



Pacific Fisheries Resource Conservation Council

# Annual Report 2005

**Pacific Fisheries Resource Conservation Council Annual Report 2005**

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Pacific Fisheries Resource Conservation Council  
Conseil pour la conservation des ressources halieutiques du pacifique

June 2006

The Honourable Loyola Hearn  
Minister of Fisheries and Oceans  
Government of Canada  
Parliament Buildings  
Ottawa

The Honourable Barry Penner  
Minister of Environment  
Province of British Columbia  
Legislative Building  
Victoria

Dear Ministers:

It is our privilege to provide to you, in your capacity as ministers responsible for freshwater and ocean fisheries, a copy of the annual report of the Pacific Fisheries Resource Conservation Council for 2005.

This is the Council's eighth annual report, and our first as Chair and Vice Chair acting in conjunction with all of the other members. The report deals with issues and challenges that have been of fundamental relevance to salmon conservation.

This Council serves as a source of independent advice to you as ministers, and we provide public information on the state of wild Pacific salmon and steelhead stocks and their habitat. We work with government agencies, private sector, volunteer organizations, environmental groups and others towards protecting and restoring the salmon populations for future generations.

I want to acknowledge the contributions made by all of my Council colleagues, particularly the Honourable John Fraser, my predecessor as Chair who has continued to serve as a Council member. We have all been grateful for the cooperation and support shown by federal and provincial government officials as we have conducted our work.

Paul LeBlond  
Interim Chair

Mark Angelo  
Interim Vice Chair

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## EXECUTIVE SUMMARY

Pacific salmon and steelhead are one of British Columbia's most revered symbols of nature's bounty. For humans, they serve as an icon of persistence and tenacity in their life cycle spanning travel across thousands of kilometers. Their return to spawn in natal streams has been a cause for wonderment and celebration.

The protection and restoration of Pacific salmon populations is a necessity in the face of urbanization, loss of adequate spawning conditions and unpredictability of salmon mortality from conditions such as climate change and predation.

In 2005, the Pacific Fisheries Resource Conservation Council took the initiative to identify the precise nature of some significant risks to salmon and steelhead, and how governments and the British Columbia public could respond in constructive and effective ways. The Council's reports on the Wild Salmon Policy and agricultural impacts on salmon in the Fraser River emphasized how decisions that might not otherwise be considered significant for salmon, actually have a dramatic effect on salmon spawning and migration.

The Council's sponsorship with others of the October 2005 conference panel on climate change, and its organization of the symposium on salmon, helped to draw public attention to the changing nature of aquatic and fisheries resources as water temperatures and flow rates have become more variable.

The contentious issues related to salmon hatcheries and enhancement projects continued to be explored by the Council through its sponsorship of community meetings and bilateral discussions. While consensus has been elusive on the future direction of hatchery development, the Council has stressed the importance of better understanding of the issues in terms of consequences for wild salmon populations.

Effective implementation strategy for the Wild Salmon Policy is a priority objective of the Council, and the elements of conservation require reinforcing as the day-to-day salmon management regime in Fisheries and Oceans Canada is adjusted. The Council is emphatic that adequate funding be provided to carry out the resource planning, management inventory and enforcement that will be necessary to implement the new policy.

In 2006, the Council is proceeding with an ambitious program of community events, reports and public information tools. Among these will be building linkages with other British Columbia organizations across the fisheries and conservation sectors, and establishing greater coherence in the advice being provided to governments on the salmon and steelhead resource.

## 1. OVERVIEW

Each year, the Pacific Fisheries Resource Conservation Council provides a summary of its reports and presents an account of its work and observations in the preceding year. As government-appointed advisors representing the public interest, the Council members serve British Columbians and Canadians through their deliberations, information and recommendations.

In 2005, the Council continued to produce reports that are primarily directed to the Government of Canada and Province of British Columbia, the governments that share jurisdictional responsibilities related to salmon fisheries. The Council built on its previous findings and reports to identify threats to salmon and steelhead stocks, and offer constructive measures to mitigate and prevent problems, such as the loss of salmon habitat and emergence of new risks.

For example, while sockeye returns to the Fraser River are expected to be strong in 2006, some components of the run will be below normal levels due to factors such as pre-spawning mortality, particularly the Cultus Lake stock. In order to protect the weaker stocks from being endangered even further, restrictions on commercial fishing are likely to be applied. The mixing of the various stocks as they travel into and through the Fraser River system makes it essential to avoid overfishing of the threatened stocks.

The Pacific Fisheries Resource Conservation Council in 2005 revisited some of the persistent problems facing salmon and steelhead populations in terms of the proposed new Wild Salmon Policy. This will serve as a framework for the multitude of decisions affecting salmon throughout the coming decade, and it is crucial for the Wild Salmon Policy to serve as a positive and practical basis for fisheries conservation management. The Council's program in 2006 will build upon the preceding seven years of reports and leadership in fisheries conservation.

While the Council reports to the ministers responsible for fisheries in both Ottawa and Victoria, the operation of the Council is funded entirely by Fisheries and Oceans Canada. This funding arrangement does not impinge in any way on the independence of the Council and its freedom to choose its priorities and offer whatever advice and comments the Council members consider appropriate.

In May 2005, the Minister of Fisheries and Oceans appointed Dr. Paul LeBlond to serve as interim Chair of the Council. He also appointed Mark Angelo to serve as the Council's Deputy Chair. Both have served as members since 1999 when the Council was created. The previous Chair, the Honourable John Fraser, resigned from the position in order to take on a new assignment as head of the Pacific Salmon Forum, but he has remained a member of the Council.

The terms of the current Council members will be completed in 2006, and it is anticipated that new members would be added while some re-appointments would also take place.

The Pacific Fisheries Resource Conservation Council was created in 1999 to provide an independent source of credible and reliable information about the state of wild Pacific salmon and their habitat. The members act at arms-length from the federal and provincial governments in determining the issues it addresses and in deciding on the recommendations it makes. Council members represent a range of different backgrounds and perspectives.

The Council's priorities have remained unchanged since its inception:

- To advise the federal and provincial ministers on critical issues concerning the status and conservation of anadromous salmonids and their habitats. Their direct requests for advice are given priority. The broad and inclusive membership of the Council enables it to identify emerging and critical issues from many perspectives.
- To become directly engaged in emerging fish conservation issues and to assist the public in understanding those issues via processes such as public consultations, conferences and workshops, and by producing and disseminating understandable material in published and electronic forms.
- To continually update comprehensive and accessible information on the status of stocks and habitat, as well as advisory follow-up where appropriate.

## 2. COUNCIL REPORTS, ACTIVITIES AND PERSPECTIVES

During 2005, the Council proceeded with an ambitious agenda to produce reports and inform governments and the public through its sponsorship of events and activities. The findings of the Council and the recommendations produced during the year are summarized below:

### 2.1 Presentation to BC Conservative Caucus

In January 2005, the Council responded to a request from Conservative Members of Parliament from British Columbia to provide them with a briefing on current salmon conservation issues.

The Council's briefing explained the concern that the federal government was failing in its challenge to conserve and scientifically manage the fisheries resource. The problem of insufficient funding and human resources had become evident across a swath of activities, including enforcement, monitoring, research and stock assessment, leading to a lack of basic information on which to make crucial management decisions. Fisheries and Oceans Canada has been focused on dealing with budget cuts when it should be directing its attention towards managing the fisheries resource.

The Council made the following recommendations to the MPs:

- Re-define the fisheries priorities for conservation, and re-align the funding resources to them.
- Innovate the conduct and business model of Fisheries and Oceans Canada.
- Assign a greater share of the salmon stamp revenue to advance stewardship and habitat improvement.
- Renew the cadre of fisheries professionals who will have to deal with increasing challenges of fisheries science and management.

In the discussions with the Conservative MPs, the Council emphasized the importance of restoring trust and credibility for the federal government in dealing with the fisheries, particularly in matters such as aquaculture and the wild salmon policy. This should involve opening fisheries management decisions to greater public scrutiny.

### 2.2 Wild Salmon Policy

The Council was pleased to comment in February 2005 on the draft wild salmon policy document that was issued by Fisheries and Oceans Canada. The Council welcomed the new draft version that had been significantly revised from its previous forms. The members assessed the document in terms of requirements and criteria it applied to the earlier versions, in terms of why the policy was required, what it should say, what it should do, and how the policy should be applied, specifically in defining wild salmon and describing the population structure.

While offering constructive criticism of aspects of the proposed policy, the Council noted that it is an important step towards best practices in the assessment and management of Pacific salmon. The areas in which useful changes could be made were in setting clear objectives, understandable performance measures, and increased public accountability for fisheries management.

The draft policy document, in the Council's view, was not sufficiently clear in assigning the priority to wild salmon conservation, in part because it seemed to call for equal or preferential consideration of social, economic and biological considerations in decisions.



The Council offered recommendations related to seven issues:

- The policy must use a technically sound definition of “wild salmon”, and make it clearer that wild salmon come first.
- The policy must use a single definition of conservation throughout, and that definition should be consistent with the policy goal.
- In anticipation of public confusion about which salmon populations will be protected and how decisions about conservation will be made, examples should be developed from current situations, such as Cultus and Skeena sockeye, to provide real-world examples of how the policy would or could be applied.
- Consideration of habitat stewardship and ecosystem values are missing from the current draft and should be added to the wild salmon policy in order to describe crucial elements of the policy’s implementation.
- The policy should more explicitly address the consideration of salmon enhancement and aquaculture in regard to wild salmon resource management.
- The proposed performance reviews of the policy’s implementation are commended.
- The funding resources to implement the wild salmon policy are essential, and the level of funds assigned to the task will reflect the level of commitment to achieving the policy’s objectives.

Council members were heartened that the re-drafted version of the wild salmon policy in April 2005 addressed most of the points raised in the Council’s comments. Members and staff of the PFRCC participated in the workshops that were held by Fisheries and Oceans Canada to help refine the draft policy’s implementation. In a subsequent letter to the Minister, the Council asked for clarity about the independent nature of the review of the policy’s implementation, and reiterated the need for sufficient resources to be assigned to make the policy a reality.

The Council has anticipated its continuing involvement in designing the implementation of the wild salmon policy during 2006.

### **2.3 Salmon Enhancement and Hatcheries**

The public discussions about the interaction of enhanced and wild salmon and the role of salmon hatcheries have evoked heated debate in British Columbia. In early 2004, the Council released a consultants’ report on salmon enhancement and hatcheries that triggered considerable attention and argument.

The Council subsequently met with an array of stakeholders and participants to get their views on the topic. In May 2005, the Council produced a summary of the perspectives and points raised during the community meetings and bilateral discussions. That report, entitled *Perspectives on Salmon Enhancement and Hatcheries: What the Council Heard*, provided a compendium of the views expressed by stakeholders, interest groups, scientists and citizens. It reflected their views rather than the Council’s, and was intended to provide a reference point for possible recommendations in a future advisory report.

The community meetings in Prince Rupert, Nanaimo and Chilliwack involved more than 100 participants. The ten bilateral meeting discussions were with representatives of associations, volunteer organizations, and governments, as well as experts, to enable Council members to

obtain a better understanding of salmon enhancement from various perspectives. Written submissions were also reviewed by the Council and taken into consideration.

The Council found that British Columbians believe that salmon hatcheries and enhancement activities are needed to protect wild salmon stocks, but also to maintain jobs, the sport and commercial fishing industries, and a sense of community in many parts of the province.

Emerging from the discussion in the meetings were four themes:

- Enhancement and hatcheries are very important to British Columbians because they enable and support fishing along with providing other important benefits.
- A large proportion of those consulted believed that concerns about the potentially negative impacts of enhancement on wild salmon have either been fixed or are unsubstantiated, misguided or irrelevant.
- Technology and research could provide solutions to any negative impacts that remain in enhancement.
- There is widespread cynicism and distrust of Fisheries and Oceans Canada regarding its level of commitment and funding for enhancement.

The Council has continued to develop its findings related to salmon enhancement and hatcheries with a view to issuing an advisory report in 2006.

## **2.4 Conflicts Between Agriculture and Salmon in the Eastern Fraser Valley**

In June 2005, the Council released an extensive background paper authored by Marvin Rosenau and Mark Angelo. That paper, entitled *Conflicts between Agriculture and Salmon in the Eastern Fraser Valley*, provided a unique perspective of the habitat capacity of the region's aquatic ecosystems and was given widespread news media coverage.

The authors presented information and advice to the Council about the impact over the past century of extensive agriculture on the streams, wetlands and riparian areas that have historically been crucial for salmon production. The area of attention for the study was region impacting the Fraser River between Hope and Mission.

The message of the paper was that intensive farming in the eastern Fraser Valley is threatening to destroy what little remains of the rich riverside habitat along the Fraser River which salmon and steelhead stocks depend on for their survival. It points out, however, that it is not too late to protect those vital areas.

The paper chronicled the transformation of aquatic conditions due to major changes such as diking, ditches, water diversion, drainage, channelization, and vegetation clearing. It cites the positive responses by government agencies beginning to work together to mitigate the effects on fish habitat.

The report noted that the re-zoning of land for more residential and industrial uses can be expected to continue, but some solutions would allow farms and fish to co-exist more peacefully. These include land use plans that maintain crucial riparian areas, greenway belts, and tax incentives to encourage restoration and protection of small streams alongside intensively cultivated fields.

The report credited the BC Environmental Farm Plan program with taking a positive approach that has great potential for improving the situation. It also pointed out the opportunity for many partners, including government, farmers First Nations and conservation groups to work together to protect this valuable natural asset.

The background paper also recommended:

- Expanding the BC Environmental Farm Plan program.
- Purchasing key private land with high riparian value for conservation purposes along the Fraser and Chilliwack rivers.
- Developing a land use plan for the Hope to Mission stretch of the Fraser River.
- Discontinuing deep-pit gravel mining on the Fraser River near areas of high riparian values, and decommissioning riverbank armouring.
- Curtailing further development for intensive farming purposes in marginal agricultural lands with high wetland values.

The considerable news media and interest group attention to this report illustrated how the Council is able to offer innovative solutions and generate public support for effective action. The support by the agricultural community and industry organizations for some of the key proposals contained in the report has been evident, and this may be crucial in any progress towards implementation by governments. These results are directly attributable to the positive way in which the proposals were framed and communicated to British Columbians.

## 2.5 Acoustic Tagging Initiative

In the summer of 2005, the Council was asked by the Minister of Fisheries and Oceans Canada to initiate a special review and provide information on the cost to acoustically tag and monitor Cultus Lake sockeye smolts. The Council's mandate includes a provision for the minister to make such specific requests where the Council is uniquely positioned to provide timely and strategic advice.

The Council provided a response in September, explaining activities and assumptions about the project, and presenting estimated costs of the components. The Council was able to undertake this initiative at short notice, and make use of the expertise and experience that is resident in Canadian institutions.

The Council estimated that the cost would be about \$1.3 million annually for such a program. It was recommended that Fisheries and Oceans undertake a thorough evaluation of the likelihood of success of the potential initiative. The merit of such work being that it has the potential to allow some fishing to occur where this is not currently possible. If the at-risk sockeye can be identified in a suitable timeframe and numbers, and if it is possible for fisheries managers and the fleet to respond in a timely fashion, commercial and recreational fishing could be directed away from the sensitive stocks.

## 2.6 Climate and Fisheries Conference

In October 2005, the Council sponsored a one-day symposium as part of a major conference on climate and fisheries, investigating the impacts, uncertainty and responses of ecosystems and communities. The event in Victoria involved 345 registered attendees and was sponsored by several fisheries organizations, including the Pacific Fisheries Resource Conservation Council. It was coordinated and chaired by Dr. Mark Johannes on behalf of the Canadian Climate Impacts and Adaptation Research Network.

The Council's session was entitled *Climate Change and Its Implications to Fraser River Sockeye Salmon*. It started with the presentation of scientific information on the subject. This was followed by a panel discussion and dialogue. The participating researchers, resource managers, policymakers and community leaders in the panel discussion explored the impact of climate change on salmon stocks, and identified how policies and management systems need to adapt.

Among the issues of concern was the effect on stream flows, ocean productivity and lack of sufficient water for fish passage and habitat. The Council's previous work of low water flows was cited by participants as a crucial reference to this problem.

The participants also offered valuable insights such as: "We must dispel the expectation of Certainty in fisheries management." Another commented that we must expect uncertainty as the norm and do more about the aspects that can be controlled. Several participants suggested more research on climate, variability, impacts and adaptability mechanisms.

The participants suggested that management systems for aquatic resources and fisheries have been slow to adapt to the effects of climate change. For instance, the adaptation and anticipation needed to deal with persistently low water levels must become a priority for federal and provincial fisheries management agencies.

The Council plans to follow up on the issues raised in the session of Fraser River salmon in a 2006 project.

### **3. OTHER ISSUES**

In addition to the reports it produced during 2005, the Council discussed a wide variety of issues and carried out its deliberations that included broad consensus on position that are reflected in the two following categories:

#### **3.1 Status and Outlook for Salmon Stocks**

The Council generally provides advice on specific salmon and steelhead issues, rather than trying to draw a single conclusion about the state of Pacific salmon stocks. The variety and the array of geography and situations combine to make a simple portrayal either impossible or irrelevant.

At the same time, the Council is concerned about the overall sustainability of British Columbia's wild salmon populations. Worldwide, the demand for fish is rising, and much of the Pacific salmon stock is highly prized. The suggestion that the fishery is an industry in decline ignores its evolving nature towards high-value recreational fishing and the constrained fishing opportunities that have been necessary to protect at-risk stocks.

The transition of fisheries has been from an emphasis on exploitation to one based on managing sustainability. This has required a new approach to managing the Pacific salmon fishery, and different scientific and regulatory techniques than have been used before.

In making this change to a sustainability basis, it has become obvious that fisheries management lacks the tools and capacity to understand and cope with the full range of biological and technical considerations.

A recent study done for the British Parliamentary Office of Science and Technology cited the world-wide fisheries science problem of understanding stock collapse, technological advances, climate change and understanding of ecosystems that may be having a more significant impact on fish stocks than many situations of overfishing, predation and other traditional causes of salmon conservation problems.

The importance of a new generation of scientific research should be directed towards more effective stock assessment, salmon health in marine environments, and holistic ecosystem approaches through multidisciplinary research.

The perspective of the Council on stock status considerations was expressed by the former Chair, John Fraser in an April 2005 panel discussion at an international salmon conference in Alaska. He spoke about: "...the urgent need for a strong independent salmon advisory council, especially in this time of increased sanitization of scientific advice in the upper levels of the bureaucratic chain of command." He added that there was a need for a nonpartisan political spectrum that supports salmon ecosystems.

#### **3.2 Fraser River Sockeye—Traceability and Compliance Initiatives**

One of the most bitter on-going public debates in the Pacific salmon fishery has been about "missing sockeye salmon" on the Fraser River and accusations that this is a result of illegal catch. The accusations of unfairness or tolerance of illegal fishing, especially by First Nations, have become a source of controversy, much of it in a highly confrontational tone. One of the instinctive responses of some stakeholders has been to demand more in-river monitoring and tougher enforcement to solve the problem. This emphasis on policing for compliance, while logical, has drawbacks, not the least of them being challenges associated with the vast size of the river system and the need to deal with other sources of uncertainty about the size of sockeye stocks.

There are many other factors determining how many Fraser River sockeye there are and where they go, apart from illegal fishing by any sector. These include uncertainty associated with different fish estimation techniques such as test fishing in the ocean and Mission echo-sounding measurement in freshwater. There is also uncertainty over en-route natural mortality and added effects of factors such as high water temperatures. Some of the better sources of information, in the past, have been the estimates of numbers of spawning fish, but less frequent monitoring at the spawning grounds is reducing the reliability of these estimates. This situation of contrasting sockeye estimates can and should be rectified.

At the same time, unaccounted-for catch, owing to reporting gaps and insufficient monitoring, is another issue that the PFRCC emphasizes should be addressed. If no one can trust the measurement basis for overall catch figures in ocean or freshwater fisheries, the problem of differing estimates will persist and accusations will continue.

While there are rough estimates of fish caught, dockside monitoring does not occur in a fully-inclusive way. The documentation of the actual numbers of fish reaching commercial storage facilities is inconsistent even though it should be relatively easy to obtain accurate numbers. There is also little information on what happens to fish leaving commercial facilities; as an example, fish caught in fulfillment of legitimate First Nations aboriginal rights can be stored in commercial facilities, but there is no consistent documentation about what goes back to the First Nations community or into the market place. River enforcement alone could miss situations in which salmon is legally caught but illegally sold.

Currently, there is no comprehensive process in place to track salmon from catch to marketplace. The general lack of reporting and inconsistency of data make it impossible to trace the sources, volumes or disposition of the salmon in most instances. It is important for everyone across the fishing, processing and handling system to assume a fair obligation to measure and report as the salmon proceed through the processing, marketing and sales stages. This would deter illegal fishing and sales of fish, and would clearly define the basis for tracing, rather than operating with the hazy definitions of what now constitutes “illegal” or “unreported” catch. Applying such an approach would create consistency without compromising the existing regime of rights, privileges and responsibilities of participants in the salmon fishery.

Creating traceability of Fraser River sockeye in this way could have a long-term conservation benefit in reducing exploitation of at-risk stocks, as well as creating a more reliable and credible basis for management decisions on overall catch levels and allocations.

The establishment of reliable traceability through comprehensive catch reporting would provide the model for a comprehensive solution if it were coupled with a more focused monitoring and enforcement regime for illegal fishing and on-going efforts to estimate the strength of salmon runs, natural mortality and numbers reaching the spawning grounds.

This approach would most fundamentally be valuable in creating conditions where trust could be rebuilt among all of the harvesters in the Fraser River salmon fishery. It would set the stage for cooperation and trust based on confidence in the reliability of reporting and the resulting numbers. It would help to reinforce the recent collaboration between the commercial and First Nations fisheries related to Cultus Lake. This should be a subject for the entire fisheries community to address and demonstrate a resolve to restore credibility to the catch reporting system.

## **4. CURRENT AND FUTURE COUNCIL INITIATIVES**

Several reports and initiatives initiated in 2005 are leading to publications and activities in 2006. The preliminary findings from those studies are outlined below, along with a preview of the Council's 2006 workplan and projects.

### **4.1 Completion of First Nations Fishery Report**

In 2004, the Council initiated a series of three reports to deal with the evolution and current perspectives of the three segments of the Pacific salmon fishery—commercial, First Nations, and recreational fisheries. The purpose was to provide British Columbians with background papers explaining the context for the current issues facing each of these segments.

The first report in this series was on the commercial fishery and was issued in December 2004. The second is on the First Nations fishery, and its distribution has already begun.

An initial finding of the First Nations fishery report, prepared for the Council by consultants Kerri Gardner and Ben Parfitt, is that First Nations have a considerable stake in watersheds and along fish migration routes that require initiatives to share and manage the salmon resource equitably and fairly. A theme of their report is intertribal sharing and cooperation with others across the recreational and non-aboriginal commercial fishing sectors.

Their report cites examples of effective co-management initiatives that have led to valuable conservation results in the Skeena and Nass river systems.

### **4.2 Initial Findings on Recreational Fishing Development**

The third and final report in the background paper in the series on the Pacific salmon sector's evolution and current issues is expected to be published by mid-summer 2006.

This report on the recreational fishery is being authored for presentation to the Council by sports fishing expert Gerry Kristianson. The report is expected to provide an historical perspective on the exceptional growth of the recreational salmon fishery and explain the various policy frameworks, including those related to conservation, that have shaped the nature of sports fishing in British Columbia.

This report is also expected to present current data on the economic value of the recreational fishery that will be useful for reference purposes. It will highlight the array of issues and controversies that have become prevalent.

### **4.3 Production of Habitat Status Indicators Report**

An on-going Council initiative has been to look at the potential for developing and applying new habitat indicators to measure impacts on salmon. This fundamentally important work is being carried out in conjunction with government researchers who have also been seeking ways to correlate habitat conditions with salmon productivity and mortality.

The work in 2006 on this report has already involved public meetings and discussions with habitat specialists. Consultants will provide expertise in the development of practical measurement criteria to enable habitat indicators to be implemented. The focus of this implementation will be in terms of the Wild Salmon Policy and the ways in which habitat indicators could support decision-making in Fisheries and Oceans Canada.

Further public and stakeholder consultations will be held, with the expectation that the Council will issue an advisory on this matter before the end of 2006.

#### **4.4 Other 2006 Follow-up Projects**

The Pacific Fisheries Resource Conservation Council plans to complete some reports in 2006 that have lingered on its project agenda and are overdue.

A report will be completed by year-end on the northern and Yukon trans-boundary rivers, fulfilling the Council's commitment to report on all of the coastal systems. The southern and central coast reports were completed some time ago.

Also scheduled for completion is a report on steelhead and their unique conservation vulnerability.

The Council will expand its dissemination of public information on pacific salmon and habitat through its remodeled and expanded website.

#### **4.5 New Projects and Activities for 2006**

The Council will proceed with an extensive round of public meetings across the province to elicit views from British Columbians about their salmon conservation views and suggestions. This public engagement function is one that the Council members consider crucial for the determination of priorities.

The *Heart of the Fraser* initiative will be a focus of Council activity along with others in 2006. The initiative involves a follow-up to the Council's reports on agricultural impacts in the Hope-to-Mission stretch of the Fraser River.

The Council will closely follow the work of federal fisheries scientists and others in the Strait of Georgia to see how the PFRCC can assist to increase public understanding of the changing environment of the Strait. That would involve considerations of the crucial marine and freshwater ecosystems and the trends and impacts affecting them. A one-day symposium presenting data and explanations of the links between the environmental conditions, biological productivity and fish production is planned, and will be followed by a synthesis report for the general public.

Council members will work with officials of the Government of Canada and Province of British Columbia to investigate how there might be greater coherence and consistency in the development of advice to governments on Pacific salmon and habitat issues.



## 5. APPENDICES

### 5.1 Council Members and Staff

**Dr. Paul LeBlond** serves as the Interim Chair of the Council and is Professor Emeritus of Oceanography and Physics at the University of British Columbia. Located on Galiano Island, he has a particular interest in climate change impact. He chairs and serves on several prestigious science panels and advisory boards.

**Mark Angelo** serves as the Vice Chair of the Council. He is Program Head and Instructor of the Fish, Wildlife and Recreational Department of the BC Institute of Technology. He is known across North America for his work as a river conservationist, habitat expert, and educator, and was awarded Canada's first National River Conservation Award.

**The Honourable John A. Fraser** served as Chairman of the Council from inception until April 2005, and now continues to serve as a Council member. He is a former Minister for the Environment and Minister of Fisheries and served as the first elected Speaker of the House of Commons. He headed the Fraser River Sockeye Public Review Board investigating the salmon fishery and was also Canada's Ambassador for the Environment.

**Mary-Sue Atkinson** has become a widely-known volunteer and advocate for fisheries conservation. She has served as a streamkeeper, and she has led public awareness campaigns and school programs to expand public awareness about watershed protection and survival of wild salmon.

**Murray Chatwin** is Vice President for Fisheries Management at Ocean Fisheries Ltd. He has been involved in the fishing sector all of his working life, and serves on an array of advisory committees and industry groups promoting sustainable fisheries practices and research to ensure effective resource use.

**Merrill Fearon** is the Executive Director of the Federation of BC Writers and has been involved in leading the creation of innovative educational programs and resources, including the Sturgeon General website to educate children about the Fraser River. She has worked with community stewardship groups to improve their information programs, and has been a director of the Save Our Fish Foundation.

**Dr. Jeff Marliave** is Vice President of Marine Science at the Vancouver Aquarium. He is an extensively published scientist involved in hands-on research as a diver. He has been instrumental in providing leadership for the Council to deal effectively with several high-profile issues including salmon aquaculture and protection of pink salmon stocks.

**Marilyn Murphy** is the Executive Director of the Sport Fishing Institute of BC. She has spent her career involved in sportfishing as a fishing guide and lodge manager, contributing to the sustainable use of salmon resources. She is also currently the Chair of the BC Southern Sportfishing Advisory Board. She became a member of the Pacific Fisheries Resource Conservation Council in December 2003.

**Marcel Shepert** has previously been the executive Director of the Fraser Watershed Fisheries Secretariat (FRAFS) and also a fisheries program manager and coordinator for the Carrier Sekani Tribal Council. Located in Prince George, he has been instrumental as a leader and representative of First Nations' interests in resource management, negotiations and conflict resolution.

**Dr. Richard Beamish** is an ex-officio member representing Fisheries & Oceans Canada.

*Arnie Narcisse* is an ex-officio member representing the BC Aboriginal Fisheries Commission, an organization he also chairs.

*Gordon Ennis*— Managing Director

*Natasha Delorme*—Council’s Administrator (January to August)

*Priscilla Singh*—Council’s Administrator (August to December)

## 5.2 PFRCC Publications

*Annual Report 1998–1999* (Released June 1999) This report and its four accompanying background papers were the first products of the Pacific Fisheries Resource Conservation Council. Together they were intended to present a package of information and advice to governments and the Canadian public on the conservation of Pacific fish populations and habitat in British Columbia.

*Freshwater Habitat* (Background paper authored by Dr. Marvin Rosenau and Mark Angelo, June 1999) Salmon and steelhead habitats in British Columbia are almost as varied as the province’s geography. The rich biological diversity of species and stocks of salmonids—the family to which salmon and steelhead belong—is an evolutionary response to the physical and chemical variability of the habitats in which these fish live.

*Salmon Stocks* (Background paper by Dr. Carl Walters and Josh Korman, June 1999) Providing a broad species-by-species overview of stock status and trends for BC as a whole, this paper presents an overview of the fisheries management issues associated with determining stock status. The aim is not to provide a detailed or complete enumeration of all local conservation issues, but rather to highlight major concerns, and to identify needs for more detailed analysis.

*Fraser River Sockeye* (Background paper authored by Dr. Richard Routledge and Ken Wilson, June 1999) This paper details historical trends regarding Fraser River sockeye runs. It also addresses management concerns and concludes with recommendations.

*Coast-Wide Coho* (Background paper authored by Dr. Richard Routledge and Ken Wilson, June 1999) Canada’s management and protection of freshwater coho habitat leaves much to be desired. The effect of loss and degradation of freshwater coho habitat in the decline of southern BC coho is complex. There are very few pristine watersheds in southern BC. Loss and degradation of freshwater coho habitat is very widespread. Most biologists agree that we have lost productive coho habitat, and that habitat loss represents a significant long-term threat to wild coho production.

*Climate Change and Salmon Stocks* (October 1999 conference summary) This one-day workshop hosted by the PFRCC focused on the questions, “What is the most alarming potential impact of climate change on salmon stocks?” and “What is the best strategy to adopt?”

*Annual Report 1999–2000* (Released May 2000) This annual report of the Council reviews the state of salmon stocks and related habitat conditions, and includes particular attention to a set of areas, salmon populations and habitat situations that are at-risk. It looks at four issues in particular—climate change, the *Pacific Salmon Treaty*, salmon in the Central Coast, and strategic management.

***Water Use Planning: A Tool to Restore Salmon and Steelhead Habitat in British Columbia Streams*** (Background paper by Dr. Marvin Rosenau and Mark Angelo, May 2000) Currently, many western North American heritage plants and animals are being lost due to careless use of water and this cannot be rectified until they attain preferred status for access to this important life-giving resource. Salmon and steelhead populations are among the species impacted by excessive human use of water.

***Review of the Coho and Chinook Salmon Sections of the “Agreement Under the Pacific Salmon Treaty” between Canada and the United States, dated 30 June 1999*** (Background paper by Randall Peterman and Brian Pyper, May 2000) This report reviews the “Agreement under the *Pacific Salmon Treaty*” between Canada and the United States. The terms of reference given to the authors by the PFRCC focused this review on how adequately the Aggregate Abundance-Based Management rules specified in the Agreement would deal with conservation issues for Canadian coho and chinook salmon.

***Sand and Gravel Management and Fish-Habitat Protection in British Columbia Salmon and Steelhead Streams*** (Background paper by Dr. Marvin Rosenau and Mark Angelo, May 2000) Sand, gravel and other sediments within and adjacent to spawning and rearing streambeds are fundamental to the productivity of salmon and steelhead stocks. The high levels of production formerly seen in many of British Columbia’s chum, pink and sockeye populations were, in part, the result of the conditions of the spawning sediments, primarily gravel, available for these fish. For instance, the quality of the freshwater rearing environment for coho, chinook and steelhead is more crucial than the amount of spawning area.

***State of Salmon Conservation in the Central Coast Area*** (Background paper by Allen Wood, May 2000) Areas 6 to 10 of British Columbia’s Central Coast were selected for study because this region provides a good measure of the current state of domestic stocks and their management. This is one of the few relatively undeveloped areas left on the coast.

***The Wild Salmon Policy and the Future of the Salmonid Enhancement Program*** (Council Advisory, June 2000) The March 2000 *Wild Salmon Policy Discussion Paper* was part of a series of Fisheries and Oceans Canada projects flowing from the New Directions policy initiative which was begun in October 1998. The New Directions initiative was being developed in tandem with the Pacific Fisheries Adjustment and Restructuring Program. Fisheries and Oceans engaged in a round of public consultations with respect to its proposed Wild Salmon Policy, as well as the future of the Salmonid Enhancement Program, and the PFRCC provides its views in this Advisory.

***Salmon Conservation in the Central Coast*** (Council Advisory and background paper prepared for the Council by Allen Wood, March 2001) The conservation status of chinook and coho salmon populations in the Central Coast has become a matter of growing concern. Poor returns of salmon and other important fish species have undermined the commercial and aboriginal fisheries and affected communities throughout the region. The PFRCC’s sponsorship of this background paper was intended to provide a factual and analytical basis for the Council members to provide comments and recommendations, and to present technical information that can enable the public to understand the situation.

***A Crisis in Fisheries Education*** (Council Advisory, September 2001) Effective management of fisheries on sound conservation principles is essential if we are to maintain both biodiversity and healthy salmon stocks in British Columbia. The human resources in the fisheries sector and the skills they apply are increasingly crucial to the success of activities intended to safeguard and enhance the prospects for wild salmon.

***The Role of Public Groups in Protecting and Restoring Freshwater Habitats in British Columbia, with a Special Emphasis on Urban Streams*** (Background paper by Dr. Marvin Rosenau and Mark Angelo, September 2001) There has been an upsurge of community and public involvement in the protection and rehabilitation of British Columbia rivers and streams, and an evolution towards a more collective engagement in the management of these resources. This has begun to result in some remarkable successes.

***Annual Report 2000–2001*** (Released December 2001) This report provides a preliminary summary of the state of stocks in 2001. It is preliminary because final spawner counts will not be available for a number of months. The report also summarizes research findings and thinking to date on the subject. Lastly, some related issues are discussed, and some important conservation and management questions are put forward.

***Annual Report 2001–2002*** (Released October 2002) This report is innovative in assembling information that is not otherwise available to the public in any other publication. It considers Pacific salmon in four regions of southern BC: Fraser River basin; Okanagan; Strait of Georgia; and West Coast of Vancouver Island. For each region and species, the report summarizes trends in spawning population sizes since the early 1950s, explains the annual monitoring of these populations, and identifies conservation concerns.

***The Protection of Broughton Archipelago Pink Salmon Stocks*** (Council Advisory, November 2002) The European experience indicates that sea lice abundance can be associated with salmon farming. This advisory makes recommendations on how to safeguard the wild pink salmon runs of the Broughton Archipelago.

***Making Sense of the Salmon Aquaculture Debate: Analysis of issues related to netcage salmon farming and wild salmon in British Columbia*** (Report commissioned by the PFRCC, prepared by Julia Gardner, Ph.D., and David L. Peterson, January 2003) This report takes a look behind the debate, examines the information and assumptions supporting the arguments of opposing interests, and deepens the current public understanding about the potential impacts of salmon aquaculture on wild salmon. The report's focus was on the interplay of salmon farming and wild salmon, not on all aspects of the potential impacts of salmon farming. Instead, the report concentrates on the most pressing issues pertaining to farmed salmon/wild salmon interactions.

***Wild Salmon and Aquaculture in British Columbia*** (Council Advisory, January 2003) This Advisory provides information and recommendations for action on the potential and perceived impacts of salmon netcage aquaculture on wild salmon and their habitat in British Columbia.

***The Salmon Aquaculture Forum: Discussion Paper on Practices & Findings*** (Authored by the Honourable John A. Fraser and Kenneth Beeson, December 2003) The authors report on their extensive stakeholder discussions and public policy research on best practices across North America and Britain to produce this paper on resolving salmon aquaculture controversies and establishing consensus on the future of fish farming. It cites the importance of First Nations involvement and constructive public participation. It suggests a broader framework and initiatives for government advisory systems to work more productively.

***The Salmon Aquaculture Forum: Briefing Note to Ministers*** (Authored by the Honourable John A. Fraser and Kenneth Beeson, December 2003) This report sets out the principles and criteria for the new Forum, and proposes the key elements that will be necessary to make it acceptable to all participants and effective in fostering public dialogue and understanding of the issues. It offers some alternatives in terms of the scope and scale of the Forum's activity.

***Annual Report 2002–2003*** (Released August 2003) This annual report puts forward the current findings related to stock status and habitat conditions, and it presents a summary of the Council's viewpoint on some of the most significant and immediate matters of concern. In some instances, the comments summarize and clarify the positions explained in previous Council reports. In other cases, such as salmon aquaculture, this report contains the Council's more recent consensus views.

***Conflicts Between People and Fish for Water: Two British Columbia Salmon and Steelhead Rearing Streams in Need of Flows*** (Background paper authored by Dr. Marvin Rosenau and Mark Angelo, September 2003) Using the Nicola and Englishman rivers as examples, this background paper explains how water levels and flows influence the productivity of salmon. It describes the regulatory regimes for water access and how there has been increasing competition for water for urban development, agricultural and industrial uses. It suggests adopting a hydrological budgeting process to allocate water to fish and other uses in a fair and transparent manner, and enforcing the water license system more effectively.

***Pacific Salmon Resources in Central and North Coast British Columbia*** (Authored by Dr. Brian Riddell, February 2004) This report summarizes the status of all salmon stocks in the central and north coast areas of BC and complements Council's 2002 report on the status of south coast salmon stocks. Data on escapements are presented, over time, for all five species of Pacific salmon. Inconsistent and inadequate data have created assessment challenges. While these salmon are threatened by economic development, climate change and human population growth they also remain a diverse, highly dynamic and resilient group of species.

***Advisory: Salmon Conservation Challenges in British Columbia with particular reference to Central and North Coast*** (Council Advisory, February 2004) This report summarizes Council's advice based upon an extensive analysis of the status of all salmon stocks in the central and north coast areas of BC. The advisory points out serious shortcomings in DFO's salmon assessment program. Budgets for assessment are decreasing at a time when international protocols, the new Species at Risk Act and an increasingly aware and concerned public demand better information. This Council advisory recommends the development and funding of a core assessment program aimed at the generation of quality information.

***Making Sense of the Debate about Hatchery Impacts: Interactions Between Enhanced and Wild Salmon on Canada's Pacific Coast*** (Report commissioned by the PFRCC and prepared by Julia Gardner, David L. Peterson, Allen Wood and Vicki Maloney, March 2004) This report sets out the various positions that have been expressed by scientists and others, with a focus on potential harmful interactions between enhanced and wild salmon. It explores the opinions and arguments surrounding the impacts and explains the various concepts, theories, practices and research in this field. Risks are examined in the context of the tendency to over-harvest un-enhanced stocks where mixed-stock fisheries occur, genetic impacts, ecological impacts, disease and negative impacts on habitat from the enhancement facilities.

***Annual Report 2003*** (March 2004, released April 2004) This annual report summarizes initial findings from Council's extensive analysis of the status of all salmon stocks in the central and north coast areas of BC. This report also provides a summary analysis of past recommendations to both levels of government and the influence that advice had on government decisions. This advice is summarized in terms of five topics or themes: biodiversity of Pacific salmon, effective management, adequacy of information, risk minimization and the development of a guiding policy framework.

***Does Over-Escapement Cause Salmon Stock Collapse?*** (Technical paper prepared by C. Walters, P. LeBlond and B. Riddell, April 2004) This report looked at all available information from British Columbia on whether large spawning populations that exceeded “normal”, target or historical numbers, were followed by stock collapses. There was evidence that there was a levelling-off of salmon production for runs having a high escapement, but there was no evidence of over-escapement causing stock collapse.

***Reality Stewardship: Survival of the Fittest for Community Salmon Groups*** (Report commissioned by the PFRCC and the Vancouver Foundation, prepared by Brian Harvey and David Greer, July 2004) Given funding cuts from government, this report recommends strategies for survival including a focus on activities that will appeal to private donors and foundations. Projects are suggested that will allow volunteers and professionals to work together rather than compete for limited funds, and require the science-based planning approach that has sometimes been missing from ad-hoc community stewardship. Among their recommendations, the authors propose forming consortia with fund-raising and management skills and local political support.

***The Evolution of Commercial Salmon Fisheries in British Columbia*** (Report commissioned by the PFRCC, prepared by Stuart Nelson and Bruce Turriss, December 2004) This paper traces the trends in fisheries management from the 1960s to the present period. The report does much to inform the public on how the fishery has evolved from a large industrial scale to the current smaller more controlled scale designed to improve salmon conservation. The commercial salmon fishery has undergone significant changes to improve conservation of the salmon resource. The report argues that the high conservation bar set to protect wild salmon and economically viable commercial fisheries are not mutually exclusive.

***Annual Report 2004*** (April 2005) This annual report presented a summary of the publications and primary recommendations of the PFRCC in the preceding year. It also provided an account of the activities in support of salmon protection and habitat restoration, and the perspectives of Council members on matters including the capacity of regulatory and management agencies to conserve Pacific salmon.

***Perspectives on Salmon Enhancement and Hatcheries: What the Council Heard*** (May 2005) This Council report summarizes the results of public meetings, one-on-one meetings and written submissions related to the subject of salmon hatcheries. British Columbians believe that salmon hatcheries and enhancement are needed to protect wild stocks. Others are concerned that hatcheries can create negative impacts and that enhancement needs to be done right.

***Conflicts Between Agriculture and Salmon in the Eastern Fraser Valley*** (Background paper authored by Dr. Marvin Rosenau and Mark Angelo, June 2005) This paper was presented to the Council describing issues and challenges related to agricultural impacts in the lower Fraser River from Hope to Sumas and its tributaries. It highlighted the ways in which environmental remediation could occur efficiently, and how aquatic ecosystems and salmon protection can be enhanced without undermining agricultural viability.



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