or water levels above and below facilities, and day-to-day system operations, which make it difficult to clearly identify and quantify impacts. Accordingly, we utilise whatever information is available and exercise a conservative evaluation by departmental biologists, engineers, scientists and external experts to establish the requirements for No Net Loss.

The Independent Experts of the Secretariat have asked for a detailed calculation of No Net Loss for one of the six identified facilities. We will provide details concerning the development of the Campbell River Interim Flow Strategy, which was initiated in 1995 following spill events from John Hart which damaged spawning areas downstream of the dam. These spawning channels were in large part constructed as a result of work undertaken by the Vancouver Island Hydro/Fisheries Technical Committee between 1992 and 1995.

- 1992 – Formation of the Vancouver Island Hydro/Fisheries Technical Committee.
- 1992–95 – Detailed studies undertaken to assess salmonid habitats in the lower Campbell River to assess carrying capacity for salmonids, identify limiting factors and identify enhancement opportunities.

  Based on these studies, spawning and rearing was determined to be limiting in the lower river. Spawning was determined to be limiting due to lack of suitable spawning gravel. For chinook salmon, existing spawning capacity was estimated to be 554, well below historic escapements and the F&OC target escapement of 4000. Steelhead spawning capacity was 296 as compared to the target escapement of 500.

  Rearing habitat for all salmonid species was also determined to be limited due in part to unsuitable depths and velocities from turbine discharges below John Hart. Flow fluctuations from ramping were also determined to be significant.
- 1995 – Construction of spawning and rearing channels in the lower river.
- November 1995 – Spills from John Hart damage spawning channels.
- December 1995 – Formation of the Campbell River Hydro/Fisheries Advisory Committee.
- May 1997 – Campbell River Hydro/Fisheries Advisory Committee issues its Interim Flow Management Strategy. This report identifies requirements for habitat works to meet target escapements and

> proposes flow modifications to BC Hydro operations to enhance habitat productivity. Some specific prescriptions include:
>
> - Provision of additional spawning area (5200–6200 sq. m.) to meet F&OC escapement targets for chinook.
> - Rearing habitat for chinook to be improved through instream complexing and habitat development and estuarine rehabilitation (not specific to BC Hydro).
> - Steelhead rearing would be improved by lowering the minimum flow in the river during the summer using a target of 1200 cfs with a minimum of 1000 cfs.
> - Implement flow targets which attempt to mimic the natural hydrograph.
> - Implement new ramping rates to reduce stranding of juvenile salmonids.
>
> It was the opinion of the Committee that implementation of the strategy would provide habitat conditions in the lower Campbell River that would enable F&OC and MELP to meet target escapements within a decade of implementation. A copy of the Campbell River Interim Flow Management Strategy was enclosed in the March 1999 Water Use Planning Management Committee submission to the Independent Experts of the Secretariat for consideration. We encourage a thorough review of this document since it provides much greater detail than included here. (11 June 1999 Response to 21 April 1999 Questions, pp. 3–4).

107. The Expert Group describes the response to Question #1(d) as follows:

> In its response to Question 1(d), Canada does not provide a detailed sample No Net Loss calculation for a facility. Instead it states that "calculation of a habitat balance sheet for existing hydro facilities is a complex undertaking" and that "variability of flows or water levels above and below facilities, and day-to-day system operations, which make it difficult to clearly identify and quantify impacts. (11 June 1999 Response to 21 April 1999 Questions, p. 3). In lieu of the detailed calculation of No Net Loss for a facility Canada offers the details of the development of the Campbell River Interim Flow Strategy (ibid.). (Appendix 8, para. 47).

108. In its June 11 response to Question #5, Canada states that baseline conditions are defined as "incrementally improving current habitat productive capacity to arrest the decline in fish production potential." (11 June 1999 Response to 21 April 1999 Questions, p. 9). The Expert Group provides the following information concerning this definition:

> This statement suggests that Canada considers baseline conditions to have been achieved when the decline in habitat capacity has stopped. The purpose of establishing a baseline should be to quantify the amount of habitat at a certain point in time and then attempt to restore habitat to that

> level and maintain it at that level. The definition cited does not reflect that goal. (Appendix 8, para. 48).

3.1(4) Information Concerning the Use of No Net Loss

109. Conflicting information was provided as to whether achieving NNL would be an appropriate benchmark for effective enforcement of s. 35(1) of the *Fisheries Act*.

110. As noted above, Canada asserts that achieving NNL constitutes effective enforcement of *Fisheries Act* s. 35(1). (See paras. 81, 99).

111. The Submitters assert that achieving NNL would not constitute effective enforcement of *Fisheries Act* s. 35(1). The Submitters claim that NNL is different from compliance with s. 35(1) because NNL allows destruction of some fish habitat so long as there is no overall net loss, while s. 35(1)'s prohibition against harming fish habitat is not qualified in this way:

> [A]chievement of "no net loss" is not equivalent to effective enforcement of section 35 of the *Fisheries Act*. …The determination of whether there has been a harmful alteration, disruption, or destruction of habitat, for the purposes of section 35(1) of the *Fisheries Act*, is not dependant upon an overall net loss of habitat. (Submitters' 24 March 1999 Submission, pp. 3–4).

112. The Expert Group raises three issues relating to whether achieving NNL would produce compliance with s. 35(1).

- First, the Expert Group raises the issue of whether Canada's application of NNL to BC Hydro facilities will lead Canada "to accept or condone harm to habitat before the baseline is set." (Appendix 8, para. 44, emphasis added). As an example, the Expert Group cites the John Hart facility, where the baseline year is many years after the facility was put into place and many years after harm to fish habitat may have occurred on an ongoing or regular basis.

> In the example of John Hart, there could have been significant declines in habitat between the time when the facility was installed and 1995, when the baseline year for habitat levels was set and from which net loss and net gain are calculated. Under DFO's Policy, if the habitat is improved a small amount above what it was in 1995 this would be considered a net gain. However, the productive capacity of the habitat could still be significantly lower than it was originally, or in 1977, when Section 35(1) of the *Fisheries Act* was enacted, in 1986, when the No Net Loss policy was adopted, or in 1994, when the NAAEC was established. In the John Hart situation, for example, there could have been incremental harm to fish habitat in the years prior to 1995 but Canada would not consider this harm in setting its baseline at the level of fish habitat present in 1995. (Appendix 8, para. 43).

> The Expert Group states that "[i]f baseline years for other facilities are in the same general time frame, it is likely that there have been significant habitat losses at many if not all hydroelectric facilities over the past two decades that would not be captured by the NNL principle due to the manner in which baseline years for NNL are established." (Appendix 8, para. 43. See also Appendix 8, para. 51).

- Second, the Expert Group raises the issue of whether application of NNL to BC Hydro facilities will lead to habitat loss after the baseline is set so long as compensation is made for such losses. The Expert Group notes that relocation, redesign, and mitigation are the order of preferences for avoiding any loss or harmful alteration of habitat. The Expert Group adds that "[a]lthough the various forms of compensation are least preferred, they remain an option for all proposals." (Appendix 8, para. 37; See 1998 C&P Guidelines, pp. 7–8; and paras. 85, 86 above). Given this hierarchy, "Canada would seem to condone harm after the baseline is set so long as the harm is compensated consistent with the NNL policy." (Appendix 8, para. 44). Later in its Report, the Expert Group states that given the hierarchy of preferences, the Policy "technically allows for the complete elimination of natural fish habitat. The NNL principle allows for the destruction of fish habitat short of complete elimination as well." (Appendix 8, para. 220; See also Appendix 8, para. 37) The Expert Group states "[a]lthough compensation is nominally excluded when a project impacts critical fish habitat…, the possible need for compensation after the fact is acknowledged." (Appendix 8, para. 37).

- Third, the Experts raise the issue of whether Canada sets baselines in a comprehensive way—that is, whether Canada assesses all of the impacts to fish habitat in setting a baseline. The Experts indicate that there is insufficient information to answer this question. The Experts further indicate that an approach to setting baselines that only assesses some of the impacts on fish habitat would raise methodological concerns regarding the value of such baselines.

> It is clear that hydroelectric operations create many different impacts on fish habitat. In some cases, such as the John Hart project, Canada has taken a fairly comprehensive approach, through the formation of the Campbell River Advisory Committee to identify and address a wide range of impacts at the facility to ensure that there is NNL from 1995 on. In its responses to our various questions, Canada has not itemized the full range of impacts at each site and has not indicated which of these are being addressed and which are being accepted as "pre-baseline." Thus, it is not possible for the Expert Group to review whether Canada's baseline approach is sufficiently comprehensive to establish a baseline for all harmful impacts on fish habitat. (Appendix 8, para. 52).

113. The Expert Group makes two other statements concerning NNL. The first is that there is insufficient information to review whether Canada has achieved NNL with respect to BC Hydro's facilities:

> Canada has not provided sufficient information for outside reviews of its assertion that it is achieving No Net Loss at individual BC Hydro facilities or for the hydroelectric system as a whole. (Appendix 8, para. 54).

The second is that a variety of examinations of NNL have concluded that, as a general matter, to date, the NNL policy has failed to protect fish habitat:

> Various other examinations of NNL, including A Review of Salmon Stock Status (Slaney, et al. 1996, Status of Anadromous Salmon and Trout in BC and Yukon, Fisheries 21:20–35), a DFO sponsored workshop (Quadra Planning Consultants 1997, No Net Loss of Habitat: Assessing Achievement, Habitat and Enhancement Branch, DFO, Vancouver), an evaluation by a committee of experts (The Living Blueprint for Salmon Habitat, published by the Pacific Salmon Foundation) and the Pacific Fisheries Conservation Council (annual report 1998–99) have all concluded that the NNL policy has failed to protect fish habitat. (Appendix 8, para. 53).

3.2 The Water Use Planning (WUP) Process

114. This section on the Water Use Planning process ("WUP process") contains seven subsections: 1) an introduction; 2) a brief summary of the reasons for creating the WUP process; 3) a review of the basic principles of the WUP process; 4) information concerning the level of commitment to the WUP process; 5) an overview of the process for developing water use plans, including some of the concerns raised about the process; 6) a summary of actions/benefits to date; and 7) information concerning issues regarding the future effectiveness of the WUP process.

3.2(1) Introduction to the WUP Process

115. The Province of British Columbia announced the Water Use Plan (WUP) initiative in November 1996. (Canada's July 1997 Response, p. 9).

116. The Water Use Plan Guidelines issued in February 1999 state that the WUP process is a new one and that is it likely to evolve over time. (1999 WUP Guidelines, p. 9).

117. In its March 1999 Submission, the Water Use Plan Management Committee describes the WUP program as "a major new initiative undertaken by the Province of

British Columbia, DFO and, in the first instance, BC Hydro." (WUP Management Committee's March 1999 Submission, p. 4).[13]

118. Canada's March 1999 Submission indicates that the WUP initiative is "[o]ne of the most promising" responses to hydro facilities Canada has undertaken. (Canada's March 1999 Submission, p. 1). In a 30 January 1997 letter to the Province, Canada states that it views water use planning as a "very positive, cooperative process to address outstanding fisheries issues related to licensed water use for all hydroelectric facilities across the province." (DFO's 30 January 1997 Letter).

119. Canada explains in its July 1997 Response that "[t]he WUP is an initiative to review all BCH water licenses and to develop water use plans for each of the facilities." (Canada's July 1997 Response, p. 9). The result of these plans will be a "re-allocation of water for fish and mitigative measures (e.g., habitat restoration, etc.), where required, to resolve the long-standing fish impact issues." (Canada's July 1997 Response, pp. 9–10).

120. The water use plans "will form part of the BCH water licenses and, as such, be binding statutory instruments." (Canada's July 1997 Response, p. 10; See also WUP Management Committee's March 1999 Submission, p. 12). The WUP Management Committee indicates that a water use plan "defines the operating parameters to be imposed on specific works or water control facilities." (WUP Management Committee's March 1999 Submission, p. 11).

121. According to the WUP Management Committee, DFO is a "full participant" in each step of the WUP process. It "will review each WUP and provide advice and authorizations as appropriate… prior to implementation of the WUP." (WUP Management Committee's March 1999 Submission, p. 16). In particular, if there will be continuing fish impacts, and if Canada supports issuance of the WUP, Canada will issue a "single authorization to cover all fish impacts arising from the WUP operating parameters, with all mitigation and compensation embedded in the WUP." (WUP Management Committee's March 1999 Submission, p. 14). Operations that are in accordance with the terms and conditions of a Water Use Plan approved by DFO will be in compliance with the *Fisheries Act*. (WUP Management Committee's March 1999 Submission, p. 12). If there are no remaining fisheries impacts, no formal response from DFO is required. (WUP Management Committee's March 1999 Submission, p. 14).

122. The Water Use Plan Guidelines establish a 13-step process for initiating, developing, and reviewing WUPs. The Submitters express concerns about several features of this process. (See, for example, Submitters' 22 March 1999 Submission, pp. 10–13). The

[13] The Water Use Plan Management Committee's March 1999 Submission indicates that the Committee is comprised of: the Ministry of Employment and Investment; BC Fisheries; DFO; Ministry of Environment, Lands and Parks; BC Hydro; and the Crown Corporations Secretariat.

13-step process, and the Submitters' concerns about it, are covered below in Section III.B.3.2(5).

123. The Water Use Plan Management Committee indicates that the WUP initiative is a "five-year program with actual operating changes occurring in years 4 and 6/7 (after two sets of approval processes are complete)." (WUP Management Committee's March 1999 Submission, p. 28). A schedule for the program as of April 1999 is included as Appendix 9. Pending development of WUPs, interim orders have been issued for several facilities in recent years to alter hydroelectric operations so as to reduce their impacts on fish habitat. (WUP Management Committee's March 1999 Submission, pp. 19–24).

124. The Water Use Plan Management Committee contemplates that the WUP process will include identifying and filling data gaps in a number of areas. (See, for example, WUP Management Committee's March 1999 Submission, pp. 16, 29). The Management Committee highlights this need as follows:

> Information collection and exchange is an essential component of water use planning. This encompasses consolidation of existing information… as well as new studies where critical information is needed for decision-making purposes. (WUP Management Committee's March 1999 Submission, p. 29).

The Management Committee expresses the view that WUP's emphasis on information, and the generation of information that will result from the process, will lead directly to improved decision-making. "Because of the emphasis on information, it is expected that the WUP process will result in significantly better informed decisions." (WUP Management Committee's March 1999 Submission, p. 29).

The WUP Guidelines contemplate identifying and/or filling data gaps during several steps of the process. (See, for example, 1999 WUP Guidelines p. 20 (Step 2), pp. 24–25 (Step 5), and p. 15 (noting that "[p]lans are expected to include adaptive management provisions to gather new information as WUPs are implemented")). Similarly, a 4 November 1998 letter from the Province of British Columbia to BC Hydro notes that "more work is still required to address information gaps, particularly with regard to fish and aquatic resources, to ensure informed resource management decisions." (4 November 1998 letter from Mike Farnworth, Minister, Ministry of Employment and Investment, British Columbia, to Mr. Michael Costello, President and Chief Executive Officer, BC Hydro, p.1)("Minister Farnworth's 4 November 1998 Letter").

125. The Water Use Plan Management Committee contemplates that the WUP process will be adaptive in nature as information is developed concerning the impacts of hydroelectric operations on fish habitat, and concerning the options for resolving such impacts, among other issues. (See, for example, WUP Management Committee's March 1999 Submission, pp. 16, 29).

126. The Water Use Plan Guidelines state that "[t]he WUP process does not alter existing legal and constitutional rights and responsibilities." (WUP Management Committee's March 1999 Submission, p. 13 and Attachment F). The Water Use Plan Management Committee states that WUPs are "[n]ot intended to fetter the discretion of… the Minister of Fisheries and Oceans." (WUP Management Committee's March 1999 Submission, p. 12). One issue involves the impact of the Terms of Reference for the WUP Policy Committee on Canada's fulfilling its responsibilities under the *Fisheries Act*. The Terms of Reference establish that "trade-offs among different water users and interests is part of the WUP process." The Terms of Reference continue that trade-offs occur within certain boundaries, including provincial funding constraints." (WUP Management Committee's March 1999 Submission, p. 13). A second issue involves the impact of the WUP program's provision for dispute resolution on Canada's rights and responsibilities under the *Fisheries Act*. The possibility of dispute resolution was raised but not discussed in detail. (WUP Management Committee's March 1999 Submission, p. 16). A third question involves the nature of the actions Canada will take in the event that one or more WUPs do not lead to issuance of s. 35(2) authorizations, or if terms of a WUP intended to prevent harm to fish habitat are not met or do not accomplish their intended purpose. (See, for example, Appendix 8, para. 235).

3.2(2) Historical Context

127. The WUP Management Committee identifies a shift in public values as one factor leading to establishment of the WUP initiative. The Committee notes the increased importance attached to values such as fish and fish habitat in the operation of water control facilities. The Committee indicates that an increasingly active role taken by public interest groups, among other factors, has caused federal and provincial governments to take a stronger stance on the management of fish and fish habitat at power facilities:

> Most water licenses for power purposes, especially for BC Hydro, were granted before 1962 at a time when the public values leaned heavily towards economic development. More recently, other values (e.g., fish and fish habitat) are being given greater consideration in the operations of water control facilities. […]
>
> For the most part, federal and provincial governments are now taking a stronger stance on the management of fish and fish habitat, particularly at power facilities around the province. This has in part been driven by [the] more active role taken by public interest groups. (WUP Management Committee's March 1999 Submission, p. 5).

128. Combined with this increased public and government concern for the impacts of BC Hydro operations on fish habitat, there is a desire to address data gaps that exist with respect to these impacts. The governments' objective is to use the WUP process to

generate and collect data important for enhancing understanding of fish habitat, the impacts of hydroelectric operations on such habitat, and how best to reduce these impacts. For example, the Water Use Plan Management Committee indicates that "[t]he Water Use Plan Program, with its emphasis on information collection, is also designed to address these [data] gaps." (WUP Management Committee's March 1999 Submission, p. 6).

Later in its March 1999 Submission, the Water Use Plan Management Committee elaborates on the need for more data to understand better the harm that the BC Hydro operations are causing to fish habitat and the appropriate strategies to address such harm:

> [T]here is a considerable amount of data on fish habitat downstream of several of the BC Hydro facilities. In several cases, the data points to unresolved impacts on fish and fish habitat at the facilities. However, the data in most cases is incomplete. Definitive conclusions about appropriate flow regimes or required habitat conditions cannot be made. With respect to the BC Hydro WUPs, data collection will be a collaborative process between BC Hydro, DFO and the province and will be key in developing and evaluating alternative operating plans. (WUP Management Committee's March 1999 Submission, p. 16).

129. The governments have recognized for some time that data gaps exist. In June 1993, the Province of British Columbia directed BC Hydro to conduct an Electric System Operations Review (ESOR) to "determine whether its electric generation system operations could be altered to increase net social and environmental benefits for the province." (1995 Government Response to ESOR, p. i.)[14] In its 1995 response, entitled Government Response to BC Hydro's Electric System Operations Review, the Provincial Government Liaison Committee (GLC), an Assistant Deputy Minister-level committee that oversaw the conduct of the ESOR process and reviewed the ESOR final report, identifies the existence of significant information gaps in fish and aquatic resources data:

> The government analysis of the ESOR final report concludes that the ESOR process, as documented, largely addresses the scope of the Terms

[14] The Province explained the reason for initiating the 1993 ESOR initiative as follows:

> The impetus for the government's direction that BC Hydro conduct an Electric System Operations Review (ESOR) stems, in part, from historic concerns among affected communities and certain government agencies. Both groups feel that BC Hydro operates its electric system generation facilities… in a manner which does not give adequate consideration to non-power resource values which include forestry, fish and wildlife, recreation and tourism, transportation, water use, air quality, water quality, heritage resources and aesthetics.
>
> BC Hydro has historically operated its electric generating system in accordance with power production objectives and attendant flood control advantages… . However, within this context, non-power values have occasionally been substituted for the aforementioned power and flood control objectives in certain circumstances, but not always in a systematic, clearly articulated basis. (Government Response to ESOR, p. 3).

> of Reference set out in the June 4, 1993 "directive" letter from government. This conclusion is tempered, however, by the fact that little data on fish and aquatic resources are available and therefore could not be included in the evaluation. (1995 Government Response to ESOR, p. 6).

Regarding the limited fish and aquatic resources data, the Province states that "[t]here is a need to address this shortcoming… which can be attributed to the 'overview' nature of the study as well as time and budget constraints." (1995 Government Response to ESOR, p. i). The Province continues:

> Fisheries officials believe that a continuing, more comprehensive examination of the aquatic resources affected by BC Hydro's operations and the available options is necessary to address this topic. The present level of knowledge is not considered sufficient to determine whether there are significant opportunities for fisheries and aquatic ecosystem rehabilitation through changes to BC Hydro's system operations. (1995 Government Response to ESOR, p. 19).

The Province indicates that BC Hydro recognizes this data gap as well:

> While generally supportive of the concept of the ESOR, and cognizant of the time and resource constraints which BC Hydro faced, provincial fisheries officials are concerned that general conclusions about the social benefits of electric system operations changes, and the specific operations changes which were evaluated, were selected based on limited fisheries information. The ESOR final report acknowledges this view by stating, "…[t]he current knowledge based on the impact of alternative operations on fish and aquatic resources [in BC Hydro impacted watersheds] is limited…" and that "…[d]ecisions on operational procedures and identification of specific operating alternatives to optimize conditions for fish required much more work." (1995 Government Response to ESOR, p. 19).

In its March 1999 Submission, Canada states: "There is generally a lack of data on fisheries information before and after construction as well as fish/flow/habitat relationships." (Canada's March 1999 Submission, p. 8). Later in the same submission, Canada states:

> One of the significant constraints in regulating the industry (and prosecuting) is the lack of scientific understanding of the effects of hydro facilities on fish and fish habitat. DFO's knowledge base has increased significantly by participating in joint studies with other regulators and BC Hydro—one of the significant elements of Water Use Planning is the generation of better studies of hydro facilities. (Canada's March 1999 Submission, p. 18).

Along the same lines, Canada later indicates:

> It is also important to recognize that currently DFO does not have sufficient data to determine specific fisheries requirements at each facility. …The WUP process allows for data collection funded by BC Hydro to provide the level of information required by the agencies to make reasoned decisions concerning issues such as flow requirements for fish, water quality mitigation, habitat restoration opportunities etc. Basic information such as standing stock information, biophysical assessment, flow-habitat relationships will be collected for most systems to assist decision making by the agencies and stakeholders in the WUP process. (Canada's March 1999 Submission, p. 30).

While data gathering has been undertaken since the 1995 Government Response to ESOR, data collection will be an important element of the WUP process.

130. Another factor leading to creation of the WUP process appears to have been the positive experience with processes that included a wider spectrum of interested parties than traditionally were involved to develop plans to address concerns with fish impacts caused by various BC Hydro facilities. The Water Use Plan Management Committee offers a positive summary of the experiences involving Stave Falls, the South Alouette River, and the Campbell River John Hart facilities. The processes used "had various non-traditional features designed to include a wider spectrum of interested parties in the development of the plan." These positive experiences with including a wider spectrum of interested parties influenced the nature of the WUP process. (WUP Management Committee's March 1999 Submission, pp. 6–7).[15]

131. BC Hydro indicates that the WUP process will provide a needed degree of "regulatory clarity" for BC Hydro operations:

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[15] The Alouette Stakeholder Committee (ASC) provides a positive perspective on the Alouette experience:

> [T]he discussions of the ASC have gone a long way toward creating a new atmosphere of trust and cooperation among a diverse group of community, First Nation, federal, provincial, and BC Hydro stakeholders. (ASC Report, p. iv).

The ASC suggests that the process

> hold[s] the potential for defining a new relationship between BC Hydro and the community. …[T]here now exists a working environment involving the stakeholders and their respective organizations, in which cooperation is replacing divisiveness and trust is replacing mistrust. (ASC Report, p. 51).

The BC Wildlife Federation offers a less positive perspective on the Alouette process, although BCWF notes that the "resulting flows are acceptable and appreciated:"

> In this case the methodologies applied by BC Hydro to assess the impacts on fish from different flows were methodologically flawed according to the scientific literature, as well as, strongly refuted by provincial and federal agency staff. …In the opinion of the BCWF members, the stakeholder process used on the Alouette was flawed and poorly facilitated, but the resulting flows are acceptable and appreciated. (4 April 1998 letter from John B. Holdstock, BC Wildlife Federation, to Hon. David Anderson, Minister, Fisheries and Oceans Canada, and Hon. Cathy McGregor, Minister, Environment, Lands and Parks, p. 3).

> BC Hydro needs clear operating boundaries for its facilities in order to fully utilize its assets while managing the water resource in a legally and environmentally responsible manner. The implications of the *Fisheries Act* combined with the voicing of other competing demands for the water resource, have made BC Hydro's rights to operate less clear in recent years. […]
>
> Consequently, a water use plan provides regulatory clarity for BC Hydro. Within the bounds set, the company will have the flexibility to maximize operating efficiency, while meeting fisheries needs. (BC Hydro's February 1999 Submission, pp. 19–20).

3.2(3) Principles of the WUP Process

132. The WUP Committee identifies six key "principles" of the WUP process.

- "Recognition of multiple objectives:" WUP will consider a variety of objectives, including but not limited to environmental concerns;
- "No change to existing legal and constitutional rights and responsibilities:" WUP will safeguard regulatory powers of the *Fisheries Act*;
- "Collaborative, cooperative and inclusive process:" WUP will be an inclusive process.
- "Recognition that trade offs (choices) have and will occur:" WUP will pursue "incremental improvements" in balancing various water uses because of inherent conflicts in the management of water, such as the conflict between fish and power.
- "Embodies science and continuous learning through information gathering and analysis:" information gathering is a "key element" of WUP;
- "Focus on issue resolution and long-term benefits:" the goal is for WUP to produce real results that can be measured. (WUP Management Committee's March 1999 Submission, p. 11).

3.2(4) The Level of Commitment to the WUP Initiative

133. In its March 1999 Submission, the WUP Management Committee indicates that the Committee is at the stage of developing a plan to sequence WUP activities and to confirm adequate resources from key players. "At present, a detailed program plan is being developed to sequence WUP activities and to confirm adequate resources from key players (e.g., DFO, MELP)." (WUP Management Committee's March 1999 Submission, p. 17). The governments indicate that they are "committed to providing necessary resources to develop WUPs… within the 5-year timeframe" and that "[t]he budget reflects the costs of completing the process (i.e., development of WUPs)." (11 June 1999 Response to 21 April 1999 Questions, p. 10).

134. The British Columbia Government states that the estimated cost of developing WUPs for all of BC Hydro's hydroelectric facilities will be in the order of $35 million and that costs will be borne by BC Hydro, DFO and the Provincial Government. (Minister Farnworth's 4 November 1998 Letter, p.3).

135. As indicated above, the Water Use Plan Management Committee indicates that DFO will be a "full participant" in each step of water use planning. (WUP Management Committee's March 1999 Submission, p. 16, see also pp. 12–14). DFO "will review each WUP and provide advice and authorizations as appropriate." (WUP Management Committee's March 1999 Submission, p. 16). The Committee states that DFO will perform this review and approval responsibility "after or simultaneously with an approval under the *Water Act* but prior to implementation of the WUP." (WUP Management Committee's March 1999 Submission, p. 16). DFO also has a role in the WUP "management structure" established to administer the WUP initiative. This management structure includes a WUP Management Committee (staff level), a WUP Steering Committee (assistant deputy minister level), and a WUP Policy Committee (deputy minister/director general level). (WUP Management Committee's March 1999 Submission, p. 18). The Water Use Plan Management Committee indicates that "DFO will always retain its statutory authority." It continues: "However, the WUP program provides for dispute resolution." (WUP Management Committee's March 1999 Submission, p. 16).

In its comments on the draft Guidelines, the BC Wildlife Federation (BCWF) indicates that the DFO should be an integral part of this process from the beginning. According to the BCWF, "[i]t makes no sense to dump the finished WUP on DFO for their review. DFO will not necessarily be able to trust, or agree with, the research completed on fisheries generated by the licensee/proponent as was the case in the Alouette WUP." (BCWF's 4 April 1998 Letter, Comment #10). The Water Use Plan Management Committee's March 1999 Submission indicates that, as noted above, DFO will be involved at each stage of the process. (WUP Management Committee's March 1999 Submission, p. 16).

136. The Provincial Government has directed BC Hydro to participate in a review of its hydropower water licences for the purpose of developing WUPs. (Minister Farnworth's 4 November 1998 Letter). The 21 April 1999 Questions inquire about BC Hydro's commitment to participate in the WUP process.

> Apart from the letter from Mike Farnworth, Minister of Employment and Investment, to… BC Hydro…, directing BC Hydro to participate in the review of its water licenses, what other form of commitment… is there to ensure that BC Hydro will participate in the WUP? Could BC Hydro withdraw from the WUP, and if it did what would happen? (21 April 1999 Questions, Question #8).

The Water Use Plan Management Committee responded that BC Hydro could theoretically refuse to comply with the letter from Minister Farnworth, but that such an outcome was unlikely for several reasons:

> Theoretically the corporation could refuse to comply with the letter of direction but this would be unlikely and not in the best interests of the corporation. As with any corporation its Board of Directors is accountable to their shareholder, which in this case is the provincial taxpayers represented by the Minister Responsible and Cabinet, who have the ability to take whatever corrective action is deemed necessary to ensure that its directives are implemented. […]
>
> Further, …the corporation sees the WUP program as important from a business perspective. BC Hydro made numerous very public commitments to the development of WUPs at all its facilities and is cognizant of the risks to operational flexibility of not meeting expectations built up among its political, regulatory, First Nations, community, ENGOs and public stakeholders. (11 June 1999 Response to 21 April Questions, p. 12).

137. The WUP Management Committee offers the following statement concerning the funding of WUPs:

> At various points, yet to be determined, during the 5-year period groups of WUPs will be submitted for "funding" consideration under the System Operations Fund (SOF). As noted in the March 1999 WUP information, it is anticipated that the final value of reduced power benefits from WUPs could be in the order of $50 million [per year].[16] It is premature at this time to fix the possible size of the SOF, since issue identification and resolution and trade-offs as part of individual WUPs have not yet occurred. (11 June 1999 Response to 21 April Questions, p. 10).

3.2(5) The Process for Developing WUPs

138. The WUP Management Committee states that "[p]reparation of guidelines to frame and provide structure for water use planning was… identified as one of the first deliverables of the program." (WUP Management Committee's March 1999 Submission, p. 15). The Water Use Plan Guidelines were released in February 1999. (WUP Management Committee's March 1999 Submission, p. 15).

139. The Guidelines establish a 13-step process for developing and implementing WUPs. These 13 steps are as follows (all page references below are to the 1999 WUP Guidelines):

1) "The Comptroller initiates a WUP process for the particular facility." (pp. 1, 16).

[16] In its May 11, 2000 comments on the draft Factual Record, Canada indicates that "the final value of reduced power benefits is $50 million per year." (See Appendix 10).

2) "The licensee or proponent scopes the water use issues and interests with regulatory agencies and key interested parties." This scoping effort includes, among other activities, meetings among interested parties to identify key issues and interests, reviewing available information on water use impacts, and identifying information gaps and the need for further studies to develop a WUP. (pp. 2, 20).

3) "The licensee/proponent determines the consultative process to be followed and initiates it." The licensee, in consultation with the Comptroller, establishes the process for involving interested parties. (pp. 2, 21–22).

4) "The licensee or proponent, together with the other participants, confirms the issues and interests in terms of specific water use objectives." The Guidelines indicate that every WUP "must consider fish and aquatic habitat protection, flood control, beneficial use of the water (e.g., power generation), and First Nations issues; other issues, such as recreation and navigation, may also be taken into account, depending on the facility." (pp. 2, 23).

5) "The licensee/proponent gathers additional information on the impacts of water flows on each objective." This step includes conducting technical studies and gathering and analyzing information from various sources. The Guidelines indicate that the data gathering process may be an ongoing one. They state that "[t]he draft WUP should document remaining 'data gaps' and a research program to fill them." (pp. 2, 24–25).

6) "The licensee/proponent, along with the other parties, creates operating alternatives for regulating water use to meet different interests." (pp. 3, 26).

7) "The licensee/proponent, together with the other participants, assesses the tradeoffs between operating alternatives in terms of the objectives." (pp. 3, 27).

8) "The participants determine and document the areas of consensus and disagreement, and prepare a consultation report." The Guidelines specify that "[c]onsensus on an operating alternative for the facility is a goal, but not a requirement of the WUP consultative process." (pp. 3, 28).

9) "The licensee or proponent prepares a draft WUP and submits it [to the Comptroller] for regulatory review." If a consensus is achieved, the draft may include a signature page indicating agreement by other participants. If no consensus is achieved, the licensee selects a proposed operating regime. (pp. 3, 29–30).

10) "The Comptroller… issues a decision," following review and comment from interested parties. WUP consultations are advisory, providing information and facility operating proposals for use in the Comptroller's decision-making. (pp. 4, 32–33). There is a right to appeal the Comptroller's authorization of a WUP to the provincial Environmental Appeal Board (EAB), but this right of appeal appears to be available to a limited universe of parties, notably:

> It has been the Board's practice to accept appeals only from the party receiving the order, other licensees or proponents, riparian owners, and property owners physically affected by the works or their operation. (p. 33).

11) "DFO reviews the authorized WUP and issues a decision." The Guidelines indicate that "[i]f DFO disagrees with the WUP, it may exercise other regulatory options at its disposal." (pp. 4, 34). As noted above, Canada indicates that it plans to be involved throughout the WUP process, not merely at this stage.

12) "The Comptroller and regulatory agencies… assess compliance with the authorized WUP," through monitoring programs and reporting obligations of the licensee. The Guidelines note that "[t]he licensee is accountable for meeting the WUP operating parameters, but not for achieving objectives for other uses of water." (pp. 4, 35).

13) "The licensee and Comptroller review the plan on a periodic and ongoing basis," specified in the WUP. (pp. 5, 36).

The WUP Management Committee indicates that the process is "meant to be flexible to accommodate the needs of different physical locations of water control facilities and the different values and interests of participants." (WUP Management Committee's March 1999 Submission, p. 16).

140. In their 22 March 1999 Submission, the Submitters raise several concerns with the process leading to development of water use plans. The Submitters assert that the WUP process "will not satisfy the requirements of section 35 of the *Fisheries Act*" for the following five reasons (Submitters' 22 March 1999 Submission, p. 13; unless otherwise indicated, all page references in this paragraph are to this Submission):

- The WUP process is limited in its <u>applicability</u>. This view is based on a five-step analysis. First, the Submitters suggest that "the evidence adduced so far in this proceeding is that BC Hydro's day-to-day hydroelectric operations harmfully alter, disrupt and destroy fish habitat." (p. 10). Next, the Submitters indicate that s. 35 "clearly requires that prior to undertaking an activity that harmfully alters, disrupts, or destroys fish habitat, an authorization must be received under sub-section (2)." (p. 13). Third, they assert that "CEAA…

clearly requires an environmental assessment before an authorization is issued. …[T]here is no statutory authority for substituting an alternate process for a CEAA assessment." (p. 13). Fourth, the Submitters conclude that the WUP process "will, therefore, only constitute effective enforcement of section 35 if the WUP process meets (or exceeds) the requirements of CEAA." (p. 13). Finally, they contend that "the WUP process does not meet the requirements of CEAA." (p. 13).

The Submitters point to Canada's March 1999 Submission in support of the point that the s. 35(2)/CEAA process applies to this broad range of activities:

> DFO interprets a section 35(2) authorization as being required if the proposed project could cause the harmful alteration, disruption, or destruction of fish habitat. DFO also interprets the *Fisheries Act* as applying to the day-to-day systems operations of hydroelectric facilities. Therefore, if the day-to-day systems operations of hydroelectric facilities could cause a harmful alteration, disruption, or destruction of fish habitat, an authorization under section 35(2) is required if the activity is to proceed. (p. 10, citations omitted).

In sum, on this point the Submitters assert that "the section 35(2)/CEAA process applies to a much broader range of activities than the proposed WUP process." (p. 10). The Submitters claim that s. 35(2) authorizations and, hence, CEAA, are applicable "whenever a person engages in an activity or undertaking that harmfully alters, disrupts or destroys fish habitat." (p. 10). The Submitters claim that the WUP process may be more limited, that it "is engaged for new facilities, amendments to water licences, the discretion of the Water Comptroller (due to a perceived 'water use conflict'), and by licensee request." (p. 10). The WUP Management Committee states that WUPs will be developed for each of BC Hydro's 34 facilities. (WUP Management Committee's March 1999 Submission, p. 17).

- The scope of the WUP process is too limited. The Submitters state that the scope of the WUP process may turn out to be similar to that provided under CEAA, but it may turn out to be narrower, by failing adequately to consider cumulative impacts, among other issues. (pp. 10–11).

> Section 35(2)/CEAA Process: Under CEAA, every screening, comprehensive study, mediation or review panel must consider:
>
> - the environmental effects of the project, including the environmental effects or malfunctions or accidents that may occur in connection with the project and any cumulative effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
> - the significance of the environmental effects;
> - comments from the public;

- measures that are technically feasible and that would mitigate any significant adverse environmental effects; and
- any other relevant matter that the responsible authority or minister may require to be considered.

In addition, comprehensive studies, mediations, and review panels also must consider:

- the purpose of the project;
- alternative means of carrying out the project; and an environmental assessment of the alternate means;
- the need for and requirements of a follow-up program; and
- the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

WUP Process: Under the WUP Process, the licensee or the proponent, with assistance [from] others, "scopes" the water use issues, identifies "data gaps" and gathers additional information.

The Submitting Parties note that while the WUP Process *may* result in essentially the same information being gathered as would happen under the section 35(2)/CEAA process, this is only a possibility and not a requirement. Of specific concern is the absence of specific information requirements, particularly with regard to issues such as the "cumulative effects" of facilities. Also absent is a "responsible authority" that has the power to require the consideration of specific issues. Based upon these considerations, the Submitting Parties feel that the section 35(2)/CEAA process will generally produce more useful and comprehensive information regarding hydroelectric facilities. (p. 11)

- Regarding public participation, the Submitters state that "[t]here can be little doubt that the public is guaranteed greater access to information and greater levels of input under the Section 35(2)/CEAA process" than under the WUP process. (pp. 11–12).

Section 35(2)/CEAA Process: The public participation provided under CEAA varies dependant upon the level of assessment require[d]. Public participation can be ordered as part of a screening which precludes the public authority from taking any action prior to giving the public an opportunity to review and comment on the screening report. Comprehensive studies, mediations, and panel reviews all make provision for the participation of the public and require consideration of any public comments and participant funding may be available for mediations and panel reviews.

> WUP Process: According to the WUP "Terms of Reference," the general public "will be able to learn about a WUP process and have input into plan development through open houses and other consultations." The WUP Process Terms of Reference do not guarantee to the public any right to information or ability to have their concerns considered.
>
> There can be little doubt that the public is guaranteed greater access to information and greater levels of input under the section 35(2)/CEAA process. The Section 35(2)/CEAA process also fulfills Canada's requirement, under Article 7(1)(b) of NAAEC, to ensure that administrative proceedings are open to the public.

- The Submitters raise a number of issues relating to decision-making authority under the WUP process. The Submitters indicate that the scope of the Comptroller's decision-making authority may be too limited in two respects. First, the Submitters suggest that the Comptroller's authority to "make the appropriate licensing decisions and approve the plan… leaves unclear the Comptroller's discretion, if any, to reject a plan" proposed by the licensee. Second, the Submitters express the concern that the Comptroller "has no statutory authority to consider fisheries or environmental concerns when making licensing decisions." (p. 12).

  The Submitters contrast decision-making authority under the WUP process with that under s. 35(2)/CEAA. As to the latter, the Submitters assert that ultimate decision making authority rests with an "independent government authority" with the power to consider fisheries and environmental concerns, and that this independent government authority may refer the matter for public review or take no action on it. (p. 12).

  In their 24 March 1999 Submission the Submitters make a related claim that the WUP process is flawed because it is "largely directed" by BC Hydro. (Submitters' 24 March 1999 Submission, p. 2; See also Submitters' January 1999 Speaking Points, p. 4 (asserting that, *inter alia*, Canada has little power within the WUP process and the licensee has the ability to disregard the Plan produced through consultation and select the operating regime it prefers)).

- The Submitters assert that features of the WUP process are much less subject to judicial review than are the requirements and prohibitions of the CEAA. They express their concern that "relative to the section 35(2)/CEAA process, the WUP Process lacks adequate (in fact, any) procedural safeguards to ensure the integrity of the process." They state that members of the public who can fulfill the requirements of public interest standing can enforce the requirements of CEAA in the Federal Court of Canada. They state that, in contrast, the legal recourse for members of the public is far more limited under the WUP process. (pp. 12–13). For example, the Submitters indicate:

> The Comptrollers decision to approve (or refuse) any licence application may be appealed to the Environmental Appeal Board by a very narrow group of interests (licencees/proponents, riparian owners, and any property owner affected by the works); however, most participants in the WUP Process would be left without any legal recourse. Any decision of the Environmental Appeal Board could be varied at the whim of the Provincial Cabinet, whose decision is virtually unreviewable. (p. 13).

In addition to the five reasons listed above, the Submitters raise the concern that WUP will not be effective if it "wastes" significant financial resources on fisheries mitigation and compensation measures, rather than devoting financial resources to alleviating the impacts of hydropower operations on the natural fish-producing systems. (pp. 3, 9; See also February 1999 Earthjustice Submission (contending that this has occurred in the United States to some degree and providing several examples)).

To sum up the Submitters' concerns, they believe that the WUP process will "not satisfy the requirements of section 35 of the *Fisheries Act*" unless it "meets (or exceeds) the requirements of CEAA." The Submitters believe that the WUP process will not do so for the reasons listed above. As the Submitters stated in their 24 March 1999 Submission:

> [T]he environmental assessment process under CEAA provides a superior process than the intended Water Use Planning Process ("WUP Process"). This is particularly true with respect [to] issues such as the applicability of the process, scope of the assessment, public participation, independent decision-making, and procedural safeguards. (p. 2).

Further, the Submitters conclude that:

> The WUP Process, as it is structured, runs the risk of repeating the mistakes made in the US Pacific Northwest. Specifically, enormous resources could be spent on a negotiated, stakeholder process that may ultimately provide little benefit. Ultimately, once the WUP Process is completed, BC Hydro will still be out of compliance with section 35 of the *Fisheries Act* unless an assessment under CEAA is conducted and an authorization under subsection (2) is issued. (p. 13).

141. The BC Wildlife Federation (BCWF) raises several concerns about the WUP process in its 4 April 1998 letter to DFO and MELP (unless otherwise indicated, all references in this paragraph are to this letter). These concerns include the following:

- BC Hydro has too much power under the process. For example, the BCWF challenges the ability of BC Hydro to undertake acceptable analyses in terms of the scoping step (Comment #2). The BCWF similarly asserts that step 3 is unacceptable because it allows the licensee to set up the consultation process and it claims that BC Hydro lacks the credibility to operate such a process. (Comment #3). BCWF raises the same issue with respect to step 9, which

provides that if no consensus is achieved on the terms of a WUP, the licensee selects the operating regime to propose. (1998 WUP Guidelines, p. 29). The BCWF asserts that this role limits BC Hydro's incentives to participate in the WUP process in a meaningful fashion. (Comment #8).

- The BCWF disagrees with the limited right to appeal to the Environmental Appeal Board. It asserts that the Board's practice is "to accept appeals only from the party receiving the order, other licensees or proponents, riparian owners, and property owners physically affected by the works or their operation." The BCWF states that "[a]ny legitimate organization, government or non-government, should be allowed to launch an appeal." (Comment # 9).

- The BCWF emphasizes the importance of outside auditing of compliance. (Comment # 11).

142. The Expert Group identifies a number of issues that may affect the effectiveness of the WUP process (all paragraph references below are to Appendix 8):

- Possible impacts on the credibility of the WUP process with the public in light of the issues raised by the Submitters concerning the extent to which the WUP process will be consistent with *Fisheries Act* s. 35(2)/CEAA. (para.91(a)).

- The fact that WUP is not embodied in legislation or regulations (other than the intent to include approved WUPs as conditions of water licenses under the British Columbia *Water Act*). (para. 91(b)).

- The considerable discretion left to the water Comptroller and the licensee (BC Hydro). (para.91(b)).

- The reliance upon NNL and Canada's strategy for implementing NNL in the context of BC Hydro's facilities. (paras. 44–54, 91(c), 220–224).

- The extent to which WUP addresses the integrated nature of BC Hydro operations. The Expert Group indicates that little information had been provided as to how the integrated nature of the operations would be addressed:

> The WUP program calls for the eventual inclusion of impacts at all BC Hydro hydroelectric facilities. No information was provided as to how the complex problem of integrated system operations is to be dealt with. It is well known that impacts at individual sites and for the system overall will vary according to the way in which the entire system is operated. (para. 93).

3.2(6) Actions/Benefits to Date

143. The governments were asked to provide information concerning the benefits of the WUP process to date:

> Please provide any factual information, in addition to the information provided in the March 1999 Water Use Plan Management Committee Submission, regarding the benefits to habitat that have resulted from the WUP process to date including the interim orders, Campbell River Interim Flow Management Strategy and Alouette Water Use Plan. (21 April 1999 Questions, Question # 7).

144. The Province of British Columbia indicates that it has committed $3.6 million per year for Interim Orders. The WUP Management Committee provides the following explanation for these Orders:

> The time frame to develop WUPs for the facilities was projected to be approximately five years. In light of this and the need to act on some specific issues immediately, a need for immediate results for fish at certain high priority facilities was identified. It was agreed that interm measures would be applied to help mitigate some impacts where sufficient current fisheries data were available. (WUP Management Committee's March 1999 Submission, p. 19).

The Province indicates that it intends to keep these Interim Orders in place until WUPs at the relevant facilities are complete. (11 June 1999 Response to 21 April 1999 Questions, p. 10). Section 4.4 of the WUP Management Committee's March 1999 Submission identifies a list of several BC Hydro facilities that were to receive Interim Orders, which are Orders of the Water Comptroller under the *Water Act*, to help mitigate some impacts on habitat. (WUP Management Committee's March 1999 Submission, pp. 19–20).

The Committee indicates that most of the orders affect flows and that the goal is to ensure "that at least 'baseline conditions' (defined as incrementally improving current habitat productive capacity to arrest the decline in fish production potential) would be met." (WUP Management Committee's March 1999 Submission, p. 20). The WUP Management Committee's March 1999 Submission includes, for each facility subject to an Interim Order, "an overview of the benefits for fish habitat resulting from operational changes at the facilities." (WUP Management Committee's March 1999 Submission, p. 20). Two examples of these overviews are provided below:

> 4.4.1 Alouette
>
> The operational changes at Alouette provide an increase in the flows from the previous minimum flow of 20-cfs to a flow ranging from 90 to 105 cfs (depending on reservoir levels). This flow is provided to the river through the low-level outlets in the dam, which are kept fully open.

> The higher flows have resulted in increased spawning and rearing habitat throughout the length of the river and have increased the potential of the habitat to produce fish.
>
> Before development of the Alouette WUP, habitat improvements, including developing/restoring degraded spawning and rearing habitat had been ongoing in the Alouette River as a result of cooperative work between BC Hydro and DFO, under the auspices of the Lower Mainland Hydro Fisheries Technical Committee. Some of the habitat restoration work involved the development of side-channels. The increased flows will enhance the existing habitat restoration projects and provide additional habitat restoration opportunities. (WUP Management Committee's March 1999 Submission, pp. 20–21).[17]
>
> 4.4.3 Campbell
>
> …The anticipated benefits of the Interim Order for the Campbell River below the John Hart Dam include:
>
> 1) improved spawning and rearing conditions resulting in increased fish production;
> 2) decreased probability of high flood flows resulting in decreased habitat losses and less disruption of spawning and rearing fish; and
> 3) decreased flow fluctuations resulting in decreased fish losses due to stranding. (WUP Management Committee's March 1999 Submission, p. 23).

Interim Orders for Puntledge, Coquitlam, Stave, Heber, and Salmon, and the benefits they are intended to produce, are summarized as well.

The governments indicate that a series of studies are underway that are intended to evaluate the effectiveness of these interim steps:

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[17] A 1998 report prepared by a group of eight experts offers positive feedback on the Alouette experience. *Living Blueprint for BC Salmon Habitat*, published in 1998 by an Independent Panel ("Living Blueprint"), describes the Alouette experience in some detail as follows:

> After years of effort, the Alouette River Management Society—a community coalition supported by the federal Department of Fisheries and Oceans (DFO) and the provincial Ministry of Environment, Lands and Parks (MELP)—obtained an agreement with BC Hydro to increase base flows in the Alouette River to 100 cubic feet per second (cfs) from the previous base flow of 20 cfs. This resulted in a threefold increase in available fish habitat. In addition, the Society successfully diverted flows to reduce harmful sedimentation and is undertaking riparian replanting, the development of an interpretative centre and the creation of new off-channel rearing habitat. It has pressured City Hall to improve protection of the urban sections of the watershed, is involved in making and installing roadside habitat-protection signs, and has distributed information to riverside residents to help resolve issues ranging from flood control to septic-tank management.
>
> The Society is an excellent example of the power of organized community efforts in habitat protection and rehabilitation. (Living Blueprint, p. 11).

> Available information concerning the benefits to habitat from the interim flows, Campbell River Interim Flow Strategy and Alouette Water Use Plan was already provided in the previous Water Use Plan (WUP) Management Committee Submission (see Section 4.4).
>
> There is no additional information available which can conclusively demonstrate the benefits of these actions. Studies are, however, currently underway to monitor the effectiveness of these measures. (11 June 1999 Response to 21 April 1999 Questions, p. 11)

3.2(7) Issues Regarding the Future Effectiveness of the WUP Process

145. The Stakeholders offered their views as to whether the WUP process will lead to compliance with the *Fisheries Act*. The Province, Canada, and BC Hydro believe that compliance with an approved WUP will constitute compliance with the *Fisheries Act*:

> Facility operations that are in accordance with the terms and conditions of an approved WUP will be in compliance with… the *Fisheries Act*. (WUP Management Committee's March 1999 Submission, p. 12).
>
> Operations that are in accordance with the terms and conditions of a water use plan approved by DFO, and if applicable a *Fisheries Act* authorization (and accompanying *Canadian Environmental Assessment Act* review), will be in compliance with the *Fisheries Act*. (WUP Management Committee's March 1999 Submission, p.13).

146. Canada indicates that it has made clear that its participation in the WUP process is predicated on the position that "we expect to achieve as a minimum, a baseline condition which is in full compliance with *Fisheries Act* requirements at each facility." (Canada's March 1999 Submission, p. 29).

147. The Submitters express the view that "the WUP Process does not effectively enforce section 35 of the *Fisheries Act*." (Submitters' January 1999 Speaking Points, p. 4; unless otherwise indicated, all page references in this paragraph are to this document). In addition to the issues listed in paragraph 140 above, they raise the following questions and make the following assertions:

- "The delays in the WUP Process bring into question whether there is any consensus for the Process and whether the Process will actually begin. When the Process was announced in 1996, the intention was to review all 34 BC Hydro projects within 5 years. To date, the Guidelines for the Process have not even been finalized." (p. 4). The Submitters made this statement in January 1999; the Guidelines were finalized the following month, in February 1999.

- "To date, the WUP Process has not produced any results which would allow one to conclude that it will result in the effective enforcement of the *Fisheries Act*." (p. 4).

148. The Expert Group developed a list of some of the issues worthy of attention in monitoring the effectiveness of the WUP program:

> In monitoring the effectiveness of the WUP program, it will be important to review the following:
>
> - The timetable for actual development and implementation of WUPs;
> - The nature of the changes made to the water licenses to reduce/eliminate harm to fish habitat;
> - The extent of compliance with any such changes to the water licenses;
> - The nature and effectiveness of follow-up to instances of non-compliance with such changes;
> - The inclusion of overall system operations as an effective means to achieve net gains for fish and fish habitat;
> - The development and use of credible tools for measuring and assessing net gain/losses of fish habitat for individual facilities and for the BC Hydro system overall;
> - The extent to which WUP leads to reductions in and/or the elimination of harm to fish habitat and/or issuance of Section 35(2) authorizations, and the extent to which HADDs continue to occur/exist without issuance of Section 35(2) authorizations; [and]
> - To the extent that one or more WUPs do not lead to issuance of Section 35(2) authorizations, the nature and effectiveness of DFO follow-up to promote compliance with *Fisheries Act* Section 35(1) and reductions in/elimination of harm to fish habitat. (Appendix 8, para. 94). [18]

The Expert Group states:

> In sum, the WUP process holds promise as an enforcement strategy. Because the process is at an early stage, little information exists concerning the extent to which the WUP process will prove to be an effective enforcement strategy. Assessments of its effectiveness must await implementation of the process over the next several years. Some of the more significant questions relevant to implementation of this strategy are listed above. Even if negotiations lead to a WUP that is acceptable to

[18] One of the potential issues here is whether issuance of a license that includes terms that a series of stakeholders other than Canada have endorsed, and that requires operational and other changes from BC Hydro, could affect Canada's willingness to pursue enforcement actions on the basis that there are violations of Section 35(1) for harm to fish habitat following issuance of the license. A related issue is whether Canada's prospects for success in such a case will be affected by the WUP process.

> DFO, this does not mean that all parties will respect the plan, or that violations of s. 35 will not still occur. DFO will still need to employ its full range of enforcement tools to ensure adequate protection and conservation of fish habitat. (Appendix 8, para. 95).

The Expert Group indicates that:

> WUP is a move in the right direction towards achieving greater protection of fish and fish habitat from the harmful impacts of hydroelectric operations. It is a much more comprehensive approach to gathering data, identifying harmful impacts and developing action plans to protect fish and fish habitat at each facility than the ad hoc approaches currently being used. (Appendix 8, para. 90).

3.3 Prosecutions and Related Enforcement Activities

149. This Section on prosecutions and related enforcement activities contains three subsections. It first provides basic background information. Next it provides information relating to the "policy context" for prosecutions and related enforcement activities. Third, it provides information relating to the nature and level of these activities and their effects.

3.3(1) Background on Prosecutions and Related Enforcement Activities

150. The *Fisheries Act* authorizes the government to prosecute parties that violate s. 35(1) of the *Fisheries Act* and it provides for sanctions against those found guilty of violating s. 35(1). Section 40 of the *Fisheries Act* provides as follows:

> **40. Offence and punishment.** (1) Every person who contravenes subsection 35(1) is guilty of
>
> (a) an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding three hundred thousand dollars and, for any subsequent offence, to a fine not exceeding three hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both; or
>
> (b) an indictable offence and liable, for a first offence, to a fine not exceeding one million dollars and, for any subsequent offence, to a fine not exceeding one million dollars or to imprisonment for a term not exceeding three years, or to both. (S.C. 1991, c. 1, s. 10(1)).

Other sections of the *Fisheries Act* provide for other types of orders for violations of s. 35(1). For example, s. 79.2 lists a number of "prohibitions, directions or requirements" the court may impose after conviction of an offence:

> **79.2. Orders of the Court.** Where a person is convicted of an offence under this Act, in addition to any punishment imposed, the court may, having regard to the nature of the offence and the circumstances

> surrounding its commission, make an order containing any one or more of the following prohibitions, directions or requirements:
>
> (a) prohibiting the person from doing any act or engaging in any activity that may, in the opinion of the court, result in the continuation or repetition of the offence;
>
> (b) directing the person to take any action the court considers appropriate to remedy or avoid any harm to any fish, fishery or fish habitat that resulted or may result from the commission of the offence;
>
> (c) directing the person to publish, in any manner the court considers appropriate, the facts relating to the commission of the offence;
>
> (d) directing the person to pay the Minister an amount of money as compensation, in whole or in part, for the cost of any remedial or preventive action taken by or caused to be taken on behalf of the Minister as a result of the commission of the offence;
>
> (e) directing the person to perform community service in accordance with any reasonable conditions that may be specified in the order;
>
> (f) directing the person to pay Her Majesty an amount of money the court considers appropriate for the purpose of promoting the proper management and control of fisheries or fish habitat or the conservation and protection of fish or fish habitat;
>
> (g) directing the person to post a bond or pay into court an amount of money the court considers appropriate for the purpose of ensuring compliance with any prohibition, direction or requirement mentioned in this section; habitat;
>
> (h) directing the person to submit to the Minister, on application by the Minister within three years after the date of the conviction, any information respecting the activities of the person that the court considers appropriate in the circumstances; and
>
> (i) requiring the person to comply with any other conditions that the court considers appropriate for securing the person's good conduct and for preventing the person from repeating the offence or committing other offences under this Act. (S.C. 1991, c. 1, s. 24)

151. As noted above, a central assertion of the Submitters is that Canada rarely prosecutes BC Hydro for alleged violations of *Fisheries Act* s. 35(1). The Submitters assert that the paucity of such prosecutions constitutes a failure to effectively enforce this section of Canadian environmental law against BC Hydro. In their initial Submission, for example, the Submitters state that DFO has only laid two charges under s. 35(1) against BC Hydro since 1990. The Submitters allege that "this enforcement record reveals a consistent failure by the Federal Government to effectively enforce s. 35(1) against [BC] Hydro… ." (Submitters' April 1997 Submission, p. 10).

152. In its Response, Canada states that BC Hydro was "charged twice with a total of 5 counts" involving the alleged Bridge River violations and the Cheakamus court challenge. (Canada's July 1997 Response, Table 1, p. 17). Canada also provides a

table of fourteen administrative actions directed at BC Hydro since 1990. (Canada's July 1997 Response, Table 1, p. 16–17; See para. 27 above).

153. In a document entitled "Reply Of The Submitting Parties to The Canadian Response," the Submitters provide the following comment regarding Canada's table of administrative actions:

> Of the 14 actions described, eight are authorizations to harmfully alter, disrupt or destroy fish or fish habitat, three are merely letters, two order specific flows and one requests flows. These 14 items, only three of which directly benefit fish habitat, apply to only four of the 33 projects described in the Submission. Canada presents no evidence of any equivalent actions undertaken with respect to the remaining 29 projects. (Submitters' September 1997 Submission, p. 5, emphasis in original).

154. Canada and the Province were asked in questions dated 3 February 1999 and 21 April 1999 to provide information relating to government enforcement policies. They also were asked to provide information on actual enforcement activities. Section III.B.3.3(2) below provides information on the governments' enforcement policies. Section III.B.3.3(3) below provides information on the governments' enforcement activities.

3.3(2) Information on Government Enforcement Policies

155. The 3 February 1999 Questions sought information concerning the extent to which Canada has established a policy context to guide its use of prosecutions as an enforcement tool:

> Canada has identified a wide range of government responses. We are interested in obtaining information concerning three types of government policies relating to these responses:
>
> a) policies that explain Canada's overall plan for enforcement and compliance concerning *Fisheries Act* s. 35(1);
> b) policies that discuss the criteria Canada uses in deciding which government response to use in dealing with a particular violation of s. 35(1); and
> c) policies that explain the purpose of each government response and how each is supposed to work.
>
> With respect to prosecutions, for example, we are interested in the criteria Canada uses in deciding whether to investigate a possible violation of *Fisheries Act* s. 35(1), and/or in deciding whether to bring a prosecution for such a violation. We are interested, therefore, in policies, procedures, protocols and other documents relating to, among other things:
>
> (i) charge screening;
> (ii) recommending charges; and

(iii) instituting investigations. (3 February 1999 Questions, Question #1).

156. In the fall of 1999, Canada provided a July 1999 draft Policy entitled *Fisheries Act* Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy ("1999 Draft Compliance and Enforcement Policy") (unless otherwise indicated, all page references in this subsection 3.3(2) are to this draft Policy).

This draft Policy is directly responsive to the 3 February 1999 question described above. The Secretariat assumes the draft Policy was not provided as part of the March 1999 Canadian submission because the draft (which is dated July 1999) had not been completed by that date. Various Canadian documents issued well before July 1999 had referred to enforcement or compliance policies. (See, for example, the Habitat Conservation and Protection Guidelines, released in 1994 (p. 26) and revised in 1998 (p. 16), stating that "[i]f the proponent does not comply with the terms and conditions as stated by DFO and fish or fish habitat are harmed, enforcement procedures will be initiated pursuant to the Act in accordance with departmental compliance policies.") It is unclear what policies these documents refer to.

157. The July 1999 draft *Fisheries Act* Habitat Protection and Pollution Prevention Provisions Compliance and Enforcement Policy describes its purpose and scope as follows:

> This Compliance and Enforcement Policy lays out general principles for application of the habitat protection and pollution prevention provisions of the [Fisheries] Act and explains the role of regulatory officials in promoting, monitoring and enforcing the legislation. It is a national policy which applies to all those who exercise regulatory authority, from ministers to enforcement personnel. (p. 1).

158. The draft Policy contains eight primary sections:

- What are enforcement and compliance?
- Guiding principles,
- Jurisdiction and responsibilities,
- Measures to promote compliance,
- Inspection and investigation,
- Responses to violation,
- Penalties and Court Orders upon conviction, and
- Civil suit by the Crown to recover costs. (p. ii)

The next several paragraphs summarize the information contained in these sections.

159. Under the heading "What are Compliance and Enforcement?," the draft Policy identifies a series of approaches for promoting compliance and pursuing enforcement. For promoting compliance, the Policy lists:

> i) communication and publication of information;
> ii) public education;
> iii) consultation with parties affected by these provisions of the *Fisheries Act*; and
> iv) technical assistance. (p. 3)

For enforcement, the draft Policy lists:

> i) inspections to monitor or verify compliance;
> ii) investigations of violations;
> iii) issuance of warnings, directions by inspectors, authorizations, and Ministerial orders, without resorting to court action; and
> iv) court actions, such as injunctions, prosecution, court orders upon conviction, and civil suits for recovery of costs. (p. 3).

160. The draft Policy's section on "Guiding Principles" lists six such principles:

> - Compliance with the habitat protection… provisions… is mandatory.
> - Voluntary compliance will be encouraged through communication and consultation with parties affected by the habitat protection… provisions of the *Fisheries Act*.
> - Enforcement personnel will administer the provisions and regulations in a manner that is fair, predictable, and consistent. Rules, sanctions and processes securely founded in law will be used.
> - Enforcement personnel will administer the provisions and accompanying regulations with an emphasis on preventing harm to fish and to fish habitat caused by physical alteration or pollution of waters frequented by fish.
> - Enforcement personnel will respond to suspected violations of the *Fisheries Act* habitat protection… provisions, giving priority to those that have resulted in the greatest harm, or pose the greatest risk of harm to fish, fish habitat, or to human use of fish and will take action consistent with this Compliance and Enforcement Policy.
> - The public will be encouraged to report suspected violations of the Habitat Protection… Provisions of the *Fisheries Act*, and all such reports will be responded to by Enforcement Officials. (p. 4)

161. The draft Policy discusses the roles and authorities of different government actors in enforcing the *Fisheries Act* in the "Jurisdiction and Responsibilities" section. It indicates that the Attorney General of Canada is responsible for all litigation relating to the *Fisheries Act*:

> While Fishery Officers, Fishery Guardians, and Inspectors may lay charges for offenses under the Act, the ultimate decision on whether to proceed with prosecution of the charges rests with the Attorney General of Canada, or where the charge is laid by the province, with the respective provincial Attorney General. With respect to an application for an injunction or a civil suit for recovery of costs in the various circumstances in which such recovery is allowed under the Act, enforcement personnel will recommend these civil actions to officials of the Attorney General of Canada. The legal counsel representing the Attorney General of Canada have the ultimate decision on proceeding with the injunction or civil suit for cost recovery. (p. 9).

The draft Policy states that courts "make the final decision regarding disposition of prosecutions, injunction applications and civil suits commenced under the habitat protection… provisions, including what penalty to impose or what remedy to order." (p. 9).

The draft Policy indicates that DFO "has primary responsibility for administration of the *Fisheries Act*, which includes responsibility for administration and enforcement of the provisions dealing with physical alteration of fish habitat." (p. 5). It notes that provincial officials may be designated to help enforce the Act: "In order to implement the habitat protection… provisions of the *Fisheries Act*, provincial and territorial governments cooperate to promote compliance and enforce these provisions. This cooperation includes, in some cases, the designation of enforcement officials of these governments as Fishery Officers or inspectors under the Act." (p. 5). The draft Policy indicates that "[e]nforcement personnel are individuals designated as Fishery Officers or Fishery Guardians (under Section 5) or Inspectors under Section 38 of the *Fisheries Act*." (p. 6). The draft Policy lists the powers of Fishery Officers and Fishery Guardians. These powers include the authority to conduct inspections and to make arrests, among others. (p. 7).

162. The draft Policy lists and discusses a series of "Measures to Promote Compliance." Among other things, the draft Policy discusses issuance of "authorizations." It provides as follows:

> The habitat protection… provisions of the *Fisheries Act* provide authority to issue "authorizations" for activities that would otherwise contravene the requirements of the legislation. …Under subsection 35(2) of the Act, authorizations may be issued to allow for the harmful alteration, disruption or destruction of fish habitat. (pp. 10–11).

The draft Policy provides that "[a]nyone who harmfully alters, disrupts or destroys fish habitat without an authorization is in contravention of the *Fisheries Act*." (p. 11).

163. The draft Policy also discusses "compliance monitoring" as a measure to promote compliance. The draft Policy provides that "[c]ompliance monitoring is conducted to verify that activities governed by the *Fisheries Act* are carried out in accordance with

its provisions, regulations, ministerial orders and permit [the word permit has a line through it] authorization requirements." It continues: "Inspectors will also verify compliance with injunctions and court orders issued under the Act. Compliance monitoring may also measure potentially harmful impacts on the environment associated with suspected violations of the Act." (pp. 14–15). The draft Policy lists several means to accomplish compliance monitoring, including:

- "inspections by inspectors;"
- "mandatory reporting of information by regulatees;" and
- "monitoring of regulatory requirements under the Act or regulations." (p. 15).

164. The draft Policy's section on "Inspection and Investigation" indicates that inspections and investigations are the two primary types of enforcement activity conducted by enforcement personnel. It indicates that the purpose of an inspection is "to verify compliance." It further notes that the inspection program will be prioritized based on compliance history and the risk to fish resources. It states that inspection schedules are established to verify compliance with requirements contained in warnings, directions, and orders by the DFO Minister, among other sources.

The draft Policy reports that the purpose of an investigation is "to gather evidence of a suspected violation of the habitat protection… provisions of the *Fisheries Act*." (p. 16). It indicates that "[a] Fishery Officer, Fishery Guardian or Inspector will conduct an investigation when there are reasonable grounds to believe that an offence is being or has been committed." (p. 16).

165. The draft Policy provides relatively extensive coverage of the subject "Responses to Violations." (pp. 17–24). This section of the draft Policy contains information on five topics. First, it covers the question of when a violation should trigger an enforcement response:

> If enforcement personnel are able to substantiate that a violation of the habitat protection… provisions of the Act has occurred and there is sufficient evidence to proceed, they will decide on an appropriate enforcement action… . (p. 17).

166. Next it covers the factors to consider in assessing the nature of a violation:

> Factors considered in assessing the nature of a violation will include:
>
> - the seriousness of the damage or potential damage to fish habitat, the fishery resource, and human health;
> - the intent of the alleged violator;
> - whether it is a repeated occurrence; and
> - whether there were attempts to conceal information or otherwise circumvent the objectives and requirements of the habitat protection… provisions. (p. 17).

167. Third, the section addresses the purpose of taking enforcement measures:

> The desired result [of an enforcement measure] is compliance with the Act within the shortest possible time and with no further occurrence of violations in order to protect fish and fish habitat. Factors to be considered include:
>
> - the violator's history of compliance with the habitat protection… provisions;
> - the violator's willingness to cooperate with enforcement personnel;
> - evidence and extent of corrective action already taken; and
> - the existence of enforcement actions by other federal or provincial authorities. (pp. 17–18).

168. The fourth point the section makes is that Canada will strive for consistency in responding to violations:

> Enforcement personnel aim to achieve consistency in their responses to violations. Accordingly, they will consider how similar situations in Canada are being or have been handled when deciding what enforcement action to take. (p. 18).

169. The section on "Responses to Violations" concludes with a discussion of the five enforcement responses to violations, and the circumstances in which each should be used. These five are: 1) warnings; 2) directions by Inspectors; 3) orders by the Minister; 4) injunctions; and 5) prosecutions. The draft Policy indicates that the five are not mutually exclusive; more than one may be used for particular situations.

Warnings are intended for relatively minor violations where the alleged violator has made a reasonable effort to remedy or mitigate the impact. A warning must be confirmed in writing and the written confirmation must include a statement that further enforcement action may follow if the warning is not heeded, as well as a statement that warnings will be considered in the event of future violations. The draft Policy states that a prosecution may be initiated where a warning has been given but non-compliance continues. (p. 19).

Directions by Inspectors appear to be reserved for situations involving abnormal deposits of deleterious substances, not for violations of *Fisheries Act* s. 35(1) involving harm to fish habitat. As a result, they are not summarized here.

The draft Policy indicates that s. 37(1) of the *Fisheries Act* empowers the Minister or designate to request information concerning any work or undertaking to enable the Minister to determine whether such work or undertaking constitutes an offence under the Act or is likely to do so. It indicates that "[f]ailure to respond to the request within a reasonable time will likely lead to prosecution." (p. 20). The draft Policy further indicates that the Minister may issue orders requiring modifications

of the work, restricting the operation of the work, or closing the work or undertaking for a stipulated period of time. The Minister must obtain approval of the Governor in Council for issuance of closure orders. The Minister must obtain the Governor in Council's approval for issuance of the other orders as well, unless authorized to issue such by regulation. (p. 20).

The draft Policy explains that the purpose of these orders is "to prevent the occurrence or repetition of a violation." It further explains that use of these orders is appropriate where a violation has occurred or is likely to occur and the alleged violator is not likely to heed an informal request to take necessary action without a formal order. The draft Policy indicates that "[f]ailure to comply with an order will result in prosecution." (p. 21). It also indicates that orders may be used in conjunction with prosecutions if the offence meets the criteria for prosecution (discussed below).

Injunctions are court orders to stop activity that violates the habitat protection provisions. The draft Policy indicates that enforcement personnel will recommend to the Attorney General initiation of an injunctive action "where continuation of the activity that is alleged to be a violation of the *Fisheries Act* constitutes a significant and immediate threat to fish or fish habitat" and where an Order will not address the problem in a timely way or is not being complied with. (p. 21). The draft Policy indicates that the Crown may, among other actions, initiate a prosecution in addition to seeking an injunction. (p. 21).

The final type of response action discussed in the draft Policy is prosecutions. The draft Policy makes prosecutions the preferred course of action in some situations and the required course of action in others.

> Prosecution is the preferred course of action where evidence establishes that:
>
> - the violation resulted in risk or harm to fish or fish habitat;
> - the violation resulted in harmful alteration, disruption or destruction of productive fish habitats (not authorized by the Minister of Fisheries and Oceans);
> - the alleged violator had previously received a warning for the activity and did not take all reasonable measures to stop or avoid the violation;
> - the alleged violator had previously been convicted of a similar offence.
>
> Prosecution will always be pursued where evidence establishes that:
>
> - there is evidence of a deliberate violation;
> - the alleged violator knowingly provided false or misleading information to an enforcement officer;

- the alleged violator obstructed an enforcement officer in the carrying out of his or her duties or interfered with anything seized under the Act;
- the alleged violator concealed or attempted to conceal or destroy information or evidence after the offence occurred; or
- the alleged violator failed to take all reasonable measures to comply with a direction or an Order issued pursuant to the Act. (p. 23)

The draft Policy indicates that most offences under the habitat protection provisions are prosecuted by way of summary conviction. For others, the Crown prosecutor may proceed by way of indictment. In the latter cases, the judge may upon conviction "impose more serious penalties than those allowed under the summary conviction proceedings." (p. 23).

170. Because there have been no convictions of BC Hydro as far as the Secretariat is aware, this Factual Record does not cover the section on penalties and court orders upon conviction. (pp. 25, 26). Similarly, the Factual Record does not cover the section on civil suit by the Crown to recover costs because it does not apply to the alleged violations involved in this submission.

As noted at the outset and repeated throughout the summary provided above, the July 1999 Policy is only a draft. As of February 2000, information has not been provided as to whether the document has been finalized or as to whether DFO is following it while it is under development. In its 8 September 1999 Response to Submission SEM-98-004 ("Canada's September 1999 Response (SEM-98-004)"), Canada indicates that the draft Policy is "modelled after Canada's 'Enforcement and Compliance Policy' for the *Canadian Environmental Protection Act*." The Response further indicates that the draft Policy, still under development, was "expected to be finalized and published in 1999." It also notes that while the draft policy is still under development, "within Environment Canada working drafts are currently followed at the regional level to guide enforcement of the pollution prevention provision of the *Fisheries Act*." (Canada's September 1999 Response (SEM-98-004), p. 13).

The Secretariat provides an extensive summary of the draft despite its status as such, and despite these uncertainties, because the draft Policy is the only document made available that provides overall policy direction for use of different enforcement tools. As such, the draft Policy appears to contain important information relating to the government's current thinking (even if such thinking has not yet become official, final government policy) about an overall strategy for employing different enforcement approaches.

171. The draft Policy provides for an evaluation within five years of its implementation:

> Within five years of the implementation of the Compliance and Enforcement Policy, the Department of Fisheries and Oceans and the

> Department of the Environment will review the manner in which the policy has been applied by their officials, to determine whether administration and enforcement activities have been consistent with the policy and whether changes in these activities, or in the policy are required. (p. 2).

It is not clear when the five-year period begins to run. The draft Policy does not specify whether it begins in July 1999 (the date of the draft), on the date when the policy is finalized (assuming this occurs), or at some other time.

At this point, little information has been made available concerning the application of this draft Policy. Thus, information has not been provided as to "whether administration and enforcement activities have been consistent with the policy," or as to "whether changes in these activities, or in the policy are required."

3.3(3) Information on Government Enforcement Resources, Activities, and Results

172. In addition to seeking information concerning the existence and content of any enforcement policies, information was sought concerning the nature of government enforcement activities. In particular, information was sought concerning the level of government resources allocated to enforcement activities, the level of government enforcement activities, and the results or effectiveness of those activities. The 21 April 1999 Questions requested additional information regarding the level of resources devoted to enforcement:

> For each year, 1994-1998, inclusive, how much human (FTEs) and financial resources (budget allocation) have DFO and provincial agencies dedicated to enforcement of Section 35(1) of the *Fisheries Act* in British Columbia? To the extent the information is available, please provide a breakdown of the allocation of these resources by type of activity -- e.g., monitoring, investigation, and enforcement. (21 April 1999 Questions, Question #3)

The 21 April 1999 Questions also requested additional information regarding the level and outcomes of enforcement-related activity (number of inspections, etc.):

> For the same time period, please provide any compliance and enforcement data for British Columbia not yet submitted relating to *Fisheries Act* Section 35(1), such as data concerning the *level* of enforcement activity (e.g., numbers of investigations and inspections), and the *outcomes* of such activity. With respect to outcomes, for example, the DFO 1996–1997 Annual Report to Parliament provides information on convictions for fiscal years 1994/95, 1995/96 and 1996/97. Please provide similar information for fiscal years 1997/98 and 1998/99 if it is available. Please also provide information concerning any sanctions imposed for violations of Section 35(1) in British Columbia

> (e.g., the number and monetary value of fines imposed for such violations). (21 April 1999 Questions, Question #4).

173. Information from the Province was not included in the 11 June 1999 Response to the 21 April questions. In a March 1999 submittal, the Province provides the following information regarding personnel:

> The Ministry of Attorney General has recognized that enforcement of environmental law is complex and technical, requiring specialised expertise, and in 1989 responded by establishing a group of prosecutors who specialise in environmental protection. This group of eight full time Crown counsel… is mandated to give priority to the prosecution of environmental cases… . (MELP's March 1999 Presentation, pp. 8–9).

The Province also reports that the Conservation Officers Service (COS) of MELP has designated authority under the federal *Fisheries Act*. (MELP's March 1999 Presentation, p. 7).

Concerning the level of enforcement activity, the Province states that the *Fisheries Act* "is well-utilized, with over 600 actions and 93 prosecutions in a four-year period." (MELP's March 1999 Presentation, p. 7). The Province does not specify the four-year period referenced or provide information on the nature, or outcomes, of its 600 actions or 93 prosecutions. Information concerning convictions obtained by the Province is contained in Habitat Enforcement Bulletins, posted on DFO's homepage (www-heb.pac.dfo-mpo.gc.ca).

The Province provides information on a variety of other, non-prosecution-oriented enforcement initiatives. These include voluntary compliance and education activities and compensation agreements (listing the Peace/Williston Fish and Wildlife Compensation Agreement, adopted in 1989 and providing in perpetuity $800,000 annually ($400,000 for fish); the Columbia Basin Fish and Wildlife Compensation Agreement, adopted in 1993 and providing $3.2 million ($1.5 to $1.7 million for fish); and noting that a similar BC Hydro fund is being established for the Bridge River/Coastal Fish and Wildlife Compensation Program). (MELP's March 1999 Presentation, p. 4; See BC Hydro's February 1999 Submission, pp. 16–18, for a discussion of various administrative and collaborative means through which BC Hydro's impact on fish habitat is limited or improved). The Province also provides copies of several interim orders it has issued to BC Hydro since the submission was filed, including Herber River Diversion, 12/22/98; Stave River: Ruskin Dam, 12/22/98; Salmon River Diversion, 12/2/98; Coquitlam River, 12/16/98; Puntledge River Generating Facility, 11/10/97; Alouette Dam and Generating Station, 10/3/97; and Campbell River Hydroelectric Development, 10/3/97.

174. BC Hydro provided information on its investments in fish habitat-related issues. It indicates that in 1986 it had two fisheries biologists and that it now has twenty fisheries staff within BC Hydro, plus six fisheries staff working with its

compensation programs on the Peace and Columbia River systems. It states that WUP will require five more biologists, and that "[t]his level of staffing, with its overhead and expenses, costs about $5 million and is increasing steadily." It further indicates that "[a]dditional expenditures for fisheries related matters (habitat improvements, compensation programs and Water Use Planning) will cost about $10 million in 1999." (BC Hydro's February 1999 Submission, p. 16).

175. With respect to information from Canada on its enforcement budget, the Submitters indicate that they have been unable "to obtain reliable information relating to DFO's budget for the monitoring, investigation and enforcement of s. 35(1)." They continue: "However it is our understanding that DFO's budget in that regard has been substantially reduced in recent years, and that there are simply too few qualified personnel available to effectively monitor and enforce the habitat protection provisions of the *Fisheries Act*." (Submitters' January 1999 Speaking Points, p. 6).

176. Canada provides some information in response to Question #3, as summarized in the rest of this paragraph and in the paragraph immediately below. With respect to financial resources dedicated to enforcement of s. 35(1) in British Columbia, Canada indicates that it does not keep detailed data on the financial resources dedicated to enforcement activities. It adds that there is "no specific budget allocation for habitat enforcement activities separate from general operating budgets." (11 June 1999 Response to 21 April 1999 Questions, p. 6). Thus, the Factual Record does not contain a total amount of money allocated to enforcement. Similarly, it does not provide a breakdown of the allocation of financial resources among various types of enforcement activities, such as monitoring, investigation, and enforcement because such a breakdown was not provided.

177. In section 1.4.2 of Canada's March 1999 Submission, Canada cites examples of the time and effort expended concerning the alleged Bridge River violations and the Cheakamus court challenge and provides some quantification of costs to support its contention that "litigation is costly and expensive." (Canada's March 1999 Submission, pp. 9–13).

BC Hydro provides information concerning the Bridge River prosecution. It asserts that the trial "was probably the longest *Fisheries Act* case in Canadian history." (BC Hydro's February 1999 Submission, p. 11). The preliminary hearing took 2 ½ weeks and the trial took nearly 10 weeks of court time. "The cost to BC Hydro of defending the charges, not including the cost of studies, remediation and operational steps in mitigation before, during and after the incident itself, was probably between $1 and 2 million (Cdn.)." (BC Hydro's February 1999 Submission, p. 11).

178. With respect to human resources dedicated to enforcement of s. 35(1) in British Columbia, Canada indicates that it does not keep detailed data on the human resources (FTEs) dedicated for this purpose. (11 June 1999 Response to 21 April 1999 Questions, p. 6). Thus, there is no breakdown available in terms of the

allocation of human resources among various types of enforcement activities, such as monitoring, investigation, and enforcement.

Canada notes that enforcement activities are carried out by Fishery Officers, habitat biologists, engineers, technicians, and research scientists. It notes that Fishery Officers are "multi-tasked, regulating commercial, sport, and aboriginal fisheries as well as conducting habitat enforcement duties." It indicates that there are roughly 150 full and 30 seasonal Fishery Officer positions, and estimates that 10% of a Fishery Officer's time is spent on habitat enforcement. It reports that from 1994/1995 to 1998/1999 the number of Fishery Officers in British Columbia has remained constant. (11 June 1999 Response to 21 April 1999 Questions, p. 6).

179. Canada notes that Habitat Management staff are also "multi-tasked." It reports that there are approximately 55 Habitat Management staff with enforcement powers and duties, and that in 1994, it was estimated that about 7% of Habitat Management staff time in British Columbia was devoted to habitat enforcement duties. It is not clear whether this estimate holds for later years. Canada advises that from 1994/1995 to 1998/1999 the number of Habitat Management staff in British Columbia has remained constant. (11 June 1999 Response to 21 April 1999 Questions, p. 6).

180. Canada provides the following statements concerning its allocation of resources to protecting fish habitat within the context of Article 45 of the NAAEC:

- "In a world of finite human resources, decisions must be made regarding their allocation. These decisions have been made on a *bona fide* basis as per Article 45 of NAAEC…. The enforcement activities are directly linked to resourcing decisions and DFO believes that its resourcing decisions make sense and reflect public concerns." (Canada's March 1999 Submission, p.20, emphasis in original).

- "DFO staff are required to protect the fisheries resource and fish habitat from a wide variety of works or undertakings. Examples include: urban development; logging; farming; foreshore development; linear developments; recreational development; gravel extraction; hard rock and placer mining, etc. …DFO expends considerable effort enforcing the habitat provisions of the *Fisheries Act*." (Canada's March 1999 Submission, pp.19–20).

- DFO has a broad mandate and its limited number of staff have multiple duties under this broad mandate. (Canada's March 1999 Submission, pp. 3, 4).

The Submitters offer the following statement concerning this issue:

> Canada relies on Article 45 of NAAEC to explain the lack of a greater number of prosecutions in the face of consistent and repeated damage to

> fish habitat at hydroelectric facilities. Under Article 45, a [P]arty has not failed to effectively enforce environmental law where its inaction results from a *bona fide* decision to allocate resources to enforcement of *other environmental matters* determined to have higher priorities.
>
> The Submitting Parties are skeptical of Canada's claim and note that Canada has submitted no evidence indicat[ing] that the failure to enforce section 35 results from a *bona fide* decision to fund other environmental priorities, rather than resulting from the under-funding of fisheries programs or government decisions to prioritize other, non-environmental matters. If the government of Canada wishes to rely on Article 45, it should provide further information. (Submitters' 24 March 1999 Submission, pp. 4–5).

181. Canada provided some information in its 11 June 1999 Response to 21 April 1999 Questions concerning the level of enforcement activity requested in Question #4. In particular, Canada provided tables of convictions, and resulting sanctions, reported in British Columbia under s. 35(1) of the *Fisheries Act*. These tables are reproduced below.

Table 1: <u>Convictions and Sanctions Reported Under Section 35(1) of the Fisheries Act in British Columbia</u>

Year	S. 35(1) Convictions
1994/95	37
1995/96	30
1996/97	32
1997/98	24
1998/99	21

Year	Total of fines	Portion directed to restore habitat[1]	Orders to restore habitat[2]
1994/95	$117, 295	$82, 189	7
1995/96	$111, 051	$44, 000	2
1996/97	$55, 950	$26, 500	3
1997/98	$199, 301	$141, 981	2
1998/99	$178, 724	$137, 799	6

[1] Portion of the total of fines that was directed to restoration or enhancement of fish habitat.
[2] Court orders to restore affected fish habitat at the expense of the offender *in addition* to any fine.

These convictions include cases for which the Province served as lead agency. Canada reported that it "does not keep detailed information on the number of inspections and investigations conducted throughout British Columbia" because it would not be practical to do so. (11 June 1999 Response to 21 April 1999 Questions, p. 7).

182. In section 1.4.3(c) of its March 1999 Submission, Canada notes that it is continuing to train its staff with formal witness training programs in recognition of the increasing complexity of environmental investigations and prosecutions. According to an October 1998 Habitat Enforcement Bulletin, "[r]ecent training and empowerment initiatives in DFO Pacific Region have raised the number of properly trained and designated [Habitat Enhancement Branch] staff from less than a dozen to 54." (DFO, Habitat Enforcement Bulletin, October 1998, p. 3)

DFO's Annual Report to Parliament for FY 1997/98 makes the following statements concerning training:

> In the Pacific Region in 1997/98, there was a renewed effort to improve habitat enforcement capabilities through training workshops and courses on Regional Habitat Enforcement, Contaminated Fish Habitat, and Expert Witness Training. The courses included participants from provincial enforcement agencies… and other federal departments. (Annual Report to Parliament on the Department of Fisheries and Oceans Habitat Management for the period of April 1, 1997 to March 31, 1998, Chapter 6).

The DFO Annual Report further indicates that the Pacific Region has initiated a periodic bulletin on habitat enforcement related issues. The Habitat Enforcement Bulletin serves to:

- Inform enforcement staff… specifically on case law developments, resource material and upcoming training courses, and the use of enforcement powers and tools; and
- Inform federal and provincial staff, interest groups, and the public generally of habitat enforcement issues, legal proceedings, charges, convictions, and statistics. (Annual Report to Parliament on the Department of Fisheries and Oceans Habitat Management for the period of April 1, 1997 to March 31, 1998, Chapter 6).

183. Canada states that it will continue to investigate and proceed with charges under the *Fisheries Act* where evidence is available. (Canada's March 1999 Submission, p. 14). Without information of the sort identified above (see, for example, paras. 169 & 170 above), it is not possible to provide additional information concerning the extent to which Canada's use of prosecutions is consistent with the approach outlined in the draft enforcement Policy, or with any other policies that might exist concerning use of this enforcement strategy.

184. In Section 1.4.3(d) of its March 1999 Submission, Canada states: "[i]t is worth noting that in the hydro litigation to date, the direct benefits to the fisheries resource have been nil." (Canada's March 1999 Submission, p. 14). It also notes that the litigation actions "have definitely been, indirectly, effective… Undoubtedly, these court actions, along with other issues, have encouraged BC Hydro to take more notice of the requirements of the Fisheries Act, and the requirements of the fisheries resources." (Canada's March 1999 Submission, p. 14).

In an October 1998 Habitat Enforcement Bulletin (available on DFO's homepage), Canada describes the benefits of the settlement of the Bridge River litigation:

> BC Hydro will spend up to $600,000 for fish habitat in an agreement with DFO to end two prosecutions against Hydro. …Hydro agreed to provide 3.0 cubic metres per second of water from the dam into Bridge River. This restores water and fish access to 4 km of the river that have been dry for 50 years. Changes to the existing dam structure to control water release during high runoff will cost Hydro up to $500,000. Hydro will also pay up to $100,000 for habitat restoration on the dry section of the river. (DFO, Habitat Enforcement Bulletin, October 1998, p. 1)

The Expert Group also indicates that the prosecution produced benefits:

> [T]he indirect benefits that resulted from the Bridge River prosecution in the form of the Bridge River settlement had positive implications for fish habitat. Positive results also followed the Cheakamus litigation. (Appendix 8, para. 68).

185. BC Hydro provides its view that prosecutions "are an important but inadequate tool for effective enforcement." (BC Hydro's February 1999 Submission, p. 1). BC Hydro suggests that prosecutions under s. 35 have some "fundamental weaknesses as an enforcement tool," including:

- they are reactive, occurring after the harmful alteration has occurred;
- they are slow, costly, and can be extremely time-consuming;
- they can interfere with co-operative and collaborative programs; [and]
- they exclude… other interests… . (BC Hydro's February 1999 Submission, p. 1)

BC Hydro continues that "[t]he effectiveness of prosecution as an enforcement tool is not in its use, but in the threat of prolonged litigation, and so it does provide some pressure to manage fish habitat through administrative and collaborative programs." (BC Hydro's February 1999 Submission, p. 1).

The WUP Management Committee states that "prosecutions get things moving but may not, in the end, result, in effective, long-term solutions." (WUP Management Committee's March 1999 Submission, p. 9). The Committee also asserts that use of a prosecution-based approach may reduce information-sharing. The Committee further claims that prosecutions "run[ ] the risk of piecemeal improvements to fish habitat" because they are "event, site and circumstance-specific." (WUP Management Committee's March 1999 Submission, pp. 29, 30). In its concluding comments, the WUP Management Committee states that:

> The 1990s represented a period of increased frustration and antagonism by all parties. Prosecutions such as the Bridge case and Cheakamus flow order heightened concerns but also showed that litigation has its problems, including high costs and questionable or, at least uncertain, returns to the fish resource. (WUP Management Committee's March 1999 Submission, p. 33).

186. The Expert Group states that, "[i]n the end, there is little information relating to the effectiveness of prosecution as an enforcement tool given the lack of use of this tool to date and the lack of information provided regarding the tool." (Appendix 8, para. 68). The July 1999 draft enforcement and compliance Policy contains a strategy for use of prosecutions, but little information was provided on actual implementation of this draft strategy.

3.4 Environmental Assessments of New Hydroelectric Projects and Retrofit Projects

187. This Section briefly supplements the coverage of environmental assessments in Section II, above.

188. Canada indicates that "[t]he use of s. 35(2) authorizations is a relatively recent phenomenon." (Canada's March 1999 Submission, p. 16). The Expert Group indicates that Canada's use of ss. 32 and 35(2) authorizations an an enforcement tool has been limited in the context of the significant number of hydroelectric facilities operated by BC Hydro. (Appendix 8, para. 70).

189. Little information has been provided regarding the effectiveness of s. 35(2) authorizations issued to date. (Appendix 8, para. 71).

190. It appears that Canada contemplates that assessments of BC Hydro's operations will be conducted, and s. 35(2) authorizations will be issued (at a minimum their issuance will be considered), as part of the WUP process discussed in Section 3.2 above. Canada states that "[i]t is likely that authorizations will be issued at many facilities as WUP's are implemented throughout BC." (Canada's March 1999 Submission, p. 16). Canada notes that the 1998 HADD Decision Framework explains "[t]he method for determining whether and how to issue s. 35(2) authorizations." (Canada's March 1999 Submission, p. 16). Thus, the enforcement strategy of issuing s. 35(2) authorizations to authorize harm to fish habitat, and of using environmental assessment under CEAA as part of the s. 35(2) authorization process, may see greater use in the future with respect to BC Hydro facilities than it has to date.

3.5 Emergency Response Procedures

191. This Section briefly supplements the coverage of emergency response procedures in Section II, above.

192. The Expert Group indicates that the minimum flow orders have likely resulted in some positive benefit to fish habitat. It also indicates that limited information has been provided concerning the nature and extent of the effectiveness of emergency response procedures as an enforcement tool:

> From the limited information provided to the Expert Group, use of these procedures has likely had some positive impact in reducing harm to fish habitat. However, little information concerning the nature and extent of the effectiveness of this tool in reducing harm to fish habitat in the situations in which it has been used has been provided. Further, this tool has seen quite limited use thus far. Thus, the Expert Group is not in a position to provide information concerning whether Canada has used this enforcement tool effectively. Important information that is lacking relating to the effectiveness of this tool includes the following: a) how often emergencies arise; and b) the effectiveness of Canada's use of its emergency authorities (for example, how effective was Canada's use of its emergency procedures in limiting the HADD in particular situations, and in limiting future emergencies, and to what extent did any decision not to use such procedures to address various emergencies lead to HADDs that otherwise might have been avoided). (Appendix 8, para. 76).

3.6 Regional Technical Committees

193. This Section briefly supplements the coverage of "Regional Technical Committees" in Section II, above.

194. The Expert Group states its understanding that the RTCs have had some success in improving relations between regulators and the regulated party (BC Hydro).

> The Expert Group understands that these Committees have been useful in bringing the facility operators (BC Hydro) and the regulators (DFO and MELP) together to address fish habitat issues. Some technical committees have representation from local stakeholder groups while others only have representation from BC Hydro, DFO and MELP. (Appendix 8, para. 79).

195. The Expert Group also indicates that the RTCs have had some success on the ground in improving fish habitat and/or in reducing harm to same. The Expert Group notes that information necessary to understand the extent or adequacy of the effectiveness of these efforts is limited. It indicates that, among other things, future monitoring of the impacts of actions taken is needed to understand the effects of these actions on fish habitat. For example, the Expert Group offers the following information concerning the Campbell River Advisory Committee:

> While it is unclear how much of the Campbell River Management Strategy has actually been implemented we understand that the flow regimes have been altered and the interim flow strategy has become an

> interim flow order under WUP. (Canada's March 1999 Submission). The Order issued 3 October 1997 incorporates Sections 5.2.1 to 5.2.4 inclusive of the Recommended Operating Regime as set out in the Campbell River Interim Flow Management Strategy dated May 1997 and therefore incorporates the recommendations of the committee. Likewise a baseline flow in the canyon has been implemented and a number of habitat improvements have been undertaken including restoration activities in the estuary, the creation of side channels and gravel placement in the river etc.
>
> Canada clearly believes that the Campbell River committee process was very successful and the Campbell River Advisory Committee indicates in its report's executive summary that the flows stipulated in the management strategy will be more beneficial to fish than the natural flows. (Campbell River Interim Flow Management Strategy)
>
> The measures recommended by the Campbell River Advisory Committee are an improvement for fish and fish habitat. However, whether the changes will be sufficient to achieve the target returns for chinook and steelhead (the only two species for which targets were set) is uncertain. Moreover the targets set were at pre-hatchery levels (pre 1975) as opposed to current escapement levels—a good goal in theory. But using historic escapement estimates as a target may be questionable given that the quality of escapement estimates is often poor. The extent of improvement, and the appropriateness of additional improvements, are not clear at this point. The changes are too recent and there has been no opportunity for monitoring over time. The quantitative proof will be in the salmon returns but these will not be known for at least four years from the implementation date in 1998, probably much longer. Monitoring of results to evaluate the extent to which these actions lead to better habitat and fish return, and undertaking further improvements depending on these results, are key elements of the effectiveness of this approach. (Appendix 8, paras. 81–83).

196. Overall, the Expert Group views the RTC initiatives as a positive step. It indicates that information concerning the effectiveness of these initiatives should include monitoring of the results of the RTCs' work, including monitoring the changes they direct in operations, the extent to which such changes are adequately funded and implemented, and the results of such changes in terms of habitat impact:

> Overall, initiatives such as the Campbell River Advisory Committee in which the governments involve numerous interested parties and develop a comprehensive plan are positive and will be a good model for the WUP provided it leads to an adequately funded program. Adequate monitoring of results and, as appropriate, further restorative action, are key elements of such efforts as well. (Appendix 8, para. 84).

3.7 Water Quality Guidelines

197. This Section briefly supplements the coverage of Water Quality Guidelines in Section II, above. As noted above, in its Response, Canada discusses an initiative by DFO, DOE and MELP to develop and implement a Water Quality Guideline for Dissolved Gas Supersaturating. (Canada's July 1997 Response, p. 21).

198. The Expert Group indicates that the issue of water quality extends beyond the matter of dissolved gas pressure and cites a June 1995 BC Hydro document, Environmental Management System for Aquatic Resources ("EMS for Aquatic Resources"), in support. (Appendix 8, paras. 97–98). Two excerpts from this report cited by the Expert Group are as follows:

> Hydroelectric generating facilities and water retention facilities modify water quality in some significant and insignificant ways. In the broadest sense, water impoundment facilities convert, in most cases, a flowing river into a large lake. The resulting changes to water quality are substantial. Temperature, dissolved oxygen, total gas pressure, sediment and nutrient levels, pH, and dissolved metals concentrations all can change by altering the flow regime of a river. Aquatic organisms that depend upon the physical water parameters will also be affected by the changes to water quality. In essence, a completely new ecosystem is formed. Some aquatic species adapt and thrive, others disappear. (EMS for Aquatic Resources, Water Quality section, p. 1).

> Although to date BC Hydro has not been required to explore water quality issues, and search out problems, such an approach would be considered becoming more stewards of the water resource. BC Hydro has a responsibility to operate in a manner which minimises [sic] the impact on the water resource. In the case of water quality, the corporation is not aware how its operations affect the water quality at most facilities. Examining this deficiency would form the first attempt at becoming stewards of the water resource, and being duly diligent at the same time. (EMS for Aquatic Resources, Water Quality section, pp. 3–4).

199. The Expert Group states that "[t]he impacts attributed to the water quality issue by BC Hydro are far more diverse than the single gas pressure issue discussed by DFO." (Appendix 8, para. 99).

200. The Expert Group indicates that, "[i]n sum, limited information was provided relating to whether Water Quality Guidelines have to date been an effective instrument of *Fisheries Act* enforcement." (Appendix 8, para. 101).

4.0 Review of Information for Six BC Hydro Facilities

201. The significant number of BC Hydro facilities involved in this submission made it impracticable to review each facility in detail. Instead, a subset of six facilities was identified for more detailed review. A proposed list of six facilities that the Expert Group believed merited relatively in-depth review was provided to the Stakeholders and they were specifically asked to identify other facilities that merited such review. The decision to select a subset of facilities was summarized as follows:

> The experts believe that a focus on these [six] facilities will enable them to develop information concerning the primary types of adverse impacts on fish habitat sometimes caused by hydroelectric operations and the full range of Canada's responses. Further, this focus will enable the experts to develop information concerning the system as a whole and it will capture the major watersheds involved. (22 January 1999 Letter to the Stakeholders, Appendix 1; See also Appendix 8, para. 29).

202. The Expert Group reviewed the information provided on each of the six BC Hydro facilities selected for relatively in-depth review. The Expert Group reviewed the allegations of the Submitters as well as the information concerning these allegations provided by Canada and BC Hydro. A series of specific questions was developed to supplement the information originally provided. (See 3 February 1999 Questions in Appendix 4, and 21 April 1999 Questions in Appendix 5). The Expert Group reviewed the follow-up information submitted. The Expert Group then developed its own information concerning the issues involved.

203. Section 5 of the Expert Group Report contains the Expert Group's compilation of information it developed or that was provided concerning each of these facilities. For each covered allegation, Section 5 begins by summarizing the allegation itself. It then summarizes Canada's response, in some cases including supplementary information provided by BC Hydro. The Expert Group then identifies the questions asked in order to develop additional information. Finally, the Expert Group provides the information it developed concerning each allegation.

204. The reader is referred to the Expert Group Report for the extensive information developed and summarized by the Expert Group concerning each of the six facilities. (See Appendix 8, paras. 102–218). In its "Overall Summary About the Six Facilities," the Expert Group makes five points concerning Canada's efforts to resolve the harm to fish habitat caused by BC Hydro operations (all paragraph references below are to the Expert Group Report in Appendix 8):

- In many situations, BC Hydro operations have caused and/or are continuing to cause harm to fish habitat; (para. 215)

- Canada has undertaken a number of actions to resolve the habitat issues at the BC Hydro operations. These actions vary widely in nature. They "rang[e] from technical discussion and negotiation to flow orders and occasional legal action." (para. 216).

- Based on the information provided, the amount of attention Canada has given to resolving various habitat issues has varied significantly depending on the facility involved:

> Based on the highly variable amount of information provided by Canada on each facility, the degree of attention and effort directed by Canada to addressing habitat problems at the different facilities appeared to be very uneven. For example, based on the information provided, the Campbell River downstream from John Hart dam and its tributary the Quinsam River appear to have received a great deal of attention, presumably in consideration of a locally important but relatively small run of chinook salmon. By contrast, the Peace River system has received virtually no attention despite being one of the largest river systems in Canada, an interprovincial waterway, an important element in sustaining the Peace Athabasca Delta (a World Heritage site) and an important breeding and feeding ground for several important fish species (whitefish, goldeye, charr, burbot), important to a number of First Nations and an important heritage river (Mackenzie's route to the Pacific). In a similar vein, one can compare the considerable attention directed to effects of Keenleyside Dam on the Columbia with the limited attention directed at the Bennett and Peace Canyon dams. (para. 216).

- The capacity of the Expert Group to develop information concerning the effectiveness of Canada's enforcement efforts, or for the public or others to consider the effectiveness of such efforts, is limited by information gaps:

> Lack of well researched, quantitative information appears to be the primary obstacle to reviewing the effectiveness of Canada's enforcement actions. In virtually all instances in which the Expert Group requested hard technical information, little or none was provided. (para. 218).

The Expert Group notes:

> The habitat problems created by construction and operation of hydroelectric facilities are complex and multifaceted and there is no scientific consensus about how best to deal with most of these problems. (para. 218).

- There are issues associated with Canada's use of No Net Loss as the measure of effectiveness for its efforts to enforce *Fisheries Act* Section 35(1). (paras. 217, 220–224). These issues are discussed in the coverage of the No Net Loss principle in Section III.B.3.1 above.

205. In addition to the information contained in the Expert Group report concerning the six facilities, this Factual Record provides information on one of the six facilities, the W.A.C. Bennett dam. The Athabasca Chipewyan First Nation (ACFN) 22 March 1999 Submission of information for consideration as part of the Factual Record (the "ACFN Submission") raises a series of concerns about the dam's downstream

impacts on the Peace-Athabasca Delta. The ACFN is an Indian Band within the meaning of the *Indian Act* and its members are Indians within the meaning of the Constitution of Canada (1982). Its territory includes Reserve 201, which lies wholly within the lands and waters known as the Peace-Athabasca Delta, a traditional hunting area and world heritage site. (ACFN's March 1999 Submission, p. 1).

206. The Expert Group identifies several general investigations of various issues raised by the ACFN: Peace-Athabasca Delta Implementation Committee (Canada, Alberta, Saskatchewan, 1987); Northern River Basins Study (Canada, Alberta, NWT, 1996); and Parks Canada (Wood Buffalo National Park, 1997). (See Appendix 8, para. 141). Information in the following paragraphs is taken from materials submitted by the ACFN. [19]

207. The ACFN Submission alleges that the construction and operation of the Bennett Dam have "substantially changed the hydrology and ecology of the Delta." It further asserts that these changes are "causing direct and serious harm to [Indian Reserve] 201 and the ACFN." (ACFN's March 1999 Submission, p. 1). The submission describes the impacts of the Bennett Dam on the ACFN's territory as follows:

> BC Hydro's operations of the Bennett Dam have had profound effects on the water regime in Northern Alberta and the ACFN's territory. These effects include the drying up of a significant portion of the Delta as a result of the alteration of natural water flow patterns which in turn has [led] to a loss of a significant amount of flora and fauna which are expected to be permanent if the flow alterations continue into the next century. (ACFN's March 1999 Submission, p. 2).

208. The Indian Claims Commission Report makes the following statement concerning the damage the construction and operation of the Bennett Dam have caused to Indian Reserve 201 ("IR 201"):

> [T]he compelling evidence before us… leads inescapably to the conclusion that significant environmental damage was sustained by the First Nation and IR 201 by the construction and operation of the Bennett Dam. No other conclusion is possible from the *prima facie* evidence before us. (Indian Claims Commission Report, pp. 48–49).

The Report qualifies its findings by noting that they are subject to rebuttal by Canada:

[19] In addition to its Submission, the ACFN submitted a March 1998 report of the Indian Claims Commission entitled *Athabasca Chipewyan First Nation Inquiry, Report On: WAC Bennett Dam and Damage to Indian Reserve No. 201 Claim* (the "Indian Claims Commission Report"). It also submitted a December 1992 report entitled *A Preliminary Assessment of the Effects of the W.A.C. Bennett Dam on the Athabasca River Delta and the Athabasca Chipewyan Band* (the "Preliminary Assessment").

> [W]e offer our findings on the *prima facie* evidence. These findings are subject to rebuttal by Canada upon production of additional scientific evidence on whether the Bennett Dam caused or contributed to the drying of the delta and the perched basins on IR 201. (Indian Claims Commission Report, p. 58).

209. The ACFN Submission provides the following information on fish species and habitat harmed:

> Important fish species in the vicinity of the Delta include walleye, pike and goldeye. Reduced spring flood levels in the Delta, associated with the Bennett Dam, have restricted access by spawning walleye to Richardson Lake, the most important production area for walleye in the Delta. There are also concerns that the modified flow patterns reduce shoreline vegetation and invertebrate food for juvenile fish. Altered flow patterns also appear to reduce access and egress by juvenile fish to important nursery areas in some drainage basins. (ACFN's March 1999 Submission, p. 4; See also Preliminary Assessment, pp. 23–24).

210. The ACFN Submission quotes the following passage from the Indian Claims Commission Report, which cites the Northern River Basins Study (NRBS),[20] to summarize the harmful impacts, efforts to address them, and additional options that are available to reduce harm to habitat:

> NRBS studies confirm that the dam has a significant impact on the flow patterns, sediment transport, river morphology, ice formation and habitat along the mainstream Peace River.
>
> Changes to flow and ice patterns are at least partly responsible for the lack of ice-jam induced floods in the Peace-Athabasca Delta. In the absence of these floods, the delta is slowly drying out—profoundly affecting the natural environment and the traditional lifestyles of local residents…
>
> Several attempts have been made to replenish water levels in the Peace-Athabasca Delta. These efforts have successfully restored water levels in the lower lakes and channels but could not flood the elevated lakes (or "perched basins"). Several new and potentially more effective options were identified within the NRBS and one of its companion initiatives—The Peace-Athabasca Delta Technical Studies.

[20] The Indian Claims Commission Report describes the NRBS and its role as follows:

> In 1991, the Northern Rivers Basin Study Board was established to produce a study and make recommendations to ministers representing the governments of Canada, Alberta, and the North West Territories on issues affecting the waterways. The BC government did not participate in the study. After four and a half years of scientific study, the Board published its report, *Northern Rivers Basin Study*, in 1996 and made a number of sweeping recommendations and conclusions. (Indian Claims Commission Report, p. 53).

> In light of improved understanding of the mechanisms controlling flooding of the Peace-Athabasca Delta, the Board feels that these new remediation options warrant consideration. Accordingly, the Board recommends that the governments of Canada, Alberta and British Columbia implement an action plan for remediating the Peace-Athabasca Delta… in consultation with affected basi[n] residents. (ACFN's March 1999 Submission, p. 3 (citing Northern River Basins Study); See also Indian Claims Commission Report, p. 55).

211. The ACFN Submission provides the following information on the consequences of harm to fish and fish habitat in terms of *Fisheries Act* s. 35(1):

> There can be little doubt that BC Hydro's Bennett Dam operations have violated section 35(1) of the *Fisheries Act* in the Delta. Prior to the operations of the Bennett Dam commencing, the waters of many fish-bearing lakes in the Delta were replenished through spring flooding. BC Hydro's operations have reduced the extent and frequency of flooding and many former lakes have simply disappeared. It is hard to imagine a more clear "harmful alteration, disruption or destruction of fish habitat." To our knowledge, Canada has neither attempted to enforce section 35 of the *Fisheries Act* against BC Hydro related to the damage to fish habitat in the Delta, nor issued a section 35(2) permit under the *Fisheries Act* to BC Hydro. (ACFN's March 1999 Submission, p. 4).

The ACFN asserts that "if the section 35 *Fisheries Act* were properly enforced, either the damage to the Delta would be prevented, or BC Hydro would have to obtain a section 35(2) authorization. The consideration of a section 35(2) authorization would in turn require an environmental assessment and provide the ACFN the opportunity to be heard on these issues." (ACFN's March 1999 Submission, p. 4).

212. The following statement from the Northern Rivers Basin Study Board, quoted in the ACFN Submission, in ACFN's view "capture[s] the essence" of ACFN's position concerning the "enforcement failures" at the Bennett Dam:

> The Board stresses that economic factors in hydroelectric production must not be allowed to take precedence over environmental stability. **The Board recommends as a principle for any future negotiations regarding mitigation measures, that the operational regime of the Bennett Dam be modified to aid the restoration of the Peace River and the Peace-Athabasca Delta.** (ACFN's March 1999 Submission, p. 5, emphasis in original; See also Indian Claims Commission Report, p. 55).

213. The Secretariat contacted Canada and BC Hydro in an effort to obtain information relating to the ACFN's claims. Canadian officials did not provide any such information. The Secretariat talked with an attorney representing BC Hydro. The

attorney indicated that ACFN has initiated a lawsuit against BC Hydro in the Court of Queens Bench of Alberta over these matters. The attorney indicated that the issue of how much damage the Delta has suffered, and the extent to which such damage is due to the impact of the Bennett Dam on flows (if at all) are subject to resolution in the pending lawsuit. The attorney further indicated that while the issues raised by the ACFN above are raised in the lawsuit, the litigation is at an early stage. A Statement of Defense has not yet been filed. Thus, the merits of the issues have not yet been addressed in the litigation.

5.0 Summary

214. This final Section of the Factual Record summarizes the challenges facing Canada as well as the Province of British Columbia and BC Hydro itself in resolving the asserted s. 35(1) violations and harm to fish habitat caused by BC Hydro's operations. Next, it summarizes Canada's responses to these challenges. The Section covers these responses by first briefly reviewing efforts other than water use planning. It then closes with some final points on the WUP process.

5.1 Background Factual Information Concerning the Challenges Facing Canada in Resolving Asserted Section 35(1) Violations and Harm to Fish Habitat Caused by BC Hydro Operations

215. The Submitters assert that BC Hydro operations routinely cause harm to fish habitat in violation of s. 35(1). BC Hydro indicates that storage of water and flow changes—"unavoidable features of the hydroelectric system"—"inevitably affect fish and fish habitat." (BC Hydro's February 1999 Submission, p. 1). In its 1995 response to BC Hydro's ESOR, the Province states:

> BC Hydro has historically operated its electric generating system in accordance with power production objectives and attendant flood control advantages… However, within this context, non-power values have occasionally been substituted for the aforementioned power and flood control objectives in certain circumstances, but not always in a systematic, clearly articulated basis. (Government Response to ESOR, p. 3; See also 4 June 1993 "Directive" letter from Anne Edwards, Minister of Energy, Mines and Petroleum Resources and Moe Sihota, Minister of Labour and Consumer Services and Minister Responsible for Constitutional Affairs, to Mr. Norman Olsen, Chair, BC Hydro and Mr. Marc Eliesen, Chief Executive Officer, BC Hydro (Attachment #1 to Government Response to ESOR))

The WUP Management Committee states that hydroelectric operations inherently affect fish and fish habitat in conflict with the *Fisheries Act* as interpreted by Canada:

> Hydroelectric operations inherently affect fish and fish habitat, such that through generation of hydroelectric power there is conflict with the *Fisheries Act* as interpreted by fisheries agencies. (WUP Management Committee's March 1999 Submission, p. 31).

The Expert Group points out that "habitat alterations are unavoidable …with the operation of hydro electric facilities… ." (Appendix 8, para. 232).

216. Canada asserts that it is placing renewed emphasis on resolving the harm to fish habitat caused by BC Hydro's operations. BC Hydro and the Province of British Columbia state that they are doing so as well. (See, for example, para. 127 above). The Provincial direction to BC Hydro to conduct the above-referenced ESOR was an early step in this effort. Canada is involved in several ongoing enforcement initiatives intended to reduce harm to fish habitat.

217. Canada, among others, indicates that: 1) the issues and complexities associated with resolving harm to fish habitat caused by BC Hydro's operations are substantial (see, for example, paras. 37-38 above); 2) among these, determining appropriate trade-offs between competing interests (including fisheries values) is a significant challenge (see, for example paras. 126 & 132 above); and 3) data gaps are a second challenge that needs to be addressed—an improved understanding needs to be developed of the fish habitat potentially impacted by BC Hydro operations, and of the possible options for resolving the harm to such habitat caused by the operations. (See, for example, paras. 124, 128–129, 139 above).

218. A final background point is that a wide variety of activities other than hydro operations cause harm to fish habitat. Canada's responsibilities under the *Fisheries Act* embrace addressing such impacts, although these other activities are not the focus of this Factual Record. (See, for example, para. 180 above).

5.2 Factual Information Relating to Enforcement Actions Other than WUP

219. Canada has identified an array of "enforcement" approaches it has undertaken, and is undertaking, to resolve the harm to fish habitat caused by BC Hydro operations.

- Prosecutions have occasionally been used with respect to BC Hydro. When used, they have been expensive and time-consuming. They have produced clear benefits to fish habitat. Elaboration on these points, and on a number of issues relating to use of prosecutions as an enforcement strategy, is provided in Sections II and III.B.3.3 above.

- Canada has used enforcement tools such as *Fisheries Act* s. 22(3) orders and ss. 32 and 35(2) authorizations for some BC Hydro facilities in emergencies and to conduct environmental assessments. The Expert Group indicates that limited information was provided concerning the effectiveness of the use of these tools. (See, for example, Appendix 8, paras. 70, 71, 73–76). Canada appears to

contemplate considerably greater use of s. 35(2) authorizations as part of the WUP process, and the Expert Group provides information concerning the potential benefits of such a strategy:

> Section 35(2) authorization is an enforcement tool that can be used in the normal process of managing multiple uses of habitat. Although Section 35(2) does not appear to have been often used in this way in the past, DFO indicates that it intends to use such authorizations as part of the WUP process. A wider use of Section 35(2) authorizations would rationalize a process that, at present, appears haphazard and arbitrary. In particular, where habitat alterations are unavoidable, such as with the operation of hydro electric facilities, Section 35(2) authorizations should provide a means of establishing expectations for habitat quality and productivity in the context of facility operation. (Appendix 8, para. 232).

- Various Committees have been created to encourage enhanced attention to habitat issues. Some improvements in fish habitat have resulted, though the degree of improvement is not yet clear. The Expert Group's comments on the Campbell River Advisory Committee are illustrative:

> The measures recommended by the Campbell River Advisory Committee are an improvement for fish and fish habitat. …The extent of improvement, and the appropriateness of additional improvements, are not clear at this point. The changes are too recent and there has been no opportunity for monitoring over time. The quantitative proof will be in the salmon returns but these will not be known for at least four years from the implementation date in 1998, probably much longer. Monitoring of results to evaluate the extent to which these actions lead to better habitat and fish return, and undertaking further improvements depending on these results, are key elements of the effectiveness of this approach.
>
> Overall, initiatives such as the Campbell River Advisory Committee in which the governments involve numerous interested parties and develop a comprehensive plan are positive and will be a good model for the WUP provided it leads to an adequately funded program. Adequate monitoring of results and, as appropriate, further restorative action, are key elements of such efforts as well. (Appendix 8, paras. 83–84).

- Significant water quality issues exist for BC Hydro operations. Water quality guidelines have been identified as an enforcement tool for preventing harm to fish habitat, but to date have not been used in a significant way for this purpose based on the information provided.

220. The Expert Group Report, attached as Appendix 8 and summarized in Section III B.4.0 above, reviews Canada's enforcement activities, and their impacts, in considerable detail in the context of the six BC Hydro facilities selected for special consideration as part of the Factual Record process. Some salient information

concerning Canada's activities to resolve harm to fish habitat and the impacts of these activities is summarized below.

- The Expert Group indicates that the level of effort Canada has invested in addressing habitat concerns seems to vary widely by facility. Some facilities have seen extensive efforts to resolve harm to fish habitat, while others have received relatively little attention, at least based on the information provided. (See, for example, Appendix 8, para. 216).

- Where actions have been taken to reduce harm to fish habitat caused by BC Hydro operations, in many instances these actions have paid dividends and have led to marked improvements in fish habitat. Canada, the Province of British Columbia, and BC Hydro provide considerable information concerning these actions. They also provide information concerning the results of some of these efforts. The Expert Group indicates that the fact that some activities produced benefits is clear but that information generally is limited concerning the degree and adequacy of benefit produced. The Expert Group also notes that in some situations it will be years before information on the effectiveness of these actions is available. (See, for example, Appendix 8, paras. 68, 76, 81-84, 101).

- The Expert Group highlights the importance of applying a comprehensive, system-wide approach in resolving harm to fish habitat. (See, for example, Appendix 8, para. 93).

5.3 The WUP Process as a Means to Address Fish Habitat Issues

221. WUP is a centerpiece of Canada's efforts to resolve the harm to fish habitat caused by BC Hydro operations.

222. It is a new process and its shape and content will likely evolve as it is implemented.

223. Because it is a new process, an overarching feature of the WUP process is its prospective character.

224. Canada, the Province of British Columbia, and BC Hydro indicate that the WUP process will lead to reduced harm to fish and fish habitat from BC Hydro operations. They assert that it will lead to achievement of NNL and compliance with s. 35(1). As noted above, Canada states in its March 1999 Submission that, through the WUP process, it "expect[s] to achieve as a minimum, a baseline condition which is in full compliance with *Fisheries Act* requirements at each facility." (Canada's March 1999 Submission, p. 29). The WUP Management Committee also indicates that the WUP process will lead to compliance with *Fisheries Act* s. 35(1):

> Facility operations that are in accordance with the terms and conditions of an approved WUP will be in compliance with… the *Fisheries Act*." (WUP Management Committee's March 1999 Submission, p. 12).

And, again:

> Operations that are in accordance with the terms and conditions of a Water Use Plan approved by DFO, and if applicable a *Fisheries Act* authorization (and accompanying *Canadian Environmental Assessment Act* review), will be in compliance with the *Fisheries Act*. (WUP Management Committee's March 1999 Submission, p. 13).

225. Recognizing that important data gaps exist in understanding the fish habitat situation, Canada, the Province of British Columbia, and BC Hydro state that they have designed the WUP process to include collection and gathering of necessary data.

226. Similarly recognizing that "no one has all of the answers" at this point regarding how best to resolve harm to fish habitat caused by BC Hydro's operations, the WUP Management Committee indicates that the WUP process has been designed to include measures for assessing compliance, a monitoring plan, and the possibility of adaptive management that provides opportunities to incorporate evolving knowledge:

> A scheduled review period, coupled with adaptive management will provide opportunities to incorporate evolving knowledge. (WUP Management Committee's March 1999 Submission, p. 13; See also 1998 WUP Guidelines, p. 36).

The WUP Management Committee indicates that it has built additional "adaptability" into the WUP process as needed to address fish habitat concerns. In particular, DFO may trigger review of a WUP if new issues or conflicts affecting fish or fish habitat emerge during a plan's implementation. Further, the WUP Management Committee states a commitment to meet expeditiously to resolve any emergency situations affecting fish or fish habitat that arise. (WUP Management Committee's March 1999 Submission, p. 13).

227. The Submitters raise several concerns about the WUP process. First, they raise questions as to whether the process will proceed as planned:

> The delays in the WUP Process bring into question whether there is any consensus for the Process and whether the Process will actually begin. When the Process was announced in 1996, the intention was to review all 34 BC Hydro projects within 5 years. To date, the Guidelines for the Process have not even been finalized. (Submitters' 26 January 1999 Speaking Points, p.4).

(The Submitters made this statement in January 1999. The Guidelines were finalized the following month, in February 1999.)

228. The Submitters also claim that, even if WUP is implemented as planned, BC Hydro operations will continue to cause harm to fish habitat and continue to violate *Fisheries Act* s. 35(1) following completion of the WUP process. The Submitters' view is that activities that harm fish habitat violate s. 35(1) unless Canada issues an authorization under s. 35(2) that authorizes such harm:

> [E]ffective enforcement of section 35 occurs only when harm to fish habitat is prevented, or is authorized [under s. 35(2)] after environmental assessment—the legislative scheme clearly contemplated by section 35. (Submitters' 22 March 1999 Submission, p.2).

The Submitters assert that s. 35(2) establishes a specific process for consideration and issuance of authorizations that includes compliance with the *Canadian Environmental Assessment Act* (CEAA). The Submitters assert that the WUP process will not produce compliance with s. 35(1) because, in their view, the WUP process does not meet the requirements of s. 35(2) and the CEAA. The Submitters identify five "deficiencies" they believe may exist in the WUP process:

1) Applicability: Section 35(2)/CEAA "applies to a much broader range of activities than the proposed WUP process;"

2) Scope: Section 35(2)/CEAA may result in more information being gathered than will occur under WUP, including information regarding cumulative effects of facilities;

3) Public Participation: "There can be little doubt that the public is guaranteed greater access to information and greater levels of input under the s. 35(2)/CEAA process;"

4) Decision Making Authority: "The ultimate decision making authority under the s. 35(2)/CEAA process rests with an independent government authority" (Canada), while "[t]he ultimate decision for selecting a WUP Plan rests with the licensee/proponent;" and

5) Reviewability: "The requirements and prohibitions of CEAA can be enforced by the Federal Court of Canada… [while] [i]t is very unlikely that the requirements and scheme of the WUP Process Terms of Reference could be enforced by any court. …The Submitting Parties are concerned that, relative to the s. 35(2)/CEAA process, the WUP Process lacks adequate (in fact, any) procedural safeguards to ensure the integrity of the process." (Submitters' 22 March 1999 Submission, pp. 10–13; see also para. 140 above).

229. A final concern raised by the Submitters is that the WUP process may lead to unwise expenditures, as the Submitters assert has occurred to some degree in the United States. (See, for example, para. 140 above).

230. The Expert Group indicates that the WUP process is an improvement in many ways over previous strategies to resolve harm to fish habitat caused by BC Hydro operations. The Expert Group indicates that:

> WUP is a move in the right direction towards achieving greater protection of fish and fish habitat from the harmful impacts of hydroelectric operations. It is a much more comprehensive approach to gathering data, identifying harmful impacts and developing action plans to protect fish and fish habitat at each facility than the ad hoc approaches currently being used. (Appendix 8, para. 90).

231. In stating that the overall direction of the WUP process is promising, the Expert Group also notes that the "proof" will lie in the results over the next several years:

> In sum, the WUP process holds promise as an enforcement strategy. Because the process is at an early stage, little information exists concerning the extent to which the WUP process will prove to be an effective enforcement strategy. Assessments of its effectiveness must await implementation of the process over the next several years. (Appendix 8, para. 95; See also Appendix 8, para. 235).

232. The Expert Group identifies a series of issues to monitor concerning whether the WUP process will prove to be effective (all paragraph references below are to the Expert Group Report in Appendix 8):

- The use of the "No Net Loss" (NNL) principle as the criterion for effective enforcement of s. 35. First, the Expert Group notes that the NNL principle allows the destruction of fish habitat. (para. 220). The Expert Group states that NNL may allow habitat loss to occur <u>after</u> a baseline is set so long as compensation is made for such losses. It indicates that "critical habitat" is "supposedly not subject to compensation but even this is a qualified limitation." (para. 220). Next, the Expert Group indicates that Canada's approach to determining NNL for purposes of BC Hydro's facilities may allow harm to habitat that occurs <u>before</u> a baseline is set:

  > Setting the baseline conditions at the habitat level that exists when Water Use Plans (WUP) are initiated or in the recent past sets the bar too low for habitat protection. There is no requirement to address the possibly significant habitat loss sustained before the baseline scenario was established. Habitat conditions have generally declined since the installations of hydroelectric facilities. (para. 51. see also para. 223).

  Along the same lines, the Expert Group states:

  > If arresting the ongoing decline in fish habitat quality at most facilities is a "sufficient" outcome from WUP, as suggested by the documentation

> provided by Canada, then this will compromise the long term productivity of many important fish stocks. (para. 235).

A third issue concerning using achievement of NNL as an indicator of effective enforcement of s. 35(1) will involve whether Canada assesses all of the impacts to fish habitat in setting a baseline. The Expert Group indicates that an approach of only assessing some of the impacts on fish habitat in setting baselines would be a methodological concern regarding the value of such baselines. (paras. 52, 223).

A fourth issue the Expert Group identifies relating to baselines is that "[t]o apply NNL as a criterion of effectiveness, there must be a firm baseline in time against which to judge losses and gains in habitat. That is to say, there must be a set point in time at which habitat condition is determined and against which future changes in habitat can be judged." (para. 222). The Expert Group raises a question as to whether such a baseline currently exists. It further indicates that "[w]ithout such a baseline, Canada cannot show that NNL is being achieved. Indeed, recent reports indicate considerable uncertainty and confusion regarding the present status of fish habitat in the Pacific region." (para. 222).

A final, related question involves the extent to which the WUP process will seek to achieve, and realize, a net gain in fish habitat. Canada indicates that it advised the Province that "as a general objective DFO will seek to achieve an overall net gain to the fisheries resources of British Columbia" and that this principle was accepted by the Province and BC Hydro. (Canada's March 1999 Submission, pp. 29–30). In its March 1999 Submission, Canada cites the Terms of Reference for the WUP Policy Committee. They provide that "changes in operations to improve conditions above baseline conditions (i.e. to further improve current habitat productive capacity to enhance fish production potential) will be evaluated along with the needs of other water use objectives and therefore considered to be in the trade-off zone." (Canada's March 1999 Submission, p.30).

- The extent to which the consultative process used under WUP differs from that used under CEAA as part of the s. 35(2) authorization process. The Expert Group states that any attempt by Canada to substitute a WUP review process for CEAA may raise important issues of credibility concerning the process. (para. 235).

- Impacts on effectiveness stemming from the fact that WUP is a purely voluntary process and is not mandated under any particular statute. The Expert Group indicates that although this allows considerable flexibility in the process, it may also weaken its effectiveness and credibility. (para. 235).

- Canada's approach to addressing the complex problem of BC Hydro's integrated system operations as it negotiates changes to operations at individual

facilities under WUP. The Expert Group states that it is well known that impacts at individual sites will vary according to the way in which the entire system is operated and vice versa. (para. 235).

- How Canada will address the necessary trade-offs between fish habitat and other water uses that will arise in the WUP process. The Expert Group indicates that "[n]either the WUP documentation nor any of the submissions by Canada indicate how Canada will address" these trade-offs. (para. 235).

- The adequacy of efforts to develop data needed to understand (a) the harm to fish habitat caused by BC Hydro's operations, and (b) the consequences of attempts to resolve such harm. The need for data on fish habitat and options for resolving harm caused to it by BC Hydro operations is a theme sounded by Canada, the Province and BC Hydro. As discussed above, these three parties have made filling this need a key element of the WUP process. The Expert Group was "struck by how limited and anecdotal the information on fish and fish habitat for these [the six targeted] facilities seemed to be." (para. 226).

- The amount of time it takes to develop and implement water use plans. The Expert Group states that the longer the process takes to be completed, the greater will be the ongoing impacts on fish habitat. Thus, the timetable for actual development and implementation of WUPs will be important to monitor. (para. 235).

- The nature and effectiveness of Canada's follow-up if s. 35(2) authorizations are not issued for particular facilities, or if such authorizations are issued but terms relevant to protection of fish habitat are violated. The Expert Group states that, among other things, "[e]ven if negotiations lead to a WUP that is acceptable to DFO, this does not mean that all parties will respect the plan, or that violations of s. 35 will not still occur." (para. 95).

233. A final statement concerning the Submitters' and the Party's views on the WUP process is as follows:

The Submitters' assertion appears to be that the WUP process may constitute effective enforcement of s. 35(1) of the *Fisheries Act* if the process includes three key elements:

- Canada decides that a s. 35(2) authorization is needed for each BC Hydro operation that continues to cause or could continue to cause harm to fish habitat. The Submitters' concern is that Canada will decide that it does not need to issue a s. 35(2) authorization for one or more BC Hydro operations that continue to cause harm to fish habitat or could do so;

- Canada follows s. 35(2) and CEAA requirements in reviewing whether an authorization should be issued and in determining the terms and conditions to be included in each authorization. The Submitters' concern is that Canada will not follow the s. 35(2)/CEAA procedures in those situations in which it decides to issue such an authorization; and

- Canada "effectively enforces" (through prosecutions or otherwise) in those situations (if any) in which it declines to issue an authorization and the facility continues to operate in a way that violates s. 35(1) by harming fish habitat, and in situations (if any) in which there is non-compliance with an authorization.

As to the first element, Canada indicates that "it is likely that authorizations will be issued at many facilities as WUP's are implemented throughout BC." (Canada's March 1999 Submission, p. 16). In its March 1999 Submission, the WUP Management Committee indicates that the "[m]echanism to link WUPs to regulatory compliance" is that "one of two outcomes will prevail:"

> 1. No remaining fisheries impacts wherein no further action is required (i.e., no formal response from DFO); or
> 2. Outstanding fisheries impacts whereupon the DFO Minister will provide a single authorization to cover all fish impacts arising from the WUP operating parameters, with all mitigation and compensation embedded in the WUP. (WUP Management Committee March 1999 Submission, p. 13–14).

Regarding the second element, Canada states in its March 1999 Submission that "[t]he method for determining whether and how to issue s. 35(2) authorizations is more fully explained in the Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat (1998)." (Canada's March 1999 Submission, p. 16). As noted above, the Decision Framework provides that a "CEAA environmental assessment must be completed" before Canada will issue an authorization. The WUP Management Committee states that s.35(2) authorizations "will, themselves, be subject to a review under the [CEAA]." (WUP Management Committee March 1999 Submission, p. 31).

Concerning the third element, Canada states that it will investigate and proceed with charges under the *Fisheries Act* where evidence is available. (See for example, para. 183 above).

The Expert Group indicates that facts concerning each of these three elements will emerge as the WUP process is implemented, authorizations are considered (and issued or rejected), and monitoring and other follow-up are undertaken. (See, for example, Appendix 8, para. 235).

List of Appendices

December 18, 1998

Mr. Randy Christensen
Barrister and Solicitor
Sierra Legal Defence Fund
Suite 214-131 Water St.
Vancouver, B.C.
V6B 4M3

Dear Mr. Christensen:

The Council for the Commission for Environmental Cooperation (Commission) has directed the Commission's Secretariat to develop a draft factual record in connection with Submission No. SEM-97-001. The enclosed "Synopsis" provides an overview of the Commission and summarizes key features of Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* (*Agreement)*, which govern the preparation of a draft factual record. The Synopsis also outlines the process the Secretariat intends to follow in developing the draft factual record.

The Secretariat's primary focus in this process involves developing information concerning whether Canada is effectively enforcing its environmental laws in connection with various alleged BC Hydro violations of Fisheries Law Section 35(1). We are interested in receiving written comments relating to this issue and we have prepared the attached document entitled *Scope of Inquir*y in an effort to help interested parties focus their comments on the effectiveness of the Canadian approaches. As the document reflects, Canada has defined enforcement quite broadly and we are interested in obtaining information concerning the full range of activities Canada has identified. We will accept comments until February 23, 1999. Information provided prior to January 20 will be provided to the Expert Group we have convened in order to help them perform their role of providing additional information concerning whether Canada is enforcing its environmental laws effectively.

We believe it would be appropriate for you and/or your representatives to present information to the Expert Group concerning the effectiveness of the Canadian efforts

…/2

January 22, 1999

Dr. Jon O'Riordan
Assistant Deputy Minister
Environment and Lands Regions Division
Ministry of Environment, Lands and Parks
P.O. Box 9339 Stn. Prov. Gov.
Victoria, B.C.
V8W 9M1

Dear Mr. O'Riordan:

Please be advised that as part of its effort to develop information, the Expert Group convened in connection with Submission No. SEM-97-001 has decided to focus particular attention on six B.C. Hydro hydroelectric installations/ongoing operations.

- W.A.C. Bennett/Peace Canyon
- Keenleyside
- Shuswap Falls
- Cheakamus
- Walter Hardman
- John Hart

The experts believe that a focus on these facilities will enable them to develop information concerning the primary types of adverse impacts on fish habitat sometimes caused by hydroelectric operations and the full range of Canada's responses. Further, this focus will enable the experts to develop information concerning the system as a whole and it will capture the major watersheds involved. The experts are interested in developing information concerning the nature of the impacts on fish habitat caused by the B.C. Hydro operations' alleged non-compliance, the types of actions the government has taken to reduce the impacts, and the extent to which the government's actions and B.C. Hydro's efforts have been successful in reducing impacts.

Please advise the Expert Group immediately if you believe that another facility should be reviewed, care of Alex Grzybowski, phone: (250) 656-1317, fax: (250) 656-1357, email: grzybowski@tnet.net.

Yours sincerely,

(original signed)
Alex Grzybowski
Associate
UVic Institute for Dispute Resolution

January 22, 1999

Mr. Mike Nassichuk
Manager
Pollution Prevention and Assessment
Environment Canada
224 West Esplanade
North Vancouver, B.C.
V7M 3H7

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January 22, 1999

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Chief
Habitat Conservation and Policy Unit
Department of Fisheries and Oceans
555 West Hastings St.
Vancouver, B.C.
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Barrister and Solicitor
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UVic Institute for Dispute Resolution

January 22, 1999

Mr. Keith Ogilvie
Special Advisor, International Relations
Intergovernmental Relations
2nd Floor, 421 Menzies St.
Victoria, B.C.
V8V 1X4

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Yours sincerely,

Alex Grzybowski
Associate
UVic Institute for Dispute Resolution

January 22, 1999

Mr. Hugh Smith
Manager, Strategic Fisheries
B.C. Hydro
6911 South Point (E08)
Burnaby, B.C.
V3N 4X8

Dear Mr. Smith:

Please be advised that as part of its effort to develop information, the Expert Group convened in connection with Submission No. SEM-97-001 has decided to focus particular attention on six B.C. Hydro hydroelectric installations/ongoing operations.

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Yours sincerely,

Alex Grzybowski
Associate
UVic Institute for Dispute Resolution

during their first meeting, which we have scheduled for the week of January 11th. We will contact you to discuss the specific date, time, and location. We also intend to provide an opportunity for you to meet with the experts once they complete their work to assist you in submitting any additional information to the Secretariat.

Stephen Owen and his Associate, Alex Grzybowski, of the UVic Institute for Dispute Resolution are assisting in this process. As a matter of protocol, please provide all written information to the Secretariat, care of the Institute [Institute for Dispute Resolution, University of Victoria, Begbie Building, P.O. Box 2400 STN CSC, Victoria, B.C. V8W 3H7]. This information will be available for public review at the Institute's office subject to claims of confidentiality (see, for example, Articles 11 and 39 of the *Agreement*). Please also provide copies of all documents to each of the individuals copied on this letter whose name has an asterisk next to it, again subject to claims of confidentiality, as well as to me in Montreal. Please feel free to contact Alex [(250) 656-1317, email: grzybowski@tnet.net] or me with any questions concerning the process.

Your continued cooperation in this process is greatly appreciated.

Yours sincerely,

(original signed)
David L. Markell
Head, SEM Unit
Commission for Environmental Cooperation

cc: Jon O'Riordan*
Assistant Deputy Minister, Environment and Lands Regions Division, Ministry of Environment, Lands and Parks
P.O. Box 9339 Stn. Prov. Gov. Victoria, B.C. V8W 9M1

Mike Nassichuk*
Manager, Pollution Prevention and Assessment, Environment Canada
224 West Esplanade, North Vancouver, B.C. V7M 3H7

Peter Delaney*
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555 West Hastings St. Vancouver, B.C. V6B 5G3

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…/3

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Karen Traversy
Special Projects, Habitat Management Branch, Department of Fisheries and Oceans
200 Kent St. Ottawa, Ont. K1A 0E6

Andy Bowcott
Manager, North American Global Strategies, Environment Canada
351 St. Joseph Boulevard, Hull, Que. K1A 0H3

February 4, 1999

Dr. Jon O'Riordan
Assistant Deputy Minister
Environment and Lands Regions Division
Ministry of Environment, Lands and Parks
P.O. Box 9339 Stn. Prov. Gov.
Victoria, B.C.
V8W 9M1

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This letter provides an update on the ground rules for the submission of information in writing to the Commission for Environmental Cooperation's Secretariat and for the upcoming meetings with the Expert Group. As Alex Grzybowski and/or Jennifer Ellis have indicated in various discussions, we have extended the January 20, 1999 date for written submissions to the Expert Group, including written responses to the Expert Group Questions. The revised date for providing such information is February 23, 1999. Consequently, if you would like the experts to be aware of information, please provide it by that date to the Secretariat, care of the Institute for Dispute Resolution, University of Victoria, Begbie Building, P.O. Box 2400 STN CSC, Victoria, B.C. V8W 3H7. Please forward a copy to me in Montreal as well. The Secretariat intends to circulate information provided in written form by each stakeholder to the other three key stakeholders, subject to claims of confidentiality under the *Agreement*. Accordingly, please make such a claim if you believe that portions of the written materials you are submitting warrant such treatment.

Alex Grzybowski and Jennifer Ellis have been in contact with the stakeholders to firm up the schedule for oral presentations to the Expert Group. The Expert Group meetings will be held in Room 2200 at Simon Fraser University at Harbour Centre, 515 West Hastings St. Vancouver, B.C. B.C. Hydro is scheduled to present on Wednesday, February 10, 1999 from 2:00 p.m. to 4:30 p.m. and Alex is in the process of arranging the schedule for Canada and the Province of British Columbia for Thursday, February 11, 1999. Meetings with the experts will be subject to the same ground rules as written comments. That is, each meeting will be open to the other three stakeholders (who will be present as observers only), subject to the presenter's right to assert confidentiality. As a result, if you anticipate that confidential

information will come up during your presentation and therefore believe the presentation should be confidential, please advise the Secretariat in advance. The Secretariat recognizes that oral presentations may present unique issues because of the give-and-take involved and the potential difficulty in isolating confidential matters from other parts of an oral presentation. We are prepared to take such realities into account to ensure that any concerns about the confidentiality issue in the context of the oral presentations are addressed appropriately.

Thank you,

(original signed)
David L. Markell
Head, SEM Unit

February 4, 1999

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Manager
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Environment Canada
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February 4, 1999

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Habitat Conservation and Policy Unit
Department of Fisheries and Oceans
555 West Hastings St.
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V6B 5G3

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February 4, 1999

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should be confidential, please advise the Secretariat in advance. The Secretariat recognizes that oral presentations may present unique issues because of the give-and-take involved and the potential difficulty in isolating confidential matters from other parts of an oral presentation. We are prepared to take such realities into account to ensure that any concerns about the confidentiality issue in the context of the oral presentations are addressed appropriately.

Thank you,

David L. Markell
Head, SEM Unit

February 4, 1999

Mr. Keith Ogilvie
Special Advisor, International Relations
Intergovernmental Relations
2nd Floor, 421 Menzies St.
Victoria, B.C.
V8V 1X4

Dear Mr. Ogilvie:

This letter provides an update on the ground rules for the submission of information in writing to the Commission for Environmental Cooperation's Secretariat and for the upcoming meetings with the Expert Group. As Alex Grzybowski and/or Jennifer Ellis have indicated in various discussions, we have extended the January 20, 1999 date for written submissions to the Expert Group, including written responses to the Expert Group Questions. The revised date for providing such information is February 23, 1999. Consequently, if you would like the experts to be aware of information, please provide it by that date to the Secretariat, care of the Institute for Dispute Resolution, University of Victoria, Begbie Building, P.O. Box 2400 STN CSC, Victoria, B.C. V8W 3H7. Please forward a copy to me in Montreal as well. The Secretariat intends to circulate information provided in written form by each stakeholder to the other three key stakeholders, subject to claims of confidentiality under the *Agreement*. Accordingly, please make such a claim if you believe that portions of the written materials you are submitting warrant such treatment.

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Thank you,

David L. Markell
Head, SEM Unit

February 4, 1999

Mr. Hugh Smith
Manager, Strategic Fisheries
B.C. Hydro
6911 South Point (E08)
Burnaby, B.C.
V3N 4X8

Dear Mr. Smith:

This letter provides an update on the ground rules for the submission of information in writing to the Commission for Environmental Cooperation's Secretariat and for the upcoming meetings with the Expert Group. As Alex Grzybowski and/or Jennifer Ellis have indicated in various discussions, we have extended the January 20, 1999 date for written submissions to the Expert Group, including written responses to the Expert Group Questions. The revised date for providing such information is February 23, 1999. Consequently, if you would like the experts to be aware of information, please provide it by that date to the Secretariat, care of the Institute for Dispute Resolution, University of Victoria, Begbie Building, P.O. Box 2400 STN CSC, Victoria, B.C. V8W 3H7. Please forward a copy to me in Montreal as well. The Secretariat intends to circulate information provided in written form by each stakeholder to the other three key stakeholders, subject to claims of confidentiality under the *Agreement*. Accordingly, please make such a claim if you believe that portions of the written materials you are submitting warrant such treatment.

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Thank you,

David L. Markell
Head, SEM Unit

February 18, 1999

Mr. Randy Christensen
Barrister and Solicitor
Sierra Legal Defence Fund
Suite 214-131 Water St.
Vancouver, B.C.
V6B 4M3

Dear Mr. Christensen:

This letter provides a further update concerning the schedule for Submission 97-001. As you are aware, at Canada's request, we postponed the February 11, 1999 presentation. Jennifer Ellis or I will contact you to provide the details concerning the rescheduled presentation.

Because of the change in meeting dates, and in an effort to accommodate requests we have received from several stakeholders, we have extended the date for submitting written information from February 23, 1999 until March 8, 1999. If you would like the Expert Group and Secretariat to consider information, please provide it by that date. The experts will be reviewing information between now and March 8, 1999. As a result, please provide information for our consideration as soon as it is convenient for you to do so. As was indicated in previous communications, please assert confidentiality for any information you believe warrants such treatment.

Yours sincerely,

(original signed)
Alex Grzybowski
Associate

March 12, 1999

Dr. Jon O'Riordan
Assistant Deputy Minister
Environment and Lands Regions Division
Ministry of Environment, Lands and Parks
P.O. Box 9339 Stn. Prov. Gov.
Victoria, B.C.
V8W 9M1

Dear Dr. O'Riordan:

As previously discussed, the Secretariat has extended the time for providing written information for consideration as part of the Factual Record process from March 8, 1999 until March 22, 1999. Please provide any information by that date. The Secretariat and Expert Group will contact you with any questions or requests for additional information.

Thank you,

(original signed)
David L. Markell
Head, SEM Unit

March 12, 1999

Mr. Mike Nassichuk
Manager
Pollution Prevention and Assessment
Environment Canada
224 West Esplanade
North Vancouver, B.C.
V7M 3H7

Dear Mr. Nassichuk:

As previously discussed, the Secretariat has extended the time for providing written information for consideration as part of the Factual Record process from March 8, 1999 until March 22, 1999. Please provide any information by that date. The Secretariat and Expert Group will contact you with any questions or requests for additional information.

Thank you,

David L. Markell
Head, SEM Unit

March 12, 1999

Mr. Peter Delaney
Chief
Habitat Conservation and Policy Unit
Department of Fisheries and Oceans
555 West Hastings St.
Vancouver, B.C.
V6B 5G3

Dear Mr. Delaney:

As previously discussed, the Secretariat has extended the time for providing written information for consideration as part of the Factual Record process from March 8, 1999 until March 22, 1999. Please provide any information by that date. The Secretariat and Expert Group will contact you with any questions or requests for additional information.

Thank you,

David L. Markell
Head, SEM Unit

March 12, 1999

Mr. Randy Christensen
Barrister and Solicitor
Sierra Legal Defence Fund
Suite 214-131 Water St.
Vancouver, B.C.
V6B 4M3

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Thank you,

(original signed)
David L. Markell
Head, SEM Unit

March 12, 1999

Mr. Keith Ogilvie
Special Advisor, International Relations
Intergovernmental Relations
2nd Floor, 421 Menzies St.
Victoria, B.C.
V8V 1X4

Dear Mr. Ogilvie:

As previously discussed, the Secretariat has extended the time for providing written information for consideration as part of the Factual Record process from March 8, 1999 until March 22, 1999. Please provide any information by that date. The Secretariat and Expert Group will contact you with any questions or requests for additional information.

Thank you,

David L. Markell
Head, SEM Unit

March 12, 1999

Mr. Hugh Smith
Manager, Strategic Fisheries
B.C. Hydro
6911 South Point (E08)
Burnaby, B.C.
V3N 4X8

Dear Mr. Smith:

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Thank you,

David L. Markell
Head, SEM Unit

A14/SEM/97-001/FR/19
Distribution: General
Original: English

Commission for Environmental Cooperation
Draft Factual Record Under Articles 14 and 15
SEM-97-001, Synopsis

The Commission for Environmental Cooperation (CEC) is an international organization created under the *North American Agreement on Environmental Cooperation* (*Agreement*) by Canada, Mexico, and the United States. The CEC operates through a Council (made up of the highest-level environmental official in each country), a Joint Public Advisory Committee (JPAC), comprised of five citizens from each country, and a Secretariat (headquartered in Montreal).

Article 14 of the *Agreement* allows citizens to file submissions claiming that any of the three countries, Canada, Mexico, or the United States, is failing to effectively enforce its environmental laws. The Council may instruct the Secretariat to prepare a factual record in connection with particular submissions. A key purpose of factual records is to develop information concerning specific enforcement practices of a country. Among other benefits, a factual record may assist the public in assessing the effectiveness of such practices. A factual record may be particularly valuable where facts are disputed or where the facts simply have not been put before the public.

The Secretariat submits each draft factual record to the Council. Any of the three countries may provide comments concerning the accuracy of the draft. The Secretariat incorporates, as appropriate, any such comments in the final factual record and submits the final record to the Council. The Council then determines whether to make the final factual record available to the public.

Two documents explain the process the Secretariat is to follow in developing a factual record, the *Agreement* itself, and the *Guidelines for Submission on Enforcement Matters under Articles 14 and 15 of the North American Agreement on Environmental Cooperation* (*Guidelines*). The *Guidelines* specify that the Secretariat shall include the following in its draft and final factual records:

1) a summary of the submission;
2) a summary of the country's response;
3) a summary of any other relevant factual information; and,
4) the facts presented by the Secretariat with respect to the matters raised in the submission.

The *Agreement* provides that the Secretariat shall consider information submitted by any Party. It also authorizes the Secretariat to consider relevant information that is publicly available, submitted by any interested non-governmental organization or person or the JPAC, or that the Secretariat or independent experts develop.

The Council has instructed the CEC Secretariat to prepare a draft factual record with respect to Submission No. SEM-97-001. This Submission, filed by the Sierra Legal Defence Fund and the Sierra Club Legal Defense Fund (now Earthjustice) on behalf of several non-governmental organizations, claims that BC Hydro operations have violated

Fisheries Law Section 35(1) on repeated occasions by damaging fish habitat, and that Canada has failed to take effective enforcement with respect to these violations. Canada asserts that its enforcement efforts have been effective, and have included a wide range of measures, including prosecutions when required, as well as a series of other strategies such as water use planning.

It is the Secretariat's responsibility, pursuant to the instruction of the Council, to prepare a draft factual record relating to the effectiveness of Canada's enforcement practices. In doing so, the Secretariat will review the information the Submitters and Canada have already provided. The Secretariat will develop additional information by, among other activities, reviewing the legal and policy context associated with the alleged violations, developing information by working with independent experts, and obtaining information from interested stakeholders.

In particular, an Expert Group will be convened and asked to provide information concerning the effectiveness of the Canadian approach to enforcement. Further, stakeholders (e.g., the Submitters, Canada, British Columbia, and BC Hydro) will have the opportunity to provide information concerning the effectiveness of the Canadian approach to enforcement. Each of the major stakeholders listed above will have an opportunity to meet with, and provide information to, the independent experts in mid-January during the experts' initial round of meetings. The Secretariat also will accept written comments on the effectiveness of Canadian enforcement efforts until February 23, 1999.

The Secretariat has retained the services of Stephen Owen and Alex Grzybowski at the University of Victoria Institute for Dispute Resolution (UVic IDR) to assist the Secretariat to obtain information from experts and interested parties. Information relating to the effectiveness of the Canadian enforcement efforts may be submitted to the Secretariat, care of Mr. Grzybowski, [c/o UVic IDR, University of Victoria, Bebgie Building, PO Box 2400 STN CSC, Victoria, B.C. V8W 3H7, grzybowski@tnet.net], again by no later than February 23, 1999.

The Secretariat has established a repository containing key background documents, such as the Submission itself, Canada's Response, the Submitters' Reply, the Council's Resolution, and the *Agreement* and *Guidelines*, at the University of Victoria Institute of Dispute Resolution (located in the Law Faculty, Begbie Building, UVic Campus). These documents are available for review [please call (250) 721-8777 to make arrangements]. They also are available on the internet from:
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=74&format=1
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=79&format=1
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=81&format=1
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=88&format=1
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=160&format=1
http://cec.org/templates/registryview.cfm?&varlan=English&submissionID=9&format=1

Set forth below is the schedule for conducting the process described above.

A14/SEM/97-001/FR/19
Distribution: General
Original: English

Factual Record Development Process and Schedule

1. Legal and Policy Analysis — Dec. 18, 1998 to Feb. 23, 1999

2. Expert Group Review — Dec. 18, 1998 to Feb. 12, 1999
   - Preparatory work — Dec. 18, 1998 to Jan. 11, 1999
   - Initial meeting [to include sessions with various stakeholders] — week of Jan. 11, 1999
   - Final report from Group — week of Feb. 8, 1999
   - Final meeting of Group — week of Feb. 8, 1999

3. Stakeholder Comment Period — Dec. 18, 1998 to Feb. 23, 1999
(note: comments received prior to January 20th will be provided to the expert group for its information)

For more information, please contact Alex Grzybowski at (250) 656-1317 or grzybowski@tnet.net.

We look forward to your participation in providing information for this factual record process.

A14/SEM/97-001/FR/19
Distribution: General
Original: English

Commission for Environmental Cooperation
Draft Factual Record Under Articles 14 and 15
SEM-97-001

Scope of Inquiry

The Council has instructed the CEC Secretariat to prepare a draft factual record with respect to Submission No. SEM-97-001. Background information concerning the CEC and the factual record process are provided in the attached Synopsis.

This Submission, filed by the Sierra Legal Defence Fund and the Sierra Club Legal Defense Fund (now Earthjustice) on behalf of several non-governmental organizations, claims that BC Hydro operations have violated Fisheries Law Section 35(1) on repeated occasions by harming fish habitat, and that Canada's failure to prosecute several incidents constitutes a failure to effectively enforce the Fisheries Law. Canada takes a broader view of "effective enforcement." It identifies as enforcement a wide range of government measures to address the alleged violations, including prosecutions when required as well as a series of other strategies such as water use planning. Canada asserts that these measures have been effective.

This document is intended to promote development of information regarding whether Canada has been effectively enforcing its environmental laws. The Secretariat has established a repository containing key background documents, such as the Submission itself, Canada's Response, the Submitters' Reply, and the Council's Resolution, at the University of Victoria Institute of Dispute Resolution (located in the Law Faculty, Begbie Building, UVic Campus). These documents are available for review [please call (250) 721-8777 to make arrangements]. They also are available on the internet from:
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=74&format=1
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http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=81&format=1
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=88&format=1
http://cec.org/templates/registrytext.cfm?&varlan=english&documentid=160&format=1
http://cec.org/templates/registryview.cfm?&varlan=English&submissionID=9&format=1

Specific BC Hydro operations for which the Secretariat is seeking information are identified in the Submission and in the Response. Please be aware that the Council directed the Secretariat not to consider issues relating to the BC Hydro facilities in the Bridge River hydroelectric system, comprised of the Lajoie, Terzaghi, and Seton dams and their respective reservoirs. Therefore, the Secretariat is not seeking information with respect to these facilities or their respective reservoirs.

As indicated above, the focus of the Secretariat's information-gathering process is on whether Canada has been effectively enforcing its environmental laws. The following types of information, especially information beyond that already provided to the Secretariat, are particularly relevant:

- Information concerning the nature of the incidents or alleged violations identified in the Submission and Response and their impacts on fish habitat;

- Information relating to the nature of the Canadian responses to these incidents; and

- Information relating to the effectiveness of these responses. Such information may include, among other things, information relating to the strengths and weaknesses of a particular response or responses in: a) preventing harmful impacts from continuing, reducing the severity of continuing impacts, and/or reducing the likelihood of impacts continuing; b) preventing harmful impacts from recurring in the future, reducing the likelihood of recurrence, and/or reducing the impact of any future incidents; or c) repairing or otherwise redressing any adverse impact to fish habitat caused by incidents.

In providing information, please be aware that the Submitters have discussed Canada's enforcement response in terms of institution of proceedings, while Canada has identified a range of additional responses it believes qualify as enforcement, including:

a) Environmental Assessment of new Hydro Projects and retrofits of existing operations;
b) Emergency response procedures;
c) Establishment of Regional Technical Committees;
d) Water Use Planning; and
e) Development of Water Quality Guidelines.

The following five excerpts, quoted directly from the Secretariat Recommendation to the Council for development of a factual record, illustrate the types of issues that persist regarding the Submitters' allegations. The text in **bold** (which is, again, quoted from the Secretariat's earlier document) in particular suggests the kinds of information that will be especially relevant to the question of the effectiveness of the Canadian approaches.

> 1. The Submitters allege that in the summer of 1996, B.C. Hydro dewatered Cranberry Creek, killing and stranding trout over a 10 km section. Canada's Response states that the Walter Hardman development, which affects Cranberry Creek, is a priority for the WUP initiative, and that DFO has participated in the development of interim operating orders, which are not yet in effect**. It is not clear from the Response what specific enforcement action Canada undertook (and the effectiveness of that action) in response to the incident at Cranberry Creek. Without the benefit of that information, including information in respect of Canada's enforcement policies, it is difficult to evaluate whether there has been effective enforcement with respect to the incident at Cranberry Creek or the other specified incidents in the Submission.**

2. Similar questions apply to allegations which relate to ongoing operational problems. For example, the Submission suggests that with respect to the Shuswap Falls project, negative effects have resulted from low winter flows, dewatering, rapid flow ions, increased sediment levels, and reduced access, as well as impacts on benthic productivity. In response, Canada lists a number of actions taken, including the following: (a) commissioning a study on the impacts of ramping down on flows; (b) the development of a rule curve which B.C. Hydro is currently declining to use; (c) DFO's verbal statement to B.C. Hydro that the flow regime proposed by B.C. Hydro is unacceptable; and (d) DFO's request to B.C. Hydro for additional time to monitor work such as flash board removal. In addition, Canada refers to a request by the B.C. Ministry of Environment, Lands and Parks, not acceded to by B.C. Hydro, that the impacts of ramping on invertebrates be examined. **Again, little information is provided on the effectiveness of these actions to ensure compliance with the law.**

3. The Submission states that the Bennett Dam and the G.M. Shrum Station are associated with a decline in fish productivity, rapid flow fluctuations causing strandings, elevated gas levels and sedimentation. Canada responds that:

> DFO was not involved at the time of construction in the 1960s. B.C. Hydro has not requested Fisheries Act authorization for the project. DFO's Eastern BC Habitat Unit was formed in 1990, two decades after operations were established at these facilities.

These statements do not appear germane to the issue of whether Canada is failing to currently effectively enforce its environmental laws. Canada's Response does not appear to be directed to the allegation of a present, continuing failure to effectively enforce its law. More information is therefore required. Canada also asserts that the negative impacts of facilities at the Bennett Dam are offset, at least in part, by the Peace/Williston Compensation Program. It is unclear that compensation is of any relevance to the effective enforcement of Canada's environmental laws.

4. Another example is the allegation respecting the Keenleyside Dam. The Submission states that complete shut down of flows in April 1990 dewatered and stranded rainbow trout and kokanee fry on the Norns Creek fan. Canada has responded that this event cannot be the subject of an Article 14 submission, since it occurred before the *NAAEC* came into force. The Secretariat concurs, and recommends that a factual record not be prepared in respect of this specific allegation.

However, if a situation arising in the past continues to exist, it may be the subject of an Article 14 submission. For example, if B.C. Hydro operations continue to damage fish habitat, it makes no difference if those activities were commenced prior to the entry into force of the *NAAEC*. As noted above, the Secretariat recognizes that a present duty to enforce may originate from a situation which

continues to exist. **If the construction of facilities in the past has led to a state of affairs which "has not ceased to exist," then the facts surrounding this condition may be the subject of a factual inquiry**.

5. In asserting that Canada has failed to effectively enforce section 35(1) of the *Fisheries Act*, the Submitters point to the fact that only two prosecutions have been undertaken against B.C. Hydro since 1990. Canada, in its response, suggests that it undertakes a variety of activities which, when taken together, constitute effective enforcement of its environmental law. The Secretariat is mindful of the varied principles and approaches that can be applied to a definition or application of the term "effective enforcement". For example, under certain circumstances, other enforcement measures may be deemed more effective in securing compliance than an exclusive reliance on prosecutions. **In that regard, it is not clear how Canada selects its enforcement responses to secure compliance with its environmental law**.

In summary, Canada's response does not disclose sufficient factual information regarding the specific enforcement activity undertaken by Canada in each of the alleged incidents and the effectiveness of that activity in ensuring compliance with its environmental law.

Please submit any information on or before February 23th 1999 to the University of Victoria Institute for Dispute Resolution, care of Mr. Alex Grzybowski, [Institute for Dispute Resolution, University of Victoria, Begbie Building, P.O. Box 2400 STN CSC, Victoria, B.C. V8W 3H7, grzybowski@tnet.net]. Information received before January 20, 1999 will be passed on to the Expert Group that has been established to assist in this process for their consideration in developing their findings. For more information, contact Alex Grzybowski by phone at (250) 656-1317 or by email at grzybowski@tnet.net.

Commission for Environmental Cooperation
Draft Factual Record Under Articles 14 and 15
SEM-97-001

Expert Group Questions
February 3, 1999

Please answer the following questions as appropriate and provide any further information and written materials that you believe should be included in the factual record the Secretariat will prepare concerning this submission. In terms of the relevant time frames, please consider these questions in the context of Council Resolution 98-07, which directed the Secretariat to "consider whether the Party concerned 'is failing to effectively enforce its environmental law' since the entry into force of the NAAEC on 1 January 1994," and indicated that "[I]n considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994, may be included in the factual record."

1) Canada has identified a wide range of government responses. We are interested in obtaining information concerning three types of government policies relating to these responses:
    a) policies that explain Canada's overall plan for enforcement and compliance concerning *Fisheries Act* section 35(1);
    b) policies that discuss the criteria Canada uses in deciding which government response to use in dealing with a particular violation of section 35(1); and
    c) policies that explain the purpose of each government response and how each is supposed to work.

    With respect to prosecutions, for example, we are interested in policies, procedures or protocols that contain information as to the criteria Canada uses in deciding whether to investigate a possible violation of *Fisheries Act* section 35(1), and/or to bring a prosecution for such a violation. We are interested, therefore, in such documents relating to, among other things:
        (i) charge screening;
        (ii) recommending charges; and
        (iii) instituting investigations.

    Please also provide any data or other information relating to prosecutions in British Columbia for *Fisheries Act* section 35(1) for each of the years 1994-1998, inclusive, including, among other things, data or other information relating to:
        (i) the number of prosecutions;
        (ii) the identity of the party prosecuted in each such prosecution;
        (iii) the outcome of each such prosecution;
        (iv) the level of government resources devoted to such prosecutions.

With respect to *Fisheries Act* section 35(2), we are interested in policies, procedures or protocols relating to, among other things:

(i) when the government requires a party to obtain an authorization;
(ii) the criteria the government considers in deciding whether to issue an authorization and in including conditions in an authorization; and
(iii) the process the government uses in evaluating whether to issue an authorization.

2) Please provide information concerning how B.C. Hydro's overall system operations could be modified to prevent, reduce or compensate for harmful habitat impacts.

3) Please provide information concerning the efforts of other jurisdictions to minimize the harmful impacts of hydro operations on fish habitat.

4) In addition to these general questions, the experts have questions relating to six specific BC Hydro facilities. The experts determined that it is not possible to review information in detail for each of the facilities identified in the Submission. Using several criteria (our interest in exploring the range of impacts and the range of enforcement responses and in covering the different parts of the BC Hydro system), the experts have decided to focus on the following six hydroelectric installations/ongoing operations:

- W.A.C. Bennett/Peace Canyon
- Keenleyside
- Shuswap Falls
- Cheakamus
- Walter Hardman
- John Hart

For <u>each</u> of the above installations including their reservoirs, dams, generation facilities and downstream waterways, please provide information regarding the following (please provide documented and quantified information where available):

a) What harmful impacts on fish habitat have resulted from the operation of these facilities?
b) When were these impacts discovered, what are their causes and how are they quantified in terms of fish kill and lost fish production?
c) How are impacts of on fish habitat identified, monitored and measured? Please provide information concerning whether these approaches to identification, monitoring and/or measurement are adequate/appropriate, alternative or additional approaches that could be used, and why these alternative or additional approaches are not used.
d) Specifically, what action has been taken by Canada and/or the B.C. government with respect to Section 35(1) of the *Fisheries Act* for each of the harmful impacts on fish

habitat? Please include oral/written requests, orders, Section 35(2) authorizations, and prosecutions.

e) What action has been taken by B.C. Hydro in response to government actions in d), above and what action has B.C. Hydro taken on its own initiative to mitigate or compensate the impacts in a), above?

f) What effect have these actions taken had on the harmful impacts on fish habitat in terms of

   (i) preventing harmful impacts from continuing, reducing the severity of continuing impacts, and/or reducing the likelihood of impacts continuing;

   (ii) preventing harmful impacts from recurring in the future, reducing the likelihood of recurrence, and/or reducing the impact of any future incidents; and

   (iii) repairing or otherwise redressing any adverse impact to fish habitat caused by incidents?

g) Please provide information concerning any alternative strategies that would be more effective in minimizing adverse impacts that B.C. Hydro is not implementing and concerning why BC Hydro is not implementing these strategies.

h) What is the government's (and what is B.C. Hydro's) overall strategy and objectives (with time frames) for bringing these installations/ongoing operations into compliance with the *Fisheries Act* and limiting or eliminating adverse impacts on fish habitat, including for achieving the "no net loss" and "overall net gain" provisions of the federal policy for management of fish habitat? What amounts are budgeted for these activities over the next five to ten years for these specific projects and for the B.C. Hydro system as a whole?

i) Please provide information as to when B.C. Hydro and/or Canada have pursued 35(2) authorizations and as to why 35(2) authorizations were pursued in some cases and not others.

4) For each of the six hydroelectric installations/ongoing operations please answer the following specific questions:

W.A.C. Bennett/Peace Canyon

Issue 1:

1) Reservoir drawdown affects fish productivity.

Canadian Response to Issue 1:

The project was built many years ago and B.C. Hydro has not requested Fisheries Act authorization for the project. B.C. Hydro has established a fish compensation fund that helps offset impacts on fish in the reservoir.

Questions regarding Issue 1:

a) How much water is drawn down?

b) What are the harmful impacts on fish habitat of the drawdown?
c) What has been Canada's response to those harmful impacts and to what degree has Canada's response led to a reduction in impacts?
d) What effect has B.C. Hydro's fish compensation fund had on harmful impacts on fish habitat?

Issue 2:

2) Rapid flow fluctuations cause fish stranding below Peace Canyon project.

Canadian Response to Issue 2:

Because of the steep walls of the Canyon stranding is a minimal problem. One instance of stranding was noted and Canada requested that remedial action be taken. B.C. Hydro and Peace Compensation program responded that remediation would be of little value until the upper reaches of the stream are restored. Strandings below Peace Canyon are a concern and B.C. Hydro has voluntarily implemented a minimum 10000 cfs flow to protect fish habitat at a cost of $2 million. Ramping rates to minimize effects on fish have been determined but will not be implemented during peaking power generation.

Questions regarding Issue 2:

a) What are the time lines for implementation of the ramping rates during normal operations?
b) What information did Canada obtain to verify that remediation of stranding would be of little value below Bennett Dam?
c) To what extent are dewatering problems eliminated or reduced below Peace Canyon at a minimum flow of 10000 cfs?
d) There appear to have been limited enforcement actions undertaken in relation to this facility. Please tell us why that is so. To what extent have issues of cost or other factors played a role in enforcement decisions?
e) What authorizations has Canada provided to B.C. Hydro with respect to peaking flow fluctuations?

Issue 3:

3) Total Gas Pressure is a problem with this facility.

Canadian Response to Issue 3:

Spills suspected to cause serious TGP problems are intermittent. With input from Canada, B.C. Hydro has studied a spill in 1996 but results are not yet available. Under non-spill conditions TGP levels are likely low.

Questions regarding Issue 3:

a) Please provide information as to Canada's strategy (including time lines) for understanding the causes of serious, intermittent TGP problems and for addressing these problems.

b) What information does Canada plan to obtain to confirm the causes of TGP and that TGP is not a problem under normal operation of the facility and what are the time lines for obtaining this information?
c) Should it prove that TGP is a chronic problem, what would be Canada's response and what would be the time lines of that response?

Issue 4:

4) The dam causes sediment problems.

Canadian Response to Issue 4:

Canada is unaware of any sediment problems except for sediment inputs from two tributaries to Dinosaur Lake during storm events. Sediment problems in Williston Lake are mitigated by activities of the Peace/Williston program.

Questions regarding Issue 4:

a) Is Canada suggesting that the sediment problems below Bennett Dam are all natural events?
b) What information does Canada have that sediment problems in Williston Lake are mitigated?
c) What plans does Canada have to determine whether there are erosion problems impacting fish in Williston reservoir and the effectiveness of any remediation?

Issue 5:

5) Lack of flushing flows has led to abandonment of side channels.

Canadian Response to Issue 5:

The potential effects of lack of flushing flows have been described by Sigma Engineering and benefits of flushing flows may be determined by long term studies being undertaken by M. Church at UBC.

Questions regarding Issue 5:

a) Does Canada have a policy or an opinion regarding flushing flows in maintaining the quality of fish habitat?
b) What plans does Canada have to study, monitor and ensure that habitat degradation due to lack of flushing flows does not significantly impair fish production in this system?

Issue 6:

6) The project has changed temperatures downstream.

Canadian Response to Issue 6:

The effects of temperature changes are complex and poorly understood. Mitigation would require changes to dam intake structures.

Questions regarding Issue 6:

a) What information does Canada have with regard to temperature changes? What are Canada's plans (including time lines) for collecting more information regarding temperature changes and for addressing harmful impacts that such changes have on fish habitat?

Keenleyside Dam (Norns Creek fan)

Issue 1:

1) Operation of the Keenleyside Dam dewaters whitefish habitat and causes mortality.

Canadian Responses regarding Issue 1:

"During the critical December to April period, Canada representatives closely monitor and require assessment of flows on downstream fish and their ova."

"As evidence that these efforts [discussions in the fish information group] are paying off; the flow regime during the 1996-1997 spawning season is considered to be the best yet for the maintenance of mountain whitefish spawning habitat."

Questions regarding Issue 1:

a) What is the nature of the monitoring and assessment?
b) Despite the monitoring, etc., are there still instances of egg mortality caused by Keenleyside operation? If so, what is their frequency and their magnitude?
c) What does "best yet" mean in relation to expected survival and maintenance of mountain whitefish spawning habitat?
d) What evidence is there that survivals have improved since the creation of the Eastern B.C. unit and the commencement of the Fish Information Group and to what degree have they improved?

Issue 2:

2) Complete shut down in April 1990 dewatered and stranded rainbow trout and kokanee fry on the downstream Norns Creek fan.

Canadian Responses regarding Issue 2:

"The current working agreement between Canada and B.C. Hydro is to maintain or increase flows during this period [April to June] to ensure adequate rainbow trout spawning habitat and prevent dewatering of incubating eggs. Any eggs deposited prior to April which are in danger of dewatering are salvaged..."

"On March 28, 1994, Canada granted an authorization...for a pilot study reconturing the Norns Creek Fan. Fish utilized the pilot area and eggs were successfully incubated."

Questions regarding Issue 2:

a) Are there still instances of egg mortality caused by Keenleyside operation? If so, what is their frequency and their magnitude?
b) What factual evidence is there that egg mortality has decreased since Canada and B.C. Hydro formed their working agreement?
c) What plans does Canada have to proceed with further modification to Norns Creek fan?
d) How does the reconstructed portion of the fan compare with other locations in terms of density of fish spawning and survival of eggs?

General questions regarding Keenleyside:

a) To what degree (be specific) is the potential fish production of the Columbia downstream from Keenleyside Dam reduced by the operating regime of the dam?
b) What strategy exists for achieving the "no net loss" and "overall net gain" provisions of the federal policy for management of fish habitat in the Columbia downstream from Keenleyside Dam?

Shuswap Falls

Issue 1:

1) Low winter flows dewater spawning areas and have negative effects on incubating eggs.

Canadian Response to Issue 1:

A rule curve was developed in 1993 that would protect fish spawning downstream. B.C. Hydro indicated in 1994 that they did not want to use the rule curve and suggested alternative flows. Canada has responded verbally that B.C. Hydro flows are not acceptable and Canada wishes to continue with the rule curve.

Questions regarding Issue 1:

a) What rules presently govern winter releases from the Shuswap Falls project?
b) If the rule curve developed in 1993 is still the means by which flow decisions are made, has any further analysis of the effectiveness of the flow regimes based on this curve been undertaken beyond that conducted by Triton in 1993-94?
c) How effective was this enforcement action (developing a rule curve) in ensuring the termination of low water flows with negative impacts on fish habitat and therefore on incubating eggs?
d) Given the critical state of interior coho stocks, what information/measures are in place/planned to determine and, if necessary, remediate any impacts of Shuswap Falls on coho?

Issue 2:

2) Rapid flow fluctuations negatively impact fish downstream.

Canadian Response to Issue 2:

Canada has specified acceptable ramping rates for flow changes and describes a range of problems in ensuring that these are implemented including technical problems with recently installed equipment and communication problems regarding B.C. Hydro activities that affect discharge. A study is also underway to determine the effectiveness of the ramping rates that Canada has specified.

Questions regarding Issue 2:

a) Given the problems referred to in the Canadian response, to what degree have the ramping rates specified by Canada been met by B.C. Hydro?
b) How effective was this Canada action (specifying ramping rates) in terms of ensuring that rapid flow fluctuations do not negatively impact fish habitat?
c) What steps have been taken to address some of the technical problems, particularly those with the Howell Bunger Valve?

Issue 3:

3) Configuration of the dam has led to increased sediment levels.

Canadian Response to Issue 3:

Canada has specified the conditions governing removal of sediment upstream of Wilsey dam.

Questions regarding Issue 3:

a) Have there been instances of sediment discharge unrelated to removal operations? If so, how frequent, when, and what amounts?
b) Please describe the steps taken to ensure that sediment discharge is not harmful to fish?

Issue 4:

4) Reservoir fluctuations affect benthic productivity and reduce access to Sugar Lake tributaries.

Canadian Response to Issue 4:

Impacts of reservoir fluctuations on invertebrates have not been examined. Effects of reservoir drawdown on resident fishes are uncertain.

Questions regarding Issue 4:

a) What plans does Canada have to investigate and address these issues and what are Canada's time lines for taking such action?

Cheakamus

Issue:

1) Downstream fish populations are negatively impacted by insufficient flow and rapidly fluctuating flows.

Canadian Response to Issue:
On May 2, 1997, Canada issued a flow order to B.C. Hydro with respect to Daisy Lake Dam for the purpose of ensuring adequate flow to protect fish and fish habitat. B.C. Hydro has applied for judicial review of this order.

Questions regarding Issue:

a) What are the impacts of insufficient flow and rapidly fluctuating flows?
b) What does the flow order require?
c) What has been the impact of the flow order in terms of ensuring adequate flow to protect fish and fish habitat?
d) Please describe any other actions the government has taken to address these problems.
e) Considering that problems with fish habitat due to operation of the Daisy Lake dam have been a long standing issue in the Cheakamus River, please explain why Canada issued its flow order to protect fish and fish habitat in 1997.
f) What actions other than flow remediation has Canada undertaken with respect to the Cheakamus to satisfy the no net loss/net gain provisions of the federal policy on fish habitat?

Walter Hardman (Cranberry Creek)

Issue:

1) Dewatering of the creek in 1996 killed and stranded rainbow trout over a 10 km section. Dewatering of the creek is within the terms of B.C. Hydro water license.

Canadian Response to Issue:
Walter Hardman has been first priority (with 9 other facilities) for review in the Water Use Planning initiative. Canada was closely involved in the development of interim operating orders which will provide operational benefits to fish during the development of the Water Use Plan and will require release of appropriate flows in the lower Cranberry Creek for the support of fish.

Questions regarding Issue:

a) Were there any specific enforcement actions taken in response to the incident at Cranberry Creek and what was the outcome of those actions?
b) What minimum flows are required under the interim operating orders?
c) How were these flows determined (in terms of their anticipated benefits for fish and fish habitat)?
d) When will the interim flows be implemented?
e) What monitoring will be done to determine the effectiveness of the interim flow order, once it is implemented?
f) What are the time lines for completion of the WUP? How will compliance with the conditions of the WUP and the impacts of that compliance be monitored and enforced?

g) How are the no net loss/net gain provisions of the federal policy on fish habitat to be addressed under the WUP process?

John Hart Project

Issues:

1) Rapid flow fluctuations and inadequate instream flows have adversely affected fish habitat
2) Spillway releases can attract fish into the canyon that then become trapped.
3) Spillway releases can cause TGP problems

Canadian Response to Issues:
Studies were undertaken. A side channel was installed below the powerhouse and additional spawning gravel was placed in the Elk Fall side channel.

Questions regarding Issues:

a) To what extent have these measures mitigated problems caused by John Hart? How was this monitored and if the problems were not mitigated, what are the plans for follow up?
b) Since problems with flow fluctuations have been a long-standing issue with this project, why have measures been taken only recently to address the problems?
c) Does Canada believe that there are problems with fish trapping in the canyon and with TGP?
d) If trapping occurs and TGP problems occur, what enforcement does Canada plan to address these issues?

April 21, 1999

Dr. Jon O'Riordan
Assistant Deputy Minister
Environment and Lands Regions Division
Ministry of Environment, Lands and Parks
P.O. Box 9339 Stn. Prov. Gov.
Victoria, B.C.
V8W 9M1

Dear Dr. O'Riordan:

Thank you for providing the Expert Group with your Submission in the Factual Record Process for SEM-97-001. The experts have a few follow-up questions concerning the information you provided. If answers to these questions do not exist, or you are unable to provide the information for some reason, please indicate this in your response.

No Net Loss and Scientific Evidence

In the March 1999 DFO Habitat and Enhancement Branch Submission (DFO Submission), achievement of "No Net Loss" is equated with "effective enforcement" of the *Fisheries Act* Section 35(1), and the Submission concludes that the situation for fish habitat in relation to Hydro facilities is improving and therefore effective enforcement is being achieved. To follow up on this definition and assertion:

1. What is the process or model utilized to calculate or determine No Net Loss in relation to the six facilities that the experts have identified to be of interest?
   a) What year is utilized as the baseline year in the No Net Loss model from which habitat losses and gains are subtracted or added?
   b) What kind of monitoring is undertaken to determine habitat losses and gains for No Net Loss calculations?
   c) How is scientific uncertainty dealt with in the No Net Loss calculations?
   d) Please provide a detailed sample No Net Loss calculation for a facility, preferably one of the six facilities of interest, for which No Net Loss has been calculated.
2. What evidence does DFO have to support its "unqualified yes" (DFO Submission, p. 21) that the situation with respect to fish habitat in relation to B.C. Hydro facilities is

improving? For example, in the case of the Puntledge Project what is the scientific evidence that the measures taken are good for smolts?

Enforcement of the Fisheries Act

3. For each year, 1994-1998, inclusive, how much human (FTEs) and financial resources (budget allocation) have DFO and provincial agencies dedicated to enforcement of Section 35(1) of the *Fisheries Act* in British Columbia? To the extent the information is available, please provide a breakdown of the allocation of these resources by type of activity -- e.g., monitoring, investigation, and enforcement.
4. For the same time period, please provide any compliance and enforcement data for British Columbia not yet submitted relating to *Fisheries Act* Section 35(1), such as data concerning the *level* of enforcement activity (e.g., numbers of investigations and inspections), and the *outcomes* of such activity. With respect to outcomes, for example, the DFO 1996-1997 Annual Report to Parliament provides information on convictions for fiscal years 1994/95, 1995/96 and 1996/97. Please provide similar information for fiscal years 1997/98 and 1998/99 if it is available. Please also provide information concerning any sanctions imposed for violations of Section 35(1) in British Columbia (e.g., the number and monetary value of fines imposed for such violations).

Water Use Planning

5. In the DFO Submission, DFO indicated that it has "tentatively identified baseline, improved and restored scenarios for most facilities" and that the baseline condition is "in full compliance with the *Fisheries Act*." Please provide each of those scenarios for the six facilities of interest and outline how it is determined that the baseline condition is in full compliance with the *Fisheries Act*.
6. Please provide any information available, in addition to the information already provided, with regard to the WUP schedule, the amount of funding and resources to be dedicated to WUP by each agency involved for the next five years, and the priority impacts to be addressed at the facilities, particularly in relation to the six facilities of interest.
7. Please provide any factual information, in addition to the information provided in the March 1999 Water Use Plan Management Committee Submission, regarding the benefits to habitat that have resulted from the WUP process to date including the interim orders, Campbell River Interim Flow Management Strategy and Alouette Water Use Plan.
8. Apart from the letter from Mike Farnworth, Minister of Employment and Investment, to Michael Costello of B.C. Hydro dated November 4, 1998, directing B.C. Hydro to participate in the review of its water licenses, what other form of commitment (legislative, regulatory or other) is there to ensure that B.C. Hydro will participate in the WUP? Could B.C. Hydro withdraw from the WUP, and if it did what would happen?
9. Initiation of a WUP appears to be at the discretion of the Water Comptroller. Is this correct? What are the guarantees that WUPs will be completed at all of the major hydroelectric sites in B.C.? Is there any form of legislative or regulatory commitment

to the federal government that WUPs will be completed at all of the major hydroelectric sites in B.C.?

Thank you in advance for responding to the questions outlined above. Please provide your response by May 4, 1999. We will conduct any necessary additional follow-up with each stakeholder individually.

Yours sincerely,

(original signed)
David L. Markell
Head, SEM Unit

cc: Randy Christensen
Barrister and Solicitor, Sierra Legal Defence Fund

Keith Ogilvie
Special Advisor, International Relations, Intergovernmental Relations

Hugh Smith
Manager, Strategic Fisheries, B.C. Hydro Resource Management

Andy Bowcott
Manager, North American Global Strategies, Environment Canada

April 21, 1999

Mr. Peter Delaney
Chief
Habitat Conservation and Policy Unit
Department of Fisheries and Oceans
555 West Hastings St.
Vancouver, B.C.
V6B 5G3

Dear Mr. Delaney:

Thank you for providing the Expert Group with your Submission in the Factual Record Process for SEM-97-001. The experts have a few follow-up questions concerning the information you provided. If answers to these questions do not exist, or you are unable to provide the information for some reason, please indicate this in your response.

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Keith Ogilvie
Special Advisor, International Relations, Intergovernmental Relations

Hugh Smith
Manager, Strategic Fisheries, B.C. Hydro Resource Management

Andy Bowcott
Manager, North American Global Strategies, Environment Canada

Memorandum

DATE:	January 19, 1999
A / PARA / TO:	Members of the Joint Public Advisory Committee
CC:	Alternate Representatives Manon Pepin
DE / FROM:	Janine Ferretti, Interim Executive Director
OBJET / ASUNTO /RE:	Joint Public Advisory Committee (JPAC) Involvement in Preparation of Draft Factual Record for SEM-97-001

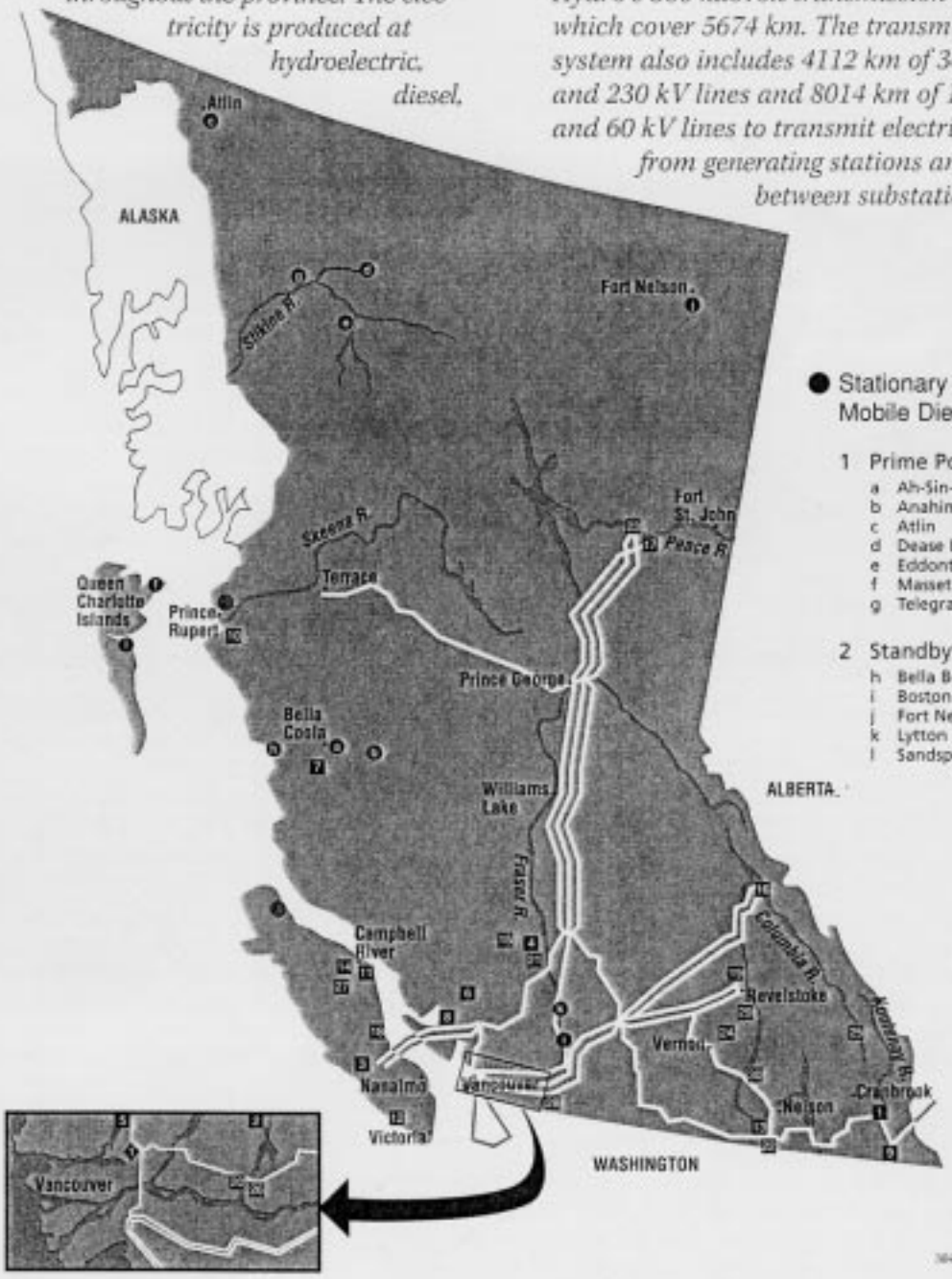
As you are aware, on June 24, 1998, the Council of the Commission for Environmental Cooperation instructed the Secretariat to prepare a Factual Record in connection with Submission 97-001 (Council Resolution 98-07). In preparing the Factual Record, the Secretariat may consider, inter alia, information submitted by the Joint Public Advisory Committee (JPAC), in accordance with Article 15(4) of the North American Agreement on Environmental Cooperation (Agreement). The purpose of this memorandum is to request that any information which might prove relevant for the preparation of the Factual Record be submitted by February 23, 1999 to David Markell, Head, Submissions on Enforcement Matters Unit, CEC, 393, rue St-Jacques Ouest, Bureau 200, Montreal (Quebec), Canada H2Y 1N9.

Thank you for your assistance in this matter.

BC Hydro's generating facilities and 500 kV transmission lines

THE POWER IS YOURS

BC Hydro's interconnected system of more than 72 000 kilometres of transmission and distribution lines supplies electricity to over 1.5 million customers throughout the province. The electricity is produced at hydroelectric, diesel, and thermal generating facilities having a total capacity of 10 829 megawatts. This map shows where these generating plants are located. It also shows the routes of Hydro's 500 kilovolt transmission lines, which cover 5674 km. The transmission system also includes 4112 km of 360, 287 and 230 kV lines and 8014 km of 138 and 60 kV lines to transmit electricity from generating stations and between substations.



Hydroelectric

1 Aberfeldie
2 Alouette
3 Ash River
4 Bridge River
5 Buntzen
6 Cheakamus
7 Clayton Falls
8 Clowhom
9 Elko
10 Falls River
11 John Hart
12 Jordan River
13 Kootenay Canal
14 Ladore
15 La Joie
16 Mica
17 Peace Canyon
18 Puntledge
19 Revelstoke
20 Ruskin
21 Seton
22 Seven Mile
23 Shrum G.M.
24 Shuswap
25 Spillimacheen
26 Stave Falls
27 Strathcona
28 Wahleach
29 Walter Hardman
30 Whatshan

Conventional Thermal

1 Burrard

Gas Turbine

1 Keogh
2 Prince Rupert

500 kV Transmission Lines

Stationary and Mobile Diesels

1 Prime Power:
a Ah-Sin-Heek
b Anahim Lake
c Atlin
d Dease Lake
e Eddontenajon
f Masset
g Telegraph Creek

2 Standby Power:
h Bella Bella
i Boston Bar
j Fort Nelson
k Lytton
l Sandspit

BC hydro

3640-97-12

CEC SUBMISSION SEM 97-001
EXPERT GROUP REPORT

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CEC SUBMISSION SEM 97-001

EXPERT GROUP REPORT

Introduction

1. This Expert Report concerns the Commission for Environmental Cooperation (CEC) Submission SEM-97-001. This submission involves assertions that Canada is failing to effectively enforce its environmental laws, particularly *Fisheries Act* Section 35(1), with respect to BC Hydro hydroelectric operations.

2. The submission was filed on 2 April 1997. Canada filed its response in July 1997. The Secretariat notified the CEC Council on 27 April 1998 that a factual record should be developed concerning the submission. On 24 June 1998 the Council unanimously instructed the Secretariat to develop a factual record.

3. The Council Resolution 98-07 gave the following specific direction to the Secretariat:

   TO DIRECT the Secretariat, in developing the factual record, to consider whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994 may be included in the factual record;

   TO FURTHER DIRECT the Secretariat, in developing the factual record, not to consider issues that are within the scope of the pending judicial proceeding before the British Columbia Court of Appeal in R. v. British Columbia Hydro and Power Authority, specifically those issues relating to the BC Hydro facilities in the Bridge River hydroelectric system, comprised of the Lajoie, Terzaghi, and Seton dams and their respective reservoirs.

4. To assist with the preparation of the Factual Record, the Secretariat convened a small committee of experts in fisheries, law and dam operation. This Expert Group's charge was to assist the Secretariat in performing its responsibilities in

implementing Council Resolution 98-07. The Expert Group has prepared this report as part of its effort to fulfill this charge.

5. The Report contains a brief introduction and then consists of six sections:

   a) Background on BC Hydro operations and the types of harm hydroelectric operations may cause to fish habitat.
   b) The Expert Group's charge of assisting the Secretariat to develop and consider information concerning whether Canada is "failing to effectively enforce" *Fisheries Act* Section 35(1).
   c) The concept of "no net loss" and its role in Canada' s general approach to enforcement.
   d) Canada's "policy context" – a review of Canada's enforcement responses concerning the statutory prohibition against harming fish habitat.
   e) A review of six of BC Hydro's facilities that provides information concerning harm to fish habitat caused by these facilities, Canada's efforts to reduce or eliminate such harm, and the effectiveness of such efforts.
   f) The Expert Group's overall comments concerning Canada's approaches to enforcement with respect to the Section 35(1) prohibition against harming fish habitat.

6. Each member of the Expert Group has substantive expertise relevant to this submission.

7. William Best is an expert in hydroelectric operations. He is a graduate of the University of British Columbia Faculty of Applied Science in Electrical Engineering and a member of the Association of Professional Engineers of British Columbia. He has served as a member of the Executive Committee of the Canadian Electrical Association and as a Director of the Canadian Institute of Energy and of the Northwest Public Power Association. Mr. Best also has been a Commissioner of the BC Utilities Commission. Mr. Best served for more than 30 years as an official with BC Hydro, where he held a series of high-ranking positions. He was a senior BC Hydro executive in the following positions: Vice President, Electrical Operations (July 1975–1981), Vice President, Corporate (March 1981–April 1984), Executive Vice President, Business Operations (April 1984–October 1985), Senior Vice President, System Development and Research (October 1985–December 1986), Vice President, System Planning (December 1986–December 1987), Vice President, Customer Services (January 1988–April 1988), and Vice President (April 1988–September 1988).

8. David Cohen is an expert in regulatory and compliance matters. Dean Cohen obtained his Bachelor of Science degree at McGill University, his LL.B. at the University of Toronto, and his LL.M at Yale Law School. He served as Dean of the University of Victoria School of Law from July 1994 until May 1999, at which point he resigned to become the Dean of Pace University's School of Law. Dean

Cohen teaches in the areas of law and regulatory policy and has written extensively in a range of areas including environmental policy and regulation.

9. Michael Healey is an expert in fish habitat-related issues. Professor Healey received Bachelors of Science (BSC) and Masters of Science (MSC) degrees in Zoology from the University of British Columbia in 1964 and 1966 and his Ph.D. in natural history from Aberdeen, Scotland in 1969. Professor Healey is Professor in the Institute for Resources and Environment, the Fisheries Centre and the Department of Earth and Ocean Sciences, UBC. From 1990 to 1995 he was Director of the Westwater Research Centre at UBC. Prior to 1990, Professor Healey was a senior research scientist with the Department of Fisheries and Oceans. Professor Healey has 25 years of experience as a government scientist and academic in research and analysis of fish populations and fisheries-related scientific issues. He has served as a consultant to government and industry in Canada and the United States on the management of fish and fish habitat.

10. The Expert Group initiated its work in January 1999. The Secretariat offered each of four key stakeholders identified for this submission, notably the Submitters, Canada, the Province of British Columbia, and BC Hydro, the opportunity to present information to the Expert Group in writing and orally. Other interested parties were offered the opportunity to provide information as well. The Expert Group held meetings between January and March 1999 with one or more of these four key stakeholders. The Expert Group developed a set of questions for the key stakeholders (on 3 February 1999), and it issued a set of follow-up questions (21 April 1999). The Expert Group has reviewed the information provided by the key stakeholders and other interested parties and offers the following report.

1.0 Background on BC Hydro Operations and The Types of Harm Such Operations May Cause to Fish Habitat

1.1 Historical

11. Development of water resources in British Columbia dates back to the mid 1800s when several small hydro plants were constructed on southern Vancouver Island. In the late 1890s West Kootenay Power Company began construction of its system of plants on the Kootenay River in the interior of the province. During the early 1900s the BC Electric Railway Company undertook hydroelectric development on several tributaries to the Fraser River in BC's lower mainland and beginning in 1927 it started its Bridge River Development.

12. In the 1960s the BC provincial government, through the newly formed Provincial Crown Corporation BC Hydro and Power Authority (BC Hydro), undertook the massive hydroelectric development of the Peace and Columbia Rivers. The successful negotiation of the Columbia River Treaty between Canada and the United States was a key element of this development. By 1972, ten years from its inception, BC Hydro had increased its power supply by more than 125 percent.

Today more than 80% of BC's electricity is produced by the hydroelectric facilities on the Peace and Columbia Rivers.

1.2 The BC Hydro System Today

13. The BC Hydro system today serves more than 1.5 million residential, commercial and industrial customers in areas that contain more than 94% of the province's population. The utility produces 43,000 million to 54,000 million kWh annually depending on precipitation. Approximately 90% of the total installed BC Hydro generating capacity are hydroelectric. The hydroelectric component comprises 61 dams at 43 locations. There are 34 hydroelectric generating facilities (See map Appendix 2). As noted in Section 1.1, above, the major hydro projects on the Peace and Columbia rivers account for more than 80% of BC Hydro's electricity generation.

14. In addition to providing electricity to British Columbia consumers BC Hydro participates in electricity trade with Alberta and the western United States through high voltage tie lines. BC Hydro also operates water storage facilities on the Columbia River system in Canada in accordance with the Columbia River Treaty provisions.

1.3 Overview of BC Hydro System Operations

15. The primary objective of BC Hydro operations is to maintain an adequate and reliable supply of electricity to its British Columbia consumers and to meet its supply obligations to export customers outside the province. A further, significant obligation is to operate its water storage facilities on the Columbia River in accordance with agreements reached under the Columbia River Treaty. A secondary objective is to market surplus electricity obtained through fortuitous water conditions and prudent reservoir management at the best obtainable price, normally in the export market.

16. Since the BC Hydro generation mix is predominantly hydroelectric the amount of water that can be captured, stored and released through its turbine generators determines the amount of electricity that can be produced. While water can be (and is) stored, electricity cannot be, so at any given time the amount being generated must equal the amount being consumed. The amount of water flowing into the reservoir systems is dependent on the precipitation in the related watershed over the year. The amount of water that can be stored in the reservoirs, routed through the generator turbines (as opposed to spilling past the turbines), and converted into electricity will depend on the size of the reservoir storage and how that storage is managed throughout the year. Good reservoir management from a power production perspective means accurate measurement of the water in the watershed (snow depths and water content of the snow) and good predictions about what volumes of water will flow into the reservoir during specific time intervals. The objective from a power production perspective is to have the

reservoirs drawn down in the spring to such a level that the spring melt will just fill the reservoirs. If the inflows are greater than expected water may have to be spilled. If the reservoir does not refill, the hydraulic head will be less than optimal for efficient generation and the facility output will be reduced. These reservoir decisions are made using historical stream flow, snow course and meteorological data.

17. With a large, electrically integrated system like BC Hydro's the operators are able to offset poor water conditions at one hydroelectric site by using favorable water conditions at another site. For example, should the reservoir at one site be lower than optimal the operators can increase generation from other hydro sites where water conditions are better than normal. Similarly, available thermal or electricity imports can be utilized. The BC Hydro reservoirs are located on different river systems widely dispersed throughout a province with normally diverse weather conditions. This diversity of water conditions at BC Hydro reservoirs is a significant strength.

18. A factor adding to the flexibility and complexity of the BC Hydro system is the storage and controlled release of water into the Canadian section of the Columbia River under the terms and conditions of the Columbia River Treaty. Effectively, BC Hydro and the Bonneville Power Administration, a US federal agency, are hydraulically and electrically linked through the Columbia River System and the integrated electrical transmission network. Reservoir levels and flow rates on the Columbia River, and other river systems in British Columbia, are affected by the Columbia River Treaty operations.

19. The BC Hydro reservoirs are very large, particularly the Williston and Kinbasket reservoirs on the Peace and Columbia rivers. Smaller reservoirs cycle annually, i.e., they are drawn down to a minimum level and refilled in one, twelve-month period. The large Peace and Columbia reservoirs cycle over a three to four year period. It would take three to four years of poor water conditions to draw these reservoirs down to their minimum design levels. But it would also take three to four years of good water conditions to refill them. The longer cycling period means less susceptibility to short term low stream flow conditions and greater overall flexibility in generation.

1.4 Impacts of Hydroelectric Operations On Fish Habitat

20. The original construction and subsequent operations of the components of a hydroelectric system – dams, storage reservoirs, river diversions, spillways and hydroelectric turbines and generators – have significant impacts on the environment and on humans and other creatures that depend on a healthy environment. This factual record focuses specifically on the impact of BC Hydro hydroelectric facilities and operations on fish and fish habitat. We note that these facilities and other operations have other impacts as well, including impacts on transportation, agriculture, industry, recreation, and consumption, among others.

21. The range of impacts of hydroelectric facilities and operations on fish and fish habitat include the following:

- Blockage of upstream and downstream movements of resident and migratory fish. Stream fishes often undertake significant migrations upstream and downstream for the purposes of breeding or feeding. Construction of a dam usually completely blocks these normal movements. Although some species and populations are able to adjust to the new situation, others cannot and this may significantly reduce the productive potential of the river.
- Entrainment of fish into penstocks, turbines and spillways. (Entrainment refers to the process by which small fish are sucked into turbines and spillways by the flow of water.) Entrainment can kill or injure fish and displace them into unsuitable habitats.
- High concentrations of dissolved gas in water created by turbines and spillways and by algal blooms in reservoirs. Gas saturation above 100% can cause gas bubble disease in fish. Below dams, elevated Total Gas Pressure (TGP) is caused by water plunging off spillways carrying air bubbles deep into the pool below the spillway. The bubbles deep in the pool dissolve in the water because of the greater pressure at depth, increasing the concentration of gas in the water to more than 100% saturation. A similar phenomenon can occur in lakes when there is an intense bloom of algae producing lots of oxygen, which raises the gas pressure in the surface waters of the lake above 100% saturation. High TGP can cause death or injury of fish because, when they are in water with elevated TGP, their body fluids become supersaturated with gas so that when they move to water with lower TGP the excess gas they have absorbed forms bubbles in their blood and other tissues (like a diver getting the “bends”). It is important to note that the effects of high TGP are uncertain in nature.
- Toxicity created by decomposition of organic material in reservoirs, e.g., low dissolved oxygen, methylation of mercury.
- Excessive water turbidity created by sloughing reservoir and river banks, which reduces visibility for fish looking for food, reduces the light penetration into lake and river waters so that plant growth is inhibited, and can smother spawning beds suffocating eggs and fry in the bottom gravels.
- Loss of spawning and nursery areas beneath reservoirs and by scouring of gravel downstream of facilities. Reservoirs often flood historic spawning and nursery habitats for stream dwelling fishes. Also the reservoir blocks downstream movement of gravel from above the dam so that when bottom gravel are scoured out downstream they are not replaced and spawning habitat is lost.
- Insufficient water releases or large fluctuations in water releases so that fish and ova are exposed and destroyed. Operation of dams typically changes the daily and seasonal hydrograph downstream. Usually the high flows are reduced because these are used to fill the reservoir so that floodplain habitats that would normally be flooded during freshet remain dry. These marginal

habitats are often important spawning and nursery habitats for some fishes. Flow below hydro dams can also be highly variable on an hourly basis as demand for electricity changes throughout the day. These rapid short-term fluctuations in water flow can wash fish out of reaches of the river or leave them stranded in marginal pools when the water drops rapidly. The seasonal activities of fishes and other aquatic organisms and their movements are usually adapted to the natural seasonal changes in flow of the river so that the changes brought about by dam operation can disrupt natural life processes in fishes and other organisms.

- Changes to water temperature affecting fish, ova incubation and the ability of rivers and reservoirs to sustain plant and animal life upon which fish depend for food. Temperature changes impact fish in several ways. Discharge from reservoirs is often warmer in winter than the natural river. In the winter, higher temperatures result in greater metabolic rates in fish, which means that they need more food. Higher winter temperatures also mean that eggs develop too fast. In the summer, reservoir discharges can be either warmer or cooler than the natural river, again having implications for metabolism, growth, food production and survival. The implications of temperature are complex. Some temperature impacts are beneficial and some are harmful. For example the surface waters of a reservoir can be impoverished in summer due to temperature stratification and the trapping of nutrients in deep water. On the other hand, a reservoir may be more productive than the stream it replaced because of warmer temperatures, being more open to sunlight, and the fact that nutrients are trapped in the reservoir to be recycled year after year.
- Trapping of nutrients in reservoirs so that downstream productivity is reduced. Although a reservoir may be more productive than the stream it replaced, the river downstream may be reduced in productivity because the reservoir traps nutrients that would normally have flowed downstream.
- Trapping of sediments in reservoirs so that downstream river channels are deprived of sediment and become degraded. This was mentioned above with respect to spawning gravels but, in fact, the whole structure of the river downstream from a dam can be changed by the trapping of sediments in the reservoir (See further elaboration below). Changes in the sediment dynamics of the river coupled with changes in the seasonal flow regimes below dams mean that the two factors most responsible for the character of the river (sediments and flow) are dramatically altered by the dam.
- Poor littoral productivity in reservoirs due to large seasonal drawdown and unnatural cycles of drawdown. The littoral zone of a reservoir is the marginal area of the reservoir down to the depth that light can stimulate plant growth. When this zone remains wetted it is the most productive zone of the reservoir because of good growing conditions for plants and the availability of nutrients from the bottom. When the reservoir level is varied dramatically, as it often is in hydropower reservoirs, this zone is alternately wetted and dried out so that it ceases to be productive. As the reservoir is lowered, the mud on the bottom is exposed and can be stirred up by waves making the near-shore waters very turbid. This further reduces productivity by reducing the amount of light that

can penetrate into the water. Drawing down the reservoir can also expose eggs and cause them to die.

- Blockage of fish migration into and out of reservoir tributaries due to draw down and debris and sediment accumulation at tributary mouths. Drawing down the reservoir can also make it difficult or impossible for fish to get into tributaries because the tributary does not have a defined channel across the exposed bottom sediments.
- Armoring, simplification and freezing of river channel morphology downstream of dams due to loss of high discharge ("flushing flows") events. The natural variations in flow of an undammed river produces a more sinuous main channel with more side channels which are important for nursery and spawning habitat. Dams reduce the dominant flow. This results in a straighter and simpler channel, which is poorer habitat for fish. The lack of annual high or “flushing flows” can result in armoring of the bottom substrates creating a pavement-like bottom that is not good for spawning or food production.
- Loss of side channel and off-channel habitats due to reduced flows and/or altered hydrographs. The flow pattern below dams is often much less variable seasonally than in the natural stream so that seasonal channels on the floodplain are seldom invaded by flood flows. As a result these secondary channels, which can be important seasonal fish habitat, become choked with vegetation and blocked by debris so that much higher flows are needed to “reactivate” them. Often these channels are completely lost as seasonal fish habitat.
- Blockage of fish migration into and out of tributaries downstream of dams due to debris and sediment accumulation at tributary mouths and/or alterations to seasonal flow regimes. Dominant river flows also serve to clear away debris and sediment accumulation at tributary mouths. When the river’s peak flows are reduced, access to tributaries can become permanently blocked.

22. While all of the impacts listed above may not exist, or be significant, at each of BC Hydro’s 61 dams/reservoirs involving 34 hydroelectric facilities, it is undisputed that many of BC Hydro’s hydroelectric operations cause harm to fish habitat in one or more of these ways. (See for example, DFO report, Impacts of Operations of Existing Hydroelectric Developments on Fisheries Resources in BC, Vol. 1, Anadromous Salmon (1991), and the reports provided under Tabs 2, 6-14 to the submission).

2.0 The Expert Group’s Charge of Assisting the Secretariat to Develop and Consider Information Concerning Whether Canada is “Failing to Effectively Enforce” Fisheries Act Section 35(1)

23. As noted at the outset, the Expert Group's charge was to assist the Secretariat in performing its responsibilities in implementing Council Resolution 98-07. This Resolution directs the Secretariat to develop a factual record concerning the BC Hydro submission. In particular, the Resolution directs the Secretariat to consider whether Canada is failing to effectively enforce its environmental law, notably

Fisheries Act Section 35(1), with respect to BC Hydro operations. The Resolution provides as follows:

> [T]he Secretariat, in developing the factual record, [is] to consider whether the Party concerned "is failing to effectively enforce its environmental law" since the entry into force of the NAAEC on 1 January 1994. In considering such an alleged failure to effectively enforce, relevant facts that existed prior to 1 January 1994 may be included in the factual record.

In sum, we have been requested to assist the CEC Secretariat in developing information with regard to whether Canada is "failing to effectively enforce its environmental law."

24. We have assumed that the definition of enforcement is broad under Article 14. As a result, we have examined measures other than prosecutions as components of Canada's enforcement regime.

25. There are at least two types of facts relevant to the concept of effective enforcement. The first involves facts relating to what is being done, in other words facts relating to the "enforcement" actions being undertaken and the resources being devoted to enforcement. The second type of facts relate to whether the enforcement actions being undertaken are effective, i.e., are the enforcement actions eliminating or reducing the violations of law, here the harmful impacts on fish and fish habitat. The definitions of effective enforcement offered by both Canada and the Submitting Parties relate primarily to the second type of fact. Following are some excerpts from Canada's March 1999 Submission:

> Generally, achieving No Net Loss is what DFO would consider to be "effective enforcement" regarding hydro dams, or any other industries, in Canada. This would achieve the intent of the *Fisheries Act* Section 35. (Section 1.1.2)

> DFO contends that it is more useful to look to effects on the environment in measuring effectiveness. (Section 1.4.4)

> The most important yardstick regarding effective enforcement is the effect on the resource. (Section 1.6)

26. Likewise, the Submitting Parties state on p. 2 of their 22 March 1999 Submission:

> The starting point for considering what constitutes effective enforcement of environmental laws begins with an analysis of the environmental law or regulation itself. If the intent and purpose of an environmental law or regulation is to protect an environmental value, the provision is effectively enforced when that value is actually protected. Stated another way, enforcement of an environmental law is not "effective" unless

> enforcement actions achieve the *substantive purpose* of the law in question.

27. This is not a report that deals generally with the overall effectiveness of Canadian enforcement efforts, but rather provides information regarding the specific activities of the Federal government and to some degree the British Columbia government in respect of whether Section 35 of the Fisheries Act of Canada has been effectively enforced with respect to BC Hydro operations covered by the submission and Council Resolution 98-07.

28. The Expert Group sought to develop information that relates to Canada's enforcement efforts in two ways. First, the Expert Group developed information relating to Canada's "policy context" – that is, the overall direction of Canada's enforcement efforts with respect to promoting compliance with Section 35(1) and protection of fish habitat and the strategies being used to achieve these objectives. Second, the Expert Group selected six hydroelectric facilities for in-depth development of information relating to Canada's enforcement approaches.

29. The Expert Group decided to select six facilities for in-depth development of information because of its view that it was important to focus on actions at individual facilities in order to understand the nature of Canada's efforts, and because the significant number of facilities involved made it imperative to identify a sub-set for more detailed review. The Expert Group notes that it provided its draft list of six facilities to the key stakeholders and specifically asked the stakeholders to identify other facilities that merited review. (See Appendix 4, containing the 22 January 1999 letter). The Expert Group explained its decision to select a subset of facilities as follows:

> The experts believe that a focus on these facilities [the six listed in the letter] will enable them to develop information concerning the primary types of adverse impacts on fish habitat sometimes caused by hydroelectric operations and the full range of Canada's responses. Further, this focus will enable the experts to develop information concerning the system as a whole and it will capture the major watersheds involved.

30. The Submitters submitted a letter with some suggestions and comments. No comments were received from Canada, British Columbia, or BC Hydro.

31. In developing information, the Expert Group focused on three basic questions of fact:

- The actions taken by regulatory agencies to identify instances of ongoing harmful impacts to fish and fish habitat at these facilities;
- The actions taken by the regulatory agencies with the object of eliminating or reducing the harmful impacts; and

- The results of the actions taken to eliminate or reduce the harmful impacts to fish and fish habitat.

See, for example, The Expert Group Questions contained in Appendix 1 of this Report.

3.0 The Concept of "No Net Loss" and Its Role in Canada's General Approach to Enforcement

32. In 1986, Canada developed the Policy for the Management of Fish Habitat. The key principle embodied in the 1986 Policy for the Management of Fish Habitat is the principle of No Net Loss (NNL) of fish habitat. Later Canadian policies, including the Habitat Conservation and Protection Guidelines adopted in 1994 and revised in 1998, embody this principle as well.

33. The No Net Loss principle underlies most of Canada's enforcement efforts. In Section 1.6 of its March 1999 Submission, Canada asserted the following:

> The most important yardstick regarding effective enforcement is the effect on the resource; this is essentially the same yardstick as the No Net Loss principle of DFO: i.e. is the situation improving for fish and fish habitat regarding hydro facilities?

34. Canada further asserts that: "The answer is an unqualified yes." Our understanding is that with this statement Canada is essentially claiming that it is achieving NNL of fish habitat in British Columbia with regard to hydro facilities. We discuss this assertion in more detail below.

35. According to the DFO 1986 Policy for the Management of Fish Habitat (p. 14), the No Net Loss principle is defined as follows:

> Under this principle, the Department will strive to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada's fisheries resources due to habitat loss or damage may be prevented.

The overall goal of the Policy is to achieve a net gain of habitat for Canada's fisheries resources.

36. The principle of NNL and the Policy for the Management of Fish Habitat expressly allow destruction of fish habitat. The hierarchy of preferences outlined in the DFO 1986 Policy on pp. 25 and 26 essentially sets out the following preferences:

a) maintain the natural productive capacity of the habitat(s) in question by avoiding any loss or harmful alteration of habitat at the site as a result of the project or activity;
b) if impossible or impractical to maintain the same level of habitat productive capacity, try compensating for the lost or altered habitat using natural habitat at or near the site;
c) if that is not possible, try compensating for the lost or altered habitat using natural habitat off-site;
d) if that is not possible, try compensating for the lost or altered habitat using artificial production to supplement the fishery resource.

37. Relocation, redesign, and mitigation are the order of preferences for avoiding any loss or harmful alteration of habitat (DFO Habitat Conservation and Protection Guidelines, 1998 edition, pp. 7-8). Although the various forms of compensation are least preferred, they remain an option for all proposals. Although compensation is nominally excluded when a project impacts critical fish habitat, there is no firm definition of what constitutes critical habitat and the possible need for compensation after the fact is acknowledged (DFO Habitat Conservation and Protection Guidelines, 1998 edition, pp. 9, 12). Given this hierarchy of preferences the Policy could technically allow the complete elimination of natural fish habitat. The NNL principle allows for the destruction of fish habitat short of complete elimination as well.

38. NNL is largely implemented through the Harmful Alteration, Disruption and Destruction (HADD) to Fish Habitat Decision Framework. HADD, however, appears to deal primarily with new project proposals. Thus, it is unclear how it is applied to existing projects, such as hydroelectric installations.

39. In an effort to understand how NNL is applied to existing hydroelectric installations, the Experts submitted an additional set of questions to Canada with regard to NNL (Appendix 3: 21 April Questions). The questions relating to NNL were:

a) What is the process or model utilized to calculate or determine No Net Loss in relation to the six facilities that the experts have identified to be of interest?
    i) What year is utilized as the baseline year in the No Net Loss model from which habitat losses and gains are subtracted or added?
    ii) What kind of monitoring is undertaken to determine habitat losses and gains for No Net Loss calculations?
    iii) How is scientific uncertainty dealt with in the No Net Loss calculations?
    iv) Please provide a detailed sample No Net Loss calculation for a facility, preferably one of the six facilities of interest, for which No Net Loss has been calculated.
b) What evidence does DFO have to support its “unqualified yes” (DFO Submission, p.21) that the situation with respect to fish habitat in relation to BC

Hydro facilities is improving? For example, in the case of the Puntledge project what is the scientific evidence that measures taken are good for smolts?

40. Canada's response to question 1, above, can be found on p. 2 of the 11 June 1999 Response to 21 April 1999 Questions. In this response DFO states:

> The model used by Fisheries and Oceans Canada (F&OC) to calculate or determine No Net Loss in relation to the six facilities of interest is to assess the impacts of the project on fish and fish habitat. This assessment incorporates available fisheries, biophysical, facilities management information as well as the professional judgement of qualified experts in the field. Subsequent steps followed in this process generally follow the F&OC Policy directive entitled "Decision Framework for the determination and Authorization of a Harmful Alteration, Disruption or Destruction of Fish Habitat."

41. On the specific question of Baseline Years (Question 1(a)), Canada states that the baseline year is "the year in which specific problems at a facility result in assessments and/or actions by F&OC to address these problems." Canada states further that "The baseline year will be different for each facility" and gives as examples 1995 for John Hart and 1989 for Ruskin. (11 June 1999 Response to 21 April 1999 Questions, p. 2) Canada did not provide any additional baseline years for the Expert's consideration although the Expert Group requested them (Question 1 (a) of 21 April Questions).

42. Thus, it appears that the DFO uses primarily qualitative evaluation of available information by experts as its "model" for evaluating habitat quality or damage and that the baseline year for each facility is the year in which a problem has been assessed. In the case of the John Hart example, the baseline year is many years after the facility was put into place and many years after harm to fish habitat has occurred on an ongoing or regular basis.

43. In the example of John Hart, there could have been significant declines in habitat between the time when the facility was installed and 1995, when the baseline year for habitat levels was set and from which net loss and net gain are calculated. Under DFO's Policy, if the habitat is improved a small amount above what it was in 1995 this would be considered a net gain. However, the productive capacity of the habitat could still be significantly lower than it was originally, or in 1977, when Section 35(1) of the Fisheries Act was enacted, in 1986, when the No Net Loss policy was adopted, or in 1994, when the NAAEC was established. In the John Hart situation, for example, there could have been incremental harm to fish habitat in the years prior to 1995 but Canada would not consider this harm in setting its baseline at the level of fish habitat present in 1995. If baseline years for other facilities are in the same general time frame, it is likely that there have been significant habitat losses at many if not all hydroelectric facilities over the past two decades that would not be

captured by the NNL principle due to the manner in which baseline years for NNL are established.

44. It is likely that Canada has adopted its current approach to setting baseline years because it does not have data with regard to productive capacity of habitat before "specific problems at a facility result in assessments and/or actions by F&OC to address these problems" (11 June 1999 Response to 21 April 1999 Questions, p. 2). Nevertheless, under the No Net Loss policy it is likely that harm to fish habitat has occurred during the past several years that Canada has not considered in setting its baseline. Given Canada's apparent reliance on NNL to achieve compliance with Section 35(1), Canada's failure to consider such losses in setting its baseline conditions raises a question as to whether Canada treats such harm as violations of Fisheries Act Section 35(1). As noted above, through the NNL policy, Canada would seem to accept or condone harm to habitat before the baseline is set. Further, as noted above, Canada would seem to condone harm after the baseline is set so long as the harm is compensated consistent with the NNL policy.

45. On the question of monitoring Canada states that "Monitoring requirements are site specific " and that "Generally the focus of monitoring is the determination of the change of productive capacity and subsequent changes in fish production." (11 June 1999 Response to 21 April 1999 Questions, p. 2). Instream flow studies, biophysical measurements, water quality studies and stock assessments are given as examples of monitoring programs.

46. On the subject of scientific uncertainty Canada states that it "generally applies a risk averse, conservative approach to No Net Loss assessments…"(11 June 1999 Response to 21 April 1999 Questions, p. 3) and that "F&OC through WUP's and with the concurrence of the proponent will endeavor to incorporate provisions for review and adaptation into its assessments" (ibid.).

47. In its response to Question 1(d), Canada does not provide a detailed sample No Net Loss calculation for a facility. Instead it states that "calculation of a habitat balance sheet for existing hydro facilities is a complex undertaking" and that "variability of flows or water levels above and below facilities, and day-to-day system operations, which make it difficult to clearly identify and quantify impacts." (11 June 1999 Response to 21 April 1999 Questions, p. 3). In lieu of the detailed calculation of No Net Loss for a facility Canada offers the details of the development of the Campbell River Interim Flow Strategy (ibid.).

48. A further question regarding NNL concerns the definition of baseline condition. In the June 11 Canadian response to additional question #5, the baseline condition is confirmed to be "incrementally improving current habitat productive capacity to arrest the decline in fish production potential." (11 June 1999 Response to 21 April 1999 Questions, p. 9). This statement suggests that Canada considers baseline conditions to have been achieved when the decline in habitat capacity has stopped. The purpose of establishing a baseline should be to quantify the amount of habitat at

a certain point in time and then attempt to restore habitat to that level and maintain it at that level. The definition cited does not reflect that goal.

49. We have been told that baseline, improved and restored scenarios were tentatively identified for most BC Hydro facilities (Canada's 11 June 1999 Response to 21 April 1999 Questions, p. 9; Canada's March 1999 Submission, Section 3.1). We have requested these scenarios for the six facilities (Question #5 of 21 April 1999 Questions) but they have not been provided. As a result, it is not clear what Canada considers to be baseline (or better) conditions for these particular facilities, or when these conditions were set.

50. Canada appears to believe that if the baseline scenario established through WUP is maintained NNL will have been achieved. (See Canada's March 1999 Response to Expert Group, Section 3.1: "…we expect to achieve as a minimum, a baseline condition which is in full compliance with *Fisheries Act* requirements at each facility"). The improved scenario is then set above the baseline scenario and the restored scenario is a hypothetical target level.

51. Setting the baseline conditions at the habitat level that exists when Water Use Plans (WUP) are initiated or in the recent past sets the bar too low for habitat protection. There is no requirement to address the possibly significant habitat loss sustained before the baseline scenario was established. Habitat conditions have generally declined since the installations of hydroelectric facilities. Further, habitat loss may occur after the baseline is set so long as compensation is made for such losses.

52. It is not clear whether Canada routinely takes a comprehensive approach to assessing the impacts at each facility. It is clear that hydroelectric operations create many different impacts on fish habitat. In some cases, such as the John Hart project, Canada has taken a fairly comprehensive approach, through the formation of the Campbell River Advisory Committee to identify and address a wide range of impacts at the facility to ensure that there is NNL from 1995 on. In its responses to our various questions, Canada has not itemized the full range of impacts at each site and has not indicated which of these are being addressed and which are being accepted as "pre-baseline." Thus, it is not possible for the Expert Group to review whether Canada's baseline approach is sufficiently comprehensive to establish a baseline for all harmful impacts on fish habitat.

53. Various other examinations of NNL, including A Review of Salmon Stock Status (Slaney, et al. 1996, Status of Anadromous Salmon and Trout in BC and Yukon, Fisheries 21:20-35), a DFO sponsored workshop (Quadra Planning Consultants 1997, No Net Loss of Habitat: Assessing Achievement, Habitat and Enhancement Branch, DFO, Vancouver), an evaluation by a committee of experts (The Living Blueprint for Salmon Habitat, published by the Pacific Salmon Foundation) and the Pacific Fisheries Conservation Council (annual report 1998-99) have all concluded that the NNL policy has failed to protect fish habitat.

54. Given the responses by Canada to the Expert Group's additional questions concerning No Net Loss determinations (qualitative nature of impact assessments, perceived problems with setting baseline years discussed above, limited information coupled with the acknowledged complexity of calculating habitat balance sheets and failure to provide a sample detailed No Net Loss calculation for a facility), Canada has not provided sufficient information for outside reviews of its assertion that it is achieving No Net Loss at individual BC Hydro facilities or for the hydroelectric system as a whole. The achievement of No Net Loss may allow harm to fish habitat at BC Hydro operations to continue and may not address harm to habitat that has occurred in the past.

4.0 Canada's Policy Context – A Review of Canada's Enforcement Responses Concerning the Statutory Prohibition Against Harming Fish Habitat

55. Canada's March 1999 Submission describes a number of activities that it is currently undertaking to enforce Section 35(1) of the *Fisheries Act*. These activities include things such as: prosecutions, interim orders, technical committees, studies, model development, the development of water use guidelines, letters, informal negotiations with BC Hydro and formal negotiation processes, such as the WUP. Of these, information is provided below concerning the following:

- Prosecutions
- Environmental Assessments of New Projects and Retrofits
- Emergency response Procedures
- Regional Technical Committees
- Water Use Planning
- Water Quality Guidelines

4.1 Prosecutions

56. The *Fisheries Act* authorizes the government to prosecute parties that violate Section 35(1) of the *Fisheries Act* and it provides for sanctions against those found guilty of violating Section 35(1).

57. In the Submitting Parties original April 1997 Submission (p. 10) the Submitters state that Canada had only laid two charges under Section 35(1) against BC Hydro since 1990. Given the alleged violations of that section the Submitters allege that "this enforcement record reveals a consistent failure by the Federal Government to effectively enforce Section 35(1) against Hydro, not a reasonable exercise of prosecutorial discretion" (Submitters' April 1997 Submission, p. 10). Moreover the Submitters in their 10 September 1997 Reply to Canada's Response (p. 5) provide the following comment regarding Canada's table of administrative actions directed at BC Hydro since 1990 (Canada's July 1997 Response, p. 16): "Of the 14 actions described, eight are authorizations to harmfully alter, disrupt or destroy fish or fish

habitat, three are merely letters, two order specific flows and one requests flows. These 14 items, only three of which directly benefit fish habitat, apply to only four of the 33 projects described in the submission. Canada presents no evidence of any equivalent actions undertaken with respect to the remaining 29 projects."

58. Canada, in its July 1997 response, states that BC Hydro has been charged twice (total of 5 counts) involving the alleged Bridge River violations and the Cheakamus court challenge. (Canada's July 1997 Response, p.17). Canada has not reported the total cost incurred for these two prosecutions but in Sections 1.4.2.1, 1.4.2.2 and 1.4.2.3 of Canada's March, 1999 Response to the Expert Group it cites examples of the time and effort expended on these prosecutions and provides some quantification of costs to support its contention that "Litigation is costly and uncertain." (Canada's March 1999 Submission, Section 1.4.3).

59. In the 21 April 1999 Questions, we asked Canada and the Province for additional information regarding the level of resources devoted to enforcement:

> For each year, 1994–1998, inclusive, how much human (FTEs) and financial resources (budget allocation) have DFO and provincial agencies dedicated to enforcement of Section 35(1) of the *Fisheries Act* in British Columbia? To the extent the information is available, please provide a breakdown of the allocation of these resources by type of activity -- e.g., monitoring, investigation, and enforcement (Question # 3).

60. The Expert Group also asked for information concerning the level and outcomes of enforcement-related activity (number of inspections, etc.).

> For the same time period, please provide any compliance and enforcement data for British Columbia not yet submitted relating to *Fisheries Act* Section 35(1), such as data concerning the *level* of enforcement activity (e.g., numbers of investigations and inspections), and the *outcomes* of such activity. With respect to outcomes, for example, the DFO 1996-1997 Annual Report to Parliament provides information on convictions for fiscal years 1994/95, 1995/96 and 1996/97. Please provide similar information for fiscal years 1997/98 and 1998/99 if it is available. Please also provide information concerning any sanctions imposed for violations of Section 35(1) in British Columbia (e.g., the number and monetary value of fines imposed for such violations) (Question # 4).

61. The Province did not answer these questions. There is no information relating to the effectiveness of Provincial enforcement efforts in terms of resources allocated to enforcement, level of enforcement activity, or results of such enforcement activity. Canada provided information related to the Bridge River and Cheakamus prosecutions. (11 June 1999 Response to 21 April 1999 Questions, p. 6) Canada did not provide any information on the level of resources it devotes to monitoring or investigation each year.

62. Canada in its 11 June 1999 response indicated that it did not keep statistics on the number of investigations (p. 7). Canada likely has more information on investigations than has been provided. For example, it is our understanding that regional field staff is required to keep daybooks or other routine records of their activities. It may be that the data from these records have not been processed and summarized and therefore not in the form that could be provided to us.

63. In Section 1.4.3 (c) of its March 1999 Submission, Canada notes that it is continuing to train its staff with formal witness training programs in recognition of the increasing complexity of environmental investigations and prosecutions. No information was provided to the Expert Group concerning the level of training needed to conduct necessary investigations and prosecutions and no information was provided concerning the extent to which this level of training is being provided.

64. Notwithstanding the expense and difficulty of prosecutions Canada states that it will continue to investigate and proceed with charges under the *Fisheries Act* where evidence is available (Canada's March 1999 submission, Section 1.4.3 (b)). Canada did not provide certain types of information directly relevant to this assertion, such as the number of violations discovered, although it did provide other relevant information, such as the number of convictions reported under Section 35(1) of the *Fisheries Act* in British Columbia (11 June 1999 Response to 21 April 1999 Questions, p. 8).

65. This report does not address the extent to which Canada has established a policy context to guide its use of prosecutions as an enforcement tool. In the Expert Group's February 1999 Questions (p. 1) we asked for the following information:

> Canada has identified a wide range of government responses. We are interested in obtaining information concerning three types of government policies relating these responses:
>
> a) policies that explain Canada's overall plan for enforcement and compliance concerning *Fisheries Act* Section 35(1);
> b) policies that discuss the criteria Canada uses in deciding which government response to use in dealing with a particular violation of Section 35(1); and
> c) policies that explain the purpose of each government response and how each is supposed to work.
>
> With respect to prosecutions, for example, we are interested in the criteria Canada uses in deciding whether to investigate a possible violation of *Fisheries Act* Section 35(1), and/or in deciding whether to bring a prosecution for such a violation. We are interested, therefore, in such documents relating to, among other things:

a) charge screening;
b) recommending charges; and
c) instituting investigations.

66. Canada did not provide any policies that explain Canada's overall plan for enforcement and compliance concerning *Fisheries Act* Section 35(1) as part of its March 1999 Submissions but instead in the fall provided a July 1999 draft policy (Habitat Protection and Pollution Prevention Provision Compliance and Enforcement Policy, July 1999). Although still in draft form, the document provides some helpful guidelines regarding the application of various tools of enforcement. No information was provided as to when this document will be made final or concerning the extent to which it is being implemented. Because of the date when it received this draft Policy, the Expert Group does not cover it in this report.

67. Various Canadian documents issued well before July 1999 had referred to enforcement or compliance policies. It is unclear to the Expert Group what policies these documents were referring to. No clarification of this issue was provided.

68. Canada in Section 1.4.3(d) of its March 1999 Submission states that: "It is worth noting that in the hydro litigation to date, the direct benefits to the fisheries resource have been nil." It is also worth noting that the indirect benefits that resulted from the Bridge River prosecution in the form of the Bridge River settlement had positive implications for fish habitat. Positive results also followed the Cheakamus litigation. Thus, Canada's conclusion that there are no direct benefits to the fisheries resource is based on a narrow view of the concept of benefits. In the end, there is little information relating to the effectiveness of prosecution as an enforcement tool given the lack of use of this tool to date and the lack of information provided regarding the tool. The July 1999 draft Policy contains a strategy for use of prosecutions, but little information was provided on actual implementation of this draft strategy (Habitat Protection and Pollution Prevention Provision Compliance and Enforcement Policy, July 1999).

4.2 Environmental Assessments of New Projects & Retrofits

69. Canada's July 1997 Response states that it enforces its environmental laws in part by subjecting new and changing operations to a stringent regime of environmental regulation. Canada states that it scrutinizes impacts anticipated from such operations and requires mitigation, compensation, and monitoring plans. It indicates that it issues Section 32 and 35(2) authorizations as appropriate when the proponent satisfactorily addresses *Fisheries Act* issues. (Canada's July 1997 Response, p 18).

70. Canada provides a list of its Section 32 and 35(2) authorizations in Table 1 of its Response. (Canada's July 1997 Response, pp. 16-17). Canada also uses Section 35(2) authorizations for emergency operations in some cases.

Canada's use of the Section 32 and 35(2) authorizations enforcement tool has been limited in the context of the significant number of hydro-electric facilities operated by BC Hydro.

71. The Expert Group has been provided relatively little information concerning the effectiveness of Section 35(2) authorizations in those situations in which they have been used. The use of this tool in connection with the six facilities that the Expert Group reviewed in detail is discussed below in Section 5.

72. The Expert Group offers two other facts in terms of the handling of new projects and modifications. First, in 1998, the "Decision Framework for the Determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat", hereafter referred to as the 1998 HADD Decisions Framework, was developed. This is a tool for use by habitat managers when reviewing project proposals (new projects and retrofits). It provides a decision framework for making a determination whether a proposal is likely to result in a harmful alteration, disruption or destruction of fish habitat and whether an authorization under *Fisheries Act* Section 35(2) should be issued. Related policies have been issued as well. Second, the Expert Group notes that the 1998 HADD Decision Framework discusses the relationship between Section 35(1) violations and Section 35(2) authorizations. The Framework provides that: "If . . . there is likely to be a HADD... then a Subsection 35(2) authorization is required in order for the project to proceed without risking contravention of Subsection 35(1)." (1998 HADD Decision Framework, p. 8). And again: "[I]f the conclusion is that there is still likely to be a reduction in the habitat's capacity to support life processes of fish [after mitigation is done] and, consequently, there is likely to be a loss in the habitat's productive capacity, then the decision is that a HADD is likely to result…" (1998 HADD Decision Framework, p. 18).

4.3 Emergency Response Procedures

73. Canada discusses Flow Orders as emergency response procedures. (Canada's July 1997 Response, p. 18). Orders have been issued under Section 22(3) of the *Fisheries Act* at Cheakamus in 1997 and in the Columbia River in 1995. These orders have resulted in increases in water flow, which is likely of positive benefit to fish. No quantitative evidence was presented concerning the extent to which increased flows have actually benefited fish or fish habitat or the adequacy of the increased flows to protect fish habitat. Similarly, no information was provided concerning the extent of benefit Canada sought to achieve through use of these Orders and no information was provided concerning whether these benefits were actually achieved.

74. Canada also discusses authorizations under Section 35(2) as emergency response procedures. (Canada's July 1997 Response, p. 18). Formal *Fisheries Act* Section 35(2) authorizations have been issued for the Shuswap River in 1992 and 1993, for the Columbia River in 1994, 1995 and 1996 and for the Seven-Mile Unit 4 Project

in 1996. (See Tab 37 of the Appendices to Canada's July 1997 Response). Again, there was no quantitative evidence presented concerning the extent to which issuance of the authorizations actually benefited fish or fish habitat. Similarly, no information was provided concerning the extent of benefit Canada sought to achieve through use of these authorizations or concerning whether these benefits were actually achieved.

75. Canada does not appear to view use of flow orders or authorizations as emergency response procedures as necessarily the only enforcement tool required. Instead, Canada indicates that "[o]nce an emergency is over, DFO requests the proponent to develop appropriate mitigation procedures and compensation measures to the satisfaction of DFO in anticipation of a similar future emergency." (Canada's July 1997 Response, p. 18).

76. In sum, it is clear that Canada views emergency response procedures as an enforcement tool. It is also clear that in Canada's view the role of these procedures is to limit harm to fish habitat on an interim basis while more comprehensive measures are developed and implemented. From the limited information provided to the Expert Group, use of these procedures has likely had some positive impact in reducing harm to fish habitat. However, little information concerning the nature and extent of the effectiveness of this tool in reducing harm to fish habitat in the situations in which it has been used has been provided. Further, this tool has seen quite limited use thus far. Thus, the Expert Group is not in a position to provide information concerning whether Canada has used this enforcement tool effectively. Important information that is lacking relating to the effectiveness of this tool includes the following: a) how often emergencies arise; and b) the effectiveness of Canada's use of its emergency authorities (for example, how effective was Canada's use of its emergency procedures in limiting the HADD in particular situations, and in limiting future emergencies, and to what extent did any decision not to use such procedures to address various emergencies lead to HADDs that otherwise might have been avoided).

77. As mentioned elsewhere, Section 35(2) authorizations are available as enforcement tools in other than the emergency response context. Canada indicates that it intends to use such authorizations as part of the WUP process (WUP Management Committee's March 1999 Submission, Section 5.4) See generally, the 1998 HADD Decision Framework for a summary of the use of Section 35(2) authorizations and the Directive on the Issuance of Subsection 35(2) Authorizations (DFO May 25, 1995).

4.4 Regional and Technical Committees

78. Canada, with BC Hydro and the BC Ministry of Environment, Land and Parks (MELP), has established a Steering Committee and Regional Technical Committees. (See Canada's July 1997 Response pp. 18, 19) The Steering Committee was formed to deal with policy level issues and the Regional Technical

Committees were set up to deal with technical issues. The Regional Committees are:

Columbia Operations Fisheries Advisory Committee
Vancouver Island Fisheries Technical Committees
South Interior Fisheries Technical Committees
Lower Mainland Fisheries Technical Committees
Steering & Technical & Policy Committees – Peace River compensation program.
Steering & Technical & Policy Committees- Columbia River compensation program

79. The Expert Group understands that these Committees have been useful in bringing the facility operators (BC Hydro) and the regulators (DFO and MELP) together to address fish habitat issues. Some technical committees have representation from local stakeholder groups while others only have representation from BC Hydro, DFO and MELP.

80. The Committees were "tasked primarily with identifying existing fisheries concerns and reviewing mitigation and enhancement options at existing hydro facilities in relation to the Electric System Operation Review" (WUP Management Committee's March 1999 Submission, p.19). The extent to which this task has been completed by the Committees is not clear. Canada did not respond to the Expert Group's request for an inventory of harmful impacts and potential corrective actions for specific facilities (3 February 1999 Questions).

81. With the exception of the Campbell River Advisory Committee and the Alouette Stakeholder Committee we have not received sufficient information to evaluate the effectiveness of these committees. While it is unclear how much of the Campbell River Management Strategy has actually been implemented we understand that the flow regimes have been altered and the interim flow strategy has become an interim flow order under WUP. (Canada's March 1999 Submission). The Order issued 3 October 1997 incorporates Sections 5.2.1 to 5.2.4 inclusive of the Recommended Operating Regime as set out in the Campbell River Interim Flow Management Strategy dated May 1997 and therefore incorporates the recommendations of the committee. Likewise a baseline flow in the canyon has been implemented and a number of habitat improvements have been undertaken including restoration activities in the estuary, the creation of side channels and gravel placement in the river etc.

82. Canada clearly believes that the Campbell River committee process was very successful and the Campbell River Advisory Committee indicates in its report's executive summary that the flows stipulated in the management strategy will be more beneficial to fish than the natural flows. (Campbell River Interim Flow Management Strategy).

83. The measures recommended by the Campbell River Advisory Committee are an improvement for fish and fish habitat. However, whether the changes will be sufficient to achieve the target returns for chinook and steelhead (the only two species for which targets were set) is uncertain. Moreover the targets set were at pre-hatchery levels (pre 1975) as opposed to current escapement levels – a good goal in theory. But using historic escapement estimates as a target may be questionable given that the quality of escapement estimates is often poor. The extent of improvement, and the appropriateness of additional improvements, are not clear at this point. The changes are too recent and there has been no opportunity for monitoring over time. The quantitative proof will be in the salmon returns but these will not be known for at least four years from the implementation date in 1998, probably much longer. Monitoring of results to evaluate the extent to which these actions lead to better habitat and fish return, and undertaking further improvements depending on these results, are key elements of the effectiveness of this approach.

84. Overall, initiatives such as the Campbell River Advisory Committee in which the governments involve numerous interested parties and develop a comprehensive plan are positive and will be a good model for the WUP provided it leads to an adequately funded program. Adequate monitoring of results and, as appropriate, further restorative action, are key elements of such efforts as well.

4.5 Water Use Planning (WUP)

85. As stated in the Water Use Plan Program, Section 1, WUP "is a major new initiative by the Province, DFO and, in the first instance, BC Hydro. Its purpose is to integrate environmental and social considerations into the operations of water control facilities in a comprehensive and systematic manner." (WUP Management Committee's March 1999 Submission, p. 4). The second paragraph in this section goes on to say, "We offer the following information to the independent experts of the Secretariat because water use planning builds on and is an outcome of past efforts to manage water and, in particular, to effectively meet **the spirit of legislation** (emphasis is that of the Expert Group) such as the *Fisheries Act*." In general then the Expert Group understands WUP to be a process to establish operational parameters for water control facilities giving due consideration to the multiple use interests and at the same time effectively enforcing the spirit of legislation such as the *Fisheries Act*. This initiative was announced in 1996 and the final WUP Planning Guidelines were released in February 1999 (WUP Management Committee's March 1999 Submission, p. 15).

86. No formal WUPs have yet been completed and implemented but the activities of the Campbell River Advisory Committee and the Alouette Stakeholder Committee have frequently been referred to as informal WUPs. Since the WUP process is a future process and since there are no examples of WUP implementations it is not yet clear whether, or to what degree, this consultative process has or will effectively reduce adverse impacts on fish and fish habitat resulting from operations of hydroelectric facilities.

87. Page 35 of the BC Water Use Plan Guidelines outlines monitoring requirements – WUP must specify measures with which to assess compliance and there must be regular reviews of monitoring reports that are prepared by the licensee. Compliance is to be subject to the oversight of the Comptroller and regulatory agencies.

88. The Provincial Government has directed BC Hydro (Minister Farnworth's letter 4 November 1998) to participate in WUP and to complete priority draft water use plans on coastal facilities for consideration by the water Comptroller in three years and the remainder within five years of the date of the directive.

89. The BC Government states that the estimated cost of developing WUPs for all of BC Hydro's hydroelectric facilities will be in the order of $35 Million and that costs will be borne by BC Hydro, DFO and the Provincial Government. No mention is made as to how these costs are to be shared nor is there any commitment or cost estimate for implementation of the WUPs.

90. WUP is a move in the right direction towards achieving greater protection of fish and fish habitat from the harmful impacts of hydroelectric operations. It is a much more comprehensive approach to gathering data, identifying harmful impacts and developing action plans to protect fish and fish habitat at each facility than the ad hoc approaches currently being used.

91. Notwithstanding the positive features of the WUP process, a number of aspects of this program may limit its effectiveness. These include:

    a) Canada's March 1999 Submission (Section 1.5.2.3) states that it has agreed to participate in the WUP initiative under certain conditions. One of the conditions is that "DFO expects to achieve full compliance with the *Fisheries Act* through the WUP process." The Submitters contend that a 35(2) authorization can only be granted if the Canadian Environmental Assessment Act (CEAA) process has been completed. The 1998 HADD Decision Framework also indicates that CEAA is triggered by Section 35(2) authorizations (Sec. 4.0, p. 22). WUP Management Committee's March 1999 Submission (p. 12) say that new water control projects will be subject to CEAA in cases where joint federal-provincial environmental reviews are required. The Submitters believe that the intended WUP process will under-utilize CEAA and that the environmental assessment process under CEAA provides a superior process to the intended WUP process (Submitters' 22 March 1999 Submission, p. 10). They believe this is particularly true "with respect [to] issues such as the applicability of the process, scope of the assessment, public participation, independent decision making and procedural safeguards." If the WUP process leads to issuance of Section 35(2) authorizations without following the CEAA process, this may raise issues relating to effectiveness, such as public credibility, and the like. The fact that

the Submitters have raised this issue is evidence that a failure to follow CEAA may affect the effectiveness of the process in terms of its public credibility.

b) WUP is not embodied in legislation or regulations (other than the intent to include approved WUP's as conditions of water licenses under the Provincial Water Act). Considerable discretion is left to the water Comptroller and the licensee (BC Hydro). The lack of statutory or regulatory status of WUP raises questions relating to the process, such as:

- What opportunities will exist for various interested parties to shape and oversee implementation of the WUP policy with respect to particular operations?
- What time limits apply to the process?
- What action can be taken if the license or permit conditions do not produce the intended benefits to fish or fish habitat?

c) WUP embraces the DFO policies of No Net Loss, Net Gain and the baseline condition, improved and restored scenario measurement system. Questions concerning this policy and its measurement parameters are described in Section 3.1, above.

In Canada's March 1999 Submission, Section 3.1, p. 29, Canada states: "As part of the initial scoping and development of the WUP process, DFO, MELP, BCF and BC Hydro developed a database of facility scenarios, fisheries issues and objectives and WUP scenarios. In this we have tentatively identified **baseline, improved and restored** scenarios for most facilities." The Expert Group requested this information (see 21 April 1999 Questions, #5: "In the DFO Submission, DFO indicates that it has "tentatively identified baseline, improved and restored scenarios for most facilities. . . . Please provide each of those scenarios for the six facilities of interest….") If this work has been completed and documented it is difficult to understand why DFO did not submit the information to the Expert Group in response to its Question 5. This question, for which there has not been a specific and adequate response, was designed to elicit evidence that there existed a comprehensive, facility by facility, assessment of fish habitat problems, with appropriate action plans, on the BC Hydro system.

92. The Expert Group has received considerable information from Canada, the Province, BC Hydro and the submitters in the form of reports, studies and overviews pertaining to impacts on fish and fish habitat at BC Hydro facilities. The Expert Group's concern is that Canada (DFO) has not shown, through direct response to specific questions asked by the Experts, that the studies, reports and overviews have led to development of comprehensive action plans for reducing or eliminating HADD at these facilities and thereby achieving compliance with the *Fisheries Act*. The proposed WUP process is intended to produce these

comprehensive action plans. No information was provided to indicate that the Party has developed such plans yet.

93. The WUP program calls for the eventual inclusion of impacts at all BC Hydro hydroelectric facilities. No information was provided as to how the complex problem of integrated system operations is to be dealt with. It is well known that impacts at individual sites and for the system overall will vary according to the way in which the entire system is operated.

94. In monitoring the effectiveness of the WUP program, it will be important to review the following:

- The timetable for actual development and implementation of WUPs;
- The nature of the changes made to the water licenses to reduce/eliminate harm to fish habitat;
- The extent of compliance with any such changes to the water licenses;
- The nature and effectiveness of follow-up to instances of non-compliance with such changes;
- The inclusion of overall system operations as an effective means to achieve net gains for fish and fish habitat;
- The development and use of credible tools for measuring and assessing net gain/losses of fish habitat for individual facilities and for the BC Hydro system overall;
- The extent to which WUP leads to reductions in and/or the elimination of harm to fish habitat and/or issuance of Section 35(2) authorizations, and the extent to which HADDs continue to occur/exist without issuance of Section 35(2) authorizations;
- To the extent that one or more WUPs do not lead to issuance of Section 35(2) authorizations, the nature and effectiveness of DFO follow-up to promote compliance with *Fisheries Act* Section 35(1) and reductions in/elimination of harm to fish habitat.

95. In sum, the WUP process holds promise as an enforcement strategy. Because the process is at an early stage, little information exists concerning the extent to which the WUP process will prove to be an effective enforcement strategy. Assessments of its effectiveness must await implementation of the process over the next several years. Some of the more significant questions relevant to implementation of this strategy are listed above. Even if negotiations lead to a WUP that is acceptable to DFO, this does not mean that all parties will respect the plan, or that violations of s.35 will not still occur. DFO will still need to employ its full range of enforcement tools to ensure adequate protection and conservation of fish habitat.

4.6 Water Quality Guidelines

96. Canada's July 1997 Response (p. 21) discusses Water Quality Guidelines as one of its enforcement and compliance strategies. Canada limits its discussion to an

initiative by DFO, DOE and MELP on the development and implementation of the BC Water Quality Guideline for Dissolved Gas Supersaturating. Canada states that the guideline is ready for imminent publication but the Expert Group has not been provided with the final guideline, with information concerning application of the guideline, or with information concerning the effects of the guideline on fish habitat. Thus, the Expert Group cannot provide information on its potential or actual value as an enforcement tool.

97. BC Hydro, in its document "Environmental Management System for Aquatic Resources (EMS), June 1995," gives the issue of water quality much wider scope than simply the dissolved gas pressure problem. The following excerpt from page 3 of the document's introduction to the water quality issue states:

> In the broadest sense, water impoundment facilities convert, in most cases, a flowing river into a large lake. The resulting changes to water quality are substantial. Temperature, dissolved oxygen, total gas pressure, sediment and nutrient levels, pH, and dissolved metals concentrations all can change by altering the flow regime of a river. Aquatic organisms that depend upon the physical water parameters will also be affected by the changes to water quality. In essence, a completely new ecosystem is formed. Some aquatic species adapt and thrive, others disappear.

98. Later in the same document (Environmental Management System for Aquatic Resources (EMS), June 1995) BC Hydro comments:

> Although to date BC Hydro has not been required to explore water quality issues, and search out problems, such an approach would be considered becoming more stewards of the water resource. BC Hydro has a responsibility to operate in a manner which minimizes [sic] the impact on the water resource. In the case of water quality, the corporation is not aware how its operations affect the water quality at most facilities. Examining this deficiency would form the first attempt at becoming stewards of the water resource, and being duly diligent at the same time (Environmental Management System for Aquatic Resources (EMS), June 1995, p. 3).

99. The impacts attributed to the water quality issue by BC Hydro are far more diverse than the single gas pressure issue discussed by DFO.

100. BC Hydro goes on to assert:

> Of course, most of the water quality changes that have resulted due to the installation of BC Hydro's water retention facilities have been previously sanctioned by the DFO (Environmental Management System for Aquatic Resources (EMS), June 1995, p. 3).

101. In sum, limited information was provided relating to whether Water Quality Guidelines have to date been an effective instrument of *Fisheries Act* enforcement. There appears to have been limited progress in developing one Water Quality Guideline (for dissolved gas supersaturating). The Expert Group has not been provided with any information suggesting progress in developing Water Quality Guidelines for the other harmful impacts that BC Hydro, in its 1995 report, indicated that dams have on water quality. The Expert Group expects that, in fact, DFO has guidelines for other water quality parameters (e.g., oxygen, pH) that were not provided. These guidelines may not be formally published.

5.0 Review of Information for Six Facilities

102. In reviewing information for each of the six facilities selected, the Expert Group first considered the allegations made by the Sierra Legal Defence Fund (SLDF) on behalf of its clients and the response by Canada to those allegations. In some instances supplemental information on enforcement activities at these facilities was provided in materials supplied by BC Hydro. Based on this information, the Expert Group posed specific questions about activities related to enforcement at each of the facilities to which Canada and other parties provided responses in March 1999. The Expert Group posed follow-up questions in April 1999, to which it received responses in June 1999. A complete list of the questions posed by the Expert Group is included in Appendices 1 and 3: 3 February 1999 Questions, and 21 April 1999 Questions.

5.1 WAC Bennett/Peace Canyon dams and generating stations on the Peace River

5.1.1 Allegation

103. Drawdown in Williston Reservoir affects fish productivity (Submitters' April 1997 Submission, Appendix A, p. 1).

Canadian Response supplemented by information from BC Hydro

104. Canada acknowledges that drawdown probably affects fish in Williston Reservoir and a number of reservoir habitat impacts are listed by BC Hydro (BC Hydro Fish Flow Overview Report # EA: 95-06, pp. 45–6). Canada asserts that these effects are, in part, offset by unspecified activities funded by an $11 million dollar fish and wildlife compensation program established by BC Hydro in 1988 (Canada's July 1997 Response, p. 32). BC Hydro asserts that reservoir stocks are not shoreline spawners and, therefore, spawning and incubation is not impacted by reservoir drawdown but stocks may still be limited by reservoir drawdown if juvenile stages are dependent on littoral food sources (BC Hydro February 1999 Submission, p. 24). BC Hydro states that the compensation program was to improve spawning and rearing habitat in tributaries and to stock the reservoir with

kokanee (ibid.). The compensation fund is administered jointly by BC Hydro and the British Columbia Ministry of Environment, Lands and Parks (MELP).

Supplemental Information Requested

105. The Expert Group requested specific additional information from Canada through the following questions (3 February 1999 Questions, p. 3):

a) How much water is drawn down?
b) What are the harmful impacts on fish habitat of the drawdown?
c) What has been Canada's response to those harmful impacts and to what degree has Canada's response led to a reduction in impacts?
d) What effect has BC Hydro's fish compensation fund had on harmful impacts on fish habitat?

106. Maximum reservoir drawdown is 30 m below full pool; however, the normal operating drawdown is less than 15.24 m (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 46). Canada's March 1999 Submission, Section 3.8.1 states that, in collaboration with MELP, DFO has plans to fertilize unspecified bays in the reservoir and to improve access to unspecified tributary streams. Re-vegetation of shoreline areas affected by drawdown is also under consideration (ibid.). Habitat restoration in tributaries to Dinosaur Lake and increases in littoral productivity by unspecified means are mentioned as elements to be included in a WUP as well as assessment of benefits of reducing water level fluctuations in this reservoir (ibid., Section 3.8.2).

Information Provided by the Expert Group

107. Habitat impacts have occurred in the reservoir and they continue to occur under normal facility operation. Canada acknowledges that there are a variety of fish habitat problems associated with reservoir drawdown at these facilities, but provides few details of the nature and extent of the problems. The BC Hydro Fish Flow Overview Report lists impacts on littoral habitat, fish entrainment through the dam, fish stranding, reduced access to tributary streams, spawning impacts and mobilization of suspended sediment in the drawdown zone as issues of public concern (BC Hydro Fish Flow Overview Report # EA: 95-06, pp. 45-46).

108. The principle mitigation/compensation mechanism for these problems appears to be the compensation fund, which provides income of about $790,000 per year to spend on habitat rehabilitation and enhancement (Canada's July 1997 Response, p. 32). The fund is administered by BC Hydro and MELP so that Canada has no direct say in the allocation of funds. Canada suggests a number of future activities to which it has agreed in consultation with MELP but the extent to which these agreements will be implemented or effective is unclear. Their details apparently remain to be negotiated as part of the WUP process. Canada has not explained

what is being done under the compensation program, or what has been accomplished.

109. With regard to the overall allegation of drawdown effects on fishes in the reservoir, Canada appears to be dependent on unspecified actions of the compensation fund to address whatever problems exist or may occur in the immediate future (Canada's July 1997 Response, p. 32; Canada's March 1999 Submission, Section 3.8.1). Negotiations under WUP may lead to additional measures to mitigate habitat problems in the reservoirs. No information was provided that any investigation has been undertaken to produce a better understanding of the scope of the problem. No information was provided by Canada concerning any efforts to address problems in the reservoir, or concerning the effectiveness of any such efforts.

5.1.2 Allegation

110. Rapid fluctuations in flow cause stranding of fish below the Peace Canyon project (Submitters' April 1997 Submission, Appendix A, p. 1).

Canadian Response

111. Canada acknowledges that DFO observed one instance of stranding of three fish on an active delta at the mouth of Johnson Creek, and that fish stranding may also occur in the drawdown zone of Williston Reservoir (Canada's July 1997 Response, p. 33). DFO requested that stranding on the Johnson Creek delta be addressed by the compensation program but this was refused by the compensation program on the grounds that compensation works in the delta would be of little value until upstream reaches were restored (ibid.). Stranding is also an issue in Williston Reservoir because of the large drawdown. Canada suggested that any stranding in the Williston Reservoir would be partly offset by unspecified activities of the compensation program (ibid.). Stranding has been an issue of public concern in the Peace River downstream from the Peace Canyon project (Canada's July 1997 Response pp. 33, 35; BC Hydro Fish Flow Overview Report # EA: 95-06, p. 49). Stranding downstream of Peace Canyon Dam was associated with low flows and BC Hydro has voluntarily adopted a minimum flow of 10,000 cfs below Peace Canyon dam to protect side channel habitat (Canada's July 1997 Response, p. 34; BC Hydro February 1999 Submission, p. 24). These flows will continue until there is a water use plan for these facilities (Canada's July 1997 Response, p. 35). In addition, BC Hydro points out that by operating this facility as a peaking facility the company is able to maintain much more stable flows in coastal facilities that impact salmon producing streams (BC Hydro February 1999 Submission, p. 24).

Supplemental Information Requested

112. The Expert Group requested specific additional information from Canada through the following questions (3 February 1999 Questions, p. 4):

a) What are the time lines for implementation of the ramping rates during normal operations?
b) What information did Canada obtain to verify that remediation of stranding would be of little value below Bennett Dam?
c) To what extent are dewatering problems eliminated or reduced below Peace Canyon at a minimum flow of 10,000 cfs?
d) There appear to have been limited enforcement actions undertaken in relation to this facility. Please tell us why that is so. To what extent have issues of cost or other factors played a role in enforcement decisions?
e) What authorizations has Canada provided to BC Hydro with respect to peaking flow fluctuations?

113. In response, Canada states that a review of ramping rates will be undertaken (Canada's March 1999 Submission, Section 3.8.2) but gives no timetable for this or for implementing any changes. Canada provided no comment on the other issues raised by these questions.

Information Provided by the Expert Group

114. With regard to the allegation of fish stranding, Canada acknowledges that stranding has occurred and was especially a problem downstream from the Peace Canyon dam. The BC Hydro Fish Flow Overview Report suggests that these are long standing concerns of both regulatory agencies and the public (BC Hydro Fish Flow Overview Report # EA: 95-06, pp. 44-51). Stranding may also have occurred in the reservoir during drawdown but Canada appears to have no information about whether or how often this has occurred. The allegations of fish stranding in Williston Reservoir have not been confirmed but neither have they been refuted. BC Hydro has voluntarily increased flows downstream from Peace Canyon Dam to mitigate problems of fish stranding downstream. The benefits of this higher minimum flow in terms of fish stranding and access to side channels are unclear. The authors of the BC Hydro fish flow study indicate that, in tests of flows of 6000 and 10000 cfs (compared with 5000 cfs), "Fish impacts similar to those observed in 1993 [incidents of fish stranding that aroused pubic concern] were noted" (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 49). Stranding may also be more related to flow ramping rates than absolute flows in many circumstances. Thus, fish stranding has occurred and probably continues to occur under present operating conditions of the facility.

115. Efforts have been made to address the problems of access to side channels and stranding of fish downstream resulting in BC Hydro voluntarily doubling the minimum flow downstream of the Peace Canyon Dam. It is unclear if this "voluntary" action was in any way a response to enforcement actions by DFO. Nor is it clear the extent to which DFO conducted any analysis of stranding prior to the voluntary action by BC Hydro, as its submission states only that both DFO and MELP conducted investigations that prompted BC Hydro to commission a study by

a consultant into the impacts of downstream flows (Canada's July 1997 Response, p. 34). The BC Hydro Fish Flow Overview Report refers to studies conducted in June 1994 at flows of 5000, 6000 and 10000 cfs to improve stage discharge curves and determine critical elevations for fish access to side channels (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 49). Possibly these are the studies to which Canada refers. However, these studies raise concerns about the effectiveness of 10000 cfs in mitigating the problems (see earlier comment). In connection with the forced 1996 spill, ramping rates for flow fluctuations were also investigated and Canada expects the results of these studies to be incorporated into a ramping rate guideline to be applied during spills (Canada's July 1997 Response, p. 35). Ramping rates will not apply to normal peaking operations of the facility, which will be most of the time (ibid.). During peaking operations, water releases and water levels can fluctuate dramatically over short periods of time. These rapid short-term fluctuations can have detrimental effects on habitat and result in stranding or displacement of fish downstream from the power plant. The fact that normal operating will not be governed by ramping rate rules casts doubt on the effectiveness of ramping rate guidelines in mitigating operational effects on habitat. Canada does not provide information as to the habitat impacts of water level changes during normal operation. Thus, some attempt has been made to address the habitat problems downstream of Peace Canyon Dam. The effectiveness of this attempt to date is questionable.

116. Based on the information provided, effective enforcement may be hampered at these facilities by lack of basic information. Concerns about stranding in the reservoir appear based primarily on anecdotal information. This could be cleared up with an appropriate study to determine whether stranding occurs as reservoir levels are dropped. Stranding downstream appears better documented but the studies relating stranding to flows and variation in flow appear inconclusive. An important study of ramping rates in 1996 has yet to be released and this study may provide information that would be important for planning normal operating procedures as well as procedures during a forced spill. The population level effects of stranding and flow fluctuation for species affected appear not to have been studied at all.

5.1.3 Allegation

117. Total Gas Pressure (TGP) is elevated below Peace Canyon project (Submitters' April 1997 Submission, Appendix A, p. 1).

Canadian Response

118. Elevated TGP occurs below Peace Canyon dam during spills of excess water (Canada's July 1997 Response, p. 33). As Williston Reservoir is a multi-year storage facility, spills of water are relatively uncommon (ibid.). In the summer of 1996 there was a major drawdown of Williston Reservoir for dam safety reasons that caused elevated TGP below Peace Canyon dam and resulted in Gas Bubble Trauma in fish (ibid.). DFO assisted BC Hydro in the design of a study to determine

the impact of the 1996 spill on fish but the report on this study has not yet been released (ibid.). Prior to 1996 spills occurred in 1972 at Bennett dam and in 1983 and 1984 at Peace Canyon dam (ibid.). Under normal operating conditions, TGP levels are relatively low (likely in compliance with TGP guidelines), however, thermal heating in the reservoir can cause some elevation in gas pressures (ibid.).

Supplemental Information Requested

119. The Expert Group requested specific additional information from Canada through the following questions (3 February 1999 Questions, p. 4):

a) Please provide information as to Canada's strategy (including time lines) for understanding the causes of serious, intermittent TGP problems and for addressing these problems.
b) What information does Canada plan to obtain to confirm the causes of TGP and that TGP is not a problem under normal operation of the facility and what are the time lines for obtaining this information?
c) Should it prove that TGP is a chronic problem, what would be Canada's response and what would be the time lines of that response?

No additional information was provided by Canada on these issues (Canada's March 1999 Submission).

Information Provided by the Expert Group

120. With regard to the allegation of TGP problems associated with operation of the facility, Canada and BC Hydro assert that significant TGP elevation occurs only during infrequent spills (Canada's July 1997 Response, p. 33; BC Hydro February 1999 Submission, p. 24). Canada acknowledges that elevated TGP and gas bubble trauma in fish occurred with the 1996 spill (Canada's July 1997 Response, p. 33). Canada states that, "Under non-spill situations TGP levels are relatively low (likely in compliance with TGP guideline)…" but provides no evidence to support this statement. It appears undisputed that high TGP values have occurred and will continue to occur during spills. Elevated TGP under normal operation is disputed by Canada and there is no factual evidence for or against.

121. With regard to enforcement, Canada states that DFO assisted BC Hydro in developing terms of reference for a study plan of TGP effects related to the 1996 spill, the results of which have not yet been released (ibid.). No information was provided as to why there has been a 2-year delay in publication of this study. Canada does not provide any information as to enforcement actions related to elevated TGP at other times for this set of facilities, nor does Canada provide any statement of how it plans to address TGP problems at the facility. Thus, TGP problems have occurred and they have caused harm to fish habitat. Based on information provided, the government response has been to assist in developing terms of reference for a study plan that has not been released.

5.1.4 Allegation

122. Operation of these facilities appears to cause sediment problems (Submitters' April 1997 Submission, Appendix A, p. 1).

Canadian Response

123. Canada stated that it was unaware of any sediment problems downstream of Bennett dam caused by facility operation (Canada's July 1997 Response, p. 33). Two tributaries discharge sediment into Dinosaur Lake during storm events and wave action in Williston Reservoir during drawdown may cause elevated sediment levels in the reservoir that possibly impact fish (ibid.). These effects are offset by unspecified activities of the compensation program (ibid.). As a general proposition, Canada and BC Hydro assert that reservoirs act as settling basins and actually reduce turbidity levels downstream (ibid.; BC Hydro February 1999 Submission, p. 24).

Supplemental Information Requested

124. The Expert Group requested specific additional information from Canada through the following questions (3 February 1999 Questions, p. 5):

a) Is Canada suggesting that the sediment problems below Bennett Dam are all natural events?
b) What information does Canada have that sediment problems in Williston Lake are mitigated?
c) What plans does Canada have to determine whether there are erosion problems impacting fish in Williston reservoir and the effectiveness of any remediation?

No additional information was provided by Canada on these issues (Canada's March 1999 Submission) except to say that vegetation of portions of the drawdown area in Williston reservoir would help increase fish production.

Information Provided by the Expert Group

125. With regard to the allegation of sediment problems, Canada states that it is not aware of any problems. Canada acknowledges that tributaries discharge sediment into Dinosaur Reservoir and wave action may create sediment problems that impact fish in Williston Reservoir, but Canada indicates that it is not aware of such problems. The BC Hydro Fish Flow Overview Report notes that mobilization of sediments in the drawdown zone of Williston Reservoir is an issue of public concern (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 46). It should be noted that there are several kinds of sediment problems associated with hydro dams,

so that it is important to distinguish among these when discussing the impacts of the project. Potential sedimentation problems associated with dams include:

- Trapping of sediment moving downstream in the reservoir so that river reaches downstream from the dam are starved of sediment and degrade to bedrock.
- Resuspension of fine sediments when the reservoir is drawn down due to wave action on exposed beaches. This sediment can have localized effects on reservoir productivity and/or can be carried downstream.
- Blockage of reservoir tributary access by fish due to sediment dams when the reservoir is drawn down.
- Unnatural aggradation and degradation patterns and dynamics downstream from the reservoir due to the altered hydrography of the river. These can lead to blockage of side channel and tributary access by debris and sediment fans, straightening and simplification of channel morphology, and downcutting of the channel to bedrock. Neither the allegation nor the Canadian response was entirely clear about which problems were being discussed.

126. There is information that sedimentation problems have occurred in the past and continue to occur as part of the normal operation of these facilities but the extent and seriousness of these problems has not been determined.

127. In terms of enforcement, Canada suggests that any effects in Williston Reservoir are in part mitigated by unspecified actions under the compensation program (Canada's July 1997 Response, p. 33). No information was presented, however, to show that the compensation program was addressing sedimentation issues. According to Canada's March 1999 submission (p. 36), revegetation of the drawdown zone is an option to be considered under WUP.

5.1.5 Allegation

128. Lack of flushing flows downstream from Peace Canyon has caused the river to abandon side channels (Submitters' April 1997 Submission, Appendix A, p. 1).

Canadian Response

129. Canada appears to acknowledge that there may be habitat problems caused by the absence of flushing flows downstream from the Peace Canyon dam and suggested that the forced spill in 1996 for dam safety reasons brought flows back to channel shaping levels and may have improved the situation (Canada's July 1997 Response, p. 35). The benefits of these flows may be determined from continuation of geomorphology surveys conducted by University of British Columbia professor, M. Church (ibid.).

Supplemental Information Requested

130. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 5):

a) Does Canada have a policy or an opinion regarding flushing flows in maintaining the quality of fish habitat?
b) What plans does Canada have to study, monitor and ensure that habitat degradation due to lack of flushing flows does not significantly impair fish production in this system?

131. Canada did not directly address either of these questions. In its response, Canada noted that it will expect that the minimum flow of 10,000 cfs will be maintained. This is not a flushing flow, however, but a maintenance flow. Canada stated that an assessment of the benefits of higher discharges and flushing flows will be undertaken (Canada's March 1999 Submission, Section 3.8.2) (Flushing flows are high discharges that have the power to shape the river channel. These are normally flows of at least twice the average daily discharge that existed prior to any river modification). Canada also notes that entrainment at both generating facilities is an issue that will be addressed and a mitigation plan developed (ibid.). A range of habitat restoration activities in the lower river will also be considered (ibid.). No information was provided as to when these future activities will occur.

Information Provided by the Expert Group

132. With regard to the allegations of habitat loss associated with the absence of flushing flows, Canada acknowledges that these effects may have occurred and that they are documented in a consultant report (Canada's July 1997 Response, p. 35). Indeed, these kinds of habitat losses are commonly associated with the operation of hydroelectric facilities and the BC Hydro Fish Flow Overview Report lists flushing flows as one of the most important instream flow issues downstream of Peace Canyon (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 51). The information provided shows that habitat degradation due to lack of flushing flows has occurred and continues to occur as a result of normal operation of this facility.

133. With regard to enforcement, Canada states that the benefits of flushing flows will be considered in the context of WUP as will habitat improvement opportunities in side channels (Canada's March 1999 Submission, Section 3.8.2). Canada offers no indication as to what information will form the basis of such a consideration apart from an expressed hope that an ongoing study by a university professor may tell something about flushing flow effects from the 1996 spill. The planned study of discharge impacts, entrainment and habitat restoration opportunities in the lower river are part of a set of future expectations, not part of an ongoing enforcement plan. No timetable is given for these activities and no indication is given of what action might follow from the proposed studies. There has been little

if any enforcement action to address harm to fish habitat associated with lack of flushing flows.

5.1.6 Allegation

134. Temperatures have been altered downstream as a result of project operation (Submitters' April 1997 Submission, Appendix A, p. 1).

Canadian Response

135. Canada acknowledges that water temperatures downstream from Peace Canyon dam have been altered by these projects but argues that the effects of these changes are complex and would have to be worked out before any mitigation could be justified (Canada's July 1997 Response, p. 35).

Supplemental Information Requested

136. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 6):

> a) What information does Canada have with regard to temperature changes? What are Canada's plans (including time lines) for collecting more information regarding temperature changes and for addressing harmful impacts that such changes have on fish habitat?

No additional information was provided by Canada on this issue (Canada's March 1999 Submission).

Information Provided by the Expert Group

137. Canada acknowledges that temperatures have been altered downstream from the Peace Canyon but asserts that the impacts of these changes are complex and not easily worked out. The BC Hydro Fish Flow Overview Report states that, because of hypolimnetic water withdrawal from Williston Reservoir, water temperatures downstream are higher in winter and lower in summer than under natural conditions (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 51). The magnitude of the temperature change is not reported but could be several degrees C. If there are temperature changes of several degrees C, they could have significant impacts on fish species such as: 1) the acceleration of incubation of eggs of fall spawning species; 2) increased metabolic rates and energy exhaustion in overwintering individuals; 3) slower growth rates of all species in summer; 4) lower food production in the river. The facts show that altered temperatures downstream of Peace Canyon Dam is an ongoing problem associated with operation of these facilities.

138. With regard to enforcement, Canada provides no indication that any attempt has been made to work out the complex effects of temperature alteration or to develop a strategy for mitigating any adverse effects. Thus, enforcement related to temperature changes has not occurred based on the information provided.

Summary of Information Regarding Bennett/Peace

139. The operation of the Bennett and Peace Canyon dams has caused and continues to cause harm to fish habitat. Habitat and fishery impacts associated with the operation of this facility have occurred in the past and are ongoing. The habitat issues raised by the Submitting Parties are all listed in the BC Hydro Fish Flow Overview Report (BC Hydro Fish Flow Overview Report # EA: 95-06) and were not seriously challenged by Canada. The Expert Group posed a number of specific questions to Canada and BC Hydro concerning the operation and impacts of these facilities (see above). The response provided by Canada with supplemental information from BC Hydro failed to address in a substantive way many of the questions posed by the Expert Group. The information provided indicates that Canada has not devoted many resources to evaluating the fish habitat implications and mitigation needs of this set of facilities. This seems surprising, as this is one of the largest hydroelectric facilities in Canada and impacts an inter-provincial waterway. Williston reservoir is the largest in BC and one of the largest in Canada and contains significant fishery resources. The downstream effects of these facilities are a subject of considerable concern to First Nations and facility operation may be contributing to adverse ecological changes in the Peace-Athabasca Delta, a world heritage site. Furthermore, fish and environmental conditions in the Peace River were the subject of considerable investigation as part of the Northern River Basins Study, funded by Canada under the Canada Water Act. The Expert Group is familiar with this study because one of its members served on the science advisory committee to the study. Canada does not appear to draw on the information gathered as part of this multimillion dollar study to assist it in evaluating the impacts of the dams and dam operation. Although Canada acknowledges problems associated with the Peace River facilities, neither Canada nor BC Hydro provided much hard information concerning the nature of government actions taken to address these problems, or concerning the effectiveness of these actions. As with many Hydro-Fishery related issues, Canada indicates that it will deal with these issues in future negotiations with BC and other stakeholders in development of Water Use Plans. How effectively WUP will address fishery related issues at these facilities cannot be foretold. Enforcement of Section 35 has been limited at these facilities.

140. Canada provides several reasons for its limited involvement with habitat issues at the Peace River facilities. It points out that it has entered into an arrangement with British Columbia "whereby provincial fish and wildlife staffs manage freshwater fisheries and the federal Department of Fisheries and Oceans manage tidal and anadromous fisheries (excluding steelhead and sea-run cutthroat trout)." (Canada's March 1999 Submission, Section 1.3). It also notes that DFO did not establish its

Eastern BC Habitat unit until 1990, and that the facilities were constructed before Section 35 of the *Fisheries Act* was enacted (Canada's July 1997 Response, p. 32).

141. The Expert Group acknowledges the concern raised by the Athabasca First Nation about significant downstream impacts in the Peace-Athabasca Delta, which is a traditional hunting area and a world heritage site. Impacts of altered flows in the Peace River on the Peace-Athabasca Delta have been investigated in a number of other studies (Peace-Athabasca Delta Implementation Committee (Canada, Alberta, Saskatchewan, 1987), Northern River Basins Study (Canada, Alberta, NWT, 1996), Parks Canada (Wood Buffalo National Park, 1997)). While we acknowledge the seriousness of these impacts, we will not be addressing them in our Report. The concerns of the Athabasca First Nation were not raised by SLDF and were not among the issues CEC identified in its Notification to the Council. Further, developing a factual record on the impacts of the operation of the Bennett Dam on the Delta would be a monumental task. This is not to minimize the importance of any alleged downstream impacts and readers are referred to the investigations noted above for additional information.

5.2 Keenleyside Dam (Norns Creek fan)

5.2.1 Allegation

142. Operation of the Keenleyside Dam dewaters whitefish habitat and causes mortality (Submitters' April 1997 Submission, p. 5).

Complete shut down in April 1990 dewatered and stranded rainbow trout and kokanee fry on the downstream Norns Creek fan (ibid.).

As both these allegations relate to reductions in flow downstream from the dam which dewaters habitat they are dealt with together.

Canada's Response supplemented by information from BC Hydro

143. Canada acknowledges that flow releases downstream of Keenleyside Dam during November to April can reduce spawning habitat and dewater eggs of spawning whitefish and that subsequent flows, from April to June can cause similar problems for spawning rainbow trout (Canada's July 1997 Response, p. 26). It is undisputed, therefore, that loss of spawning and incubation habitat downstream of Keenleyside Dam is an ongoing problem.

144. With regard to enforcement, Canada states that, since creation of its eastern BC unit in 1990, it has been able to negotiate significant improvements in the flow regime below Keenleyside Dam (ibid.). Canada states that during the critical December to April period, Canada's representatives closely monitor and require assessment of flows on downstream fish and their ova (ibid.). During weekly teleconferences,

Canada is apprised of results from continual field monitoring of whitefish spawning, whitefish egg development and predicted flow releases (ibid.).

145. As evidence that it takes protection of spawning fish and incubating eggs seriously, Canada cites a February 9, 1995, flow order from DFO to BC Hydro preventing BC Hydro from reducing flows from 24,000 to 18,000 cfs below Keenleyside Dam (ibid.; Columbia River February 1995 Flow Order).

146. Canada also notes that on December 30, 1994, DFO notified BC Hydro that a proposed flow reduction below Keenleyside Dam would not be authorized except under strict conditions and alerted BC Hydro to the possibility of prosecution (Canada's July 1997 Response, p. 16). Flow was reduced and whitefish eggs were killed. An investigation was initiated by MELP but no charges were laid (ibid.).

147. As evidence that its efforts in monitoring and negotiating flows with BC Hydro are paying off Canada asserts that the flow regime during the 1996-1997 spawning season is considered to be the "best yet" for the maintenance of mountain whitefish spawning habitat (Canada's July 1997 Response, p. 26).

148. Rainbow trout spawn below Keenleyside Dam in spring with peak spawning and incubation from April to June (Canada's July 1997 Response, p. 26). Flow from Keenleyside Dam is typically reduced in late March-early April (ibid.). Canada and BC Hydro have a working agreement to maintain or increase flows during April to June to ensure adequate rainbow trout spawning habitat and prevent dewatering of incubating eggs (ibid.). Any eggs deposited prior to April which are in danger of dewatering are salvaged (ibid.). In March 1993 Canada wrote to BC Hydro informing Hydro that DFO had observed dewatered trout redds on Norns creek fan and required BC Hydro to submit to DFO a flow proposal to address spawning and incubation requirements and a mitigation plan to protect existing redds or ova (Canada's July 1997 Response, p. 17). On March 28, 1994, Canada authorized a pilot study of recontouring the Norns Creek Fan to improve fish habitat (Canada's July 1997 Response, p. 26). Fish utilized the pilot area and eggs were successfully incubated (ibid.). In addition, trout were prevented from spawning further downstream in areas likely to dewater by surrounding such areas with exclusion fencing (ibid.).

149. At Canada's initiative, the Columbia Operations Fisheries Advisory Committee (COFAC) was created (ibid.). This committee meets on an ad hoc basis to undertake strategic planning on, among other things, hydro-fisheries issues in the Canadian portion of the Columbia Basin (ibid.). The objective is to ensure that projects within Canada are operated to maximize benefits to Canada and BC within the terms of prevailing laws, treaties and agreements (Canada's July 1997 Response, p. 27). This committee has finalized the draft Columbia River Flow Regime Principles to protect fishery resources downstream of Keenleyside Dam (ibid.).

Supplemental Information Requested

150. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 6):

a) What is the nature of the monitoring and assessment (of flows during whitefish spawning and incubation)?
b) Despite the monitoring, etc., are there still instances of egg mortality caused by Keenleyside operation? If so, what are their frequency and their magnitude?
c) What does "best yet" mean in relation to expected survival and maintenance of mountain whitefish spawning habitat?
d) What evidence is there that survival have improved since the creation of the Eastern BC unit and the commencement of the Fish Information Group and to what degree have they improved?
e) What plans does Canada have to proceed with further modification to Norns Creek fan?
f) How does the reconstructed portion of the fan compare with other locations in terms of density of fish spawning and survival of eggs?

151. In its response, Canada did not address these questions directly. It did not provide information concerning the nature of monitoring and assessment. It did not provide information concerning whether Keenleyside continues to cause egg mortality or concerning the frequency and magnitude of such impacts. It similarly provided no information concerning the other questions asked. Rather, Canada asserted that its general efforts to negotiate improved conditions for fish downstream from Keenleyside are continuing, including additional unspecified whitefish habitat enhancement and continued use of COFAC to resolve unspecified issues (Canada's March 1999 Submission, Section 2.4.1). Two specific actions were mentioned. A December 1997 authorization for BC Hydro to reduce flows to increase overall whitefish egg survival at the expense of a lesser number of eggs (the latter losses requiring unspecified compensation) (ibid.). And, initiation of an adaptive Multispecies Management Model for the Columbia River below Keenleyside to link facility operations with key fish populations so as to assess the potential impact of water management regimes, present uncertainties and develop an experimental program to address uncertainties (ibid.).

Information Provided by the Expert Group Regarding Keenleyside Dam

152. Canada is aware of the problems created for spawning whitefish and trout downstream of Keenleyside Dam and it is aware that these are ongoing problems associated with operation of Keenleyside Dam. It is undisputed that habitat damage has occurred at this facility and continues to occur under normal operating procedures.

153. With regard to enforcement, Canada is attempting to address these problems and other fishery related issues through negotiation directly with BC Hydro and with other interests in COFAC. These are positive steps and Canada asserts that they have resulted in considerable improvement in flow regimes for fisheries conservation. Canada's negotiations with BC Hydro appear to have resulted in improved habitat conditions. Failure to follow through on enforcement threats, however, weakens Canada's position in enforcement negotiations. A clear example of this is the 1994 flow reduction noted above, in which Canada alerted BC Hydro to the possibility of prosecution if flows were reduced, BC Hydro reduced flows anyway, and Canada did not initiate a prosecution.

154. Little specific information was provided about habitat conditions and enforcement at Keenleyside Dam that would allow an independent observer to review the effectiveness of enforcement measures. The models, cognitive or otherwise, that DFO uses to assess the effects of altered flow regimes are not specified. The proposal to develop an adaptive management model for the Columbia below Keenleyside hints at the existence of specific data and models but these were not provided to the Expert Group.

155. Enforcement of the *Fisheries Act* with respect to fish habitats below Keenleyside Dam and with respect to the specific allegations of SLDF is a "work in progress" constrained by limited information, limited resources, international treaty obligations and issues of higher priority (such as flood control). Canada is obviously cognizant of the habitat problems raised by SLDF and is attempting to address them by a variety of means. Applying Canada's definition of effective enforcement as involving no net loss of habitat, however, it is not possible for the Expert Group to review the extent to which Canada's enforcement has been effective. No clear baseline against which to judge changes in habitat was provided, nor was any clear model or organized database for assessing impacts or determining changes.

156. An additional positive measure, of which we are aware but which Canada did not raise, involves plans to arrest a dramatic decline in Kokanee in the reservoir by fertilization of the reservoir. If this occurs, it would be a positive response to a fishery problem.

5.3 Shuswap Falls

5.3.1 Allegation

157. Low winter flows dewater spawning areas and have negative effects on incubating eggs (Submitters' April 1997 Submission, p. 5).

Canada's Response supplemented by information from BC Hydro

158. Canada acknowledges that operation of this reservoir has jeopardized incubating salmon eggs and that in 1991 spawning nests were dewatered during winter low flows (Canada's July 1997 Response, p. 29). The BC Hydro Fish Flow Overview Report indicates that impact of low winter flows on incubating eggs downstream from Wilsey Dam has been a long standing problem (BC Hydro Fish Flow Overview Report # EA: 95-06, p. 62). A rule curve was developed in 1993 that would protect fish spawning downstream. BC Hydro indicated in 1994 that it did not want to use the rule curve because it drafted the reservoir level too low, used historic data that BC Hydro did not consider reliable, and used a date after many salmonids had spawned to determine winter conditions so that available incubation flows might be insufficient. BC Hydro suggested alternative flows (Canada's July 1997 Response, p. 29). Canada has responded verbally that BC Hydro flows are not acceptable and Canada wishes to continue with the rule curve (ibid.).

Supplemental Information Requested

159. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 7):

a) What rules presently govern winter releases from the Shuswap Falls project?
b) If the rule curve developed in 1993 is still the means by which flow decisions are made, has any further analysis of the effectiveness of the flow regimes based on this curve been undertaken beyond that conducted by Triton in 1993-94?
c) How effective was this action (developing a rule curve) in ensuring the termination of low water flows with negative impacts on fish habitat and therefore on incubating eggs?
d) Given the critical state of interior coho stocks, what information /measures are in place/planned to determine and, if necessary, remediate any impacts of Shuswap Falls on coho?

160. In response Canada asserts that it manages flows from Sugar Lake and Downstream of Wilsey dam cooperatively with MELP and BC Hydro to provide power production and protect fish habitat and that this requires frequent communication between DFO and BC Hydro (Canada's March 1999 Submission, Section 2.2.3). Flows are managed on a real time basis accounting for previous flow rates, snow pack, climate information, reservoir levels and fish and fish habitat requirements (ibid.). BC Hydro further asserts that operation of the facility is based on rule curves developed jointly by DFO, BC Hydro and MELP to provide water for maintenance of spawning and rearing habitat. (BC Hydro February 1999 Submission, p. 25). The rule curves are reviewed annually by DFO and MELP and have resulted in maintenance of improved discharges and more available habitat for fish during normal low inflow periods. BC Hydro asserts that the present flows are an

improvement over natural flows (BC Hydro February 1999 Submission, p. 25). BC Hydro has also provided funding for construction of side channel and off-channel projects to improve rearing habitat downstream of Wilsey Dam (Canada's March 1999 Submission, Section 2.2.3). No quantitative information was provided on the effectiveness of these activities.

161. Canada further asserts that a WUP will likely be developed for this facility from mid 1999-late 2001. Baseline conditions for this facility established by DFO include provision of a minimum flow (not specified) plus an annual six-week shut down of the plant to provide for flow storage. Potential improvements to be negotiated under WUP include increased minimum flows and adjustments to flows to represent a normal hydrograph, possible decommissioning of Wilsey Dam, improved fish passage over Wilsey and Peers Dams, and provision of a natural hydrograph downstream from Sugar Lake (Canada's March 1999 Submission, Section 3.5.3).

Information Provided by the Expert Group

162. Canada acknowledges that there have been instances of harmful habitat alteration due to low winter flows at Shuswap Falls. Materials provided suggest that this has been an ongoing problem. Canada is working with BC Hydro to reduce or minimize these impacts. Rule curves have been developed jointly with MELP and BC Hydro in an attempt to meet both power production objectives and fish habitat protection. (Note: A rule curve is a set of seasonally adjusted criteria for determining acceptable flows usually based on some combination of natural flow patterns, flow requirements for environmental protection, and flow requirements for other uses. The "rules" on which the curves for Shuswap Falls are based were not provided to us.) The rule curves are apparently reviewed on a regular basis and Canada states that flows are also managed on a real time basis. "Real time" flow management suggests that adjustments to the rule curves may be made at any time depending on current conditions and future projections of water availability. Whether this means that habitat protection is sometimes compromised for power production as well as vice versa is not clear from the materials presented. BC Hydro has also funded a number of habitat improvement projects downstream from Wilsey Dam.

163. Although both the Canada and BC Hydro submissions point to a considerable effort to improve habitat conditions downstream of Wilsey Dam, there appears to be little hard information on the effectiveness of those actions. In particular, the Canadian submission does not mention any monitoring of Coho salmon in the Shuswap River. Coho stocks are in an especially depressed state. Such information is important to evaluate how well monitored and managed the Shuswap River and its habitat is. The additional measures to be negotiated under WUP (improved flows, improved passage and access to habitat upstream from Wilsey Dam) reflect Canada's view that the system has potential to be more

productive. These improvements are future expectations, however, not something that has in any way been realized.

164. For this facility as with the others, the lack of any quantitative assessment of improvements to habitat resulting from DFO actions makes it difficult to review effectiveness. Information such as the long term changes in abundance of fish stocks downstream from Wilsey Dam, identification of the effects of altered flow regimes as opposed to other kinds of human impacts, and some measure of the incremental improvement in habitat and/or production potential associated with altered flow regimes and habitat restorations/construction, illustrate the kinds of information that are relevant regarding the overall impact of the project and the benefits of enforcement actions. The Expert Group had anticipated that some quantitative data relating to these issues would be provided in response to our request for additional information. As it was not we can only conclude that such information does not exist.

5.3.2 Allegation

165. Rapid flow fluctuations negatively impact fish downstream (Submitters' April 1997 Submission, p. 5).

Canada's Response supplemented by information from BC Hydro

166. Canada acknowledges that harm to fish habitat, such as stranding of fish, has resulted from rapid flow fluctuations (Canada's July 1997 Response, pp. 29-30, 36). In the summer of 1994, BC Hydro ramped down flows at a rate considered excessive by DFO. DFO requested an assessment and salvage of any stranded fish. BC Hydro contracted the salvage but it was not initiated until 12 days after the drop in flows, eliminating the possibility of any successful salvage of fish (ibid.).

167. In both 1995 and 1997, DFO was given only one or two days notice of changes in operation that would necessitate large changes in flow. This was insufficient time to set up proper monitoring of flow changes (Canada's July 1997 Response, p. 31). The fluctuations can result from Gate changes at Peers Dam, power outages at Wilsey plant or installation and removal of flashboards at Wilsey dam (Canada's July 1997 Response, pp. 29, 31).

168. In response to these problems, Canada has repeatedly advised BC Hydro verbally and in writing that ramping rates must not be excessive (Canada's July 1997 Response, pp. 30, 36). Canada has specified acceptable ramping rates for flow changes and has charged BC Hydro with meeting these rates. However, Canada also describes a range of technical problems that BC Hydro has faced in ensuring that these are implemented (ibid.). A study was conducted in 1995-96 to determine the effectiveness of the ramping rates that Canada has specified (ibid.). BC Hydro has verbally advised that the ramping rates specified by DFO have been met but DFO has not monitored this (Canada's July 1997 Response, p. 31). DFO is awaiting

the final report on the 1995-96 study before making further recommendations (ibid.). In the meantime DFO expects BC Hydro to adhere to its recommended ramping rates (ibid.). Although ramping rates are clearly an issue for DFO, BC Hydro asserts that, because the plant is flat-loaded for the benefit of fish, there is no need for a minimum flow or a ramping process at the Wilsey Dam (BC Hydro February 1999 Submission, p. 25).

Supplemental Information Requested

169. Specific additional information was requested from Canada through the following questions (3 February Questions, p. 8):

a) Given the problems referred to in the Canadian response, to what degree have the ramping rates specified by Canada been met by BC Hydro?
b) How effective was Canada's action (specifying ramping rates) in terms of ensuring that rapid flow fluctuations do not negatively impact fish habitat?
c) What steps have been taken to address some of the technical problems, particularly those with the Howell Bunger valve?

170. In response, Canada states that it is working collaboratively with MELP and BC Hydro to address operational issues and habitat restoration (Canada’s March 1999 Submission, Section 2.2.3). DFO, with funds provided by BC Hydro, has constructed side and off-channel projects downstream of Wilsey dam for coho, chinook and other salmonids (ibid.). Although these actions are positive, they do not specifically address the questions posed.

Information Provided by the Expert Group

171. Canada acknowledges that rapid flow fluctuations at Shuswap Falls have caused harm to fish habitat. Canada has been working with BC Hydro to reduce or minimize these impacts. Canada's description of events in recent years suggests that BC Hydro has not always responded in ways that would help minimize the impacts on fish habitat (see paragraph above, for example). A number of specific actions have been taken and these actions are positive. There appears to be little hard information on the effectiveness of those actions. DFO is awaiting results of a study on the effectiveness of ramping rates done by consultants to BC Hydro several years ago. In the interim DFO expects BC Hydro to meet its specified ramping rates but does not state whether or how it monitors this. Thus, there is no information as to the degree to which the ramping rates specified by Canada have been met by BC Hydro. There is also no information as to how effective Canada's action of specifying ramping rates has been in terms of ensuring that rapid flow fluctuations do not negatively impact fish habitat, and there is no information as to the steps taken to address technical problems.

172. The consultant's report on the 1995, 1996 ramping study appears crucial to an assessment of the effectiveness of the ramping rates that DFO has specified. It is unclear why this report has not yet been produced.

5.3.3 Allegation

173. Configuration of the dam has led to increased sediment levels (Submitters' April 1997 Submission, p. 5).

Canada's Response supplemented by information from BC Hydro

174. Sediment accumulates upstream of Wilsey Dam. Since 1993, BC Hydro has been removing this sediment by suction dredging and depositing the spoil in a settling pond. Canada has specified that removal of this sediment should not result in an increase of sediment load above background levels in the river by more than 25 mg/l in spring and summer and 0 mg/l in fall and winter (Canada's July 1997 Response, p. 31). Sediment levels are monitored by BC Hydro and discharges of sediment have not been excessive (ibid.). BC Hydro asserts that it is removing the sediment to preserve the quality of the downstream habitat (BC Hydro February 1999 Submission, p. 25).

Supplemental Information Requested

175. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 8):

a) Have there been instances of sediment discharge unrelated to removal operations? If so, how frequent, when and in what amounts?
b) Please describe the steps taken to ensure that sediment discharge is not harmful to fish.

No additional information was provided on these issues.

Information Provided by the Expert Group

176. It appears that in Canada's view the problems with sediment relate only to the program of sediment removal from the face of the dam. Historically, sediments were flushed out of the headpond behind Wilsey Dam by flushing them downstream during high discharge with probable impacts on incubating eggs and fish (BC Hydro Fish Flow Overview Report, #EA: 95-06, p. 61; Fisheries and Aquatic Sciences 1991 Report # 2093, Impacts of the Operation of Existing Hydroelectric Developments on Fishery Resources in British Columbia, Vol. I, Anadromous Salmon, by S.M. Hirst, hereafter referred to as Fisheries and Aquatic Sciences 1991 Report # 2093). Thus, there appear to have been historic problems with sedimentation but it is not clear if these are ongoing.

177. Canada has dealt with the issue of sediment accumulation behind Wilsey Dam by specifying when and how BC Hydro can remove sediment and setting a limit on the sediment load in the river during sediment removal. BC Hydro is responsible for monitoring and reporting on sediment levels in the river during removal operations. There is no information concerning whether or not there are still problems with sedimentation at this facility. Provided the maximum sediment levels set by Canada are being met and provided there are no sediment problems outside the irregular periods of sediment removal, sedimentation impacts on fish habitat should not be an issue at this facility.

5.3.4 Allegation

178. Reservoir fluctuations affect benthic productivity and reduce access to Sugar Lake tributaries (Submitters' April 1997 Submission, p. 5).

Canada's Response supplemented by information from BC Hydro

179. Canada and BC Hydro both appear to acknowledge that these allegations may be true. They also state that impacts of reservoir fluctuations on invertebrates and tributary access have not been examined (Canada's July 1997 Response, pp. 31-32, BC Hydro Fish Flow Overview Report #EA: 95-06, p. 59; Fisheries and Aquatic Sciences 1991 Report # 2093).

180. Canada does not appear to have done anything to address issues in the reservoir. MELP requested that the effects of ramping on invertebrates be made part of the Shuswap River ramping study in 1995-96 but this was not included in the terms of reference for the study by BC Hydro (Canada's July 1997 Response, p. 31).

Supplemental Information Requested

181. The Expert Group requested specific additional information from Canada through the following question (Expert Groups 3 February 1999 Questions, p.8):

a) What plans does Canada have to investigate and address these issues and what are Canada's time lines for taking such action?

No additional information was provided on this issue.

Information Provided by the Expert Group

182. As there are no data on these issues it is unclear whether reduced reservoir productivity and impacts on tributary access do occur. However, the operating range of Sugar Lake reservoir is about 8 m, which makes it probable that both allegations are true. Canada has done little to determine the nature and extent of the problem. Any reservoir related impacts at this facility appear to be low priority for DFO and any actions related to the reservoir appear to have been left up to MELP.

Summary of Information Regarding Shuswap Falls

183. Canada acknowledges that harmful alterations to fish habitat have occurred at the Shuswap Falls facility and that harmful impacts continue to occur.

184. As with Keenleyside Dam, Canada is working cooperatively with BC Hydro to address fish habitat issues at Shuswap Falls. Although there is a lack of clarity concerning application of the rule curve, it is obviously Canada's view that significant progress has been made. Although the actions taken are positive, information on the effects of those actions is largely anecdotal. This does not mean there are no data (for example, data are presumably available on sediment loads from BC Hydro reports), only that none were presented to us. Although the Expert Group expected that its questions would elicit clear and quantitative answers, in many instances the questions were not specifically addressed. This has made it difficult to provide information regarding Canada's enforcement with regard to this facility.

185. Using Canada's own criterion of effective enforcement, no net loss of habitat, it is not clear whether Canada's actions have been effective. The baseline conditions sketched for the WUP (provision of minimum flows and six week plant shut down to provide water storage for unspecified purposes) do not deal in a comprehensive way with the range of issues at this facility (for example, habitat loss due to lack of channel shaping flows, problems in the reservoirs). Compared to such a narrowly defined baseline, enforcement may have been effective by Canada's definition but is probably not reflective of historic productivity of this system. The additional improvements to be negotiated under WUP (improved flows, improved passage and access to habitat upstream from Wilsey Dam) reflect Canada's view that the system has potential to be more productive. These improvements are future expectations, however, not something that has in any way been realized.

186. Most emphasis by DFO has been on the river downstream from Wilsey Dam, which is where the anadromous salmon spawn. Both flow conditions and physical habitat appear to have been improved downstream but no quantitative assessment of the habitat benefits was provided. The effects of these habitat improvements on coho are particularly important given the depressed state of interior coho stocks. It is not clear from the information provided how well monitored and managed the Shuswap River coho and their habitat are and how recent improvements in flow and habitat may have impacted coho.

5.4 Cheakamus

5.4.1 Allegation

187. Downstream fish populations are negatively impacted by insufficient flow and rapidly fluctuating flows (Submitters' April 1997 Submission, p. 5).

Canada's Response supplemented by information from BC Hydro

188. Canada did not dispute the allegation above (Canada's July 1997 Response, p. 28). On 2 May1997, Canada issued a flow order to BC Hydro with respect to Daisy Lake Dam for the purpose of ensuring adequate flow to protect fish and fish habitat (ibid.). BC Hydro applied for judicial review of this order and, at the time of Canada's response to the SLDF allegations, this matter was before the courts. Canada, therefore, declined to comment further (ibid.).

Supplemental Information Requested

189. When the Expert Group began its deliberations, Canada and BC Hydro had settled BC Hydro's court challenge to DFO's flow order. As a consequence, the following questions relating to fish flows in the Cheakamus were posed :

a) What are the impacts of insufficient flow and rapidly fluctuating flows (in the Cheakamus)?
b) What does the flow order require?
c) What has been the impact of the flow order in ensuring adequate flow to protect fish and fish habitat?
d) Please describe any other actions the government has taken to address these problems.
e) Considering that problems with fish habitat due to the operation of the Daisy Lake dam have been a long-standing issue in the Cheakamus River, please explain why Canada issued its flow order to protect fish in 1997.
f) What actions other than flow remediation has Canada undertaken with respect to the Cheakamus to satisfy the no net loss/net gain provisions of the federal policy on fish habitat?

190. The impact of flows downstream from Daisy Lake Dam has been an issue of concern for fisheries since construction of the project (BC Hydro Fish Flow Overview Report #EA: 95-06, p. 93). Post-construction flows below the dam have been 33% of pre-project annual average flow but minimum daily and mean monthly flows have, at times, been very low (ibid.). Flow ramping was also known to cause fish stranding (ibid.). The fact that DFO had issued a flow order indicates that it believed that harm to fish habitat and fish populations was occurring.

191. In its response to the Expert Group questions, Canada stated that the flow order under dispute required BC Hydro to release 45% of the previous day's inflow to the reservoir downstream into the Cheakamus River with a minimum flow of 5 m^3/s (Canadian Submission March 1999, Section 2.1.1). Although BC Hydro was able to have this order rescinded, the company adhered to the order's specifications while negotiating a regime mutually acceptable to BC Hydro, DFO, MELP and other interests (ibid.). All parties have now agreed to an interim flow regime in which 45% of the average inflow over a 7 day period is released into the Cheakamus with

the restriction that minimum flow cannot be less than 5 m^3/s (ibid.). This flow will be maintained until a WUP is developed and approved for the Cheakamus (ibid.). In addition, DFO monitors the flow in the Cheakamus and has completed both aerial and ground surveys of the system downstream from Daisy Lake (ibid.). This new regime increases downstream flows by an average 170%, increases minimum flows from 1.5 m^3/s to 5 m^3/s, and allows for a more natural seasonal hydrograph (Interim Operations on Cheakamus River, Canadian Submission, March, 1999 Addendum, p. 1). According to BC Hydro, the changes in flow will have unknown implications for increasing total habitat but the increase is expected to be "notable" based on professional judgement of DFO, MELP and BC Hydro biologists (ibid.). BC Hydro indicates that it will undertake a program of monitoring and study to evaluate the effectiveness of the new flow regime (Interim Operations on Cheakamus River, Canadian Submission, March 1999 Addendum, p. 3).

192. According to Canada, the effectiveness of the new flow regime will be assessed as part of the WUP process, as well as the effects of dyking, restoration activities and side channel development, river gravel recruitment and other habitat improvement measures (Canada's March 1999 Submission, Section 3.4.1). The issue of flow ramping rates will also be addressed at this time (ibid.).

Information Provided by the Expert Group Regarding Cheakamus

193. Canada has provided some information on actions taken but little information on the consequences of those actions for habitat or for fish. SLDF had alleged that low and rapidly fluctuating flows had adversely affected fish downstream from Daisy Lake. DFO had ordered a specific flow regime, which was contested by BC Hydro, and through negotiation the parties arrived at a compromise. BC Hydro adhered to the flow order while negotiations proceeded. This indicates a form of negotiated compliance and suggests a willingness by BC Hydro to address fisheries issues, which was also characteristic of Keenleyside.

194. Much information critical to the issue of effective enforcement is not available to the Expert Group. For example, with regard to rapid fluctuations in flow, which was part of the SLDF allegation, Canada only says that this will be addressed as part of the WUP process. No information was provided as to why Canada has not addressed this issue to date. There is a question as to whether Canada considers flow fluctuations to be unimportant in this instance. In addition, other unresolved questions with regard to flow include: How was the prescribed release of 45% of inflows with a minimum of 5 m^3/s arrived at as fish protection flows? What oversight will DFO exercise with regard to study and monitoring by BC Hydro and how will DFO determine that these flows satisfy the criterion of no net loss of habitat or prevention of HADD? What criteria will Canada use to determine that the negotiated flow regime and other measures satisfy the requirements of the *Fisheries Act*?

195. There has been significant progress in improving flows in the Cheakamus as a result of the flow order and subsequent negotiations. We concur with the agency experts that the habitat improvement as a result of the new flow regime and other rehabilitation measures will be considerable. Some real and potential problems have not been addressed, however, such as flow fluctuations and possible temperature changes at the confluence of Rubble Creek (BC Hydro Fish Flow Overview Report #EA: 95-06, p. 94). The effectiveness of the recent actions is to be the subject of future study. On the basis of the information provided, it is not possible to say whether these measures will be sufficient to prevent harm to fish habitat at this facility or how they contribute to any overall objectives for the Cheakamus.

5.5 Walter Hardman (Cranberry Creek)

5.5.1 Allegation

196. Dewatering of the creek in 1996 killed and stranded rainbow trout over a 10-km section. Dewatering of the creek is within the terms of the BC Hydro water license (Submitters' April 1997 Submission, p. 5).

Canada's Response supplemented by information from BC Hydro

197. Canada acknowledges that operation of Walter Hardman directly affects flows in Cranberry Creek (Canada's July 1997 Response, p. 27). Walter Hardman has been first priority (with 9 other facilities) for review in the Water Use Planning initiative (ibid.). DFO's position is that the WUP process must place priority on meeting federal and provincial legislative requirements including those of the *Fisheries Act* (ibid.). Canada was closely involved in the development of interim operating orders, which will provide operational benefits to fish during the development of the Water Use Plan and will require release of appropriate flows in the lower Cranberry Creek for the support of fish (ibid.).

Supplemental Information Requested

198. Specific additional information from Canada was requested through the following questions (3 February 1999 Questions, p. 9):

a) Were there any specific enforcement actions taken in response to the incident at Cranberry Creek and what was the outcome of those actions?
b) What minimum flows are required under the interim operating orders?
c) How were these flows determined (in terms of their anticipated benefits for fish and fish habitat)?
d) When will the interim flows be implemented?
e) What monitoring will be done to determine the effectiveness of the interim flow order once it is implemented?

f) What are the time lines for completion of the WUP? How will compliance with the conditions of the WUP and the impacts of that compliance be monitored and enforced?

199. Dewatering of Cranberry Creek is a consequence of the design of the Walter Hardman Headpond and there is no simple way to fix the problem (BC Hydro Fish Flow Overview Report #EA: 95-06, pp. 24-26). Canada does not dispute that habitat damage and fish kills have resulted from the operation of this facility. In the supplemental information provided, Canada did not specifically address the questions posed by the Expert Group except the question regarding the timing of the WUP process. Canada indicated that the WUP was to commence in early 1999 and be completed mid 2000 (Canada's March 1999 Submission, Section 3.7.5). The Expert Group was provided with a copy of a conditional water license issued by the province to BC Hydro for Walter Hardman for the period August 1, 1997 to August 31, 1998 (Conditional Water License for Walter Hardman Generating Station, October, 1997, p. 3). This license does not specify any minimum flows for fish conservation, but does require the licensee to undertake a fish flow study and requires that the diversion from Cranberry Creek must take into consideration the protection of the fishery resource along with the benefit of the power produced (ibid.).

Information Provided by the Expert Group regarding Walter Hardman

200. The information provided on fish and fish protection is particularly sketchy for Cranberry Creek. Canada does not dispute that low flows have been detrimental to fish and fish habitat in lower Cranberry Creek and this is listed as an issue of public concern by BC Hydro (BC Hydro Fish Flow Overview Report #EA: 95-06, p. 24). Because of the design of the system, dewatering and damage to fish habitat are ongoing features of the operation of the system. According to BC Hydro, a study of minimum flow needs for fish protection in Cranberry Creek will be an aspect of WUP (BC Hydro February 1999 Submission, p. 25).

201. As an enforcement measure, Canada refers to an interim flow order. (Canada's July 1997 Response, p. 27) However, Canada was vague about the interim flow orders designed to protect fish in anticipation of a WUP for Cranberry Creek. The conditional water license issued by the Province appears not to specify any minimum flow for fish, although conservation of fish is to be taken into account in decisions about diversion. The Expert Group was provided with no evidence that the previous harm to habitat had been corrected or that future harm would not occur. Canada appears to be depending on the WUP process to address flow problems in Cranberry Creek.

5.6 John Hart Project

202. John Hart Project is part of a complex of dams and diversions involving the Puntledge, Salmon and Campbell River systems. The Expert Group dealt only with issues relating to John Hart and the Campbell River downstream, although these projects are interrelated.

5.6.1 Allegation

203. Rapid flow fluctuations and inadequate instream flows have adversely affected fish habitat (Submitters' April 1997 Submission, Appendix A, p.5).

Spillway releases can attract fish into the canyon that then become trapped (ibid.).

(As these two allegations are closely related they are dealt with together)

Canada's Response supplemented by information from BC Hydro

204. The allegations above are documented as issues of agency and public concern in the BC Hydro Fish Flow Overview Report #EA: 95-06, pp. 114-116). In response to the allegations Canada listed and briefly described a number of studies undertaken in the Campbell River and estuary to evaluate habitat and noted that a side channel was installed below the powerhouse and additional spawning gravel was placed in the Elk Fall side channel to alleviate problems caused by rapid flow fluctuations (Canada's July 1997 Response, p. 56). According to BC Hydro, it, DFO, MELP and other interests have developed an interim flow agreement and BC Hydro has also been active in various habitat improvement initiatives (BC Hydro February 1999 Submission, p. 26).

Supplemental Information Requested

205. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 10):

a) To what extent have these measures mitigated problems caused by John Hart? How was this monitored and if the problems were not mitigated, what are the plans for follow up?
b) Since problems with flow fluctuations have been a long-standing issue with this project, why have measures been taken only recently to address the problems?
c) Does Canada believe that there is a problem with fish trapping in the canyon and with TGP?
d) If trapping occurs and TGP problems occur, what enforcement does Canada plan to address these issues?

206. In the supplemental information provided, Canada noted that a spill of water in 1994 washed out salmon eggs in the lower river and salmon eggs in a recently restored side channel utilized by chinook salmon (Canada's March 1999 Submission, Section 2.3.2.3). The resulting DFO investigation and pressure from local community groups led to a round table on reservoir operation and fish habitat (ibid.). An Interim Flow Management Strategy was drafted and implemented through an interim WUP order (ibid.). The strategy has led to improved flows in the main river and restoration of habitats in the estuary, floodplain and river (ibid.).

207. Leakage of water into the canyon (about 0.7 m^3/s) provides some habitat for rearing fish (ibid.). Small spills still occur into the canyon and these can attract spawning salmon whose eggs would be dewatered when the spill subsides (ibid.). In the fall of 1997, fish were attracted into the canyon and spawned (ibid.). After consultation among DFO, MELP and BC Hydro it was decided to keep flows in the canyon at 8.5 m^3/s until the fry emerged in spring (ibid.). Flows in the canyon were then reduced but have remained at 2.8 m^3/s and provide enhanced nursery habitat for salmonids in the lower Campbell River (ibid.).

208. With the Interim Flow Management Strategy in place, further biological assessment of this system will proceed as part of the WUPP. Instream flows and restoration of habitat within the canyon will be studied with experimental flows ranging from 3-9 m^3/s (Canada's March 1999 Response to Expert Group, Section 3.6.2.3).

Information Provided by the Expert Group

209. Canada acknowledges that the allegations of the Submitting Parties are true and describes a series of measures taken to address them. It appears that considerable improvements in flow regime for fish have resulted particularly from the recent consultations and negotiations involving DFO, BC Hydro, MELP and local interests. The Campbell River Interim Agreement may provide a useful model for WUP and appears to engage the local community much more strongly as stakeholders and stewards of the resource. Specific features of the flow management regime include regulating water releases to specified target flows that provide a more natural hydrograph and providing a 2-m flood buffer in upper Campbell reservoir. The improved flow regime will be combined with such measures as gravel nourishment to increase spawning gravel quality and improvement of mainstem and off-channel nursery habitats. The extent to which these measures will be successful in helping to rehabilitate the salmon runs of this river remains to be seen but the steps taken are regarded as very positive. As a cautionary note, however, the estimate of spawning gravel area required to satisfy the target chinook salmon escapement is based on a measure of gravel area per spawner that is less than half the value recommended in the literature (7.5-10 m^2 compared with 20.1 m^2). The use of the smaller area per spawner is based on the assumption that the spawning gravel provided will be of very high quality.

Furthermore, the gravel area provided is expected to sustain a spawning population of 4000 chinook, less than the average escapement to the river between 1965 and 1974, several decades following construction of the hydro project. Thus, present plans and management measures, although an improvement over the recent past, do not represent a restoration of this system to historic productivity.

5.6.2 Allegation

210. Spillway releases cause TGP problems (Submitters' April 1997 Submission, Appendix A, p. 5).

Canada's Response supplemented by information from BC Hydro

211. Canada made no specific response to the allegation of TGP problems associated with the John Hart project. The BC Hydro Fish Flow Overview Report notes that TGP has not been studied but there is the potential for creation of elevated gas levels below spillways (BC Hydro Fish Flow Overview Report #EA: 95-06, p. 115).

Supplemental Information Requested

212. Specific additional information was requested from Canada through the following questions (3 February 1999 Questions, p. 10):

a) Does Canada believe that there are problems…with TGP?
b) If …TGP problems occur, what enforcement does Canada plan to address these issues?

Canada provided no specific information about TGP in the Campbell River.

Information Provided by the Expert Group

213. It is unclear whether Canada agrees with or rejects the Submitting Parties' allegation of TGP problems in the Campbell River. We do not know why Canada was silent in response to our specific request for information on this allegation. It may be that there are no data to confirm or deny the allegation, as indicated by the BC Hydro Fish Flow Overview Report. Total gas pressure was not an issue discussed by the Campbell River Hydro Fisheries Advisory Committee in preparing the Interim Flow Management Strategy. If, as the Fish Flow Overview Report states, there are plunge pools below the spillways, then elevated TGP is indeed a possibility. Without specific measurements, however, it is impossible to determine the extent and seriousness of any problem.

Summary of Information Regarding the John Hart Project

214. The information provided leaves several questions unanswered particularly relating to the allegation of TGP problems in the lower Campbell River. The information provided also indicates an approach to enforcement comparable with that practiced at Keenleyside, Shuswap Falls, and elsewhere in which impacts involving harm to fish habitat are noted, discussed with BC Hydro and other interests, and alterations to flow regimes, or other compensatory action negotiated with BC Hydro. In the case of John Hart and the Campbell River, this consultative approach appears to have been effective in developing new operating procedures for the dam that are less damaging to fish and in promoting and implementing habitat restoration in the river and Canyon. As these initiatives are recent, the extent to which they will be effective in mitigating or preventing future habitat loss and in helping increase salmon runs to the Campbell River is unclear, however, the actions taken must be regarded as positive.

Overall Summary About the Six Facilities

215. Based on the information provided by SLDF, Canada and BC Hydro, in many situations the operation of BC Hydro facilities has caused and/or continues to cause harm to fish habitat.

216. The information provided by Canada and BC Hydro indicates that Canada has taken a number of actions to address habitat problems at BC Hydro facilities ranging from technical discussion and negotiation to flow orders and occasional legal action. Based on the highly variable amount of information provided by Canada on each facility, the degree of attention and effort directed by Canada to addressing habitat problems at the different facilities appeared to be very uneven. For example, based on the information provided, the Campbell River downstream from John Hart dam and its tributary the Quinsam River appear to have received a great deal of attention, presumably in consideration of a locally important but relatively small run of chinook salmon. By contrast, the Peace River system has received virtually no attention despite being one of the largest river systems in Canada, an interprovincial waterway, an important element in sustaining the Peace Athabasca Delta (a World Heritage site) and an important breeding and feeding ground for several important fish species (whitefish, goldeye, charr, burbot), important to a number of First Nations and an important heritage river (Mackenzie's route to the Pacific). In a similar vein, one can compare the considerable attention directed to effects of Keenleyside Dam on the Columbia with the limited attention directed at the Bennett and Peace Canyon dams. It was not clear to the Expert Group why some facilities and/or some problems were emphasized while others received little attention.

217. The Submitting Parties and Canada appear to agree that the measure of effectiveness is in the consequences of enforcement for habitat or fish. Canada states that achieving No Net Loss is its measure of effective enforcement and asserts that No Net Loss has been achieved. As we discussed earlier and will

comment further on in the next section, there are problems with Canada's use of No Net Loss as a criterion of effective enforcement, and with the way Canada appears to be applying this criterion to determine effective enforcement. As No Net Loss is described in Canada's various policy documents, it provides no guarantee that any amount of natural fish habitat will be conserved and it allows habitat to be harmed. Furthermore, in Canada's application of No Net Loss to determine effective enforcement at the six facilities, it is not clear whether only selected habitat characteristics were taken into consideration. Even for these the baseline was set unreasonably low. (See detailed comments on No Net Loss elsewhere in this report).

218. Lack of well researched, quantitative information appears to be the primary obstacle to reviewing the effectiveness of Canada's enforcement actions. In virtually all instances in which the Expert Group requested hard technical information, little or none was provided. The habitat problems created by construction and operation of hydroelectric facilities are complex and multifaceted and there is no scientific consensus about how best to deal with most of these problems. Resources for enforcement are limited. The issues of information needs for enforcement and scientific uncertainty will be discussed in greater detail in the next section but the effectiveness of enforcement at the six facilities for which the Expert Group developed information would be both greatly improved and more easily reviewed if Canada were to compile better information on the range of habitat problems at each facility, employ adaptive management as a tool to improve understanding of how to address hydro-habitat impacts over time, and ensure proper and documented technical follow-up and evaluation of enforcement actions.

6.0 Overall Expert Group Comments Concerning Canada's Approach to Enforcement

219. In this section, the Expert Group offers final comments on effective enforcement of Section 35 of the *Fisheries Act*. The comments are organized under 5 themes: No Net Loss as a basis for effective enforcement; prioritization of habitat issues for enforcement; data needs for effective enforcement; tools for achieving compliance; and WUP as a means to address Section 35 issues.

6.1. No Net Loss As A Basis For Effective Enforcement

220. There are concerns about Canada's use of “No Net Loss” (NNL) as the criterion for effective enforcement of Section 35. The principle of NNL and the Policy for the Management of Fish Habitat can be viewed as a policy that allows destruction of fish habitat. There is nothing in the policy that states that, at a minimum, a certain amount or percentage of natural habitat should be maintained. Critical habitat (defined in general terms) is supposedly not subject to compensation but even this is a qualified limitation. In no other circumstance is there any requirement that managers should not proceed beyond some level in the hierarchy of preferences for habitat management that ranges from no alteration to elimination with

compensation. Given this hierarchy of preferences, therefore, the Policy technically allows for the complete elimination of natural fish habitat. The NNL principle allows for the destruction of fish habitat short of complete elimination as well. Thus, as it is currently defined in the Policy and as Canada appears to be applying it, achievement of NNL will not necessarily produce compliance with *Fisheries Act* Section 35(1).

221. NNL is largely implemented through the assessment of HADD as laid out in the Decision Framework. As the Decision Framework appears to deal with new project proposals or significant modifications to existing projects, it is not clear to the Expert Group how it is applied to ongoing operating regimes, including changes in such regimes such as commonly occur at hydroelectric installations. Although the Expert Group posed questions about how existing projects were evaluated for HADD, the issue was not clarified.

222. To apply NNL as a criterion of effectiveness, there must be a firm baseline in time against which to judge losses and gains in habitat. That is to say, there must be a set point in time at which habitat condition is determined and against which future changes in habitat can be judged. There are several options for logical baselines including, for example, the date the policy was implemented. It appears, however, that no such baseline of habitat condition presently exists and that Canada addresses habitat problems on a case by case basis without the capacity for any overall assessment of gains or losses. Without such a baseline, Canada cannot show that NNL is being achieved. Indeed, recent reports indicate considerable uncertainty and confusion regarding the present state of fish habitat in the Pacific region (see e.g., Slaney, et al. 1996, status of anadromous salmon and trout in bc and Yukon, fisheries 21:20-35; Quadra Planning Consultants 1997, No net loss of habitat: assessing achievement, Habitat and Enhancement Branch, DFO, Vancouver; Pacific Fisheries Resource Conservation Council Annual Report 1998-99; Living Blueprint for BC Salmon Habitat (Pacific Salmon Foundation 1998)).

223. As stated by Canada, the baseline year for each facility is the year in which a problem has been first assessed, which could be years after the facility was put into place and years after harm to fish habitat has occurred on an ongoing or regular basis. The baseline then becomes the state of habitat at that time, which is potentially a very degraded habitat. Any incremental gain in habitat occurring after the baseline is set, however small, is considered a net gain in habitat. Furthermore, it is not clear from information provided by Canada whether a full assessment of habitat is always conducted or whether the baseline applies only to certain aspects of habitat. The Expert Group considers that this sets a very low standard of habitat to maintain and is neither in the interest of fish conservation nor in the spirit of the No Net Loss/Net Gain policy for habitat.

224. NNL could form part of an effective enforcement of Section 35. Elements of the kind of approach for effective enforcement would include: a preliminary region-wide assessment of existing habitat condition and habitat potential; development of

an overall strategy and priorities for habitat conservation (discussed further below); setting a time-table and resourcing the detailed evaluation of habitat based on the priorities established; employing adaptive experimentation and the precautionary principle as tools to reduce the uncertainty of habitat productivity and prevent irreversible damage; and developing a timetable for habitat improvement and restoration. These elements would contribute to an improved information base and habitat quality baseline (discussed further below) that are essential to the application of NNL and for achieving the overall policy goal of net gain in habitat. Section 35(2) could then be used to authorize certain kinds of habitat damage in the context of region wide priorities and objectives for habitat productivity and also as a means to support adaptive experimentation to determine appropriate trade-offs between fish production and other uses.

6.2 Prioritization of Habitat Issues for Enforcement

225. All of the information provided by Canada suggested that there was no integrated, region wide strategy for habitat conservation. All management activities were site and problem specific and the Expert Group could not determine if these contributed in any measurable way to the overall goal of a net gain of habitat. In the absence of some comprehensive and integrated vision of fish habitat conservation and restoration it is impossible to make rational trade-offs among competing habitat problems. The Policy for the Management of Fish Habitat does not provide the vision because it treats all habitat issues as equal. Later policies do not establish clearly demarcated priority schemes. The WUP process will not address this apparent shortcoming in Canada's planning, as it is also site and system specific. BC Hydro has an integrated management system for hydropower generation. Thus, BC Hydro can make strategic decisions with an overall power production objective in mind and is able to assess the effect of changes at one facility on the system as a whole. A similar vision for habitat conservation and restoration would assist Canada to make the inevitable trade-offs in resource allocation for enforcement and habitat management. If coupled with a proper information base, such an overall vision would also assist Canada in determining whether it is achieving NNL.

6.3 Data Needs for Effective Enforcement

226. In its review of the six facilities, the Expert Group was struck by how limited and anecdotal the information on fish and fish habitat for these facilities seemed to be. Even with regard to such dramatic alterations to river systems as hydroelectric facilities, the damage to fish habitat cannot be properly assessed without quantitative data. There are three levels of data on habitat and habitat productivity that would have greatly assisted the Expert Group in developing information on the effectiveness of enforcement. The first is Pacific and Yukon region wide data. That is to say, a broadly based overview of fish habitat quality and productivity throughout the region with priorities for conservation and an assessment of significant problems. Such an overview would have helped the Expert Group put the impacts of hydro facilities into context. For example, everyone recognizes that

hydro facilities cause habitat problems, but how significant are these in the context of other kinds of human activity? What priority does Canada put on dealing with these issues and why? Canada does not appear to have conducted such an overview and evaluation.

227. The second level of data need is at the watershed level. The watershed level of data would provide details on how human activities and fish productivity are distributed within the watershed, what the most significant conservation problems are, and priorities for addressing them.

228. The third level of data is at the level of specific kinds of land and water use impacts. For hydro facilities, these would be the data that define baseline conditions of habitat quality and productivity and opportunities for enhancement and restoration at each facility and for the coordinated hydro system. These are the kinds of data that allow a credible quantitative evaluation of habitat damage when an accident occurs and should provide a basis for enforcement under Section 35. This is presumably the kind of information and data that will be developed as part of the WUP process. These analyses will be reduced in value, however, without the more general and comprehensive kinds of analyses noted above.

229. It seems likely that a great deal of the information needed is present in DFO regional and district offices or in various research reports. Based on the way that Canada addressed the allegations and the questions of the Expert Group, however, whatever information Canada has may not be organized in a way that makes it easy to use for habitat management or enforcement. Mustering the available information is only one part of the task, however. The data cannot be used to its greatest effect without decisions about local and regional priorities. In practice, DFO makes decisions about priorities, as reflected by the variable amount of information Canada was able to provide on the six facilities and the unevenness in Canada's approach to enforcement among the facilities. A consistent and region-wide set of priorities for habitat enforcement would reduce the impression of arbitrariness that pervaded the documentation that the Expert Group reviewed. Thus, the region-wide database on fish habitat needs to be complemented by the region-wide vision for habitat conservation and management noted above.

230. Regardless of the current state of knowledge about fish habitat, significant uncertainties will persist. In fact, Canada cited the complexity of the problems and the scientific uncertainty surrounding them as reasons for limited enforcement actions. Two primary tools exist to deal with uncertainty of this sort. One is the precautionary principle, which asserts that when significant and irreversible harm is likely to occur, management action should not be postponed because of limited and uncertain scientific information. Canada has embraced the precautionary principle as a basis for fishery management decision making and it should also apply to habitat management decisions. The second is adaptive experimentation to reduce scientific uncertainty. Hydroelectric facilities are ideal systems for adaptive

experimentation. A more proactive use of such experimentation would reduce some of the uncertainty about hydro-fisheries impacts.

6.4 Tools For Achieving Compliance

231. The *Fisheries Act* provides several options for authorizing and minimizing HADD (e.g., Section 22(3) orders, Section 32 and Section 35(2) authorizations). Canada's use of these enforcement tools has been rather limited considering the significant number of hydroelectric facilities operated by BC Hydro. The information provided does not allow clear review of the effectiveness of these tools in conserving habitat or managing habitat damage. Indeed, Canada appears to regard these tools as emergency response measures to halt or forestall habitat damage while a longer-term solution can be worked out. In the present context, it appears that longer-term solutions to existing problems will be determined through WUP.

232. Section 35(2) authorization is an enforcement tool that can be used in the normal process of managing multiple uses of habitat. Although Section 35(2) does not appear to have been often used in this way in the past, DFO indicates that it intends to use such authorizations as part of the WUP process. A wider use of Section 35(2) authorizations would rationalize a process that, at present, appears haphazard and arbitrary. In particular, where habitat alterations are unavoidable, such as with the operation of hydro electric facilities, Section 35(2) authorizations should provide a means of establishing expectations for habitat quality and productivity in the context of facility operation.

233. Although guidelines for the application of its various enforcement tools are important, information on the application of those tools is equally important to an assessment of effectiveness. Canada does not appear to have any region-wide database on habitat-related enforcement actions. The Expert Group believes that such a database would be of considerable value to Canada in tracking violations, enforcement and compliance. In fact, without such a database, the Expert Group does not see how Canada can assess objectively the effectiveness of its enforcement effort. As with data on habitat condition, we expect that much information exists in regional and district offices but it is simply not organized in a way that facilitates retrieval and analysis.

6.5 WUP As A Means To Address Habitat Issues

234. WUP is an initiative by the Province, DFO and BC Hydro to integrate environmental and social considerations into the operation of hydro facilities throughout the Province. Canada's objective in participating in WUP is to ensure that water management plans for hydro facilities satisfy the requirements of the *Fisheries Act*. No formal WUP's have yet been completed and implemented but the activities of the Campbell River Advisory Committee and the Alouette Stakeholder Committee have been referred to as informal WUP's.

235. Since the WUP process is a future process and since there are no examples of WUP implementations it is not clear whether this consultative process has or will effectively reduce adverse impacts on fish and fish and fish habitat resulting from operations of hydroelectric facilities. Nevertheless, the Expert Group regards the WUP process as positive with potentially beneficial consequences for fish habitat management. As it has been presented to us, however, we also feel that there are some important shortcomings to WUP that should be addressed. These include:

- The potentially degraded state of habitat that will be classed as "baseline" under Canada's definition. If arresting the ongoing decline in fish habitat quality at most facilities is a "sufficient" outcome from WUP, as suggested by the documentation provided by Canada, then this will compromise the long term productivity of many important fish stocks;

- Concerns have been expressed that the consultative process proposed under WUP may be different from that associated with CEAA and any attempt by Canada to substitute a WUP review process for CEAA may raise important issues of credibility with the process;

- WUP is a purely voluntary process and is not mandated under any particular statute. Although this allows considerable flexibility in the process, it may also weaken its effectiveness and credibility;

- WUP appears to embrace the DFO policy of No Net Loss/Net Gain as the guiding objective for fish habitat. There are significant issues concerning the NNL policy and its implementation as detailed elsewhere;

- It is not clear how the complex problem of BC Hydro's integrated system operations is to be dealt with as operations at individual facilities are negotiated under WUP. It is well known that impacts at individual sites will vary according to the way in which the entire system is operated and vice versa. Dealing with this issue from a fish habitat perspective would be facilitated if Canada were to have its own system wide objectives and priorities for fish habitat conservation and management;

- WUP is a long-term process. The longer the process takes to complete the greater will be the ongoing impacts on fish habitat;

- Canada has not suggested how it will proceed should the WUP process prove ineffective or in the event that one or more WUPs do not lead to issuance of Section 35(2) authorizations;

- Neither the WUP documentation nor any of the submissions by Canada indicate how Canada will address the necessary trade-offs between fish habitat and other water uses that will arise in the WUP process. This concern speaks again to the

need for a region-wide vision and priorities for habitat conservation and management against which the individual projects can be judged;

- Whether or not WUP is successful, there will still be violations of Section 35 with which Canada will have to deal. WUP on its own will not resolve habitat enforcement problems.

- It is obviously too early to judge whether the WUP process will be successful. Preliminary results at Campbell River and Alouette River are promising and the Expert Group is optimistic that WUP will improve conditions for fish and help rationalize enforcement of the Fishery Act with respect to the BC Hydro hydroelectric facilities.

CEC SUBMISSION SEM 97-001

EXPERT GROUP REPORT

(original signed) (24 February 2000)

William Best Date

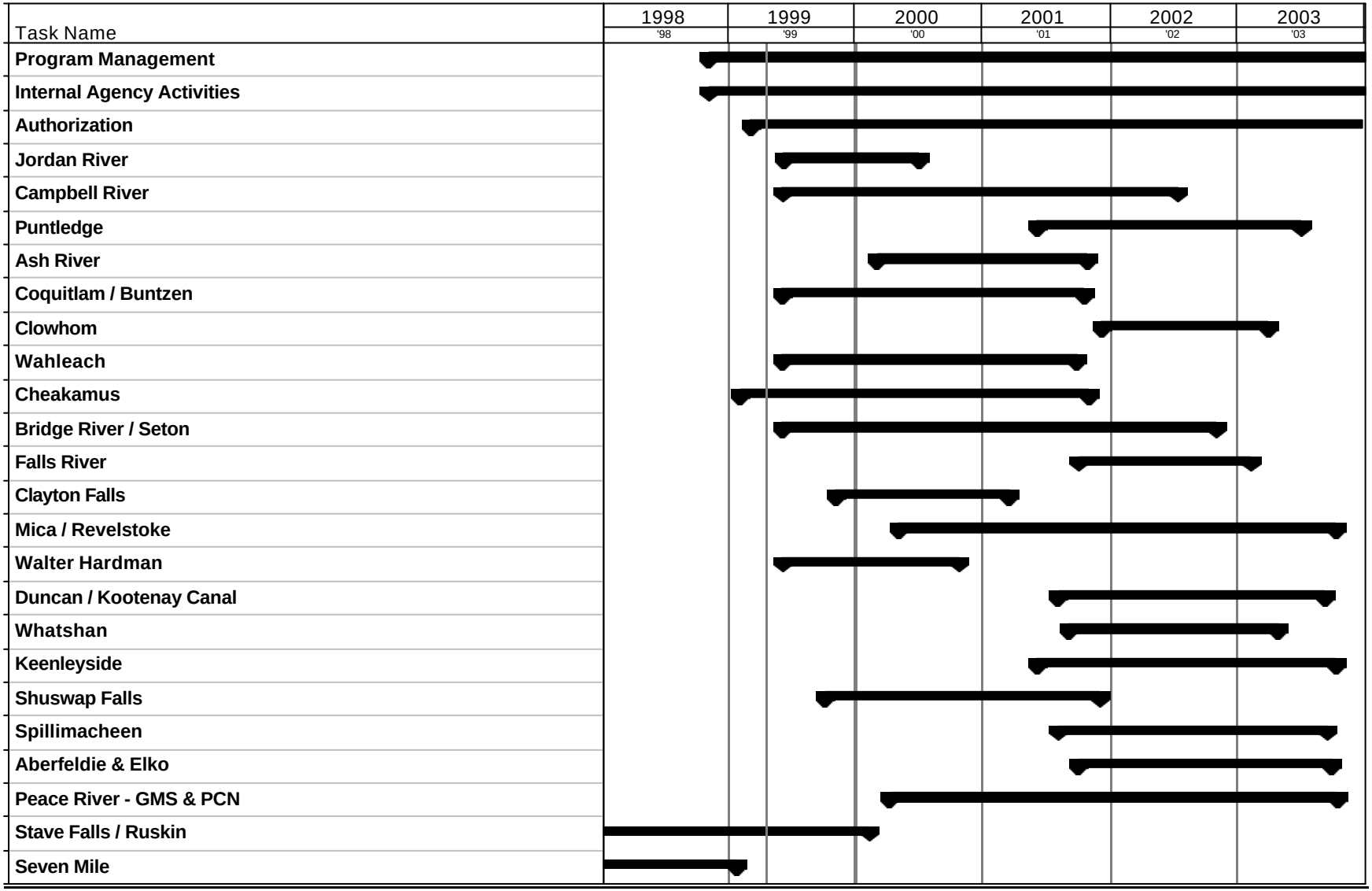
(original signed) (15 February 2000)

David Cohen Date

(original signed) (29 February 2000)

Michael Healey Date

Question 6: WATER USE PLAN Program Plan April 1999



Appendix 10

11 May 2000 COMMENTS OF CANADA

In its 11 May 2000 comments, Canada requested that certain comments be attached to the factual record. These comments are set forth below.

> While clearly a factual record cannot contain all of the information provided to the Secretariat, there are two contextual facts that are important to include:
>
> (1) almost all BC Hydro facilities were built and in service prior to 1977, the year that section 35(1) of the Fisheries Act came into force;
> (2) hydroelectric facilities affect 27 watersheds, representing 2% of all salmon bearing streams in British Columbia. There are no facilities in the mainstream of the Fraser/Thompson system.
>
> Paragraph 137 contains a factual error: the final value of reduced power benefits is $50 million per year.

The Secretariat references, and/or provides information relevant to, these comments in paragraphs 37, 58, 67, and 137 of the factual record in particular.

Canada also requested that the following statement be attached to the final factual record and it is included in this Appendix: “Canada is not to be taken as necessarily agreeing with the content of the factual record.”

List of Attachements

Distribution: General

C/00-00/RES/08/Rev.1

ORIGINAL: ENGLISH

Dallas, 11 June 2000

COUNCIL RESOLUTION 00-04

Instruction to the Secretariat of the Commission for Environmental Cooperation to make public the Factual Record regarding the assertion that Canada is failing to effectively enforce s. 35(1) of the *Fisheries Act* with respect to certain hydro-electric installations in British Columbia, Canada (SEM-97-001)

THE COUNCIL:

SUPPORTIVE of the process provided for in Articles 14 and 15 of the *North American Agreement on Environmental Cooperation* (NAAEC) regarding submissions on enforcement matters and the preparation of factual records;

HAVING RECEIVED the final factual record;

NOTING that pursuant to Article 15(7) of the NAAEC the Council is now called upon to decide whether to make the factual record publicly available; and

AFFIRMING its commitment to a timely and transparent process;

HEREBY DECIDES:

TO MAKE PUBLIC and post on the registry the final factual record with respect to this submission; and

TO ATTACH to this resolution and the final factual record the letters sent by the Parties to the Secretariat pursuant to Article 15(5) of the NAAEC commenting on the draft factual record.

APPROVED BY THE COUNCIL:

_____

Norine Smith
Government of Canada

_____

José Luis Samaniego
Government of the United Mexican States

_____

William A. Nitze
Government of the United States of America

Ottawa ON K1A 0H3

Ms. Janine Ferretti
Executive Director
Secretariat
Commission for Environmental Cooperation
393, St. Jacques Street West, Suite 200
Montreal QC H2Y 1N9

Dear Ms. Ferretti:

Further to Article 15(5) of the North American Agreement on Environmental Cooperation (NAAEC), we have reviewed the draft factual record on 97-001 ('BC Hydro') and provide the following comments.

While clearly a factual record cannot contain all of the information provided to the Secretariat, there are two contextual facts that are import to include:

1) almost all BC Hydro facilities were built and in service prior to 1977, the year that section 35(1) of the Fisheries Act came into force;
2) hydroelectric facilities affect 27 watersheds, representing 2% of all salmon bearing streams in British Columbia. There are no facilities in the mainstream of the Fraser/Thompson system.

Paragraph 137 contains a factual error: the final value of reduced power benefits is $50 million per year.

Canada requests that the above comments be attached to, and from part of the final factual record.

Canada notes that the factual record goes beyond a compilation of facts, and contains opinions, conclusions and recommendations of the Secretariat or the Expert Group. For example, paragraph 143 contains speculation regarding issues that may "affect the effectiveness of the WUP process". Paragraph 149 is a long list of recommendations regarding "Issues worthy of attention in monitoring the effectiveness of the WUP program". Paragraph 233 contains a conclusion that "setting the baseline conditions at the habitat level when Water Use Plans (WUP) are initiated or in the recent past sets the bar too low for habitat protections". As you are aware, the question of the scope of factual records within the NAAEC is currently being considered by the Parties, and Parties intend to clarify their collective understanding of this matter as soon as possible.

…/2

It will be important to note that the release of a factual record does not mean endorsement of it by the Council or the concerned Party. Consequently, we would like the following statement attached to the final factual record: “Canada is not to be taken as necessarily agreeing with the content of the factual record”.

Finally, we note that comments of a Party are not to be made public unless and until Council votes to make the final factual record publicly available pursuant to 15(7) of the NAAEC.

Yours sincerely,

Norine Smith
Assistant Deputy Minister
Policy and Communications

c.c.: William Nitze
José Luis Samaniego

May 11, 2000

Janine Ferretti
Executive Director of the Secretariat
Commission for Environmental Cooperation
393, rue St-Jacques Ouest, Bureau
Montreal (Quebec)
Canada H2Y 1N9

Dear Janine:

On behalf of the Unites States of America, and pursuant to Article 15 of the North American Agreement on Environmental Cooperation (NAAEC), I would like to provide the Secretariat with comments on the draft factual record relating to Submission on Enforcement Matters 97-001 (the "British Columbia Hydro" submission). The U.S. government reviewed the draft factual record with interest. Although the U.S. could offer other thoughts and suggestions about the factual record, we restrict our comments to one issue that we consider to be extremely important.

It is the position of the U.S. government that the primary purpose of a factual record is for the Secretariat to set forth the facts surrounding a particular assertion of failure by a Party to the NAAEC to effectively enforce its environmental law. This statement of the facts should enable members of the public in North America to reach their own conclusions as to whether the Party is effectively enforcing its law. In this process the Secretariat has been given the important role of serving as a neutral and independent fact-finder. Consequently, it is important that the Secretariat refrain from offering comments in a factual record that appear to provide the Secretariat's own views about whether or not there has been effective enforcement of the law with respect to the assertions in a particular submission.

In this regard, the U.S. government is concerned with three portions of the draft factual record. The portion of the draft factual record of most concern to us is the last bullet of section 233. In that bullet the Secretariat discusses the tools Canada would need to use under particular circumstances in order to effectively enforce its law. Also of concern are section 141 and section 218 of the draft record. Section 141 appears to convey the Secretariat's views as to what actions taken by the Canadian government might satisfy the concerns of those who made the submission. Section 218 appears to set forth the Secretariat's thoughts on what "challenges" need to be addressed by Canada to resolve "harm to fish habitat caused by BC Hydro's operations." In our view, the statements in these sections cross the line or come very close to crossing the line

between independent fact-finding, on the one hand, and rendering judgment on the underlying legal issue at the heart of the submission, on the other hand. The U.S. therefore recommends that these sections be modified by the Secretariat in the final factual record to address this issue.

If the Secretariat requires further clarification of our comments, please do not hesitate to contact me, or Lorry Frigerio of my staff.

Very truly yours,

William A. Nitze
U.S. Alternate Representative to the Council

SEMARNAP
SECRETARÍA DE MEDIO AMBIENTE,
RECURSOS NATURALES Y PESCA

Unidad Coordinadora de
Asuntos Internacionales (UCAI)

UCAI/**2442**/00
REF: CCA.00/SEM 97-001

Mexico City, Federal District, May 11, 2000

Ms. Janine Ferretti
Executive Director
Commission for Environmental Cooperation

Mexico hereby acknowledges receipt of the Draft Factual Record for Submission SEM 97-001 to the Secretariat of the CEC, and expresses its recognition of the Secretariat's efforts to continue making progress toward perfecting the procedure established by Articles 14 and 15 of the NAAEC. In this regard, and in accordance with Article 15(5) of the NAAEC, Mexico is hereby transmitting to the Secretariat its observations concerning the accuracy of the Factual Record.

It is worth noting first that, as stipulated by the Agreement, after the Secretariat incorporates the relevant observations into the final factual record, it is exclusively for the Council to decide whether or not to make said document public, as provided by Article 15(7) of the Agreement.

As discussed in our specific observations, Mexico holds the view that a factual record should consist of the collection of facts alone, as the Agreement provides, and not of value judgements or recommendations from experts whose services are retained by the Secretariat, nor opinions of the Secretariat itself.

Moreover, we draw your attention to the fact that the documents presented as a *factual record* should be limited to describing the facts that motivated the Submission.

Additionally, we are of the opinion that a factual record cannot review or rule on the efficiency, effectiveness or suitability of a legal framework, but must focus exclusively on the factual corroboration of the alleged failures to enforce the law asserted in the submission relating to the case in question.

Finally, and without minimizing the importance of the remaining observations discussed in the accompanying review, I must stress the need to conduct the process properly, i.e., in strict adherence with the Agreement. This will give us the opportunity to provide the public with a process that offers certainty, that is effective and transparent, and whose ultimate consequence will be a strengthened mechanism for public participation.

Not being there other matters, I stress my highest regards.

Yours sincerely,

José Luis Samaniego Leyva
Alternate Representative

VDM/MVL

cc: Julia Carabias Lillo, Secretary of the Environment, Natural Resources and Fisheries.
Norine Smith, Alternate Representative, Canada
William Nitze, Alternate Representative, United States of America

OBSERVATIONS OF MEXICO ON THE DRAFT FACTUAL RECORD FOR SUBMISSION SEM 97-001
(BC ABORIGINAL FISHERIES COMMISSION ET AL.)

Mexico City, Federal District, 8 May 2000

BACKGROUND

On 2 April 1997, the Sierra Legal Defense Fund and the Sierra Club Defense Fund (the Submitters) filed a Submission with the Secretariat of the Commission for Environmental Cooperation (CEC) under Article 14 of the North American Agreement on Environmental Cooperation (NAAEC), in which they assert that the Government of Canada is failing to effectively enforce sections 35(1) and 40(1) of the Fisheries Act, in respect of the operations of the company BC Hydro and Tower Authority (BC Hydro).

Once the Submission was analyzed under Article 14(2) of the NAAEC, the Secretariat determined that the Submission warranted requesting a Response from the Party. Accordingly, Canada submitted its Response in July 1997.

Having analyzed both the Submission and the Response of the Party, the Secretariat found that the Submission warranted the development of a factual record pursuant to Article 15(1) of the NAAEC, and so notified the Council of the CEC on 27 April 1998.

By Resolution 98-07, Council ordered the Secretariat to develop said record.

On 28 March 2000, the Secretariat submitted the "Draft Factual Record for Submission SEM 97-001" (the Draft) to Council pursuant to Article 15(5) of the NAAEC.

The following is a summary of the contents of both the Submission and the Response of the Party, the actions of the Secretariat in relation to the development of the corresponding Draft Factual Record and the characteristics of said Draft.

1. The Submitters assert that sections 35(1) and 40(1) of Canada's Fisheries Act *"make it an offence to carry on any work that results in the harmful alteration of fish habitat,"* supporting their statement with the enumeration of six specific cases in which the operations of

BC Hydro are harming fish and their habitat. Thus, they assert that BC Hydro has *"consistently and routinely violated [federal Fisheries Act] section 35(1)"* and that the regular operation of its dams *"causes consistent and substantial damage to fish and fish habitat"* (paragraphs 11 and 13, p. 13 of the Draft).

The Submission also states that section 35(2) of the Fisheries Act contains an exception to section 35(1) to allow alteration, disruption or destruction of fish habitat by any means authorized by the Minister of Fisheries and Oceans or under regulations made under the Act.

In addition, it states that the Ministry of Fisheries and Oceans of Canada *"has not issued any authorizations pursuant to s. 35(2)…that permit Hydro to damage fish habitat, nor are there any regulations under the Act that exempt Hydro from complying with s. 35(1)."* The Submitters emphasize that the Department of Fisheries and Oceans—the federal body responsible for enforcement of the Fisheries Act—has failed to enforce section 35(1) in the case of BC Hydro, since it has *"only laid two isolated charges…against [BC] Hydro since 1990, despite clear and well documented evidence that Hydro's operations have damaged fish habitat on numerous occasions"* (paragraph 13, p. 13 and paragraph 19, p. 15 of the Draft).

The Submitters assert that *"the Party has failed to effectively enforce the Fisheries Act.* [The Submission] *states: "DFO…has failed, and continues to fail, to enforce s. 35(1) against Hydro"* (paragraph 19, p. 15 of the Draft).

2. The Government of Canada, for its part, contends that it is effectively enforcing its environmental laws, stating that *"Article 5 of the NAAEC recognizes that enforcement encompasses actions broader than just prosecution and provides a non-exhaustive list of appropriate enforcement actions."* It further argues that the Submitters are basing their assertions on an overly limited definition of effective enforcement, one that *"equates enforcement directly with legal and judicial sanctions"* (paragraph 23, p. 16 of the Draft).

   The Party states that it *"has determined that a range of compliance activities, from voluntary compliance and compliance agreements to legal and judicial sanctions, are the most productive in terms of providing for the long-term protection of the environment with respect to fish and fish habitat"* (paragraph 24, p. 16 of the Draft). In addition, it states that *"Canada does not hesitate to utilize the full power of its laws to protect fish and fish habitat, where the exercise of these powers is deemed by Canada to be the appropriate response"* (paragraph 25, p. 17 of the Draft).

In support of its contentions, Canada includes in its Response a table, titled "Orders and Authorizations Issued to BC Hydro since 1990," containing authorizations issued under sections 32 and 35(2) of the Fisheries Act, as well as a list of minimum flow orders pursuant to section 22(3) of the Act. As well, Canada identifies the following five strategies for law enforcement and compliance: New Projects, Emergency Operations, Regional Technical Committees, Water Use Planning Initiative and Water Quality Guidelines.

3. Having received instructions from Council, the Secretariat initiated development of the Draft Factual Record, for which purpose it carried out the following activities:

a. retained the services of an environmental expert with an in-depth knowledge of the citizen submission process (paragraph 39, p. 28 of the Draft);
b. convened an Expert Group on hydroelectric operations, regulatory and compliance matters and fish habitat-related issues, for the purpose of preparing a report *"relating to the effectiveness of Canada's enforcement practices"* (paragraph 40, p. 29 of the Draft and Appendix 2, p. 2);
c. identified Canada, the Submitters, the province of British Columbia and BC Hydro as Stakeholders in the factual record development process (paragraph 41, p. 30 of the Draft);
d. invited the Stakeholders to provide information, both verbal and written, by a deadline that was subsequently extended several times, as well as to meet with the Expert Group in order to present information (paragraph 42, p. 30 and paragraphs 49 and 50, p. 35 of the Draft), at meetings at which it was intended that all the Stakeholders would attend as observers.1 (paragraphs 46, 48, 49 and 52, p. 35 of the Draft);
e. distributed to Stakeholders the document titled "Commission for Environmental Cooperation, Draft Factual Record Under Articles 14 and 14 [sic] SEM-97-001, Synopsis," produced by the Secretariat, which *"provided an overview of the Article 14 process and the process the Secretariat intended to use to develop information for consideration in the Factual Record"* (paragraph 43 of the Draft, p. 30);
f. distributed to Stakeholders a document entitled "Commission for Environmental Cooperation, Draft Factual Record Under Articles 14 and 14 [sic] SEM-97-001, Scope of Inquiry" in order *"to focus the information-gathering process and thereby enhance the efficiency and*

1 It should be pointed out that the Draft Factual Record states that *"the Secretariat made efforts to schedule presentations by Canada and the Province of British Columbia to the Expert Group. One such presentation was scheduled for 11 February 1999, for example, but this presentation was postponed at Canada's request. No such presentation was ever made"* (paragraph 49, p. 35 of the Draft), neglecting to explain that the reasons why Canada did not participate derived from its dissatisfaction with the process itself, its format and scope, which gave rise to a specific deliberation between the Council and the Secretariat, culminating in the suspension of the hearings.

effectiveness of the effort to develop information" (paragraph 44, p. 31 of the Draft). The purpose of the document was to *"promote development of information regarding whether Canada has been effectively enforcing its environment al laws"* (Appendix 3, p. 1);

g. sent a letter to the Stakeholders notifying them that the factual record would focus on a subset of the six BC Hydro plants, so as to gather information on the principal adverse impacts, the measures taken by Canada and *"the extent to which the government's actions and BC Hydro's efforts have been successful in reducing impacts."* The same letter *"requested that the Stakeholders identify any other facilities that should be selected"* (paragraph 45, p. 34 of the Draft); and
h. invited citizens to participate in the process, placing the above documents (the letter of invitation to the Stakeholders inviting them to present information and participate in the meetings with the Expert Group, the Synopsis and the Scope of Inquiry) on the CEC web site and *"established a document repository"* (paragraph 53, p. 36 of the Draft) at the Institute of Dispute Resolution of the University of Victoria, British Columbia, containing the foregoing documents, as well as the *"…Submission itself, Canada's Response, the Submitters' Reply, the Council's Resolution, and the Agreement and Guidelines,"* for consultation (Appendix 2, p. 2).

Through these activities, the Secretariat obtained and developed information relating, inter alia, to the nature of the enforcement activities undertaken by Canada and the effectiveness of said activities in enforcing section 35(1) of the Fisheries Act.

4. In the Summary section of the Draft Factual Record, the following principal results are noted:

a. habitat alterations are inevitable with the operation of hydroelectric plants;
b. Canada has various initiatives underway geared toward enforcement and reducing damage to fish habitat;
c. resolving the damage to fish habitat caused by the operations of BC Hydro is a major challenge, but entails finding a suitable trade-off between competing interests, improving understanding of the fish habitat potentially impacted by BC Hydro's operations, as well as the possible options for resolving the harm to such habitat caused by such operations;
d. there are many activities, not only hydroelectric operations, that can damage fish habitat;
e. Canada mentioned the various enforcement approaches that it has undertaken, and is undertaking, to resolve the harm to fish habitat caused by BC Hydro operations: prosecution against BC Hydro; Fisheries Act s. 22(3) orders and ss. 32 and 35(2) authorizations; creation of various regional committees to better address aspects of the habitat; enforcement of the Water Quality Guidelines (paragraphs 216–220, pp. 118–120 of the Draft);

f. concerning Canada's enforcement activities and their impact within the context of the six facilities, the Expert Group Report indicates that Canada's efforts to resolve the habitat problems vary greatly from one facility to the next. The Expert Group notes that *"the fact that some activities produced benefits is clear but that information generally is limited concerning the degree and adequacy of benefit produced."* It also stresses the importance of applying a comprehensive, system-wide approach in resolving harm to fish habitat (paragraph 221, p. 120);

g. Canada has initiated the development of a Water Use Planning process which is considered to be the centerpiece of its efforts to resolve the harm to fish habitat caused by BC Hydro operations, and which is designed to include collection and gathering of necessary data as well as compliance assessment measures, a monitoring plan and the possibility of adaptive management that provides opportunities to incorporate evolving knowledge (paragraphs 222, 226 and 227, pp. 121–122 of the Draft);

h. in connection with the foregoing, the Draft Factual Record states that the Expert Group concluded that the Water Use Planning process *"is an improvement in many ways over previous strategies to resolve harm to fish habitat caused by BC Hydro operations."* It further indicates that *"the overall direction…is promising…the "proof" will lie in the results over the next several years."* The Expert Group mentions *"…a series of issues to monitor concerning whether the WUP process will prove to be effective"* (paragraphs 231–233, p. 124 of the Draft);

i. concerning the procedure itself, the Draft Factual Record states that *"the Submitters' assertion appears to be that the WUP process may constitute effective enforcement of s. 35(1) of the Fisheries Act if…:"*

- *Canada decides that a s. 35(2) authorization is needed for each BC Hydro operation that continues to cause or could continue to cause harm to fish habitat…;*
- *Canada follows s. 35(2) and CEAA [Canadian Environmental Assessment Act] requirements in reviewing whether an authorization should be issued and in determining the terms and conditions to be included in each authorization…;*
- *Canada "effectively enforces" (through prosecutions or otherwise) in those situations (if any) in which it declines to issue an authorization and the facility continues to operate in a way that violates s. 35(1) by harming fish habitat, and in situations (if any) in which there is non-compliance with an authorization"* (paragraph 234, p. 127 of the draft);

j. Concerning the enforcement measures taken other than the Water Use Planning process, the Draft states that *"limited information was provided concerning the effectiveness of the use of these tools…. Canada appears to contemplate considerably greater use of s. 35(2) authorizations as part of the [Water Use Planning] process, and the Expert Group provides information concerning the potential benefits of such a strategy"*:

> *"Section 35(2) authorization is an enforcement tool that can be used in the normal process of managing multiple uses of habitat. Although section 35(2) does not appear to have been often used in this way in the past, DFO indicates that it intends to use such authorizations as part of the WUP process. A wider use of section 35(2) authorizations would rationalize a process that, at present, appears haphazard and arbitrary. In particular, where habitat alterations are unavoidable, such as with the operation of hydro electric facilities, section 35(2) authorizations should provide a means of establishing expectations for habitat quality and productivity in the context of facility operation"* (paragraph 220, pp. 119–120 of the Draft).

OBSERVATIONS

Mexico's observations, which are intended as illustrative rather than exhaustive, are in keeping with the provisions of Article 15(5) of the NAAEC, which states that *"[a]ny Party may provide comments on the accuracy of the draft within 45 days* [of submission of the draft factual record]":*2*

1. *The Draft factual record submitted by the Secretariat of the CEC does not specifically focus on establishing whether Canada failed to effectively enforce sections 35(1) and 40(1) of the Fisheries Act, which is the matter raised by the Submitters.*

   Although Canada indicated the existence and enforcement of a wide range of measures at

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its disposal, whose execution had to be corroborated in order to confirm that the assertions made in the Response of the Party were correct, the Secretariat focused on an analysis of the efficiency, efficacy and degree of effectiveness with which those measures were and should be enforced, which, from our point of view, vitiates the purpose of the factual record.

Thus, the Secretariat based its determination to develop a factual record on the insufficiency of information relating to the effectiveness of the actions taken by Canada to enforce its environmental law, instead of focusing on the factual corroboration of the alleged failures to enforce said law asserted by the Submitters, as it should do based on a broad interpretation of the term "effective enforcement," as well as on the fact that Canada, in its Response, cited an additional series of measures that imply the effective enforcement of its environmental law.3

In this way, the Secretariat made up for the defects in the Submission, going into an analysis of the measures taken by Canada, even though the text of the Submission only made reference to the failure to enforce sections 35(1) and 41 of the Fisheries Act relating to prosecution.

2. *From our point of view, Canada is making use of its discretionary power in determining the type of action it considers relevant in each case, among the various provisions at its disposal. In this regard, we consider such decisions to be in keeping with Article 45(1)(a) of the NAAEC, and thus the selective enforcement of measures it considers to be relevant, arising from its discretionary power, falls outside the scope of the process established by Articles 14 and 15 of the Agreement*.4

3 We adopt the definition of "enforcement" given in *Black's Law Dictionary*: "Enforcement: the act of putting something such as a law into effect; the execution of a law; the carrying out of a mandate or command." *Black's Law Dictionary*. Sixth Edition. Centennial Edition (1891-1991), p. 528.

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1. For purposes of this Agreement:
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(a) reflects a reasonable exercise of their discretion in respect of investigatory, prosecutorial, regulatory or compliance matters; or
(b) results from bona fide decisions to allocate resources to enforcement in respect of other environmental matters determined to have higher priorities;

3. *By requesting additional information from the Submitters, including information relating to the Response of the Party, the Secretariat overstepped its authority under the NAAEC, which does not provide for such a possibility. Specifically, Article 21(1)(a) stipulates that additional information for the development of a Factual Record, including compliance and enforcement information, may only be requested from the Party.*

   By acting in this way, the Secretariat opened the door for the Submitters to expand on the original content of their Submission, as they did, as well as to contest the arguments contained in the Response of the Party. This procedure adopted by the Secretariat has no basis in the NAAEC nor [in] the Guidelines.

   Moreover, if the Secretariat considered it necessary to introduce this type of novel practice during the process of developing the Draft factual record, it should have requested Council's opinion on the matter, thus guaranteeing the reliability, transparency and predictability of the process.

4. *The Expert Group focused on gathering information on the effectiveness of the Canadian law enforcement activities, and here too the Secretariat overstepped its authority, since as discussed in point 1 of these Observations, the Secretariat is only empowered to analyze whether the Party failed to enforce its environmental law, but not to question the suitability of such law.*

5. *By inviting citizens to participate in the process and establishing a document repository at the Expert Group's office at the University of Victoria, further stipulating that the information provided to the repository would be available to the public unless its confidentiality were invoked, the Secretariat made the information in the factual record public before the vote in Council pursuant to Article 15(7) of the NAAEC and the* Guidelines, *and delegated functions reserved to it, since neither the NAAEC nor the* Guidelines *permit the establishment of a public document repository other than the public registry and file contemplated in Guidelines 15 and 16. In addition, the Secretariat placed documents on the CEC web site different from those expressly contemplated in Guidelines 15 and 16.*

6. *The Draft Factual Record questions the suitability of Canadian law by assessing the measures taken by the Party in terms of the degree and sufficiency of the benefits said measures produced, further discussing aspects to be surveyed in order to determine*

> *whether the measures will prove to be effective, and also by including various recommendations on the manner in which the measures should be enforced so that they do not appear to be random or arbitrary.*

In summary, it is clear that the Secretariat put procedures into practice that have no basis, thereby vitiating the process contemplated in Articles 14 and 15 of the NAAEC and its *Guidelines*.

Environment Canada Environnement Canada

Ottawa ON K1A 0H3

MAY 11 2000

Ms. Janine Ferretti
Executive Director
Secretariat
Commission for Environmental Cooperation
393 St. Jacques Street West, Suite 200
Montreal QC H2Y 1N9

Dear Ms. Ferretti:

Further to Article 15(5) of the North American Agreement on Environmental Cooperation (NAAEC), we have reviewed the draft factual record on 97-001 ('BC Hydro') and provide the following comments.

While clearly a factual record cannot contain all of the information provided to the Secretariat, there are two contextual facts that are important to include:

1) almost all BC Hydro facilities were built and in service prior to 1977, the year that section 35(1) of the Fisheries Act came into force;
2) hydroelectric facilities affect 27 watersheds, representing 2% of all salmon bearing streams in British Columbia. There are no facilities in the mainstream of the Fraser/Thompson system.

Paragraph 137 contains a factual error: the final value of reduced power benefits is $50 million per year.

Canada requests that the above comments be attached to, and form part of, the final factual record.

Canada notes that the factual record goes beyond a compilation of facts, and contains opinions, conclusions and recommendations of the Secretariat or the Expert Group. For example, paragraph 143 contains speculation regarding issues that may "affect the effectiveness of the WUP process". Paragraph 149 is a long list of recommendations regarding "issues worthy of attention in monitoring the effectiveness of the WUP program". Paragraph 233 contains a conclusion that "setting the baseline conditions at the habitat level that exists when Water Use Plans (WUP) are initiated or in the recent past sets the bar too low for habitat protection". As you are aware, the question of the scope of factual records within the NAAEC is currently being considered by the Parties, and Parties intend to clarify their collective understanding of this matter as soon as possible.

.../2

Canada

It will be important to note that the release of a factual record does not mean endorsement of it by the Council or the concerned Party. Consequently, we would like the following statement attached to the final factual record: "Canada is not to be taken as necessarily agreeing with the content of the factual record".

Finally, we note that comments of a Party are not to be made public unless and until Council votes to make the final factual record publicly available pursuant to 15(7) of the NAAEC.

Yours sincerely,

Norine Smith

Norine Smith
Assistant Deputy Minister
Policy and Communications

c.c.: William Nitze
José Luis Samaniego

SEMARNAP
SECRETARÍA DE MEDIO AMBIENTE,
RECURSOS NATURALES Y PESCA

Unidad Coordinadora de
Asuntos Internacionales (UCAI)

UCAI/**2442**/00
REF: CCA.00/SEM 97-001

Mexico City, Federal District, May 11, 2000

Ms. Janine Ferretti
Executive Director
Commission for Environmental Cooperation

Mexico hereby acknowledges receipt of the Draft Factual Record for Submission SEM 97-001 to the Secretariat of the CEC, and expresses its recognition of the Secretariat's efforts to continue making progress toward perfecting the procedure established by Articles 14 and 15 of the NAAEC. In this regard, and in accordance with Article 15(5) of the NAAEC, Mexico is hereby transmitting to the Secretariat its observations concerning the accuracy of the Factual Record.

It is worth noting first that, as stipulated by the Agreement, after the Secretariat incorporates the relevant observations into the final factual record, it is exclusively for the Council to decide whether or not to make said document public, as provided by Article 15(7) of the Agreement.

As discussed in our specific observations, Mexico holds the view that a factual record should consist of the collection of facts alone, as the Agreement provides, and not of value judgements or recommendations from experts whose services are retained by the Secretariat, nor opinions of the Secretariat itself.

Moreover, we draw your attention to the fact that the documents presented as a *factual record* should be limited to describing the facts that motivated the Submission.

Additionally, we are of the opinion that a factual record cannot review or rule on the efficiency, effectiveness or suitability of a legal framework, but must focus exclusively on the factual corroboration of the alleged failures to enforce the law asserted in the submission relating to the case in question.

Finally, and without minimizing the importance of the remaining observations discussed in the accompanying review, I must stress the need to conduct the process properly, i.e., in strict adherence with the Agreement. This will give us the opportunity to provide the public with a

process that offers certainty, that is effective and transparent, and whose ultimate consequence will be a strengthened mechanism for public participation.

Not being there other matters, I stress my highest regards.

Yours sincerely,

José Luis Samaniego Leyva
Alternate Representative

VDM/MVL

cc: Julia Carabias Lillo, Secretary of the Environment, Natural Resources and Fisheries.
Norine Smith, Alternate Representative, Canada
William Nitze, Alternate Representative, United States of America

OBSERVATIONS OF MEXICO ON THE DRAFT FACTUAL RECORD FOR SUBMISSION SEM 97-001
(BC ABORIGINAL FISHERIES COMMISSION ET AL.)

Mexico City, Federal District, 8 May 2000

BACKGROUND

On 2 April 1997, the Sierra Legal Defense Fund and the Sierra Club Defense Fund (the Submitters) filed a Submission with the Secretariat of the Commission for Environmental Cooperation (CEC) under Article 14 of the North American Agreement on Environmental Cooperation (NAAEC), in which they assert that the Government of Canada is failing to effectively enforce sections 35(1) and 40(1) of the Fisheries Act, in respect of the operations of the company BC Hydro and Tower Authority (BC Hydro).

Once the Submission was analyzed under Article 14(2) of the NAAEC, the Secretariat determined that the Submission warranted requesting a Response from the Party. Accordingly, Canada submitted its Response in July 1997.

Having analyzed both the Submission and the Response of the Party, the Secretariat found that the Submission warranted the development of a factual record pursuant to Article 15(1) of the NAAEC, and so notified the Council of the CEC on 27 April 1998.

By Resolution 98-07, Council ordered the Secretariat to develop said record.

On 28 March 2000, the Secretariat submitted the "Draft Factual Record for Submission SEM 97-001" (the Draft) to Council pursuant to Article 15(5) of the NAAEC.

The following is a summary of the contents of both the Submission and the Response of the Party, the actions of the Secretariat in relation to the development of the corresponding Draft Factual Record and the characteristics of said Draft.

1. The Submitters assert that sections 35(1) and 40(1) of Canada's Fisheries Act *"make it an offence to carry on any work that results in the harmful alteration of fish habitat,"* supporting their statement with the enumeration of six specific cases in which the operations of BC Hydro are harming fish and their habitat. Thus, they assert that BC Hydro has *"consistently and routinely violated [federal Fisheries Act] section 35(1)"* and that the regular operation of its dams *"causes consistent and substantial damage to fish and fish habitat"* (paragraphs 11 and 13, p. 13 of the Draft).

The Submission also states that section 35(2) of the Fisheries Act contains an exception to section 35(1) to allow alteration, disruption or destruction of fish habitat by any means authorized by the Minister of Fisheries and Oceans or under regulations made under the Act.

In addition, it states that the Ministry of Fisheries and Oceans of Canada *"has not issued any authorizations pursuant to s. 35(2)…that permit Hydro to damage fish habitat, nor are there any regulations under the Act that exempt Hydro from complying with s. 35(1)."* The Submitters emphasize that the Department of Fisheries and Oceans—the federal body responsible for enforcement of the Fisheries Act—has failed to enforce section 35(1) in the case of BC Hydro, since it has *"only laid two isolated charges…against [BC] Hydro since 1990, despite clear and well documented evidence that Hydro's operations have damaged fish habitat on numerous occasions"* (paragraph 13, p. 13 and paragraph 19, p. 15 of the Draft).

The Submitters assert that "*the Party has failed to effectively enforce the Fisheries Act.* [The Submission] *states: "DFO…has failed, and continues to fail, to enforce s. 35(1) against Hydro"* (paragraph 19, p. 15 of the Draft).

2. The Government of Canada, for its part, contends that it is effectively enforcing its environmental laws, stating that *"Article 5 of the NAAEC recognizes that enforcement encompasses actions broader than just prosecution and provides a non-exhaustive list of appropriate enforcement actions."* It further argues that the Submitters are basing their assertions on an overly limited definition of effective enforcement, one that *"equates enforcement directly with legal and judicial sanctions"* (paragraph 23, p. 16 of the Draft).

   The Party states that it *"has determined that a range of compliance activities, from voluntary compliance and compliance agreements to legal and judicial sanctions, are the most productive in terms of providing for the long-term protection of the environment with respect to fish and fish habitat"* (paragraph 24, p. 16 of the Draft). In addition, it states that *"Canada does not hesitate to utilize the full power of its laws to protect fish and fish habitat, where the exercise of these powers is deemed by Canada to be the appropriate response"* (paragraph 25, p. 17 of the Draft).

   In support of its contentions, Canada includes in its Response a table, titled "Orders and Authorizations Issued to BC Hydro since 1990," containing authorizations issued under sections 32 and 35(2) of the Fisheries Act, as well as a list of minimum flow orders pursuant to section 22(3) of the Act. As well, Canada identifies the following five strategies for law enforcement and compliance: New Projects, Emergency Operations,

Regional Technical Committees, Water Use Planning Initiative and Water Quality Guidelines.

3. Having received instructions from Council, the Secretariat initiated development of the Draft Factual Record, for which purpose it carried out the following activities:

a. retained the services of an environmental expert with an in-depth knowledge of the citizen submission process (paragraph 39, p. 28 of the Draft);
b. convened an Expert Group on hydroelectric operations, regulatory and compliance matters and fish habitat-related issues, for the purpose of preparing a report *"relating to the effectiveness of Canada's enforcement practices"* (paragraph 40, p. 29 of the Draft and Appendix 2, p. 2);
c. identified Canada, the Submitters, the province of British Columbia and BC Hydro as Stakeholders in the factual record development process (paragraph 41, p. 30 of the Draft);
d. invited the Stakeholders to provide information, both verbal and written, by a deadline that was subsequently extended several times, as well as to meet with the Expert Group in order to present information (paragraph 42, p. 30 and paragraphs 49 and 50, p. 35 of the Draft), at meetings at which it was intended that all the Stakeholders would attend as observers.[1] (paragraphs 46, 48, 49 and 52, p. 35 of the Draft);
e. distributed to Stakeholders the document titled "Commission for Environmental Cooperation, Draft Factual Record Under Articles 14 and 14 [sic] SEM-97-001, Synopsis," produced by the Secretariat, which *"provided an overview of the Article 14 process and the process the Secretariat intended to use to develop information for consideration in the Factual Record"* (paragraph 43 of the Draft, p. 30);
f. distributed to Stakeholders a document entitled "Commission for Environmental Cooperation, Draft Factual Record Under Articles 14 and 14 [sic] SEM-97-001, Scope of Inquiry" in order *"to focus the information-gathering process and thereby enhance the efficiency and effectiveness of the effort to develop information"* (paragraph 44, p. 31 of the Draft). The purpose of the document was to *"promote development of information regarding whether Canada has been effectively enforcing its environmental laws"* (Appendix 3, p. 1);
g. sent a letter to the Stakeholders notifying them that the factual record would focus on a subset of the six BC Hydro plants, so as to gather information on the principal adverse

[1] It should be pointed out that the Draft Factual Record states that *"the Secretariat made efforts to schedule presentations by Canada and the Province of British Columbia to the Expert Group. One such presentation was scheduled for 11 February 1999, for example, but this presentation was postponed at Canada's request. No such presentation was ever made"* (paragraph 49, p. 35 of the Draft), neglecting to explain that the reasons why Canada did not participate derived from its dissatisfaction with the process itself, its format and scope, which gave rise to a specific deliberation between the Council and the Secretariat, culminating in the suspension of the hearings.

impacts, the measures taken by Canada and *"the extent to which the government's actions and BC Hydro's efforts have been successful in reducing impacts."* The same letter *"requested that the Stakeholders identify any other facilities that should be selected"* (paragraph 45, p. 34 of the Draft); and

h. invited citizens to participate in the process, placing the above documents (the letter of invitation to the Stakeholders inviting them to present information and participate in the meetings with the Expert Group, the Synopsis and the Scope of Inquiry) on the CEC web site and *"established a document repository"* (paragraph 53, p. 36 of the Draft) at the Institute of Dispute Resolution of the University of Victoria, British Columbia, containing the foregoing documents, as well as the *"…Submission itself, Canada's Response, the Submitters' Reply, the Council's Resolution, and the Agreement and Guidelines,"* for consultation (Appendix 2, p. 2).

Through these activities, the Secretariat obtained and developed information relating, inter alia, to the nature of the enforcement activities undertaken by Canada and the effectiveness of said activities in enforcing section 35(1) of the Fisheries Act.

4. In the Summary section of the Draft Factual Record, the following principal results are noted:

a. habitat alterations are inevitable with the operation of hydroelectric plants;
b. Canada has various initiatives underway geared toward enforcement and reducing damage to fish habitat;
c. resolving the damage to fish habitat caused by the operations of BC Hydro is a major challenge, but entails finding a suitable trade-off between competing interests, improving understanding of the fish habitat potentially impacted by BC Hydro's operations, as well as the possible options for resolving the harm to such habitat caused by such operations;
d. there are many activities, not only hydroelectric operations, that can damage fish habitat;
e. Canada mentioned the various enforcement approaches that it has undertaken, and is undertaking, to resolve the harm to fish habitat caused by BC Hydro operations: prosecution against BC Hydro; Fisheries Act s. 22(3) orders and ss. 32 and 35(2) authorizations; creation of various regional committees to better address aspects of the habitat; enforcement of the Water Quality Guidelines (paragraphs 216–220, pp. 118–120 of the Draft);
f. concerning Canada's enforcement activities and their impact within the context of the six facilities, the Expert Group Report indicates that Canada's efforts to resolve the habitat problems vary greatly from one facility to the next. The Expert Group notes that *"the fact that some activities produced benefits is clear but that information generally is limited concerning the degree and adequacy of benefit produced."* It also stresses the importance

of applying a comprehensive, system-wide approach in resolving harm to fish habitat (paragraph 221, p. 120);

g. Canada has initiated the development of a Water Use Planning process which is considered to be the centerpiece of its efforts to resolve the harm to fish habitat caused by BC Hydro operations, and which is designed to include collection and gathering of necessary data as well as compliance assessment measures, a monitoring plan and the possibility of adaptive management that provides opportunities to incorporate evolving knowledge (paragraphs 222, 226 and 227, pp. 121–122 of the Draft);

h. in connection with the foregoing, the Draft Factual Record states that the Expert Group concluded that the Water Use Planning process *"is an improvement in many ways over previous strategies to resolve harm to fish habitat caused by BC Hydro operations."* It further indicates that *"the overall direction…is promising…the "proof" will lie in the results over the next several years."* The Expert Group mentions *"…a series of issues to monitor concerning whether the WUP process will prove to be effective"* (paragraphs 231–233, p. 124 of the Draft);

i. concerning the procedure itself, the Draft Factual Record states that *"the Submitters' assertion appears to be that the WUP process may constitute effective enforcement of s. 35(1) of the Fisheries Act if…:"*

> - *Canada decides that a s. 35(2) authorization is needed for each BC Hydro operation that continues to cause or could continue to cause harm to fish habitat…;*
> - *Canada follows s. 35(2) and CEAA [Canadian Environmental Assessment Act] requirements in reviewing whether an authorization should be issued and in determining the terms and conditions to be included in each authorization…;*
> - *Canada "effectively enforces" (through prosecutions or otherwise) in those situations (if any) in which it declines to issue an authorization and the facility continues to operate in a way that violates s. 35(1) by harming fish habitat, and in situations (if any) in which there is non-compliance with an authorization"* (paragraph 234, p. 127 of the draft);

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OBSERVATIONS

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1. *The Draft factual record submitted by the Secretariat of the CEC does not specifically focus on establishing whether Canada failed to effectively enforce sections 35(1) and 40(1) of the Fisheries Act, which is the matter raised by the Submitters.*

   Although Canada indicated the existence and enforcement of a wide range of measures at its disposal, whose execution had to be corroborated in order to confirm that the assertions made in the Response of the Party were correct, the Secretariat focused on an analysis of the efficiency, efficacy and degree of effectiveness with which those measures were and should be enforced, which, from our point of view, vitiates the purpose of the factual record.

   Thus, the Secretariat based its determination to develop a factual record on the insufficiency of information relating to the effectiveness of the actions taken by Canada to enforce its environmental law, instead of focusing on the factual corroboration of the alleged failures to enforce said law asserted by the Submitters, as it should do based on a broad interpretation of the term "effective enforcement," as well as on the fact that

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Canada, in its Response, cited an additional series of measures that imply the effective enforcement of its environmental law.[3]

In this way, the Secretariat made up for the defects in the Submission, going into an analysis of the measures taken by Canada, even though the text of the Submission only made reference to the failure to enforce sections 35(1) and 41 of the Fisheries Act relating to prosecution.

2. *From our point of view, Canada is making use of its discretionary power in determining the type of action it considers relevant in each case, among the various provisions at its disposal. In this regard, we consider such decisions to be in keeping with Article 45(1)(a) of the NAAEC, and thus the selective enforcement of measures it considers to be relevant, arising from its discretionary power, falls outside the scope of the process established by Articles 14 and 15 of the Agreement.*[4]

3. *By requesting additional information from the Submitters, including information relating to the Response of the Party, the Secretariat overstepped its authority under the NAAEC, which does not provide for such a possibility. Specifically, Article 21(1)(a) stipulates that additional information for the development of a Factual Record, including compliance and enforcement information, may only be requested from the Party.*

By acting in this way, the Secretariat opened the door for the Submitters to expand on the original content of their Submission, as they did, as well as to contest the arguments contained in the Response of the Party. This procedure adopted by the Secretariat has no basis in the NAAEC nor [in] the Guidelines.

Moreover, if the Secretariat considered it necessary to introduce this type of novel practice during the process of developing the Draft factual record, it should have requested

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Council's opinion on the matter, thus guaranteeing the reliability, transparency and predictability of the process.

4. *The Expert Group focused on gathering information on the effectiveness of the Canadian law enforcement activities, and here too the Secretariat overstepped its authority, since as discussed in point 1 of these Observations, the Secretariat is only empowered to analyze whether the Party failed to enforce its environmental law, but not to question the suitability of such law.*

5. *By inviting citizens to participate in the process and establishing a document repository at the Expert Group's office at the University of Victoria, further stipulating that the information provided to the repository would be available to the public unless its confidentiality were invoked, the Secretariat made the information in the factual record public before the vote in Council pursuant to Article 15(7) of the NAAEC and the* Guidelines*, and delegated functions reserved to it, since neither the NAAEC nor the* Guidelines *permit the establishment of a public document repository other than the public registry and file contemplated in Guidelines 15 and 16. In addition, the Secretariat placed documents on the CEC web site different from those expressly contemplated in Guidelines 15 and 16.*

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In summary, it is clear that the Secretariat put procedures into practice that have no basis, thereby vitiating the process contemplated in Articles 14 and 15 of the NAAEC and its *Guidelines*.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INTERNATIONAL ACTIVITIES

May 11, 2000

Janine Ferretti
Executive Director of the Secretariat
Commission for Environmental Cooperation
393, rue St-Jacques Ouest, Bureau
Montreal (Quebec)
Canada H2Y 1N9

Dear Janine:

On behalf of the United States of America, and pursuant to Article 15 of the North American Agreement on Environmental Cooperation (NAAEC), I would like to provide the Secretariat with comments on the draft factual record relating to Submission on Enforcement Matters 97-001 (the "British Columbia Hydro" submission). The U.S. government reviewed the draft factual record with interest. Although the U.S. could offer other thoughts and suggestions about the factual record, we restrict our comments to one issue that we consider to be extremely important.

It is the position of the U.S. government that the primary purpose of a factual record is for the Secretariat to set forth the facts surrounding a particular assertion of failure by a Party to the NAAEC to effectively enforce its environmental law. This statement of the facts should enable members of the public in North America to reach their own conclusions as to whether the Party is effectively enforcing its law. In this process the Secretariat has been given the important role of serving as a neutral and independent fact-finder. Consequently, it is important that the Secretariat refrain from offering comments in a factual record that appear to provide the Secretariat's own views about whether or not there has been effective enforcement of the law with respect to the assertions in a particular submission.

In this regard, the U.S. government is concerned with three portions of the draft factual record. The portion of the draft factual record of most concern to us is the last bullet of section 233. In that bullet the Secretariat discusses the tools Canada would need to use under particular circumstances in order to effectively enforce its law. Also of concern are section 141 and section 218 of the draft report. Section 141 appears to convey the Secretariat's views as to what actions taken by the Canadian government might satisfy the concerns of those who made the submission. Section 218 appears to set forth the Secretariat's thoughts on what "challenges" need to be addressed by Canada to resolve "harm to fish habitat caused by BC Hydro's operations." In our view, the statements in these sections cross the line or come very close to crossing the line

between independent fact-finding, on the one hand, and rendering judgement on the underlying legal issue at the heart of the submission, on the other hand. The U.S. therefore recommends that these sections be modified by the Secretariat in the final factual record to address this issue.

If the Secretariat requires further clarification of our comments, please do not hesitate to contact me, or Lorry Frigerio of my staff.

Very truly yours,

William A. Nitze
U.S. Alternate Representative to the Council