

the will to protect

PRESERVING B.C.'S
WILD SALMON HABITAT



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The will to protect: Preserving B.C.'s wild salmon habitat

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Executive Summary

Pacific salmon are a keystone species, crucial to British Columbia and the Yukon's ecosystems, economy and culture. The destruction and degradation of habitat over the past decades has contributed to the extinction of at least 142 wild stocks in B.C. Another 620 are at high risk of extinction.

Fisheries and Oceans Canada (DFO) has failed to protect salmon habitat through a combination of poor policy and a lack of enforcement. We need a better strategy – one that maintains, and ideally rebuilds, Pacific salmon populations. This report aims to motivate discussion and action among government, industry, communities, First Nations, non-government organizations and the public on ways to improve habitat protection.

KEY THREATS TO SALMON HABITAT:

- Reduced stream flows and increased water temperatures from water extraction.
- Climate change impacts to freshwater and marine environments.
- Pollution and the destruction of habitat as a result of mining operations.
- Widespread sedimentation, temperature, and water flow impacts as a result of expanded logging operations, particularly salvage logging in response to pine beetle infestation.
- Degradation and loss of streams and wetlands due to linear, urban, and agricultural development.
- Altered hydrology, sediment dynamics and reduced fish passage as a result of dams and other obstructions.
- Disease, pollution, and invasive species from open net-pen aquaculture in the coastal marine environment.

These threats will lead to further declines in Pacific salmon populations unless addressed.

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The Problem

HABITAT LOSS THREATENS SALMON ABUNDANCE

Habitat degradation and loss have contributed to the extirpation and decline of Pacific salmon in Canada and presents an increasing threat to their persistence. A 2006 review of the 87 salmon stocks actively assessed and managed by government found that more than 50 per cent (44) of these stocks were at least 25 per cent below target abundance, rapidly declining, or both. Habitat loss was regularly identified as a primary cause for these extinctions and catastrophic declines. In 1998, Canada's Auditor General reported that habitat loss accounted for the disappearance of between 20-30 percent of the small stocks of salmon in B.C.

GOVERNMENTS ARE FAILING TO PROTECT SALMON

The DFO has a mandate to conserve fish and fish habitat. This mandate is driven by policy and strong legislation, is supported by court decisions and overrides all its other responsibilities.

However, comprehensive assessments have shown that fish habitat is not being protected. The federal Auditor General of Canada has repeatedly chastised the DFO for its inability to achieve its conservation mandate.

Furthermore, federal policies like the Environmental Process Modernization Plan and the Policy for Conservation of Wild Pacific Salmon do not adequately protect fish habitat. A particular policy failure has been the DFO's supposed commitment to "no net loss" of fish habitat. The 1986 "no net loss" (or Management of Fish Habitat) policy has failed because of:

- Government responsibilities are not clearly defined
- Insufficient funding and personnel
- Deregulation

The DFO's approach to habitat protection and "*no net loss*" also places an emphasis on protecting habitat that is considered important to the currently productive stocks. This emphasis is a serious problem that fails to support the full diversity of salmon and misdirects effort exclusively to larger streams.

The provincial government also has an important role to play in protecting salmon habitat. Unfortunately, its efforts to work with the DFO in achieving this goal have been ineffective over the years and currently the province has largely abandoned its responsibilities for habitat protection through deregulation and self-regulation policies.

Despite past and ongoing criticism of their poor track record on salmon habitat protection and despite the fact that its own experts have informed them repeatedly that the most effective solution to better habitat protection is to increase their habitat monitoring and enforcement capabilities, the DFO has not adopted this approach. In recent years they have actually significantly reduced their capabilities in this regard and propose to continue to do so. For 2005–2006, the entire budget for habitat monitoring and enforcement in the

Pacific Regions (B.C. and Yukon) was a mere \$600,000. This is equivalent to approximately six to eight habitat protection officers for the entire region, an area of land covering over 1.4 million square kilometres.

The Solutions

RESTORE THE WILL TO PROTECT

First, governments, industry and the public must admit we have a serious habitat protection problem. The DFO and the provincial government must acknowledge the current habitat conservation/protection strategy is resulting in widespread and, in many cases, permanent loss of fish habitat. Furthermore, if the DFO is serious about improving conservation and realizing sustainable and abundant salmon populations, it must exhibit leadership in habitat protection and maintain the will to enforce this mandate. To do so, it needs strong political support from the Minister of Fisheries and Oceans and the federal Cabinet, who must ensure the DFO has sufficient financial and personnel capacity.

The most important steps government can take to ensure salmon habitat protection are improvements to monitoring and enforcement and better habitat protection policies and regulations.

IMPROVE HABITAT PROTECTION POLICIES AND REGULATIONS:

- Clarify government responsibilities
- Establish enforceable conservation objectives
- Protect water flow for fish
- Facilitate the transition of open net-pen aquaculture to closed containment systems
- Require developers to provide more information on fish habitat and mitigation
- Make those that destroy habitat pay for recovery
- Establish comprehensive streamside protection and protected areas
- Implement a formal audit process for self-regulating industries
- Make it easier to hold those that harm fish habitat accountable

PROVIDE ADEQUATE FUNDING TO PROMOTE WORKABLE INITIATIVES:

- Increase financial and political support for the Pacific Wild Salmon Policy
- Support community-based efforts to protect and restore salmon ecosystems

GET OUT OF THE OFFICE AND INTO THE FIELD:

- Increase resources for habitat enforcement
- Establish mobile regional task force groups to enforce habitat protection laws

Conclusion

Pacific salmon habitat protection in Canada is being eroded by deregulation and reduced government enforcement capacity. This report offers a suite of potential solutions. Implementing these solutions would provide a significant upgrade to the current salmon habitat management system, would restore and improve habitat protection and would greatly increase the probability of ensuring the survival of Pacific salmon well into the future.

The primary need is to improve enforcement and monitoring of habitat regulations by Fisheries and Oceans Canada. The DFO's own audits have shown that where there is habitat monitoring and enforcement, compliance is highest. Enforcement would be improved by shifting resources to this area of need and providing political support for enforcement actions. Increased funding would improve monitoring and enforcement further. Effective habitat regulations would make enforcement more efficient and effective, while incorporating critical components of ecosystem-based management and salmon diversity conservation. Increased funding and improved habitat regulations are necessary to achieve a comprehensive habitat conservation strategy that is effective in maintaining and recovering Pacific salmon in Canada.



Pacific salmon are losing ground – literally, and figuratively. Studies have shown that, in British Columbia alone, 142 stocks of wild Pacific salmon have gone extinct over the past few decades and another 620 are at high risk of extinction.¹ A 2006 review of 87 salmon stocks that are actively being assessed and managed by government found that more than 50 per cent (44) of these stocks were at least 25 per cent below target abundance, rapidly declining, or both.² Many stocks are of unknown status and receive little or no attention with respect to their abundance or habitat availability. This despite our best efforts to implement management measures designed to maintain or improve the status of these magnificent fish. One of the single greatest factors leading to the decline of this keystone species^{3,4} – crucial to both B.C.’s economy and ecosystems – is the loss and degradation of their habitat.

Numerous studies and internal audits conducted by Fisheries and Oceans Canada (also known as the Department of Fisheries and Oceans, the DFO), the federal agency tasked with protecting salmon and their habitat, have shown, and continue to show, that fish habitat is being lost at an alarming rate despite clear policies and laws that are in place to prevent this. In fact, the DFO has policies that call for a *net increase* in productive fish habitat capacity.

According to the Auditor General of Canada, the DFO has failed to protect salmon habitat through a combination of poor management, ineffective policy and an overall lack of enforcement of the laws that are in place to protect fish habitat.^{5,6} In an opening statement to the federal Committee on Public Accounts in 1998, the Auditor General, reporting on progress within the DFO with regards to sustainability of Pacific salmon, said: “The Department estimates that loss of habitat probably accounts for 20 to 30 per cent of the disappearance of small stocks of salmon in B.C.”⁷ This is an alarming number indeed and illustrates the magnitude of the problem.

Canada needs a better salmon habitat management strategy.

Repeated criticism of the DFO and their failed habitat protection policies by the Auditor General has persisted from 1997 to the present. But despite this criticism, little has changed. In fact, the DFO are in the process of adopting a new habitat management regime and new policies that, when fully implemented, will result in reduced government oversight of the very industries that have a history of degrading or destroying fish habitat. These policies will likely result in even greater destruction of fish habitat than has occurred in the past.

Canada needs a better salmon habitat management strategy – one that maintains, and ideally rebuilds, Pacific salmon populations. This report aims to motivate discussion and action among government, industry, communities, First Nations, non-government organizations and the public on ways to improve habitat protection.

Salmon habitat

The federal Fisheries Act, which guides and regulates the management of salmon fisheries and their habitats, 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.”⁸

For salmon, this includes a wide range of geographic areas and ecosystems. Pacific salmon are a keystone species in marine, estuarine, freshwater and terrestrial ecosystems throughout B.C. For example, the Fraser River supports a broad diversity and abundance of salmon populations. The Fraser Basin covers a fifth of the province and the Fraser River flows through 11 of B.C.’s 14 bio-geoclimatic zones encompassing a range of ecosystems from the Rocky Mountains to the Pacific Coast.

Pacific salmon are not the only species that depend on healthy fish habitat for their survival. Salmon are a major source of food for terrestrial animals such as bears, wolves, eagles and insects and when salmon return to their home rivers to spawn they provide nutrients that increase the overall productivity of the watershed and benefit numerous organisms, from large trees to the next generation of salmon.⁹

TO ENSURE THE SURVIVAL OF SALMON THEIR HABITAT MUST BE PROTECTED

To stem the loss of Pacific salmon and ensure a vibrant future for these fish, and for those species that rely on them for their survival, their habitats must be protected. Activities on land or in the water that alter watershed hydrology, reduce the quality of water, or directly remove or change key habitat features must be properly managed to minimize habitat loss.

This report discusses the detrimental effects of failed habitat management policies on salmon habitat within the scope of the definition of habitat provided in the Fisheries Act. However, as no species exists in isolation, habitat management generally should strive to maintain the natural ecological processes of the entire ecosystem. Our recommendations in this report are congruent with this broader definition of habitat management; a definition that is consistent with the principles of ecosystem-based management.

A need for creative solutions

Many of the habitat problems facing Pacific salmon are not new, but they result in a consistent loss of habitat. This trend must be reversed if Canada hopes to realize the ecological and economic benefits of robust Pacific salmon populations.

If implemented, the proposed solutions presented in this report would establish a precautionary habitat conservation management system capable of addressing the major threats to salmon habitat. These solutions include: reforming regulations that control how industry and developers operate in or near salmon habitat; and, ensuring that governments increase their efforts and capacity for habitat monitoring and enforcement.

These solutions should be implemented as soon as possible, particularly those that deal with increasing government monitoring and enforcement capacity, since protecting and maintaining functional Pacific salmon habitat is significantly less costly than restoring destroyed habitat. For example, a 1994 B.C. Ministry of Environment report concluded that 485 B.C. salmon and trout streams, rivers and lakes had suffered major losses in fish habitat due to logging¹⁰ and estimated remedying this “50 year legacy of impacts” would take 10 to 20 years and cost between one and four billion dollars.

Establishing a more effective habitat management system is not the sole responsibility of government. There are actions that the public, local governments and industry must also undertake to ensure Pacific salmon have a future in Canada.



Key threats to salmon habitat

The key threats to salmon habitat result primarily from ongoing land and resource development activities across Western Canada. Development pressures are increasing. As a result, the threats facing salmon and their habitats are also escalating. Many of these threats affect the last remaining salmon habitats that have not been subjected to significant human induced effects.

Key threats include:

- Reduced stream flows and increased water temperatures from water extraction.¹¹
- Climate change impacts to freshwater¹² and marine environments.¹³
- Pollution¹⁴ and the destruction of habitat¹⁵ as a result of mining operations.
- Widespread sedimentation, temperature and water flow impacts as a result of expanded logging operations,¹⁶ particularly salvage logging in response to pine beetle infestation.
- Degradation and loss of streams and wetlands due to linear, urban and agricultural development.¹⁷
- Altered hydrology, sediment dynamics and reduced fish passage as a result of dams and other obstructions.
- Disease,¹⁸ pollution¹⁹ and invasive species²⁰ from open net-pen aquaculture in the coastal marine environment.

These threats affect Pacific salmon from the streams of their birth, through major rivers, into critical estuarine habitats and throughout their coastal and oceanic range. These threats will lead to further declines in Pacific salmon populations unless they are addressed.

The main problem is that governments at all levels are failing to take the steps necessary to ensure that the rapid pace of expanding growth and development takes environmental values like salmon habitat into consideration. Federal and provincial support for economic development, resource extraction, commercial fisheries and expansion of the aquaculture

industry conflicts directly with the DFO and provincial Ministry of Environment's mandates for fish and habitat conservation.

Governments are failing to protect salmon habitat

The DFO has a mandate to conserve fish and fish habitat. This mandate is driven by policy²¹ and strong legislation,²² is supported by court decisions and overrides all other DFO responsibilities.²³

Although the DFO conservation mandate is clear, a complicated assortment of authorities, statutes and regulations govern salmon habitat protection in Western Canada. Both salmon habitat protection policy and management lack a proactive ecosystem-based approach. Conflicting government mandates, divergent regulations and splintered authority in organizational structures within the DFO have created gaps in planning and protection that have contributed to the loss of salmon habitat.²⁴

Several comprehensive assessments of the DFO's track record in achieving their conservation mandate have repeatedly shown that fish habitat is not being protected. For example:

- A 1997 review of Lower Fraser Valley streams found that of 779 streams examined, 117 had been completely destroyed due to development; 375 were "endangered" and 181 were threatened.²⁵ Many of these streams are, or were, salmon habitat;
- Participants in a 1997 DFO workshop concluded that "no net loss" of habitat objectives, as outlined in DFO policy, were not being met and called for significant changes in order to protect habitat;²⁶
- An independent panel of habitat experts assessing habitat protection efforts in BC in 1998 concluded, "governments are not acting in a way that will assure the continued high productivity of wild salmon stocks."²⁷ The panel recommended a "much-needed province-wide policy and strategy on habitat management, habitat protection, stream restoration and salmonid enhancement";
- Subsequent internal DFO audits conducted in 2000 found that fish habitat damage was still widespread, particularly due to logging-related activities.^{28,29} The auditors recommended better publicizing, enforcement and implementation of existing guidelines; and,
- Another internal DFO review conducted in 2005 found that habitat compensation initiatives that were designed to offset approved habitat losses were insufficient and ineffective;³⁰ inadequate government monitoring and enforcement (in other words, ensuring these projects were properly carried out) were cited as the primary reason for the failure of the majority of approved compensation projects.

"No Net Loss" policy a failure

A particular policy failure has been the DFO's supposed commitment to "no net loss" of fish habitat. The 1986 *Policy for the Management of Fish Habitat*³¹ was intended to guide decision-making on fish-habitat protection throughout Canada. The policy advocates a "net gain of habitat for Canada's fisheries resources" and is based on "no net loss of the

productive capacity of habitat.” But this policy has not succeeded in protecting fish habitat as the studies referred to above clearly indicate.

Two significant shortcomings of this policy are that its application is not mandatory and it is aimed primarily at the protection of “habitat that produces a fisheries resource” – in other words, protection of habitat for salmon stocks that are commercially harvested.³² This discretionary approach contributes to an inconsistent application of the policy and leads to inevitable loss of salmon habitat.

What little effort there is in the way of salmon habitat protection is most often directed towards waterways that can be accessed by commercial, aboriginal and sport fishers. As such, protection efforts do not focus on the full range of salmon habitats required to protect the abundance and diversity of salmon populations that exist today.

Particularly vulnerable to habitat loss are the numerous small streams that are found in hundreds of salmon-bearing watersheds throughout B.C. Many of these streams provide vital spawning, nursery and rearing grounds for salmon. Although each small stream may contribute a small number of salmon, the fish produced by these streams eventually migrate downstream to become part of a fishery. Headwater streams without resident salmon are also crucial as they supply nutrients and clean, cool water to downstream habitat where salmon live and spawn. There can be hundreds of these small streams in a given watershed.

Unfortunately, it is these small streams that often face the pressures of land development and resource extraction activities. In the Lower Mainland, many have been completely paved over and lost forever and many more are under threat.³³ On a provincial scale, many salmon streams and rivers have been ravaged by industrial logging practices.^{34,35}

If salmon stocks are to remain sustainable into the future more effort must be directed toward protecting these vital, small-stream habitats.

Government responsibilities are not clearly defined

Although the DFO holds primary responsibility for ensuring fish habitat is protected, they can, and do, impose regulations and powers on other levels of government to help meet their conservation mandate.

For example, in B.C., the provincial government regulates most development and natural resource extraction activities that affect fish habitat in the province (including mining, forestry, aquaculture, hydroelectric developments and water extraction) and shares some of the responsibility for fish habitat protection with the DFO through a signed Memorandum of Understanding. B.C. also has separate laws for the protection of fish habitat (e.g., the Fish Protection Act). Municipal and regional governments have separate authority to zone lands, approve development and set their own standards for stream protection. In addition, First Nations are gaining increasing responsibility for managing land and water use throughout Canada through treaties, as well as rights and title agreements with government.

Despite these shared responsibilities, recent studies have shown that habitat loss is ongoing and escalating as a result of land use activities that involve multiple government authorities in the approval or oversight process.³⁶ The B.C. government, like the DFO, is equally lax at enforcing the law when it comes to habitat protection. In the recently released provincial

Habitat Referral System

SINCE THE 1970S, fish habitat protection in B.C. has been guided by an informal process commonly known as the "habitat referral system." Under this system, a project that may have adverse impacts on fish or fish habitat is reviewed jointly by the DFO and the responsible B.C. ministry, which is currently the B.C. Ministry of Environment. The project can be amended to minimize or reduce its effects on fish habitat. When both agencies are satisfied that fish and fish habitat will be protected, the project is jointly approved. Approval could include recommendations that specific mitigation or compensation measures be undertaken where it is clear that a project cannot proceed without adverse impacts.

Studies have shown, however, that both levels of government have failed to meet habitat conservation objectives using this process. A joint DFO-B.C. review demonstrated significant variation between regions with respect to the breadth and rigour of approval conditions.³⁸ There was also no standard referral procedure or approach, which led to subjective and sometimes inconsistent referral approval conditions. Compliance with referral approval conditions stipulated by the DFO and the responsible B.C. ministry was typically poor and monitoring and enforcement activities were rarely carried out. However, where monitoring occurred, there was a general improvement in compliance with development permit approval conditions.

In 1997 the Auditor General of Canada reported that the joint federal-provincial referral system was not working and that the process was resulting in continued habitat loss.³⁹ The Auditor General recommended that the DFO and the province work together to develop joint objectives and a strategic framework embodied in working agreements to achieve those objectives.

In an attempt to address these concerns and improve cooperation the *Canada-BC Agreement on the Management of Pacific Salmon Fishery Issues* was established in 1997 through a Memorandum of Understanding.⁴⁰ Regarding habitat protection, the agreement required both governments to:

- Develop joint objectives for habitat protection and commit to better program coordination;

- Coordinate referral workloads and avoid overlaps;
- Work jointly in watershed fish production planning processes, in consultation with stakeholders;
- Adopt joint habitat inventory standards and improve arrangements for sharing habitat information; and,
- Strengthen habitat protection legislation.

In 2000, the *Canada-BC Fish Habitat Management Agreement* between the DFO and B.C. government ministries aimed to improve coordination between the two levels of government on projects designed to improve fish habitat protection in B.C.

The agreement was intended to "further increase certainty, consistency and efficiency in the protection of fish habitat and the delivery of fish habitat protection programs to reach the highest standards of protection that can be achieved in the province of British Columbia" through the implementation of all relevant federal and provincial legislation, regulations and policies. Specifically, this agreement commits Canada and B.C. to:

- Coordinate work activities to ensure comprehensive and effective protection of fish habitat and that decisions are made in an efficient and timely manner;
- Establish, wherever possible, clear, comprehensive and harmonized policies, standards, guidelines and procedures to guide decisions in protecting fish habitat;
- Pursue cooperative arrangements with local governments, First Nations, industries and non-government organizations to enhance the protection of fish habitat; and,
- Monitor, evaluate and report on the implementation and ongoing delivery of the agreement.

Most of these initiatives were not implemented and the lack of effective habitat coordination remains. Instead, the province removed itself from the project referral process and deregulated environmental protection.⁴¹

In 2005-2006
only \$600,000
was devoted
to habitat
monitoring
and
enforcement

environmental *Compliance and Enforcement Summary*³⁷ not one of over 300 enforcement actions taken against individuals or corporations for environmental offences was related to fish habitat loss or alteration even though it is clear that habitat loss is occurring.

The complex arrangement of authorities and the over-lapping and sometimes conflicting mandates and regulations they are responsible for creates inconsistencies and gaps in the realm of habitat protection. A strong central, lead agency is required to ensure habitat is protected and to regulate other governments as needed. Currently, the DFO is the agency with the mandate to fulfill this role.

Insufficient funding and personnel

A consistent, recurring theme in the reviews of DFO performance with regards to habitat protection is that strict monitoring and enforcement are needed to ensure that land and resource developers comply with law so that habitat loss is minimized. Unfortunately, over the past decade the DFO has significantly reduced its capacity in these areas by reducing the funding and staffing levels needed to adequately carry out these tasks.⁴²

Even considering that there may be some relevant provincial spending in the area of habitat management, the budget devoted to the protection of fish habitat in the Pacific Region by DFO generally is quite small. The overall budget for the Pacific Region (which includes 37 offices through B.C. and Yukon) for 2001-2002 was about \$328 million.⁴³ Approximately seven per cent, or \$22 million, of that amount was devoted to habitat management. Following program review and announced cuts, the overall budget for 2003-2004 was cut by 11 per cent (to around \$290 million) but the budget for Oceans and Habitat, which includes habitat management generally, was reduced by around 55 per cent and even further cuts are planned,⁴⁴ especially in the area of habitat monitoring and enforcement.

In 2005-2006 the DFO's entire budget for Habitat Management in the Pacific Region was a mere \$9 million⁴⁵. Of that, only \$600,000 was devoted to habitat monitoring and enforcement. This paltry amount represents the equivalent of only six full time staff to cover all of B.C. and Yukon, an area of land encompassing approximately 1.4 million square kilometres, or roughly 240,000 square kilometres per individual.

It is difficult to see how budgets of this size, which devote such a small portion of the overall budget to fish-habitat protection, can represent a serious effort to administer and enforce the habitat protection provisions of the Fisheries Act and protection of fish habitat in general.

Shifting responsibilities and changing rules

In conjunction with these budget cuts, the DFO has also begun to shift much of the responsibility for habitat management onto the B.C. government.

Shortly after the DFO began transferring these powers in earnest, the provincial government removed itself from a long-established, joint federal-provincial project referral process and began implementing a "results-based" regulatory approach that delegates authority and responsibility for habitat management and protection away from the provincial government (and even further away from the DFO) to local governments and to industry and developers.⁴⁶

Since 2001, provincial regulations that affect salmon habitat have been severely weakened and industry has been left to self-regulate. Further, between 2001-2002 and 2004-2005, the budget for the B.C. Ministry of Water, Land and Air Protection was cut by 41 per cent, Sustainable Resource Management by 44 per cent, Energy and Mines by 40 per cent, Forests by 44 per cent, and Agriculture, Fisheries and Food by 45 per cent. The equivalent of 2,678 full time staff were eliminated from the natural resource ministries over four years.⁴⁷

The chronic under-funding and the move towards deregulation have created an imbalance in federal and provincial habitat management systems. This imbalance of resource allocation is further discussed below.

Deregulation, smart regulation and results-based policy

IN AN ATTEMPT to expedite and simplify approvals for new projects the governments of Canada and B.C. have undertaken environmental regulatory reforms. The province of B.C. uses the term "deregulation" to refer to this process and their website (www.deregulation.gov.bc.ca) states: "In 2001, government established a New Era commitment to reduce unnecessary red tape and regulation by 1/3 within three years."

The Government of Canada is undertaking a similar deregulatory reform under the guise of "smart regulation" (www.regulation.gc.ca) with the intention of "improving the Government of Canada's regulatory system so that it can keep pace with today's realities and our evolving needs." Environmental regulations are being reviewed under the smart regulation initiative, including the Fisheries Act, which is the basis for fish habitat protection across Canada. Although improving the effectiveness and efficiency of regulations may be necessary, currently proposed or implemented reforms further threaten salmon habitat protection. These include municipal sewage and metal mining regulations that would exempt polluting activities.

Both provincial deregulation and federal smart regulation include increased application of results-based (also referred to as "managing for results" and "performance management") policy. Although

monitoring and measuring performance is critical to environmental management a major concern of this policy is the potential dismissal of the precautionary approach. The precautionary approach, as defined by the Food and Agriculture Association of the United Nations for fisheries,⁴⁸ states: "that where the likely impact of resource use is uncertain, priority should be given to conserving the productive capacity of the resource" and "that any necessary corrective measures are initiated without delay, and that they should achieve their purpose promptly."

A results-based approach may contravene precaution by instead suggesting that development should proceed, with performance measurement, and problems dealt with only as they are detected. However, some impacts may be difficult to rapidly detect, most habitat damage is difficult to reverse and the impact to salmon can be both immediate and long lasting. As discussed further in this report, this approach is particularly problematic if developers are primarily responsible for developing and monitoring performance measures.

Overall, reforms such as deregulation and smart regulation reduce precaution, threaten the loss of effective regulations, and give greater power to developers to decide how, or whether, to protect habitat. Other concerns, such as the use of pseudo-scientific risk management,⁴⁹ create false assurances of protection and certainty.

The Auditor General of Canada has repeatedly chastised the DFO for its inability to achieve its conservation mandate.

New federal policies don't fix the problem

Over the past decade, the Auditor General of Canada has repeatedly chastised the DFO for its inability to achieve its conservation mandate.⁵⁰ In 2004, the Auditor General wrote: “Overall, we found the progress made by Fisheries and Oceans Canada in response to our observations and recommendations made in 1997,⁵¹ 1999, and 2000⁵² to be slow. In particular, key steps to protect and manage Pacific salmon are yet to be completed.”

Eventually, however, the DFO seemed to be getting the message that reform in the areas of fisheries and habitat management was necessary and in 2000 proposed a new “Wild Salmon Policy” which was designed to guide decision-makers in the protection and conservation of wild Pacific salmon. *Canada's Policy for Conservation of Wild Pacific Salmon* was adopted and released in 2005.

In 2002 the DFO started a process to revamp their fish habitat management program. The aim was to “...make it [the program] more effective in protecting and conserving fish habitat, efficient in the delivery of its services, integrated with the interests and responsibilities of others, and relevant to Canadians.” In 2005, the Department unveiled their new program and called it the *Environmental Process Modernization Plan* (EPMP).

Both of these initiatives are discussed briefly below. We have reviewed these programs and have reached the conclusion that, while they are well intended, their implementation in their current state will not result in better habitat protection. If anything, we believe that things will only get worse.

The Environmental Process Modernization Plan

In 2005, the DFO started implementing the EPMP. The EPMP, in part, replaces the old habitat referral process and is supposed to improve the efficiency and effectiveness of management while “enabling” development. The EPMP is part of the Government of Canada’s “smart regulation” initiative.⁵³ We believe that this new system of habitat management will shift responsibility and authority for habitat protection even further away from the DFO than it already is.

The EPMP claims to focus the DFO’s habitat protection efforts onto the review of projects and areas with the greatest risk to fish habitat using a “science-based risk management framework” (RMF).

Under the RMF⁵⁴ projects would be triaged based on their projected size (“scale of negative effect”), risk of causing harm to fish habitat, and the “sensitivity of fish and fish habitat” to perturbation. Projects deemed to be “low risk” would not require a Fisheries Act authorization in order to proceed. Project proponents will simply be required to comply with measures and conditions outlined by the DFO in letters of advice, operational statements, guidelines and other generally defined management practices.

For the most part, “medium risk” and “high risk” projects will require Fisheries Act authorizations. However, “medium risk” projects will be subjected to a “streamlined” review process requiring reduced DFO oversight and the possible use of “class screenings” under the Canadian Environmental Assessment Act, which may provide blanket authorization for an activity that is repeated. For the most part, for low risk activities, proponents will

not be required to submit their project proposals for review by the DFO as long as they incorporate the measures and conditions outlined.

Class screenings will be used in the place of project-specific environmental assessments of “routine” projects that might otherwise trigger an environmental assessment under the Canadian Environmental Assessment Act. Operational Statements, letters of advice and guidelines, will ostensibly outline non-project specific measures and conditions that proponents can take to avoid the harmful alteration, disruption or destruction (HADD) to fish habitat for DFO designated “low risk” projects. It is suggested by the DFO that if the proposed measures and conditions for these identified projects are followed by the proponent then the proponent will be in compliance with subsection 35(1) of the Fisheries Act.

Under the EPMP, the DFO also plans to further reduce the effort and expenditures it dispenses on enforcement-related activities through “increasing awareness and compliance with the fish habitat protection requirements of the Fisheries Act...through increased education, stewardship and monitoring.”⁵⁵ The argument for this change is that the DFO views the use of “armed” fisheries officers to enforce the habitat protection program as “excessive” and they feel that these officers should only be used in cases where charges are completely unavoidable. As part of this reduction in enforcement, the DFO is considering changes to the federal Fisheries Act to allow for fisheries officials to levy “Administrative penalties” (fines and/or tickets) where necessary as opposed seeking to court imposed sanctions and jail terms.

Finally, under the EPMP, land and resource developers can hire “qualified professionals” to assess project-specific fish habitat quality and quantity for projects that are deemed “low risk” and prepare or propose mitigation strategies that can be used to avoid a HADD. Under the plan, they can, in many cases, proceed with a project without even notifying the DFO. This essentially puts the developers in control of habitat protection.

The EPMP is largely being touted as a means to reduce habitat management costs.⁵⁶ While reducing costs previously attributed to habitat referral activities may be possible (see *Unbalanced and ineffective resource allocation* section, p.14), we believe that in order to be effective, implementation of the EPMP would require a significant increase in monitoring and enforcement, not less. Without this improvement, which could require more resources than those potentially shifted from habitat referral, the EPMP simply translates into a reduction of habitat planning and protection by the DFO.

In developing the EPMP, the DFO relied on a report from KPMG, an international industrial auditing firm, examining the effectiveness of the habitat referral system. That report recommended “investment in the monitoring of compliance and effectiveness” and “increased deterrence” including “greater enforcement presence and tools.”⁵⁷ To meet these recommendations, the DFO would have to increase its monitoring and enforcement capability. Instead, the DFO seems to be turning away from enforcement instead of embracing it.

ENVIRONMENTAL PROCESS MODERNIZATION PLAN: PROS

The old habitat referral process was recognized as time-consuming and often ineffective in protecting fish habitat. The EPMP provides an opportunity to shift resources to critical habitat conservation needs, including education, gathering better science and increasing monitoring and enforcement. EPMP-related proposals to expand penalties for habitat

The EPMP could significantly reduce the DFO's ability to hold proponents legally responsible for habitat destruction.

destruction might improve compliance if implemented. Specific legislative reforms that have been proposed to support the EPMP such as administrative penalties (tickets and fines) may be effective as long as they do not make prosecutions for habitat destruction less likely. The DFO have indicated that under the EPMP the proportion of effort allocated to monitoring would increase from four to 20 per cent, although it is unclear if this represents an actual increase in monitoring.

ENVIRONMENTAL PROCESS MODERNIZATION PLAN: CONS

The EPMP's overly general guidelines and risk management framework could significantly reduce the DFO's ability to hold proponents legally responsible for habitat destruction. For example: if a proponent carries out a project for which the DFO has developed an Operational Statement (OS) and the proponent incorporates the measures and conditions identified in the OS, but the proponent's activities still result in a HADD the DFO's ability to hold the proponent legally accountable may be severely compromised because the DFO tacitly permitted the proponent to carry out the work. As a defence to prosecution, or even to fines or tickets, the proponent could argue that all reasonable steps to follow the DFO's guidelines were taken and a HADD still resulted. In most instances, the Crown would not proceed with charges under these circumstances. As a result, the EPMP lessens the likelihood of successful prosecutions of regulatory offenders.

Further, DFO habitat management staff could be directed to not review, monitor or inspect an activity because it falls within the category of low or medium risk. One problem is that the assessment that a project is of low or medium risk could be based on information gathered and provided by the project proponent. A proponent, to reduce their obligations to protect habitat, could also intentionally exploit loopholes in overly general guidelines and operational statements.

One of the major problems with the risk management framework was identified during a public information session in May 2006, where DFO staff revealed that the science behind the framework has not yet been developed.

It is anticipated that implementing this plan will eliminate any review of about two thirds of projects that could affect fish habitat that are assessed annually by the DFO (across Canada there are on average 10,000 proposed projects a year that could result in a HADD⁵⁸). Currently there are 21 Class Screenings declared (and another five proposed) and 18 Operational Statements adopted, potentially removing hundreds of small and medium sized projects from the purview and oversight of the DFO. Because these projects will not have to undergo environmental assessments, the public will be kept in the dark as to the number and types of projects that might occur in their area.

Canada's Wild Pacific Salmon Policy

Canada's Policy for Conservation of Wild Pacific Salmon, more commonly known as the "Wild Salmon Policy" (WSP), was adopted in June 2005.⁵⁹ The WSP is meant to guide DFO's salmon management decisions and it identifies conservation of wild salmon and their habitats as the highest priority.

The overarching goal of the WSP is to:

*Restore and maintain healthy and diverse salmon populations and their habitats for the benefit and enjoyment of the people of Canada in perpetuity.*⁶⁰

There is not much in the way of detail that can be discussed concerning the performance of the WSP with respect to habitat protection generally as WSP implementation is still in the early development stages. However, the design, intent and current implementation of the WSP can be reviewed.

WILD SALMON POLICY: PROS

The WSP recognizes the critical importance of protecting salmon diversity. In doing so, the WSP more clearly disavows actions or concepts that do not adequately protect or recognize salmon diversity, such as managing development projects in isolation.

The WSP recognizes the need for improved habitat protection and proposes a habitat assessment and monitoring system. The WSP directs DFO efforts towards salmon habitat assessment, monitoring and improved protection all of which are necessary to support persistent and diverse populations of salmon. The role of salmon in the ecosystem and the need to incorporate ecosystem values into salmon management is also recognized, but how salmon ecosystems will be measured and valued remains to be clarified. The WSP states:

*A challenge for the Wild Salmon Policy is the need for development of an ecosystem objective that is widely appreciated but difficult to quantify...The Department's intent is to progressively consider ecosystem values in salmon management, but it acknowledges a limited ability to do so at this time.*⁶¹

Although the WSP is vague regarding the incorporation of ecosystem values into salmon management, it is an important step towards introducing the concept of ecosystem-based management into the planning process. This is a concept that the David Suzuki Foundation strongly endorses.

WILD SALMON POLICY: CONS

The WSP allows for considerable discretion in decision-making and actually permits the direct loss of distinct salmon populations. The WSP also does not commit the DFO to continue to protect habitat when a specific salmon stock is in decline or reaches critical levels.

The WSP fails to adequately define conservation objectives. It does not commit to an ecosystem-based approach to salmon habitat management and does not set clear performance measures. Conservation objectives and performance measures should support an integrated ecosystem-based management system that accounts for the range of species, habitats, and their interactions. Without adequate commitment to meeting conservation objectives the WSP lacks the necessary accountability mechanisms to protect salmon.

Finally, funding for WSP implementation is inadequate and there is no long-term commitment for further resource allocation. Currently, WSP implementation is allotted a mere \$700,000–\$1,000,000 for the 2006–2007 fiscal year. This represents less than one per cent of the DFO's Pacific region budget. In order for the WSP to be properly implemented, a significant infusion of resources will be needed.

Neither the EPMP nor the WSP adequately provides the necessary policy direction for the protection of salmon habitat.

Summary of the DFO's new policies

It is the position of the David Suzuki Foundation that neither the EPMP nor the WSP adequately provides the necessary policy direction for the protection of salmon habitat.

The impetus for the development of the EPMP is clearly to support deregulation. The EPMP will ultimately result in less government oversight for a wide range of projects that have the potential to adversely affect salmon habitat.

The Wild Salmon Policy is an initiative that should be endorsed and promoted by the Canadian government. If properly implemented it has the potential to effect change in the way salmon and their habitats are being managed and provide for the long-term sustainability of Pacific salmon in Canada. However, the WSP lacks the necessary resources for successful implementation and requires political support to ensure that the identification of habitat problems results in effective management actions.

Finally, the DFO publicly admits that the theories and planned activities behind these proposed initiatives (including monitoring, enforcement and ecosystem considerations) to manage habitat have not yet been fully developed.^{62,63}

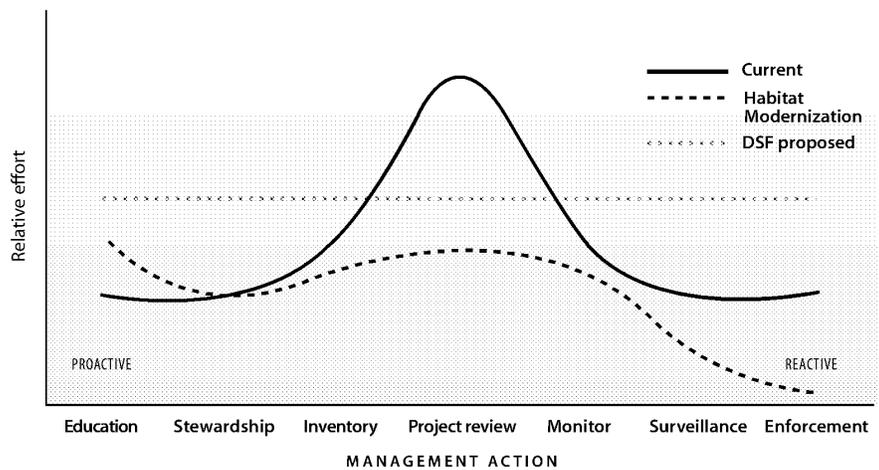
Unbalanced and ineffective resource allocation

Habitat management measures range from proactive to reactive and include (starting with the more proactive): education, stewardship, data inventory, project review, monitoring, surveillance and enforcement. These measures all have value but they must be strategically integrated to effectively manage habitat. For example, without monitoring it is impossible to determine whether other measures are contributing to habitat protection. Enforcement is necessary to provide a deterrent against harmful actions, but education is also needed to ensure developers understand how they can protect habitat and avoid prosecution.

Figure 1 illustrates where existing and proposed habitat management fit on the proactive-reactive management spectrum.

FIGURE 1. Relative allocation of effort for Pacific salmon habitat management in Canada.

- **“Current”** demonstrates the habitat management system used by the DFO and BC government over the past decade.
- **“Habitat Modernization”** shows the application of the EPMP, the management system currently being implemented by the federal government, and through B.C. deregulation.
- **“DSF proposed”** shows a distribution the David Suzuki Foundation considers an ideal management system, derived from discussions with numerous experts in salmon habitat management and a compilation of existing information on budgets, staffing and policy.⁶⁴



Over the past decade, both the habitat management regimes of the DFO and the B.C. government have been heavily biased towards project review with some habitat inventory and monitoring and little in the way of education, stewardship, or surveillance and enforcement.

The government proposed system of “habitat modernization” would reduce the DFO’s overall capacity, especially regarding surveillance and enforcement, and increasingly leave habitat management planning in the hands of proponents.

The David Suzuki Foundation recommends an alternate management model. We are proposing a more balanced application of capacity across all management actions. The details are discussed further in the solutions below.



Restore the will to protect habitat

The first step towards a solution is for governments and industry to admit that we have a serious habitat protection problem. The DFO and the provincial government must acknowledge that the current habitat conservation/protection strategy is resulting in widespread and, in many cases, permanent loss of fish habitat.

If the DFO is serious about improving conservation and realizing sustainable and abundant salmon populations, as suggested by their Wild Salmon Policy,⁶⁵ it must exhibit leadership in habitat protection by ensuring that all stakeholders work together. The DFO must maintain the will to enforce this mandate with strong political support from the Minister of Fisheries and Oceans and the federal Cabinet. The federal government must ensure that the DFO has sufficient financial and personnel capacity to do this job.

The most important steps the federal government can take to ensure protection of these habitats is to develop the policies needed to ensure habitats are protected. An immediate priority is increasing the resources needed for government to monitor industrial development and enforce existing salmon habitat protection legislation.

Improve habitat protection policies and regulations

CLARIFY GOVERNMENT RESPONSIBILITIES

Conservation of habitat must be the first priority of the regulatory system. An effective conservation strategy should include both the DFO and the provincial government, actively participating in developing workable joint policies and engaging in land use planning to formally protect key areas and set standards for others. It should also include other responsible federal agencies and departments, including Environment Canada and the Canadian Wildlife Service. There should also be visible and active monitoring and enforce-

ment, using an array of accountability, administrative and criminal law tools. The current focus on referrals and bureaucratic process should be reduced and resources re-allocated to monitoring and enforcement.

Binding formal agreements must be signed between federal, provincial, territorial and municipal governments that clarify the responsibilities and mandates of each ministry, agency, or other authority responsible for habitat conservation. These agreements must be entered into in good faith and acted upon. This has not been the case in the past. Clear examples of agreements that have failed in regards to habitat protection are the 1996 *Canada-BC Agreement on the Management of Pacific Salmon Fishery Issues* and the 2000 *Canada-BC Fish Habitat Management agreement*, which were discussed earlier.

As a start, both the federal and provincial governments should immediately begin to implement key recommendations made by the Offices of the Auditor General of both Canada and British Columbia with respect to salmon habitat protection.

ESTABLISH ENFORCEABLE CONSERVATION OBJECTIVES

The federal and provincial governments must take responsibility for habitat loss. Then both governments must commit to setting conservation goals and objectives that are tied to clearly defined performance measures that can be enforced and reported on frequently. These objectives should be supported by legislation. Responsible agencies and ministries must be accountable to these objectives and must not be fettered by political intervention that contravenes these objectives.

A new “bottom line” must be established that enshrines these objectives and incorporates incentives and disincentives to meet them. Such incentives may include increased funding or staffing capacity to those programs that are effective in meeting their objectives and drive innovation in more effectively meeting objectives.

As previously noted, many reviews show that despite the “no net loss” policy habitat is being lost at an unacceptable rate. Nevertheless, the David Suzuki Foundation believes the “no net loss” objective is achievable. To realize “no net loss” wide-ranging and specific conservation objectives, tied to quantifiable performance measures, must be established.

To harmonize human development and salmon protection it is necessary to adopt an ecosystem-based management (EBM) approach. EBM is a holistic approach that works toward a desired state of the ecosystem, rather than simply managing individual components to the exclusive benefit of people.⁶⁶ A key requirement of EBM is the establishment and enforcement of conservation objectives. These objectives should include reference points (i.e. limits and targets for key habitat criteria), and timelines for achieving them. Regular auditing and reporting would be necessary to measure performance and provide public accountability.

Conservation objectives should be binding through legislation, federal-provincial agreements, provincial land use and watershed plans and municipal development bylaws. Conservation objectives must be a mandated responsibility of government staff. The precautionary principle must be supported through conservation objectives and performance measures that account for the degree of uncertainty within management areas (e.g. different

The first step towards a solution is for governments and industry to admit we have a serious habitat protection problem.

habitat/life history stages, type of impact projected, potential effects of climate change) and indicate prescriptive actions that are taken to account for this uncertainty.

Working models of an accountable, objectives-based system do exist. BC Hydro has undertaken a province-wide water use planning process to address a myriad of issues and interests competing for water, including salmon conservation. A total of 24 Water Use Plans have been completed or are nearing completion as of 2005.⁶⁷ These plans include specific water flow targets that are designed to meet the needs of fish and include systems for monitoring progress and providing accountability.

Salmon habitat conservation objectives must be implemented for the following:

- Hydrology and geomorphology: maintain natural flow hydrographs, minimum monthly flows for fish, rates of erosion, sediment input to streams, off-channel habitat availability and natural floodplain dynamics;
- Habitat diversity/connectivity: protect existing habitat and restore degraded habitat to ensure that a network of abundant and connected habitat is available to support salmon ecosystems;
- Fish passage: ensure obstructions are not impeding fish migration and access to habitat;
- Water quality: maintain minimum and achieve optimum water quality targets;
- Water temperature: maintain natural fresh water temperature ranges for critical life history stages (including migration, incubation and rearing) using appropriate mitigation measures (e.g. strategic coldwater releases from dams);
- Parasites and disease impacts: limit the likelihood of disease and parasite transfer between farmed and wild fish;
- Ecosystem function: maintain natural ecosystem processes and species;
- Direct cause priority: address the direct cause of habitat degradation and use artificial enhancement or restoration as a last resort; and
- Precautionary management: lack of scientific information does not limit scope of protection, those responsible for habitat impacts are penalized and responsible for habitat recovery, and uncertainty is measured and reported.

Current conservation and planning efforts⁶⁸ must be updated and integrated while using existing regulations to meet conservation objectives.

PROTECT WATER FLOW FOR FISH

Salmon obviously need water. Water extraction for human or industrial consumption, stream channelization and water impoundment, altered hydrology from resource extraction, and climate change⁶⁹ all threaten to degrade the quality and quantity of water that salmon need.⁷⁰ Reduced flows affect salmon by limiting the availability of suitable spawning and rearing habitat and can limit how far adult salmon can swim upstream. Contaminants from pollution are more concentrated at lower flows and salmon are more susceptible to lethal or stressful temperatures when there is less water.

Minimum monthly flow requirements should be established for salmon watersheds across the Pacific Region and water licences should be repealed and redistributed if neces-

sary to do this. The provincial Water Act and the Fish Protection Act must be used and improved to ensure fish flow needs are protected.

New groundwater regulations should be implemented that ensures the sustainable use of water reserves and protects fish flow requirements from groundwater withdrawals. The federal government must acknowledge its role in management of water flow for salmon, enforcing the Fisheries Act where flow alterations are harming salmon.

FACILITATE THE TRANSITION OF OPEN NET-PEN AQUACULTURE TO CLOSED CONTAINMENT SYSTEMS

By moving to closed containment the threats of aquaculture to wild salmon would be significantly reduced or eliminated. The province and the DFO should collaborate in developing a transition strategy that shifts existing open net-cage aquaculture to sustainable closed containment system within a reasonable, but constrained timeframe, such as five years.

The strategy should include: an immediate freeze on open net-cage tenures; a stop to government subsidies to the open net-cage industry; and the initiation of independent economic analyses to evaluate closed-containment options. In the short-term, at least two commercial scale closed-containment demonstration projects should be developed.

REQUIRE PROJECT PROPONENTS TO PROVIDE MORE INFORMATION ON FISH HABITAT AND MITIGATION

Permitting land development in areas that may affect salmon habitat is often done without adequate baseline information. Given the shift in government policy towards industry self-regulation it is imperative that developers be required to provide certified third party reports to government on matters such as: pre-development salmon and salmon ecosystem data, quantified impacts on salmon ecosystems and the design and effectiveness of proposed mitigation/compensation strategies.

The DFO must make it mandatory for self-regulating industries to provide sufficient quality information so that well-informed decisions can be made. This requirement would transfer some habitat protection and monitoring costs to developers on a user-pay basis.

This approach would also aid enforcement by providing government with a baseline of information against which to measure the degree and severity of impacts and determine the appropriate course of action should things go wrong. In addition, this information would set the groundwork for developing a formal auditing process useful for compliance auditing purposes.

MAKE THOSE THAT DESTROY HABITAT PAY FOR RECOVERY

For developments that can have long-term impacts on salmon habitat (i.e. logging, road building and mining) developers should provide an adequate security deposit or bond prior to beginning operations. The funds should be held in trust after operations end.

Governments holding such deposits or bonds must withhold the right to use the funds to immediately address an identified impact regardless of the involvement of the original developer. For example, if a developer's activities result in the release of sediment into a stream and the developer fails to take immediate action to rectify the problem, then the

To protect salmon habitat, streamside regulations must be strengthened.

government should be able to use the money held in trust to fix the problem. Making users responsible for habitat restoration costs will encourage compliance and help manage long-term and unforeseen effects.

ESTABLISH COMPREHENSIVE STREAMSIDE PROTECTION AND PROTECTED AREAS

Salmon require a comprehensive network of streams and intact floodplains with relatively natural flow and sedimentation dynamics for spawning, rearing and migration. Intact floodplains and streams require intact riparian vegetation to function as suitable fish habitats.

Riparian vegetation provides cover and nutrients for salmon, limits the occurrence of lethal water temperatures,⁷¹ and supplies woody debris that improves habitat.⁷² Vegetation in the riparian zone and across the watershed stabilizes soil and rocks, controlling rates of sediment input.⁷³ Protecting riparian areas helps protect the stream floodplain, improving off-channel fish habitat while supporting a more natural flow regime.

Protection of riparian zones needs to be a fundamental, non-negotiable tenet of habitat protection and applied consistently throughout a watershed to minimize impacts.⁷⁴ Currently, different industries, such as forestry, agriculture and urban development have different streamside protection regulations, which are often ambiguous, and some industries are largely unregulated (e.g., agriculture). Many streams currently have no streamside protection whatsoever. A continuous network of protected riparian areas, supported by minimum protection of vegetated headwaters, is necessary to retain functional salmon streams, lakes and larger rivers.

Under B.C. law, specifically under the Fish Protection Act, there are a series of regulations governing riparian protection on B.C.'s fish streams. The Riparian Areas Regulation⁷⁵ sets mandatory, default, buffer widths to be left adjacent to fish streams in areas that are slated for development. However, the specified minimum buffer widths can be modified under certain circumstances, such as: if a developer submits a study conducted by a qualified professional that supports smaller buffer widths (i.e. concludes that fish habitat will not be harmed by building closer to a stream); or, if a municipal government develops its own regulations that govern stream side protection within their municipal boundaries. In addition, the Riparian Areas Regulation only applies to local governments located on the east side of Vancouver Island, the Lower Mainland and the Southern Interior.

Clearly, there is room for abuse of the B.C. government's "mandatory" streamside protection measures and the regulations do not apply to the vast majority of fish streams in the province.

To protect salmon habitat, streamside regulations must be strengthened. The regulations must require non-negotiable minimum widths of intact riparian areas to buffer streams and floodplain ecosystems. These regulations must be consistent across industries while accommodating the characteristics of different watersheds. Minimum riparian widths may vary depending on the ecosystems they are applied to, but these widths should be a minimum of 30 metres and may need to be larger in forested ecosystems. More protected areas should be established in salmon watersheds and fishless headwater watersheds, in

order to maintain a minimum proportion of vegetated area to support natural flow and sedimentation dynamics.

The DFO must lead an effort to establish minimum riparian buffers and ensure provincial and municipal regulations support them. The province must improve its riparian protection requirements and remove discretionary components that could significantly compromise salmon habitat protection.

IMPLEMENT A FORMAL AUDIT PROCESS FOR SELF-REGULATING INDUSTRIES

With recent shifts to deregulation (e.g. see discussions of EPMP above) a formal audit process is needed to ensure compliance with development agreements/permits. This process should include a schedule of targets related to maintaining or increasing salmon ecosystem function, and indicators to measure progress toward meeting these targets. This audit function should be independent of the agencies that approved the development and could include established watershed protection groups.

Essentially, any development that could adversely affect fish habitat should have a process in place where the developer is required to conduct an adequate assessment of the existing salmon and salmon ecosystem conditions prior to development and a complete assessment of the potential adverse impacts of a proposed project. Once these steps are completed, determinations should then be made as to whether identified impacts could be mitigated or if compensatory habitat is required in situations where adverse impacts to habitat are unavoidable. Specific plans should be drawn up that clearly identify proposed mitigation and/or compensation strategies (given that there has been an historical net loss of habitat, compensation strategies should reflect a two-to-one ratio increase in compensatory habitat). The plans should then be reviewed and approved by the DFO and/or the province and copies kept on file. Throughout the year, regular follow-up inspections should be undertaken on a statistically acceptable number of projects across all industrial sectors to see if the objectives of “no net loss of habitat” and “net gain in productive capacity” have been achieved. Reports should then be compiled in a timely fashion and submitted to either the federal or provincial Auditors General.

The federal government must also commit to maintaining existing prohibitions against harming fish and fish habitat in sections 35 and 36 of the Fisheries Act, and commit to developing strong precautionary regulations under that act. Any shift to deregulation must be accompanied by the constant threat of prosecution if industry fails to govern its own actions.

MAKE IT EASIER TO HOLD THOSE THAT HARM FISH HABITAT ACCOUNTABLE

Adding the option of ticketing as an alternative to prosecution under the Fisheries Act could improve the effectiveness of the present enforcement system. Currently, the DFO’s primary means of enforcing the habitat protection provisions of the federal Fisheries Act involves laying charges under section 35(1) of the act. For successful prosecution, these charges must be proven beyond any reasonable doubt. Often, Crown prosecutors will refuse to proceed with prosecution despite an expensive and time-consuming investigation because there is

Despite shortcomings the WSP is a step forward and needs political and financial support.

“no substantial likelihood of conviction.” With a ticketing system, enforcement staff could simply ticket offenders and levee sizable fines as a deterrent. However, fines must fit the crime and be large enough to serve as real deterrents. Furthermore, there must be only limited rights to appeal fines and the regulator must retain the right to prosecute any matter for which a fine has been levied if prosecution is warranted. The B.C. Attorney General must revise its policy of intervening in and staying private prosecutions.

Promote workable initiatives

INCREASE FINANCIAL AND POLITICAL SUPPORT FOR WILD SALMON POLICY IMPLEMENTATION

The primary goal of the federal Wild Salmon Policy is to “restore and maintain healthy and diverse salmon populations and their habitats for the benefit and enjoyment of the people of Canada in perpetuity.”⁷⁶ The policy’s first guiding principle is that “Conservation of wild salmon and their habitats is the highest priority.”

Despite shortcomings identified by the David Suzuki Foundation and the Pacific Marine Conservation Caucus,⁷⁷ the WSP is a step forward and needs political and financial support. Shortcomings should be addressed through implementation and the use of additional legislative and policy tools to strengthen habitat protection.

Currently, very limited resources are allocated to WSP implementation (\$700,000–\$1,000,000 for 2006–2007) and no commitment has been made to providing ongoing support. Staff resources currently made available to WSP implementation must be committed for at least five years. Financial resources to further implement, monitor and maintain the WSP should be increased to at least \$3 million per year for five years. Science, habitat management and enforcement resources must be allocated to action items necessary for meeting conservation objectives.

SUPPORT COMMUNITY-BASED EFFORTS TO PROTECT AND RESTORE SALMON ECOSYSTEMS

For years, one of the cornerstones of salmon habitat assessment, restoration and protection in B.C. has been community-based stream stewardship groups. In the past, their activities were encouraged and supported through a broad range of provincial and federal funding programs. However, over the past decade government financial support for these groups and their activities has declined by over \$60 million.⁷⁸ Ironically, these cutbacks came while senior governments were encouraging local governments and grass roots groups to get more involved in salmon habitat recovery.

Recently, the provincial government created the Pacific Salmon Forum and established the Living Rivers Trust Fund⁷⁹ in an effort to help make Pacific salmon more sustainable into the future. Although these steps are encouraging and provide critical resources to necessary initiatives, they do not commit to ecosystem-based planning, provide funding commitments to salmon stewards, or necessarily increase enforcement and protection on the ground.

The DFO and the province must re-establish long term financial support for community-based and watershed-based efforts to protect and restore salmon ecosystems. Funding available to stewardship groups should be returned to historic levels, at minimum. Allocation of this funding should support a comprehensive and wide-ranging network of stewardship groups. Stewards should be engaged in the collection of data to support monitoring of conservation objectives and performance measures (discussed previously) and funding allocation may be further guided by success in providing these services.

Get out of the office and into the field

INCREASE RESOURCES FOR HABITAT MONITORING AND ENFORCEMENT

Without a system of strong, comprehensive and enforceable regulations, and the capacity to enforce those regulations, the DFO's ability to protect habitat is severely undermined (as audits of the DFO's "no net loss" policy implementation and its conservation mandate overall illustrate.^{80,81,82})

At a minimum, DFO budgets should be restored to 2001-2002 levels.⁸³ Budgets, segregated by department and function, should be made public.⁸⁴ Resources and effort should be allocated according to the "DSF proposed" distribution presented in Figure 1. This distribution would achieve a greater balance among all these measures, with increased enforcement and education. Under this system, project proponents would be well informed about the actions needed to protect salmon habitat and the law. Project progress would be monitored and enforcement would be taken if proponents fail to protect habitat. Where resources are limited, resources would be devoted first to enforcement, then education and stewardship.

The Minister of Fisheries and Oceans must advocate for increased resources and initiate a review and reallocation of resources within the DFO. The province must re-establish capacity for habitat assessment and support improved collaboration in environmental protection with the federal government. User-pay provisions should be implemented (e.g. cleanup bonds/security deposits paid by developers) to ensure habitat management costs are shared with those responsible for habitat loss and to ensure government funds are available for other critical needs.

Establish mobile regional task force groups to enforce habitat protection laws

The province of Ontario's Environmental SWAT team is highly effective at enforcing environmental legislation. Teams, which include biologists, toxicologists, engineers, enforcement specialists and other professionals, conduct province-wide inspection sweeps of entire industrial sectors. They can issue provincial orders for corrective actions and they can issue citations, summonses and tickets that include hefty fines. For the most serious offences, they work closely with the province's environmental investigations and enforcement branch.

The Minister of Fisheries and Oceans must advocate for increased resources and initiate a review and reallocation of resources within the DFO.

Before 1995, the SWAT team initiated an average of over 200 enforcement actions per year. After they were dismantled, citations for environmental offences fell to fewer than 10 a year. After the teams were resurrected, 61 inspections in the electro/metal plating sector led to 70 provincial officer orders for corrective action, as well as and nine summons under the Provincial Offences Act.⁸⁵

Having a similar team for fish habitat enforcement would improve protection in remote areas, where many industry activities may harm fish habitat. It could also improve enforcement in smaller communities where conflicts of interest may arise, such as when enforcement officials live close to offenders. In some cases, habitat enforcement staff may be required to investigate and perhaps prosecute friends and neighbours that live in the same communities as they do. Because of this, they may be reluctant to follow through with enforcement actions even if they are entirely justified. Having outside enforcement staff conduct these activities would alleviate this problem.



Despite the fact that the Department of Fisheries and Oceans Canada committed to a strategy of “no net loss” of fish habitat in the mid-1980s, studies show that the loss of habitat has been ongoing and continues to this day. Overall, the DFO has not met the primary objective of the “no net loss” policy, which is to “Increase the natural productive capacity of habitats for the Nation’s Fisheries resources, to benefit present and future generations of Canadians.”⁸⁶

A review of the DFO’s conservation performance in the Pacific region shows that salmon conservation is severely hampered by a lack of resources, conflicting mandates and inadequate enforcement. Although salmon populations and their ecosystems are under increasing pressure from land and resource development, the DFO’s financial support for habitat management has been drastically reduced over the past five years and more cuts are planned, especially in the area of enforcement. In addition, since 2001, provincial regulations that affect salmon habitat have been severely weakened, budgets for provincial habitat management have been slashed and the industries operating in the province that have the greatest impact on fish habitat have been left to self-regulate.

The policies that guide this practice of self-regulation are commonly referred to as “Smart Regulation.” New federal initiatives being implemented by the DFO for the management of Pacific salmon in BC, such as the Environmental Process Modernization Plan and the Wild Salmon Policy, are also grounded in “Smart Regulation” and, if implemented as they are currently proposed, will do little to stem the tide of habitat loss. The main reason for the likely failure of these new initiatives is the proposed reduction in habitat monitoring and enforcement – two key elements of any successful habitat protection strategy.

The DFO needs to toughen habitat protection regulations and ramp up their monitoring and enforcement capabilities if the existing diversity of Pacific salmon stocks are to persist.

It is recognized generally that, in the past, the DFO has been too engaged in the project review process and that their efforts in this regard can be duplicitous, costly and time-consuming for industry. But that does not mean that the solution is to withdraw from the project review process and allow industry to develop without rules and regulations or government oversight.

The role of the DFO should be to ensure that federal laws like the Fisheries Act are maintained, strengthened and enforced. This requires the establishment of binding agreements with the B.C. provincial government that mandate cooperation in the enforcement of fish habitat protection regulations and policies and that identify clear roles and responsibilities of for all levels and branches of government.

Instead of reducing the budget for habitat protection and management, DFO resources should be re-allocated to enhance this role. The financial resources and personnel capacity saved on reduced project reviews should be devoted, in part, to educating project proponents (be they industry or the provincial or municipal government) about the laws governing protection of fish, providing some guidance on ways that project proponents can avoid damage to fish habitat. Other resources should be used to ensure that development activities are monitored and inspected to ensure they comply with the law and, where proponents fail to abide by the law, enforcement action should be taken to serve as a deterrent to future transgressions.

In closing, Pacific salmon stocks face increasing pressure as their habitat is lost and degraded. By following the solutions presented in this report, we believe we can minimize human-induced losses of salmon habitat and improve salmon survival. However, to ensure the future of one of Canada's most important resources, the DFO and the B.C. government need to act on the solutions proposed in this report immediately. The first step should be an immediate increase monitoring and enforcement capabilities. We invite comment and collaboration on realizing solutions that guarantee a more secure future for Canada's Pacific salmon and the habitat that they depend upon for their survival.

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- 21 The DFO *Policy for the Management of Fish Habitat* (1986) goals state: "The level of protection given to habitats under this goal will take into consideration their actual or potential contribution to sustaining the nation's fisheries resources, as defined in this policy, and in accordance with local fisheries management objectives." and, "Rehabilitate the productive capacity of fish habitats in selected areas where economic or social benefits can be achieved through the fisheries resource." (*emphasis added*)
- 22 *Fisheries Act*, R.S., 1985, c. F-14, as well as the *Oceans Act*, 1996, c. 31 and the *Species at Risk Act* 2002, c. 29.
- 23 Peterson et al. 2005.
- 24 *Ibid.*
- 25 Precision Identification Biological Consultants 1997.
- 26 Quadra Planning Consultants 1997.
- 27 Living Blueprint for BC Salmon Habitat 1998.
- 28 G3 Consulting 2000.
- 29 Harper and Quigley 2000.
- 30 Harper and Quigley 2005.
- 31 Fisheries and Oceans Canada. 1986. The Department of Fisheries and Oceans Policy for the Management of Fish Habitat. Available at: http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index_e.asp.
- 32 The DFO *Policy for the Management of Fish Habitat* (1986) states: "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 principle is intended to guide departmental officials and other interested parties, and should not be interpreted as a statutory requirement to be met at all costs and in all circumstances."

Notes

- 1 Slaney et al. 1996.
- 2 BC – Alive and Inseparable, British Columbia's Coastal Environment: 2006
- 3 Lichatowich 1999, Lackey 2000.
- 4 Rosenau and Angelo. 2000.
- 5 Office of the Auditor General of Canada 1997.
- 6 Office of the Auditor General of Canada 2004.
- 7 Office of the Auditor General of Canada 1997.
- 8 *Fisheries Act*, R.S., 1985, c. F-14
- 9 Naiman et al. 2002, Reimchen et al. 2003.
- 10 Watershed Restoration Program 1994.
- 11 Angelo 2006.
- 12 Morrison et al. 2002.
- 13 Welch et al. 1998, Mueter et al. 2002.
- 14 Barry et al. 2000.
- 15 Kondolf et al. 1997, Rosenau and Angelo 1999.
- 16 Hicks 2002, Buttle et al. 2005, Tripp and Poulin 1992, Northwest Hydraulic Consultants 1994.
- 17 Healey and Richardson 1996, Langer et al. 2000, Rosenau and Angelo 2005.
- 18 MacKenzie et al. 1998, Penston et al. 2004, Morton et al. 2004, Morton et al. 2005, Krkosek et al. 2005
- 19 Schendel et al. 2004.
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- 33 Fraser River Action Plan 1997
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- 42 Peterson et al. 2005.
- 43 *Ibid.*
- 44 Fisheries and Oceans Canada. Expenditure Review Announcements. Habitat Modernization Initiative. http://www.dfo-mpo.gc.ca/media/infocus/2005/20050223/budget_10_e.htm
- 45 Email from Bonnie Antcliffe, Manager, Habitat Management Division, Oceans Habitat and

- Enhancement Branch, Pacific Region, Fisheries and Oceans Canada to the David Suzuki Foundation dated October 4, 2006
- 46 Office of the Auditor General of British Columbia 2004, West Coast Environmental Law Association 2005.
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- 50 Office of the Auditor General of Canada 2004.
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- 52 Office of the Auditor General of Canada 2000.
- 53 http://www.dfo-mpo.gc.ca/canwaters-eauxcan/epmp-pmpe/index_e.asp.
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- 56 http://www.dfo-mpo.gc.ca/media/info-cus/2005/20050223/budget_10_e.htm.
- 57 Drodge et al. 1999.
- 58 Corriveau and Gertler 1996.
- 59 Canada's Policy for the Conservation of Pacific Salmon. 2005. Available at: http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/wsp/default_e.htm
- 60 *Ibid.*
- 61 *Ibid.*
- 62 Public meeting held to discuss EPMP in Vancouver on February 16, 2006.
- 63 Canada's Policy for the Conservation of Pacific Salmon 2005.
- 64 e.g. Peterson et al. 2005.
- 65 Canada's Policy for the Conservation of Pacific Salmon 2005.
- 66 Garcia et al. 2003.
- 67 See: <http://www.BChydro.com/environment/water-use/wateruse1775.html>.
- 68 Conservation and planning efforts that require updating and integration of conservation objectives and performance measures include: the Wild Salmon Policy, Species at Risk recovery planning, watershed-based fish sustainability planning, water use planning, and environmental effects monitoring, as well as local and regional land use and water use planning efforts that affect salmon habitat protection.
- 69 Morrison et al. 2002.
- 70 e.g., Nicola River: Walters and Nener 1998, Coldwater River: Bocking 2001.
- 71 Johnson and Jones 2000, Johnson 2004.
- 72 Rosenfeld et al. 2000, Buffington et al. 2004.
- 73 Hicks 2002.
- 74 Opperman et al. 2005.
- 75 http://www.env.gov.BC.ca/habitat/fish_protection_act/riparian/documents/regulation.pdf
- 76 Canada's Policy for the Conservation of Pacific Salmon 2005.
- 77 The David Suzuki Foundation and the Pacific Marine Conservation Caucus identified a number of concerns about the Wild Salmon Policy, including the need to incorporate strong conservation objectives with performance measures, as well as a commitment through directive language to meet these objectives.
- 78 Harvey and Greer 2004.
- 79 See: http://www.bcliberals.com/news_&_issues/bc_liberals_to_revitalize_nechako_river_basin/
- 80 Quadra Planning 1997.
- 81 Harper and Quigley 2000.
- 82 Harper and Quigley 2005.
- 83 Approximately \$40 million for science, \$30 million for habitat management (not including enhancement), and \$20 million for enforcement; Peterson et al. 2005.
- 84 For example, habitat management should not be lumped with ocean planning and enhancement, and enforcement should not be subsumed by "fisheries management."
- 85 Ontario Ministry of Environment 2002.
- 86 Fisheries and Oceans Canada. 1986. The Department of Fisheries and Oceans Policy for the Management of Fish Habitat. Available at: http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index_e.asp.

Pacific salmon are a keystone species, crucial to British Columbia's ecosystems, economy and culture. But the destruction and degradation of habitat over the past decades has contributed to the extinction of at least 142 wild stocks in B.C. Another 620 are at high risk of extinction.

The will to protect: Preserving B.C.'s wild salmon habitat documents the failure of past and current government policy to protect salmon habitat and offers a suite of creative solutions that will maintain and rebuild Pacific salmon populations.

The David Suzuki Foundation is committed to achieving sustainability within a generation in Canada. Abundant stocks of Pacific wild salmon are a vital part of a sustainable, prosperous future.



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