frequently Asked Questions

BC PACIFIC SALMON FORUM - FREQUENTLY ASKED QUESTIONS

1. Are wild salmon a threatened species in BC?

A report commissioned by the Forum and written by Dr. Brian Harvey stated that none of the five main Pacific salmon species is facing extinction, but a number of individual populations have disappeared or seem about to do so.

Many wild salmon populations face multiple threats, most of which are associated directly or indirectly with human activities. Salmon habitat has been significantly damaged by human activity over the past century. These impacts will increase as human population increases, Dr. Harvey says. The impact of human population growth is now also having an indirect effect through climate change, both in the North Pacific and on our coast and watersheds. The combination of both sets of effects represents an unprecedented threat to wild salmon in the future.

2. Are salmon farms a threat to sustainable wild salmon populations in BC?

We believe the greatest threats to sustainable wild salmon are damages that have already been suffered by wild salmon habitat due to industrial and human activity, and changes in the North Pacific brought on by climate change. Salmon farms can have localized effects on wild salmon, but the impacts depend on the levels at which the farms are managed.

The Forum's research program has shown that lice levels on farms have been declining over the past four years. Lice levels on out-migrating juvenile smolts in the Broughton Archipelago between March and May in 2008 were generally below what is believed to be a natural background level. Lice levels did increase in June, although by this time the wild fish are larger and less susceptible to infection by sea lice. The Forum believes that if the Province regulates salmon farming rigorously according to recommended ecosystem thresholds and establishes interim limits on production until these thresholds can be met, salmon farming and healthy wild salmon populations are compatible.

3. What is ecosystem-based management and how does it differ from the present approach of government regulation?

At present, salmon habitats in watersheds and marine areas are managed by multiple government agencies – that make uncoordinated decisions. This lack of coordination means that the cumulative impacts of decisions are not addressed. In essence, no one agency is really responsible for ensuring that watersheds are healthy and able to support a range of uses including habitat for salmon.

Therefore we need a systematic transformation of government, including:

- Start managing watersheds holistically as ecosystems, increasing their resiliency to accommodate change. Decisions on resource uses can then be adapted to ensure

that we stay within ecosystem capacities rather than exceeding them, as can now be the case.
- The creation of a single provincial Water and Land Agency responsible for making all water and land decisions in watersheds in accordance with ecosystem principles.
- Require all provincial land and water managers to understand what is required to keep streams healthy, taking into account the cumulative impacts of all decision-making.
- Require federal, provincial, First Nations and local governments to collaborate on watershed governance.
- Start putting a monetary value on 'ecosystem goods and services' such as carbon storage, moderating floods and droughts and water temperatures in order to give them proper weight in making government decisions. Right now they are treated as free (i.e. as having no value).
- Implement coordinated area management plans for salmon aquaculture to achieve recommended thresholds for sea lice on wild and farmed salmon as well as other environmental indicators.
- Encourage the provincial and federal governments to strengthen habitat restoration and enhancement projects to maintain, rebuild or restore natural biodiversity and abundance in wild salmon stocks.

4. Your report talks about estimated natural background levels of sea lice in the Broughton. How did you arrive at this estimate?

There was no sea louse monitoring in the Broughton prior to the decision to locate fish farms in the area. Natural background levels for sea lice on wild fish in areas without fish farms can range from 3 to 8%. The Forum conducted research in areas in the Bella Bella area of the central coast with a similar ecosystem to the Broughton and without farms and found that sea lice prevalence averaged 3.5%. Based on this information the Forum estimated that a precautionary estimate of natural background levels in the Broughton would be 3%.

5. Would this approach to managing watersheds and coastal waters require that we reduce salmon farming?

The amount of salmon farming – or forestry, mining, road building, tourism development, or other activity – that can be allowed in watersheds or marine areas will be driven by an assessment of the local ecosystem and what it can absorb without damage. This is the hallmark of sustainability. Ecosystem-based management doesn't just have implications for salmon farming. It has implications for all human activity. In other words, the level of production for forest harvesting, water extraction, or salmon farming should be established as a result of understanding ecosystem capacity to accommodate these activities, and not set in advance of this analysis as is currently the case.

Whether any particular development activity can be carried on in a watershed – and how it will need to be regulated – will depend upon an ongoing assessment of the ecosystem in the area. It all depends on the health and carrying capacity of the ecosystem and society's ability to monitor both.

6. You are proposing that there be a ceiling on production of farmed salmon in the Broughton and other areas. Doesn't that amount to a moratorium on expansion of salmon farming in BC?

We are proposing, as a precautionary measure, a limit on total annual production in all salmon farming areas until there has been a shift to an ecosystem-based approach to this industry by the provincial government.

- This limit or ceiling would be approximately the average level of total annual farmed salmon production between 1999 and 2007. In the Broughton, that would be an annual production of 18,500 tonnes. We're proposing a limit based on the same factors for other farmed salmon production outside the Broughton. The limits can be altered when it can be demonstrated that ecosystem-based environmental thresholds during the out-migration period for juvenile wild salmon can be met. Future production levels would then be set, ensuring that salmon farms could continue to meet the appropriate threshold for the ecosystem in which the farms are located.
- For the next five-year period, including 2009, we recommend implementation of coordinated area-based management of production (CAMP) for all salmon farms in the Broughton – something the salmon farming companies in the area already support. CAMP will entail both fallowing or lice treatment of farms located on fish migration routes ensuring that one of the two primary routes has no farm operating during the out-migration period in alternative years. Strict enforcement of CAMP, accompanied by monitoring sea lice on farmed and wild fish, will allow the Province to test the impact of a migration route on salmon populations and determine if the sea lice thresholds recommended by the Forum can be achieved under a variety of environmental conditions.
- Government will need to make transformative changes in its structures and approaches to regulating watersheds across the province. The adoption of ecosystem-based management could have major implications for all human activity and resource industries – including salmon farms – in watersheds depending on their current condition.
- While all this change is being implemented, we want to see significant government support for innovation in salmon farming. Two approaches need special attention. The first is an exciting new approach to aquaculture called 'polyculture' – the growing of salmon or other finfish together with shellfish and marine plants. This approach is already producing marketable seafood in the Atlantic Provinces and is being piloted on the west coast of Vancouver Island. It promises high quality products and significantly reduced impact on the ecosystem. The other initiative we encourage is for the Province, industry and others to invest significant funding into a full-scale commercial test of closed containment technology, to determine once and for all whether it can be made technically and commercially viable. This will enable us to put closure to the debate about closed containment.

We are not calling for a reduction of salmon farming as a whole, nor are we calling for an end to the growth of salmon farming provided farms can manage in accordance with ecosystem-based principles.

7. Would your Report require that we reduce commercial and sport fishing for wild salmon?

The Federal government regulates access to commercial and sport fisheries, so the question lies outside the mandate of the Forum. The recommendations within the report consider the actions necessary to maintain healthy watersheds that will support wild salmon biodiversity and resilient populations.

8. How would your recommendations impact the operation of other industries (like forestry, mining, road building, or urban expansion) in coastal watersheds or marine areas? Are you contemplating a freeze on coastal forestry, for example?

The Forum recommends that watersheds and marine areas be managed in accordance with ecosystem principles. In this way they can be kept healthy and provide a range of ecological goods and services. The level of human activity should be scaled to be compatible with sustaining healthy watersheds, which will then function to maintain resilient habitats for salmon. We have recommended that ecosystem indicators be established within two years and that watersheds are managed within these indicators. In some cases, where capacities of watersheds are being exceeded by development, there should be adjustments in the level of development. In other cases, development levels that are compatible with ecosystem capacities may be increased.

9. Krkosek et al have predicted that epidemics of sea lice produced on salmon farms would cause the extinction of pink salmon in the Broughton Archipelago within four generations of fish (eight years). Do you agree? Why or why not?

The study to which you are referring was based on Dr. Martin Krkosek's original mathematical model that assumed lice populations on farms remained constant over time, regardless of the level of farm management. With funding from the Forum over 2006 to 2008, Krkosek tested the hypothesis that SLICE™ decreased lice populations on farmed fish, and thus reduced the risk of lice transfer to wild salmon. As a result of this new information, the model is being recalibrated to reflect the results of adaptive measures undertaken by farms since 2006 to reduce lice abundance in the Broughton. The Forum expects that Krkosek will publish his conclusions in the peer-reviewed literature in the future.

The Forum's Science Advisory Committee recognized that pink salmon populations are impacted by many factors, of which sea lice is only one. We also know that sea lice populations on out-migrating juvenile wild fish have declined over the past four years in the Broughton, yet adult pink salmon returns in the Broughton declined significantly in 2008 and this decline was also experienced in many other areas up and down the west coast both with and without salmon farms. The Science Advisory Committee believes that if the coordinated area management plan is rigorously enforced for all operating farms in the Broughton, wild salmon populations should not be at an incremental risk from sea lice transferred from farms.

10. What is your position on expansion of salmon farming in areas outside the Broughton such as the west coast of Vancouver Island, the Discovery Islands, or the central and north coast (Skeena system) of British Columbia?

In the Broughton, we have established ecosystem objectives for managing sea lice on farms and wild out-migrating salmon smolts in the spring. We support the adoption of a coordinated area management approach to enable optimum benefit for adaptive management practice, such as integrated pest and disease management, to ensure any risk to wild salmon is reduced. In time we hope the principles of this ecosystem-based approach in the Broughton are applied to other areas in the province where salmon farms exist or are considered.

11. The Legislature's Special Committee on Sustainable Aquaculture called for a ban on open net-cage salmon farming within three years and its replacement with closed containment systems. Is 'closed containment' (a) necessary in order to

prevent the spread of pests and diseases from farmed to wild salmon and (b) economically practical?

Because no one has yet operated a closed containment system that has produced adult salmon as a viable business, the Forum believes that the Committee's recommendation is impracticable at this time. Having said that, we believe that the public should be fully informed on the technical and economic feasibility of closed containment. As many questions must be answered before it can be considered viable, the Forum recommends that the Province establish an independent technical committee to develop the specifications for a closed containment pilot project. This review and any subsequent process of implementing a pilot project must be transparent so that the public is kept fully informed.

12. Have you found any evidence regarding the allegation that sea lice are threatening other west coast salmon populations, e.g., the Fraser Sockeye?

The Forum has funded some components of monitoring programs of sea lice on wild salmon in farming areas outside the Broughton, but only preliminary findings have been reported to us.

13. You have recommended major changes in the governance of wild and farmed salmon, including new provincial agencies and an increased role for First Nations governments and local stakeholders to protect watersheds and coastal areas. Is there a risk this will create "decision deadlock" on any development proposals?

We don't believe so. We have provided the Province with both a road map and a timeframe to transition from the current governance of watersheds and marine systems to an ecosystem-based approach. We believe these changes will result in a streamlining of decision-making that will also optimize both financial and human resources.

14. We are in a major recession, government is short of time and funds to spend on salmon, and there is liable to be major resistance to your calls for a restructuring of governance of watersheds and coastal areas. Do you think the Province will adopt your proposals?

We have crafted our proposals carefully based on extensive research, dialogue and analysis, and that represent the best science-based thinking. We appreciate that government will have to take many factors into account in making its decisions. But we know the government is committed to reform in specific areas of water policy.

15. Can progress be made on development of the salmon farming industry before final settlement of First Nations territorial claims?

The salmon farming industry is in the same position as other resource industries (e.g. forestry, mining, etc.) that wish to do business in areas within First Nations' territories. The provincial government is legally required to consult and, where possible, reach mutually acceptable understandings with the relevant First Nation prior to making decisions. The salmon farming industry has been able to reach satisfactory understandings, and form partnerships with several First Nations. Further development of salmon aquaculture will require a continuation of that type of process. Resource decisions do not depend on final settlements of all territorial claims.

16. Is the forum planning to release the report or stimulate public discussion and consideration of its recommendations?

Our Final Report and Recommendations were released through a media conference on February 5, 2009. It was also broadly circulated by the Forum. We are meeting with various organizations to explain the contents of the report and our research results. Our website has been designed to receive feedback on our report. We are also funding additional research that will be carried out through the summer of 2009 that will be reported on in a final technical report due in the fall of 2009. Finally, the Forum anticipates that all of the research we have funded will be published in peer-reviewed scientific journals in the future.