COMMISSION OF INQUIRY INTO THE DECLINE OF SOCKEYE SALMON IN THE FRASER RIVER

In the matter of Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, directing that a Commission do issue under Part I of the Inquiries Act and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of sockeye salmon in the Fraser River .

REPLY SUBMISSIONS ON BEHALF OF WEST COAST TROLLERS (AREA G) ASSOCIATION and UNITED FISHERMEN AND ALLIED WORKERS' UNION

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REPLY SUBMISSIONS ON BEHALF OF WEST COAST TROLLERS (AREA G) ASSOCIATION and UNITED FISHERMEN AND ALLIED WORKERS' UNION

REPLY TO CANADA'S SUBMISSIONS

1. Canada's submissions illustrate the misplaced emphasis of DFO on fish rather than fisheries. DFO habitually focuses on fish, not fisheries but, as argued in this Participant's main submissions, the statutory mandate of DFO is fisheries, not fish *per se*.[1] DFO's mistaken priority (fish rather than fisheries) is illustrated by the opening sentence of Canada's submissions – which infers that use of the resource by humans is secondary at best:

> 1. Pacific salmon, including Fraser sockeye, play an important role in natural ecosystems and nourish a complex web of interdependent species.

2. The Commission's terms of reference, by contrast, direct the Commissioner to "develop recommendations for improving the future sustainability of the sockeye **fishery** in the Fraser River (emphasis added). A "fishery" has been judicially defined:[2]

> A Fishery is properly defined as the right of catching fish in the sea, or in a particular stream of water; and it is also frequently used to denote the locality where such right is exercised.
>
> and
>
> The business, occupation or industry of catching fish or of taking other products of the sea or rivers from the water.

3. On the question of causation of the 20-year decline, Canada submits that:

> 29. A consensus appears to be emerging amongst scientists that biophysical changes in the marine environment stand out as the most strongly inferred factors explaining the pre-2010 decline.[3]

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[1] See WCTUFA submissions at paras 4 to 27.

[2] *Reference as to the Constitutional Validity of Certain Sections of the Fisheries Act, 1914,* [1928] S.C.R. 457 at p. 472 (QL p 12); *Northwest Falling Contractors Ltd. v. The Queen,* [1980] 2 S.C.R. 292, at 299-300.

4. In this Canada fails to distinguish "residual" factors from that (significant) portion of the decline trend that is caused by basic biological factors pertinent to sockeye and that operates regardless of fluctuations in environmental conditions. Ocean conditions are undoubtedly a contributing factor but if the basic biological dynamics of sockeye are not understood it is easy to mistakenly assume that ocean conditions are the driver of the decline, when in fact they explain only the "residual" effect. It is like saying that if a man has a serious case of the flu his chances of survival are greater in a warm, comfortable climate than in the far north exposed to cold, stormy conditions. The coroner might say that the man perished due to numerous causes with climate standing out, but a doctor who can't do anything about the patient's exposure to a harsh climate must necessarily focus on curing the flu.

5. The "emerging consensus" referred to by Canada is only with regard to what Dr. Marmorek and Dr. Peterman called "residual factors", meaning factors that caused anomalous variations from the basic Ricker (or Larkin) curve. This is referred to in para 56 of this Participants' submissions as follows:

> 56. As ocean conditions become more or less challenging the Ricker curve does not change its shape but it will move up and down (as explained by David Marmorek, author of Technical Report 6, on Sept 20, 2011). In other words, as ocean conditions become more challenging the S_{MAX} spawner abundance point at the apex of the curve is reduced.[4]
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> 57. Mr. Marmorek said that mortality depicted on the Ricker curve occurs after the first fry growing season, and likely in the early marine stage. Whether this density dependent mortality is due to pathogens or to reduced size and energy levels, or a combination, is, however, uncertain.

6. It does not matter what the causal mechanism is that results in excessive spawner density causing a decline in productivity. The important thing is that it happens and that no biologist who knows anything about sockeye disputes it.

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[3] This is repeated at para 287 of Canada's submissions
[4] Marmorek, Sept. 20, p. 26, ll. 1-4

7. Dr. Peterman explained what "residuals" are: "Residuals measure is, it's what is left over from fitting a Ricker model or a Larkin mode".[5] So he assumed a decline based on the Ricker and Larkin Models and sought to identify the degree to which some other factor was operating to exacerbate the decline.[6] It is therefore critically important to distinguish between the predictive decline based on the biological (population dynamics) factors represented by the Ricker and Larkin model from the decline caused by anomalous or "residual" factors. Canada fails to do this, and this failing undermines the whole of Canada's submissions .

8. Mike Lapointe's slides at Appendix C of exhibit 73[7] best illustrate the decline attributable to density effects (Ricker and Larkin) and that attributable to "residual" effects. Dr. Peterman explained that the "for the Chilko, Quesnel and Stellako stocks, the Larkin Kalman filter model fits the data better than does the Ricker model".[8] This is important because the Chilko and Quesnel were expected to make up 75% of the 2009 run.[9] The Larkin model tracks density effects across cycle lines and is, in this respect, more sophisticated than the Ricker model. In the most recent DFO Workshop it was found that "Larkin fit better than Ricker in 12 of 19 Fraser stocks" (9 or 19 when a Kalman Filter was used).[10] The main point it that, as Carl Walters states, "most" of the declining trend is due to density effects.[11] Canada seeks to ignore this important evidence entirely.

9. In determining the cause of the disastrous return in 2009 this Commission must have front and foremost the fact that the Chilko and Quesnel were expected to make up 75% of the 2009 run. Why? Because the evidence is uncontested that the trend in the Quesnel fits almost perfectly with the Larkin model that takes delayed density dependence ("DDD") into account – thus the portion of the decline caused to the Quesnel stock by "residual factors" is minimal compared with the portion of the decline caused by excessive spawner density in 2001 and 2002

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[5] Peterman, April 20, p. 9, ll. 6-8
[6] Peterman, April 20, p. 87, ll. 6-19
[7] Lapointe, PSC Workshop, exhibit 73, Appendix C (Part 1 of 2), Ringtail document PSC 000014 (pages 10, 12, 17, and 31 are attached as Appendix "A" hereto).
[8] Peterman, April 20, p. 13, l. 46 – p. 14, l. 2
[9] Lapointe, PSC Workshop, exhibit 73, Appendix C (Part 1 of 2) Ringtail document PSC 000014, p. 17. (attached as Appendix "A" hereto).
[10] Are Over-escapement and Delayed Density Dependent Mortality Important Contributors to the Fraser Sockeye Situation, Selbie et al., April 14-15, 2011, p. 0008.
[11] Walters email to Marmorek, exhibit 1979, p. 1.

and its carry-over effect in subsequent years. As for the Chilko, the same conclusion may be drawn: The evidence is that:

> Since the 1960s, infrequent years of very high numbers of smolts emigrating from Chilko Lake, such as occurred in 2007 and again in 2008, have routinely failed to reach even average postsmolt survival, suggesting that some fraction of the incremental mortality of this stock in the ocean is related to their own abundance. At 77 million, the emigration in 2007 was twice the previously observed maximum. The 2009 return year will be the lowest recorded age-1.x postsmolt survival for this stock.[12]

10. It must be remembered that the causal mechanism for density dependent mortality is obviously acquired in freshwater but likely takes effect in the "post-juvenile" stage. Dr. Peterman explained:

> Think about what might happen if you have a very large spawner abundance in one year such that the fish are so crowded in the lake and they get very poor food supply, they're more vulnerable to stresses, they become more susceptible to pathogens, but then those pathogens are on the fish but they don't cause mortality until after they're enumerated. In the Quesnel case, the fall fry or in the Chilko case, for departing smolts. So that's a possibility.[13]

11. What is most troubling in Canada's submissions is that there is no indication that DFO either understands the effects of excessive spawner density or that it will ensure that the spawner density phenomenon that led to the disastrous Chilko and Quesnel returns from 2002 to 2009 will not be repeated through similar harvest management strategies and large escapements in the future, in spite of the recognition by DFO scientists that "Chilko and Quesnel 2010 escapements (S_{MAX}) 200-500% and **will likely be hammered in coming years".**[14]

12. Canada says at para 30 that climate change may be causing greater variability and unpredictability in Pacific salmon returns -- but that is all the more reason to: (a) send smolts to sea that are large, healthy and with high energy content, and (b) put in place a management

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[12] Exhibit 1291 at pp xi-xii: Technical Report No. 4, McKinnell et al. 2011; The decline of Fraser River sockeye salmon *Oncorhynchus nerka* (Steller, 1743) in relation to marine ecology; confirmed also by Dr. Peterman, April 20, p. 93, ll. 20-21,

[13] Apr 21, p. 80 ll. 30-39:

[14] Exhibit 1364, Draft Summary Report: DFO synthesis workshop on the decline of Fraser River sockeye Vancouver Island Conference Centre, Nanaimo, BC April 14-15, 2011, p 4

system that is science-based and capable of adjusting harvest rates on short notice to avoid excessive spawner density. It should also be noted that increased "variability" is unlikely to be caused by gradual shifts in climate, but is known to be an attribute of excessive spawner density. The disastrous Quesnel returns of 2005 and 2006 resulted from two years of excessive escapement in 2001 and 2002, and yet there was a huge variation in the recruits from one year to the next even though the escapement levels were roughly the same for 2001 and 2002.[15] That large variation in production is predicted by the Larkin model which takes DDD into account, but cannot be correlated to any change in climate or ocean condition. Even the passage quoted by Canada from Technical Report 9 (p. 3-4) concedes that the picture attributable to the effects of climate change "is complicated by stock-specific patterns indicating that the survival of some stocks may have been less impacted than that of others or not impacted at all".[16] If survival patters across Fraser stocks vary one from the other (as they do) then the causes cannot be attributable to broad climate change factors. Mike Lapointe is correct in his conclusion that the attempt to link Fraser sockeye productivity trends to multi-year comparisons of warmer and cooler coastal and open ocean conditions is an exercise in "futility".[17]

13. Canada's climate-change/ocean-conditions hypothesis is not supported by the Technical Report 4 on Climate Change effects. That report says correctly concedes that:[18]

> Most of the Fraser River sockeye salmon that did not survive to produce a fishery in 2009 entered salt water in 2007. The major challenge answering the first question [*Can the decline in Fraser sockeye in 2009 be explained by the conditions the fish experienced in the marine environment?*] was recognition that the ocean is shared by sockeye salmon from many areas of the Northeast Pacific, some which returned in 2009 in above average abundance. As a result, any hypothesis for the cause of low returns of Fraser River sockeye salmon from an oceanic cause must consider a mixture of contrasting observations:

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[15] Exhibit 339, p. 0099; Pestal, et al - Updated Methods for Assessing Harvest Rules for Fraser River Sockeye Salmon - v9, May 18 2010

[16] Exhibit 553 at pp 3-4: Technical Report No 9, "A Review of Potential Climate Change Effects on Survival of Fraser River Sockeye Salmon and an Analysis of Interannual Trends in En Route Loss and Pre-spawn Mortality", February 2011.

[17] Lapointe, PSC Workshop, exhibit 73, Appendix C, Ringtail document PSC 000014, p. 26 (attached as Appendix "A" hereto).

[18] Exhibit 1291 at p. ix: Technical Report No. 4, McKinnell et al. 2011; The decline of Fraser River sockeye salmon *Oncorhynchus nerka* (Steller, 1743) in relation to marine ecology

• Double the average returns of Columbia River sockeye salmon in 2009 (2007 ocean entry year);

• Better than expected returns of Barkley Sound (West coast of Vancouver Island) sockeye salmon in 2009 (2007 ocean entry year);

• Very low returns of age-1.x ecotypes in most populations from the Fraser River that entered the ocean in 2007;

• Record high returns to the Harrison River (lower Fraser R. watershed) in 2010 from underyearlings that reared in the Strait of Georgia in 2007. This rather unique ecotype spends an extra year at sea, so its abundance was not known until 2010;

• Typical survival of acoustically-tagged hatchery-reared sockeye salmon from Cultus Lake northward through the Strait of Georgia in 2007.

14. Technical Report 4 concludes that the climate change hypothesis can be neither proven nor disproven:[19]

> So the general hypothesis of this study is that there were no extremes [scientific hypotheses are disproved rather than proven] in ocean physics, chemistry, or biology that could have been responsible for extreme mortality of Fraser River sockeye salmon, but not elsewhere (Columbia River or Barkley Sound). At least one scenario suggests that this hypothesis can be rejected.

15. Having found no extremes in the marine environment to account for the 20-year decline the authors then examine possible environmental contributors in the Strait of Georgia and southern Queen Charlotte Sound area that could account for the declines in the 2007-2009 period. Here they find some speculative possibilities only:

> The 2006/07 el Nino and a very anomalous spring/summer climate in 2007 conspired to generate a very atypical coastal ocean in 2007, one that could have been detrimental to Fraser River sockeye salmon growth and survival.[20]

16. This is, however, grasping at straws. There have always been variations in ocean temperatures. During the period that the three decades up to 1985 when the IPSFC steadily

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[19] *Ibid.*, p. xi:
[20] *Ibid.*

increased the Fraser sockeye returns there were fluctuations that were often greater than those in 2007-2009.[21]

17. Moreover, it is undisputed that there is a huge variation in productivity trends since 1990 across different Fraser stocks: from plus 140% (Harrison) to minus 93% (Quesnel).[22] Most of these stocks have the same exposure to marine conditions in the Strait of Georgia and Queen Charlotte Sound. Thus, the primary cause of the productivity decline must originate in the stock-specific freshwater stage which precedes the largely-shared marine stage of the sockeye life cycle. Canada does not deal with these basic facts.

18. At para 286 Canada commences a section entitled "Summary of Key Evidence Regarding the Causes of the Decline of Fraser Sockeye Stocks". This section is seriously misleading in that density effects (the only causal factor within DFO's control) is downplayed to the point of being extinguished altogether. In its submissions at para 301 Canada states – misleadingly - that the 2010 PSC Workshop concluded that delayed density dependence ("DDD") was in the category of "either 'unlikely' or 'very unlikely' to have been important contributors to the poor 2009 return". In fact the range of views on DDD at the 2010 PSC Workshop extended from "unlikely" to "likely" - and remember that many of the "unlikely" supporters were unfamiliar with the phenomenon of DDD, as Dr. Riddell inferred.[23] At para 303 Canada discusses the April 2011 DFO workshop that brought together the most recent research and concluded that DDD should be upgraded from the 2010 PSC Workshop assessment of "likely-possible-unlikely" to "likely" as "an important contributor to the Fraser sockeye situation".[24] No mention whatever is made of this in Canada's submission; nor does it seem that the Minister was ever informed of it. Inconvenient science is downplayed throughout Canada's submissions.

19. As discussed above, Canada give no prominence to any of the evidence, much of which is uncontradicted, that supports either density dependence effects or delayed density dependence effects as a likely contributor. At para 311 Canada only notes without comment that Technical

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[21] *Ibid.*, p. 136; see also Lapointe, PSC Workshop, exhibit 73, Appendix C, Ringtail document PSC 000014, p. 25 (attached as Appendix "A" hereto).
[22] Lapointe, PSC Workshop, exhibit 73, Appendix C, Ringtail document PSC 000014, p. 33 (attached as Appendix "A" hereto).
[23] Riddell, February 10, 2011, pp. 75 l. 42 to p. 76 l. 8.
[24] Exhibit 1364, p. 4.

Report 9 concludes that the picture [supporting climate change as the driving cause] is complicated by stock-specific patterns indicating that the survival of some stocks may have been less impacted than that of others or not impacted at all". An objective analysis would have conceded that the evidence of inter-stock variability is a strong indicator that stock-specific factors, such as density effects, are the driving factor of the decline. If it were climate changes, all stocks would be more or less equally affected.

20. It is discouraging to see Canada relying on the evidence of Mr. Bevan to explain the complexities of the sockeye life cycle rather than that of the eminent scientists who have spent their careers researching and teaching on the subject of salmon population dynamics. It is a result of years of research and investigation that peer-reviewed publications such as Walters & Martell can cut through the life cycle complexities and state,

> ...the remarkable thing about fish recruitment is not how variable it is but, rather, how stable it is.[25]

21. Canada's lack of analysis of the inherent biological characteristics of sockeye is reflected in the intuitive but false assumption that the precautionary approach dictates greater spawning (through reduced harvest levels) without regard for the effects of excessive spawner density.

22. Similarly, in the discussion of WSP, FRSSI and the balancing of socio-economic factors there is no explanation or apology for the huge losses to the GDP of Canada caused by the enormous escapement levels in the major Shuswap and Chilko runs in 2010. Nor is there any attempt to deal with the obvious damage done by this DFO blunder to future sustainability, described as follows in the DFO April 2011 Workshop.[26]

> • Chilko and Quesnel 2010 escapements (S_{MAX}) 200-500% and will likely be hammered in coming years (negative effects observed at S_{MAX} greater than 200%, and apparent in current brood year, plus at least 3 following years).

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25 Walters and Martell, *Fisheries Ecology and Management*, Princeton University Press, 2004, p. 149.

[26] Exhibit 1364, Draft Summary Report: DFO synthesis workshop on the decline of Fraser River sockeye Vancouver Island Conference Centre, Nanaimo, BC April 14-15, 2011, p 7

23. In the discussion commencing at p. 25 of "LEGAL CONTEXT" Canada correctly notes that the extent of powers granted by the *Fisheries Act* is limited by the scope of s. 91(12) to matters that are regulatory, and not proprietary. Canada also notes that federal legislative authority is designed to regulate the public fishery in tidal waters. It is important to note, however, the further consequence of this (that has a bearing on discussions of "privatizing" fishing rights) that any grant by licence or otherwise of exclusive or "several" fishing rights would require the exercise of joint federal and provincial authority where the seabed is owned by the province. This flows from the fact that the public right of fishery in tidal waters takes precedence over, but does not extinguish, proprietorial rights flowing from ownership of the seabed. G. V. LaForest describes it thus in *Water Law in Canada – the Atlantic Provinces* (attached as Appendix "B" hereto):[27]

> In areas where the subsoil belongs to the province or a private individual, however, it may require action at both the federal and provincial levels to establish an exclusive right of fishery in anyone but the owner of the sub-soil. There is no question that the regulation of the public right of fishery falls exclusively within the federal domain,[28] but it is equally clear that the Dominion cannot take a fishing right incidental to a right of property from the owner of that property and give it to another; this is a matter of property and civil rights falling within provincial jurisdiction.[29] In *Attorney-General of British Columbia* v. *Attorney-General of Canada*[30] the Privy Council asserted that the private right of fishery incidental to ownership of the soil continued even in tidal waters, though the public right of fishing prevailed. Accordingly it would seem to follow that to establish an exclusive fishery in waters over soil owned by the province or a private individual action would be required by both the federal and provincial legislatures.

24. It should also be noted that Canada omits any reference to the *Federal Sustainable Development Act* S.C. 2008, c. 33. This further illustrates the fact that DFO habitually disregards its statutory mandate, expressed in the Federal Sustainable Development Strategy to:

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[27] See WCTUFA submissions at paras 16 to 18.
[28] *Attorney-General of Canada* v. *Attorney-General of Ontario*, [1898] A.C. 700; *Attorney-General of British Columbia* v. *Attorney-General of Canada*, [1914] A.C. 153.
[29] *Reg.* v. *Robertson* (1882), 6 S.C.R. 52.
[30] [1914] A.C. 153.

> Deliver an integrated fisheries program that is credible, science-based, affordable, effective and contributes to sustainable wealth for Canadians.[31]

REPLY TO BRITISH COLUMBIA'S SUBMISSIONS

25. In its section on causation the Province says the decline is "likely attributable to factors operating in the marine environment and to climate change". Technical Report 9 and Michael Healey's article on climate change are relied upon. However, neither the submission nor the works relied upon provide a persuasive argument to support the conclusion. Both works relied on are based largely on speculation. The arguments made do not undermine the density effect hypothesis; in fact, they supplement it and assist in understanding the impact of "residual" factors on the basic biological effects of excessive spawner density. Technical Report 9, for example, states:[32]

> Failure of adults to spawn as a result of experiencing suboptimal temperatures could alter the conspecific density of the surviving offspring. As a result, the smaller smolts produced from the freshwater nurseries of the Fraser River will grow more slowly and experience higher mortality during their time in coastal marine waters.

26. This is no more than corroboration of Dr. Marmorek's explanation that adverse environmental conditions do not change the Ricker or Larkin models; they simply lower the dome of the apex of the curve:[33]

> Q When the ocean conditions are worse, you get a more severe curve, a sharper dome; is that correct?
>
> A No, it's just the whole thing drops.

27. Similarly, Michael Healey's article on climate change does not undermine the density effect hypothesis – it supports and supplements it, as he following passage illustrates:[34]

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[31] See WCTUFA submissions at paras 16 to 18.
[32] Exhibit 553, p. 49: Hinch, S.G. and E.G. Martins. 2011. A review of potential climate change effects on survival of Fraser River sockeye salmon and an analysis of interannual trends in en route loss and pre-spawn mortality
[33] Marmorek, Sept. 20, ll. 1-4
[34] Exhibit 1320, p. 736-7: Healy, The cumulative impacts of climate change on Fraser River sockeye salmon *(Oncorhynchus nerka)*

West and Larkin (1987) found that size-selective mortality was strongest during the late summer and autumn in Babine Lake. This may indicate that the smaller fry were risking predation to build their energy reserves sufficiently to survive the winter fasting period (see next section). It seems likely, therefore, that under global warming, fry growth during the first summer will be lower and mortality rates higher than normal. As a consequence, fewer, smaller fry will enter the winter with, on average, lower energy reserves (Fig. 1; Table 1).

Stage 4. Fry: first winter

The first winter is considered a critical time for young salmon and is often a time of high mortality (Bisaillon et al. 2007; Jonsson and Jonsson 2009). Overwinter mortality is negatively correlated with size and body energy reserves (Sogard 1997; Biro et al. 2004; Finstad et al. 2004), so smaller, more poorly fed fry entering the winter are likely to suffer high mortality. Factors associated with winter mortality include predation, energy exhaustion, and susceptibility to extreme conditions of flow and temperature; small fry are more vulnerable to all these factors.

Stage 6. Postsmolts: estuary and coastal

Several authors have presented evidence that survival during the first months of marine life is critical to the abundance of returning adult salmon (e.g., Holtby et al. 1990; Friedland et al. 2000; Mueter et al. 2005). Overall marine survival is strongly related to the size of smolts entering the sea and (or) early marine growth rates (Holtby et al. 1990; Koenings et al. 1993; Friedland et al. 2000). As Mangel (1994) pointed out, growth at this stage is crucial because salmon avoid predation by growing larger than predators can easily capture. Conditions for growth of Fraser River sockeye during the first months of marine life are, therefore, critical to overall marine survival and productivity....

As a result, the smaller smolts produced from the freshwater nurseries of the Fraser River will grow more slowly and experience higher mortality during their time in coastal marine waters

28. A word search of the lengthy submissions of the Province indicates that the words "Ricker" and "Larkin" are not mentioned even once. It is surprising that a paper dealing with sockeye population dynamics should ignore the basic fundamentals of the science.

REPLY TO SUBMISSIONS OF PUBLIC SERVICE ALLIANCE OF CANADA/UNION OF ENVIRONMENTAL WORKERS

29. We support the submission that "Department should remain a neutral science based regulator and should accelerate its examination about the science" and the submission that "Crucial to the proper management decisions is increased science research and increased monitoring of stocks, especially in the open ocean".

30. However, the PSAC/UEW seem to have forgotten the simple fact that if we want government services we have generate tax revenue to pay for them. The PSAC/UEW submits that "the Commission ought to recommend that no additional duties or responsibilities are imposed on the DFO employees unless there is a correlating increase in resources or staffing". We suggest that a more appropriate submission would be: "the Commission ought to recommend that no additional funding should go to the Department until it demonstrates an appreciation for its primary statutory obligation to maximize the social and economic benefits to Canadians from the Fraser sockeye fishery".

REPLY TO SUBMISSIONS OF SEAFOOD PRODUCERS ASSOCIATION OF BRITISH COLUMBIA

31. We agree with the submissions that

> The Commission's terms of reference clearly envisage that it will make recommendations on the long term prospects for the fishery as well as the stocks. Sustainability is not just about conservation but the health of the aboriginal, recreational and commercial fisheries that depend on those stocks. For commercial fisheries, this means producing food products that can be sold at a profit by businesses able to attract and maintain capital and labour inputs and withstand the inter-annual fluctuations in resource availability and market pricing. The Commissioner's recommendations should therefore take into account the value of up-river compared to downriver and ocean mixed stock fisheries as well as the opportunities for First Nations involvement in these fisheries.

32. We support also the following submission:

> The Commissioner in his recommendations should also consider the effects of the drastic reduction in exploitation rates in an effort to reduce harvest of some smaller populations (*SPABC Recommendation 1*). Starting in 1998, commercial harvest rates have declined from the historic 75-80 per cent that productive stocks

> have historically withstood to less than 25 per cent for all marine exploitation, including Food, Social and Ceremonial (FSC), commercial and recreational, over the two cycles leading up to 2009. The corollary of this is that more fish are being put on the spawning ground. Over the same period, only three of the 19 Production Stocks had escapements that averaged less than DFO Lower Escapement Benchmarks (LEBs), its proxy for a Lower Reference Point (LRP). These three populations contribute less than 7 per cent of the total Fraser LEB. Escapement in 2009 on the late run was the highest in 50 years. The decline in productivity of the largest stocks (in terms of average return per spawner), such as Quesnel and Chilko, is one of the results of excessive spawning populations in several years while many of the minor stocks have been doing reasonably well despite some modest fishing pressure.

33. We are also in general agreement with the comments regarding the obvious impracticality of terminal fisheries, including the following passage:

> SPABC believes that the Commissioner should consider the business reality of the fishery in his recommendations *(SPABC Recommendation 9)*. Key to this is Nelson's thoughtful analysis of the value of down river and ocean fisheries compared to upriver fisheries (pp.24-33). Bearing in mind the PSC's view that mixed stock harvest rates are not a key factor in recent declines of Fraser sockeye populations, the Commissioner should not recommend a further move to terminal, upriver fisheries. Given the complexity of the Fraser River system, this would result in *very* terminal fisheries, producing fish that are worth less because there is less that can be done with them. As Nelson notes, "consistent catches are a pre-requisite of [business] success" (p.14).

34. Because fish are typically very concentrated in such terminal fishing areas/fishing sites, terminal fisheries would have to be very closely monitored and regulated. It is apparent that no one in DFO has looked carefully at the major increase in cost of management (monitoring, enforcement) associated with having terminal fisheries scattered throughout the Fraser. First Nations biologists like Mike Staley just argue that the local communities will take care of their own regulatory needs. This is, with respect, totally unrealistic.

REPLY TO SUBMISSIONS OF THE CONSERVATION COALITION

35. These submissions are consistent with the focus of the Participant – conservation – but they are based on the faulty premise that "Conservation is clearly identified as the primary

mandate of DFO".[35] This statement is apparently based on a preconception rather than any analysis of the constating legislation. The constitutional and legislative framework does not support the position taken by the Conservation Coalition. As set out in our main submissions, the statutory mandate requires DFO to manage for the purpose of sustainable use (or yield), not for conservation *per se*. Conservation is supportive of the main legislative purpose, not an end in itself.

REPLY TO SUBMISSIONS OF AREA D SALMON GILLNET ASSOCIATION AND AREA B HARVEST COMMITTEE (SEINERS)

36. These submissions contain, in pages 42 to 48, a very useful discussion of the "great experiment" of increased escapement that has failed with disastrous consequences. Apart from a misapplication of the word "coincidence" ("cause and effect relationship" would better express the intent of the paragraph) we agree with the following synopsis from the Executive Summary at p. 3:

> We cite the testimony tendered at this hearing that this "great experiment" has failed. Yet the evidence is that DFO blindly ignores the evidence as presented by these scientist scholars. In the eyes of DFO, over□escapement consequences are not within the consciousness of their managers when considering the "precautionary approach". The coincidence is that since the implementation of the "Rebuilding Strategy" of 1987, where greater and greater escapements were dictated, the overall sustainability of the stock has become seriously imperilled. This coincidence appears to be lost on senior DFO officials.

And with the following from the body of the submissions at p. 44:

> Uncontroverted evidence was provided by Drs. Woodey, Walters and Riddell that over escapements have a detrimental effect on productivity. They testified that there is an overall negative relationship between productivity and spawner abundance. There is an optimal escapement rate ("MSY"). The spawning grounds and the nursery lakes have limited capacity to carry a high escapement, which leads to low productivity and to the production of small fry, which in turn leads to higher mortality.

[35] Submissions of Conservation Coalition, para. 23.

37. We also agree with the comments that the issues in the consultative process have become far too complex to afford stakeholders the opportunity to make "informed" decisions, and that meeting overload leads to "fatigue". We say that given the limited resources of DFO, this Commission should recommend that DFO spend more of its time and budget on monitoring, science, applying science to harvest/escapement decisions, and enforcement; and less of its time and budget on internal memo-writing and consultative meetings.

REPLY TO SUBMISSIONS OF BC FISHERIES SURVIVAL COALITION/SOUTHERN AREA E GILLNETTERS ASSOCIATION

38. These submissions contain useful comments on the purported "uncertainty" and "complexity" that is so frequently used by DFO as an excuse for inaction or misguided "precautionary" action. The IPSFC dealt with the same biological and environmental complexities with little trouble, using common sense and basic principles of biology. Where the IPSFC had remarkable success in increasing productivity and yield to a thriving fishing industry, DFO has failed utterly. There is a clear message here that DFO should get back to basics. That would solve not only its budgetary problems, but also its fishery productivity problems. And by demonstrating the increase GDP to Canada from a successful fishery it would stand a good chance of obtaining the funding it needs from Ottawa to properly enforce its regulations.

39. There is useful material here on the abuses that have arisen particularly in the lower Fraser as a result of DFO's "soft" approach to First Nations poaching. Mr. Eidsvik has had the courage to say what many people, including fishery managers, know well but never express. It took Mr. Eidsvik's areal photographs of the "representative" economic-opportunity selective fishery operation to show what is actually going on in the Fishery. This is vitally important evidence for the Commission, particularly since sockeye are especially vulnerable and fragile during their stage of upstream migration. For a hundred years fishery managers were careful to ensure that the migratory routes were largely unobstructed. By relaxing this effort to the point of extinguishment DFO has done a great disservice to the resource, the fishing industry, the people and communities supported by the industry, and to the GDP of Canada.

REPLY TO SUBMISSIONS OF B.C. WILDLIFE FEDERATION AND B.C. FEDERATION OF DRIFT FISHERS

40. We respectfully suggest to the Commission that this paper deserves very carful attention.

41. We support, *inter alia*, the following points:

1. The following concepts should guide the Commission and provide focus.

a. Pragmatism: focus on the "knowable" and the "doable";

b. Proportionality: look at the situations and problems as matters of degree rather than as categorical;

c. Interests and values: focus on the underlying interests and values as well as the specific situations and problems;

d. Perspective: focus on the species as a public resource; and

e. Terminology: be clear to the point of bluntness.

2. With respect to the 1987 rebuilding program, it is clear from the evidence, particularly that of Dr. Walters, that the "experiment" involved increasing escapements in the off-cycle years of major stocks has resulted in a drastic decline in the productivity of those stocks.

3. With respect to the introduction of the Aboriginal Fishing Strategy, there is an apparent correlation between the introduction of a new in-river fishery and a dramatic increase in the differences between the estimates of returning sockeye taken at Mission and on the spawning grounds respectively.

4. The framework of population dynamics is the more useful to this Commission in that:

a. It provides a clear and supportable hypothesis for the cause of the long term decline;

b. It provides an explanation for both the precipitous decline in 2009 and the large return in 2010;

c. It does not require identification of the specific causal factor (e.g., predators, disease) in order to be identified, analyzed, and rectified;

d. It provides a practical means of testing the hypothesis and, if supported, taking remedial steps.

5. While not to be ignored, the "environmental effects" approach in the main:

a. Does not have the same clarity;

b. Does not account for the precipitous decline in 2009 and the large return in 2010;

c. Requires identification of the specific causal factor (indeed, such identification is the objective of the approach);

d. Cannot be tested within a reasonable time frame; and

e. If proven, offers no apparent short term remedy other than ever diminishing fisheries.

6. The conclusion that density dependent effects explain some declines, and in particular declines in the major stocks, is of immediate concern to this Commission.

7. The evidence supporting this hypothesis is substantial and compelling.

8. It is important to note that while Dr. Peterman must out of necessity exclude the effects of density-dependence on a local stock basis in order to test his hypothesis, Dr. Walters does not have to exclude potential environment effects, and does not purport to do so, in order to make the case for density-dependent effects. Dr. Peterman excludes; Dr. Walters subsumes

9. This Participant suggests that **"aboriginal fisheries" be restricted to the exercise of aboriginal fishing rights and that any controversy on the scope of such rights be dealt with in the courts, where it belongs.**

10. It is submitted that, with the exceptions noted herein, allocation issues, particularly intrasectoral allocation issues, are not directly within the scope of the Terms of Reference of this Commission

42. To these points, we would add only that we acknowledge (without agreeing with) the principle adopted by DFO to support its grant of Coho and Chinook fishing priority to the recreational sector over the commercial sector, the principle being that recreational fishing for such stocks is of greater economic value to Canada (*i.e.* greater GDP) in the recreational fishery than the commercial fishery. We say, however, that DFO must be consistent in its application of this principle, and must therefore apply it also in its decision-making with regard to terminal fisheries. There is no controversy on the evidence that commercial fishing in the marine areas is of greater economic value to Canada than commercial fishing in the terminal areas. The fish are of better quality and therefore worth more, and *en route* losses (wastage) is avoided. Also, the infrastructure investment has already been made in the coastal industry, and the reputation in the export market for quality sockeye is already established (and can only be maintained by marine-caught fish).

REPLY TO SUBMISSIONS OF LKTS AND AAA

43. Coastal First Nations with a historic presence in the commercial salmon fishery have been seriously underrepresented in this Commission. Accordingly, for this reason alone, these submissions also deserve careful attention.

44. We support the following basic submissions made here:

> Therefore, LKTS recommends that the Commissioner make an overarching recommendation directing Canada to take steps to ensure that the implementation of policies and policy reforms do not negatively impact coastal First Nations participation in the Fraser River sockeye fishery [because]:
>
> > (a) Coastal First Nations People have a Longstanding Historical Claim to Participation in the Fraser River Sockeye Fishery
> >
> > (b) The Participation of Coastal First Nations is Vital to the Sustainability of the Modern Commercial Sockeye Fishery
> >
> > (c) The Participation of Coastal First Nations in the Modern Commercial Sockeye Fishery is Vital to the Sustainability of Coastal First Nations Communities.

45. This paper sets out the statistics regarding the high level of First Nations participation in the commercial fishing industry – which it says correctly is based on merit, i.e. good fishing ability and competence.[36] Since the statutory mandate of delivering "an integrated fisheries program that ... contributes to sustainable wealth for Canadians"[37] requires competence and ability to compete in the competitive marketplace regardless of race, this is a very important consideration. The coastal First Nation fishers got to where they are through hard work, not government subsidies.

46. At page 10 LKTS submits that the Commissioner "should recommend that the costs and benefits of terminal fisheries must be further studied before any steps are taken". This is understated, possibly for political reasons. Such reasons have no place in a Commission's

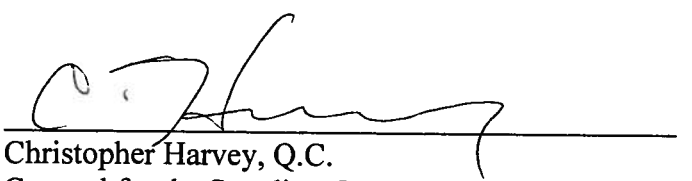
[36] Pages 4 and 5.
[37] See WCTUFA submissions at paras 16 to 18.

report. The evidence cited at pages 11 and 12 of this paper justify a much stronger recommendation, namely that terminal fisheries are inherently economically unsustainable and therefore should not be further considered or allowed by DFO. Even if they were sustainable there would still be no socio-economic justification for favouring interior First Nations over those coastal First Nations communities dependant on the fishery for economic support.

47. We support also the recommendation for increased marine test fisheries. This is essential to science-based harvest management. DFO could not carry out its statutory mandate to enhance the sustainable wealth for Canadians without the information base required to properly adjust escapement levels by turning coastal fishing effort on and off as determined necessary by biomass estimates developed through test fishing in the approach waters.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.

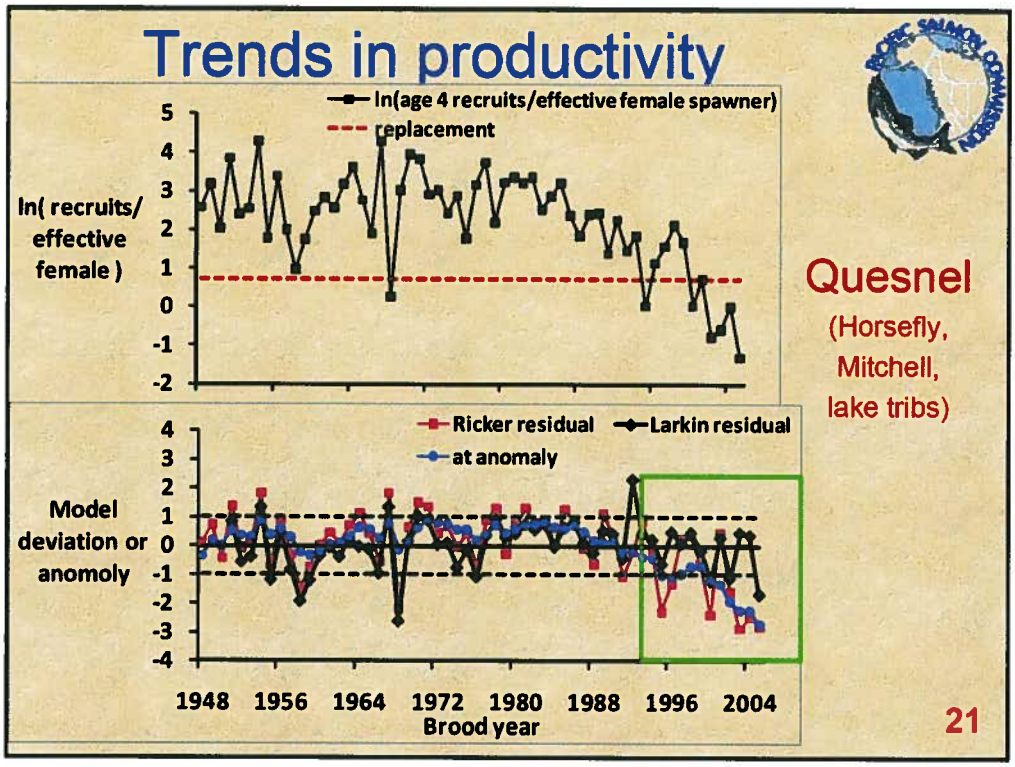
Dated at Vancouver, BC this 3rd day of November, 2011.

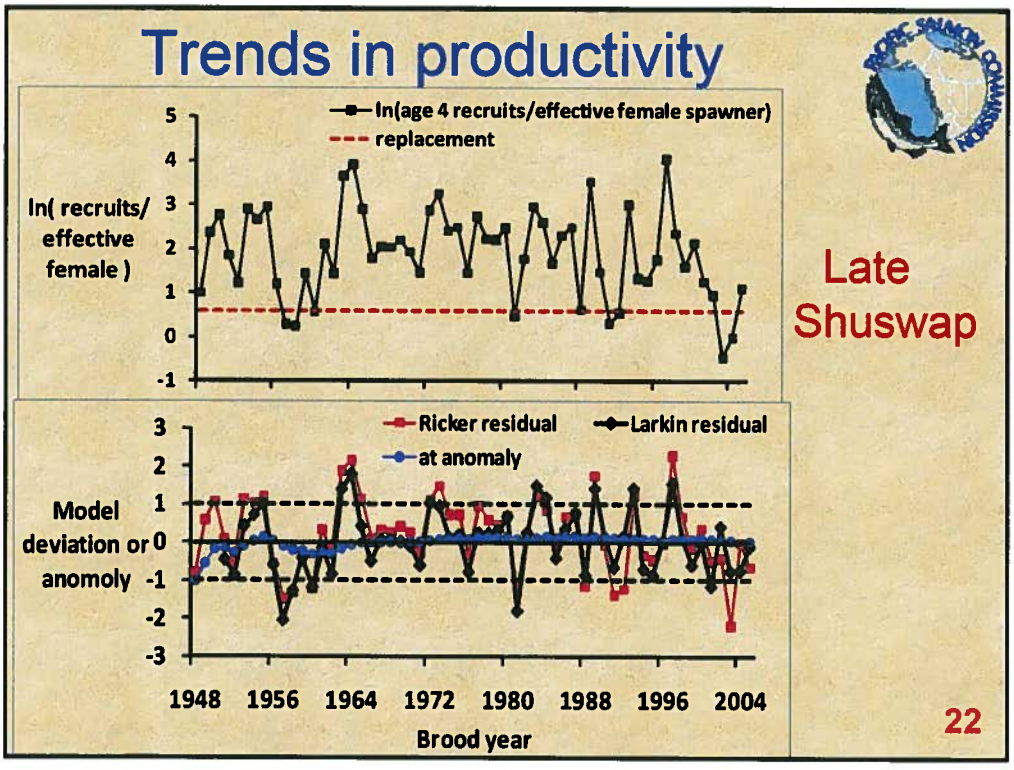


Christopher Harvey, Q.C.
Counsel for the Standing Group

THESE REPLY SUBMISSIONS are delivered for and on behalf of the United Fisherman and Allied Workers' Union – CAW and the West Coast Trollers' Area G Association (collectively the "Standing Group") by the law firm of **MacKenzie Fujisawa LLP**, Barristers and Solicitors, whose place of business and address for service is 1600 – 1095 West Pender Street, Vancouver, British Columbia, V6E 2M6, Telephone: 604-443-1202, Fax: 604-685-6494, Attention: **Christopher Harvey, Q.C.**

APPENDIX 'A'


Trends in productivity
ln(age 4 recruits/effective female spawner)
replacement
ln(recruits/ effective female)
Ricker residual
Larkin residual
at anomaly
Model deviation or anomoly
1948 1956 1964 1972 1980 1988 1996 2004
Brood year
Quesnel
(Horsefly, Mitchell, lake tribs)
21


Trends in productivity
ln(age 4 recruits/effective female spawner)
replacement
ln(recruits/ effective female)
Ricker residual
Larkin residual
at anomaly
Model deviation or anomoly
1948 1956 1964 1972 1980 1988 1996 2004
Brood year
Late Shuswap
22

Summary of multi-year comparisons

1. 2008 productivity was below average for most stocks but much higher than 2007 and 2009.

2. Readily available data on environmental factors *do not show* a common pattern even among the most anomalous years (2007 & 2009).

49

Summary of multi-year comparisons

3. The extremely low productivity in 2007 (2005 ocean entry) was consistent with warm coastal and open ocean conditions that have been linked to poor marine survival of salmon.

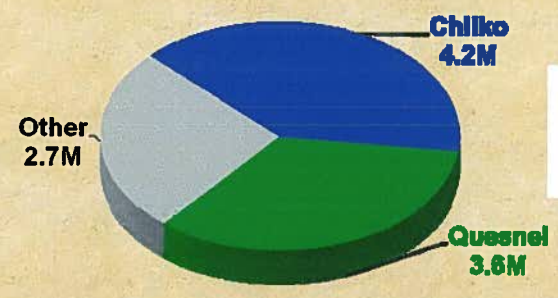
4. However the productivity in 2009 similar (in some cases lower) to 2007 despite cooler than average ocean temperatures and *seemingly* more favorable conditions.

Underscores the futility of these broad comparisons and the need for Fraser specific indicators.

50

2009 Fraser River sockeye forecasts

Total Forecast 10.5M



75% of the return in two stocks

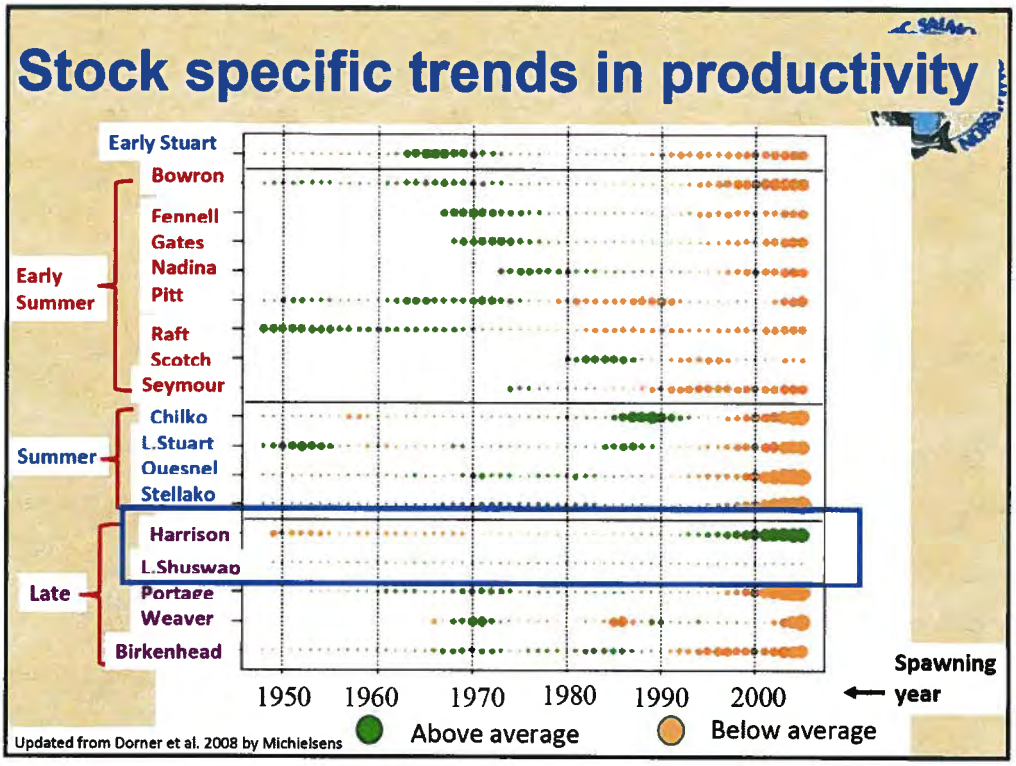
- 77 million smolts left Chilko Lake in 2007 (nearly 2 times 50 yr max)!
- 52 million fry were estimated in Quesnel lake in the fall of 2006 (slightly below average for the 2009 cycle)
- Good signals for freshwater survival from the 2005 spawning

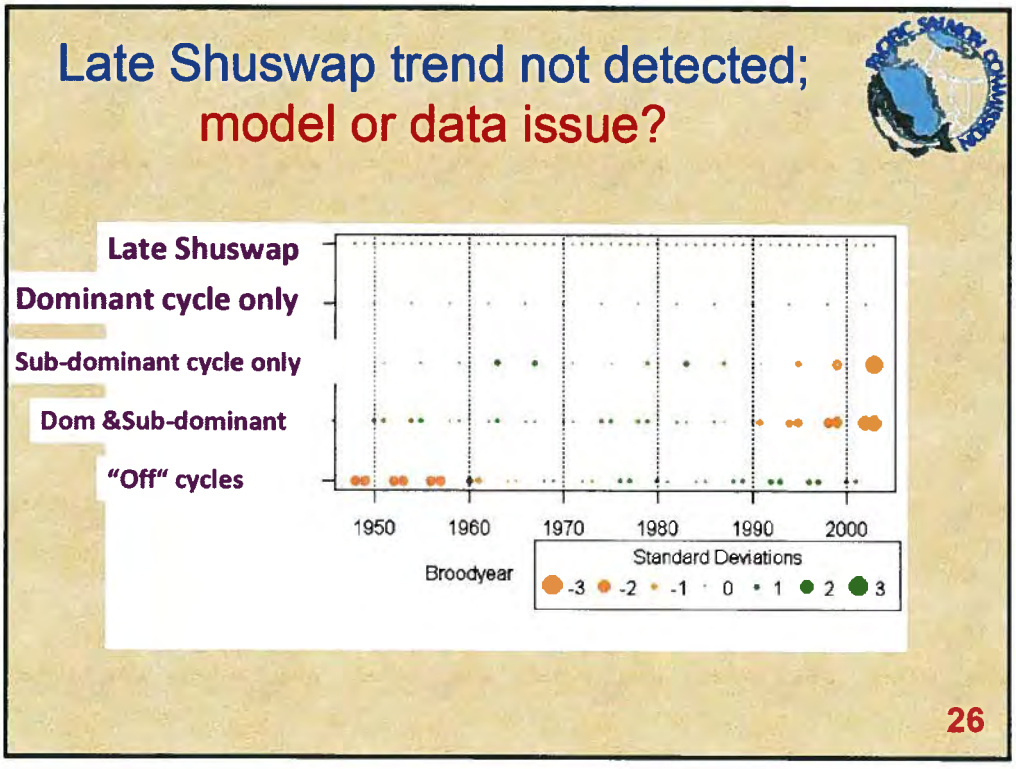
31

2009 Returns

Stock-group	Pre-season Forecast	Post-season estimate (prel).
Chilko	4,175,000	270,000
Quesnel	3,575,000	220,000
Total Sockeye	10,488,000	1,505,000

32


Stock specific trends in productivity
Early Stuart
Bowron
Fennell
Gates
Nadina
Pitt
Raft
Scotch
Seymour
Early Summer
Chilko
L.Stuart
Quesnel
Stellako
Summer
Harrison
L.Shuswap
Portage
Weaver
Late
Birkenhead
1950
1960
1970
1980
1990
2000
Spawning year
Above average
Below average
Updated from Dorner et al. 2008 by Michielsens


Late Shuswap trend not detected;
model or data issue?
Late Shuswap
Dominant cycle only
Sub-dominant cycle only
Dom &Sub-dominant
"Off" cycles
1950
1960
1970
1980
1990
2000
Broodyear
Standard Deviations
-3
-2
-1
0
1
2
3
26

Indices of productivity

Time varying a_t values

- Ricker model with time varying a value
- $R=Se^{(a_t-bS)+v}$; $\ln(R/S) = a_t - bS + vt$
- $a_t = a_{t-1} + w$ (Random walk model)
- analogous to trying to detect a trend the Ricker model residuals resulting from a mode with constant a parameter
- See Dorner et al. 2008 (Can. J. Fish. Aquatic Sci. 65:1842:1866)

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Stock specific trends in productivity

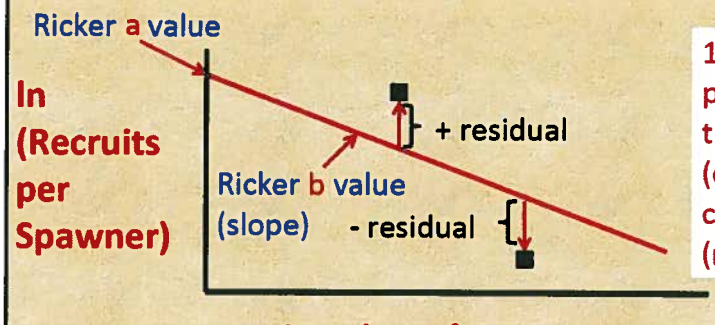
	Brood year that most recent decline began[1]	Long term average a	Most recent a_t	long term average R/EFS from a	Most recent R/EFS from a_t	% change in R/EFS
Early Stuart	1991	1.90	0.84	6.7	2.3	-65%
Bowron	1995	2.38	1.28	10.8	3.6	-67%
Fennell	1996	2.75	1.77	15.7	5.9	-62%
Gates	1998	2.40	1.56	11.0	4.8	-57%
Nadina	1998	1.97	1.42	7.2	4.1	-42%
Pitt	2003	1.10	-0.11	3.0	0.9	-70%
Raft	1998	2.06	1.68	7.8	5.4	-31%
Scotch	na since 97 [2]	1.76	1.15	5.8	3.2	-46%
Seymour	1990	2.05	1.54	7.7	4.7	-40%
Chilko	1998	2.70	1.73	14.8	5.6	-62%
Late Stuart	1997	2.38	0.90	10.9	2.5	-77%
Quesnel	1995	2.32	-0.38	10.2	0.7	-93%
Stellako	1997	2.26	0.37	9.6	1.4	-85%
Harrison [3]	1996	2.12	2.99	8.3	19.9	140%
Late Shuswap	na sa =0.1[4]	1.99	2.02	7.4	7.5	3%
Portage	1998	3.13	2.15	23.0	8.6	-63%
Weaver	2003	2.71	1.54	15.1	4.7	-69%
Birkenhead	1992	2.30	0.95	10.0	2.6	-74%

Notes: 1 last year when smoothed anomoly > -1
2 smooth anomoly has not been < -1 since 1997
3 Harrison start of increase - smoothed anomoly > +1
4 method did not detect trend in a for Late Shuswap

64

Productivity indices
Why residuals?

- Expect productivity to decline with increasing spawner abundance (Ricker model)

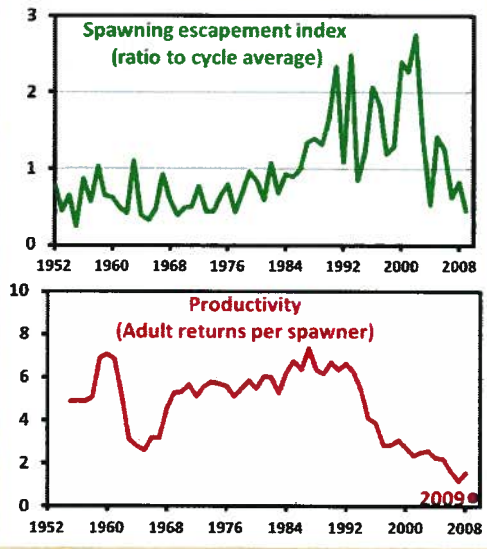


17/18 Fraser populations show this pattern (exception Scotch creek), but r^2 is low (mean 16%) [1]

17

Notes: 1 Based on regressions of Ln(age 4 Recruits/effective female) vs. eff females)

Productivity indices
Why residuals?



Trends in residuals used to examine productivity patterns remaining after removing effects related to changes in spawner abundance

Productivity measure	Spawner abundance effects
Ricker residual	Brood year
a_t anomaly	Brood year
Larkin residual	Brood &prior yrs

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APPENDIX 'B'

WATER LAW IN CANADA
—THE ATLANTIC PROVINCES—

by

Gerard V. La Forest, Q.C., and Associates

CHAPTER EIGHT

Public Rights

By Gerard V. La Forest

CLASSIFICATION

At common law a number of public rights exist in rivers, streams and lakes. By public rights are not meant rights owned by government, whether federal, provincial or municipal. These bodies may own land and water rights, including riparian rights and rights associated with the ownership of the beds of watercourses, in the same way as private individuals, in which case they are, in a manner of speaking, public rights. But what is here called public rights are those vested in the public generally, rights that any member of the public may enjoy. There are three such public rights:

(a) the right of navigation;

(b) the right of floatability; and

(c) the right of fishing.

Each of these must be examined in turn. And first, of navigation.

THE PUBLIC RIGHT OF NAVIGATION

Must Waters be Tidal?

In England the public has a natural right to navigate in tidal waters, but though non-tidal streams may be *de facto* navigable the public has no right to navigate on them, except as authorized by statute or immemorial custom or unless the owner of the bed has dedicated the stream or other body of water as a highway.[1] New Brunswick[2] and Nova Scotia[3] courts have for long assumed that the rule is the same there, but the point never appears to have been squarely raised. In Quebec[4], Ontario[5], the Prairie Provinces[6], and British Columbia[7], the rule is

1. *Caldwell* v. *McLaren* (1884), 9 A.C. 392; see also *Reg.* v. *Robertson* (1882), 6 S.C.R. 52.
2. See *Robertson* v. *Steadman* (1876), 16 N.B.R. 612; *Steadman* v. *Robertson; Hanson* v. *Robertson* (1879), 18 N.B.R. 580; *Reg.* v. *Robertson* (1882), 6 S.C.R. 52, *per* Ritchie C.J. (but *cf.* Strong J.); *Boyd* v. *Fudge* (1965), 46 D.L.R. (2d) 679.
3. See *McNeil* v. *Jones* (1894), 26 N.S.R. 299.
4. See, *inter alia*, *In re Provincial Fisheries* (1895), 26 S.C.R. 444.
5. See, *inter alia*, *Parker* v. *Elliott* (1852), 1 U.C.C.P. 470; *Reg.* v. *Meyers* (1853), 3 U.C.C.P. 305; *Gage* v. *Bates* (1858), 7 U.C.C.P. 116; *Dixson* v. *Snetsinger* (1872), 23 U.C.C.P. 235; *Reg.* v. *Robertson* (1882), 6 S.C.R. 52; *In re Provincial Fisheries* (1895), 26 S.C.R. 444.
6. See *Re Iverson and Greater Winnipeg Water District* (1921), 57 D.L.R. 184; *Flewelling* v. *Johnston* (1921), 59 D.L.R. 419.
7. *Fort George Lumber Co.* v. *Grand Trunk Pacific Ry.* (1915), 24 D.L.R. 527.

caused by the defendant's lumber operations. The plaintiff had helped to construct an earlier dam in 1876 (which was replaced by that of 1883) and in some years had assisted in the driving operations. The plaintiff, however, brought action in 1895 to prevent the defendant from carrying on the driving operations in such a way as to injure the plaintiff's land. The court held that gradual and increasing damage to the land of a riparian owner from log driving operations and from the overflow of water caused by the defendant's driving dam extending over a number of years would not give a right to do so by prescription. If prescription could give an easement to the same overflow, it did not operate here because it had not gone on for twenty years. The assistance given by the plaintiff in the driving operations did not amount to a licence to continue to do so. Nor did it constitute acquiesence sufficient to preclude the plaintiff from bringing his action; to constitute such acquiescence fraud was necessary.

Additional problems arise where a river is navigable as well as floatable. The rights of navigation and floating appear to be assimilated to some extent. All persons have an equal right to navigate such rivers with logs or boats, which right must not be exercised so as to unreasonably impede or prevent others from exercising the right.[159] The factors examined by the courts in determining what is reasonable have already been examined in connection with the public right of navigation.[160] Though the two rights appear to be equated in the cases,[161] it will usually be log driving that interferes with navigation. The courts have on several occasions held that if log booms or jams unreasonably impede navigation this constitutes a public nuisance for which an indictment or an action by the Attorney-General may be brought, and if a person suffers special damage he may bring an action or abate the nuisance by removing it. How long a person would be permitted to obstruct a navigable river is not clear. As in all these cases the question is one of reasonableness in the circumstances. But certainly a navigable river cannot be blocked indefinitely. In *Crandell* v. *Mooney*,[162] where the plaintiff's steamboat was prevented from continuing its journey because of a log jam, the prevention of navigation for eight days was considered unreasonable notwithstanding that the delay was contributed to by adverse weather.

Similarly a person whose right of access is blocked by logs may bring an action against the owner of the logs.[163]

THE PUBLIC RIGHT OF FISHING

The public has a right to fish in all tidal waters whether in the sea, or arms of the sea, or in estuaries or a tidal river or otherwise, up to the point where the

159. See *Crandell* v. *Mooney* (1873), 23 U.C.C.P. 212; *North West Navigation Co.* v. *Walker* (1885), 3 Man. R. 25; *Quiddy River Boom Co.* v. *Davidson* (1886), 25 N.B.R. 580; *Upper Ottawa Improvement Co.* v. *Hydro-Electric Power Commission of Ontario*, [1961] S.C.R. 486.

160. See, *inter alia*, *Crandell* v. *Mooney* (1873), 23 U.C.C.P. 212.

161. See *Crandell v. Mooney* (1873), 23 U.C.C.P. 212; *North West Navigation Co. v. Walker* (1885), 3 Man. R. 25; *Ireson v. Holt Lumber Co.* (1913), 18 D.L.R. 604.

162. (1873), 23 U.C.C.P. 212.

163. *Ireson v. Holt Lumber Co.* (1913), 18 D.L.R. 604.

tide ebbs and flows.[164] Accordingly the grant of land over which tidal water flows does not automatically carry with it the exclusive right to fish in that water as it does in fresh water.[165] In fact, since Magna Charta the Crown has no power apart from statute to grant a several (or exclusive) fishery in tidal waters either to the owner of the land or to anyone else.[166] Since Canada was not settled before then, there cannot be a several fishery in tidal waters in the parts of Canada governed by common law except by statute.

While it is clear in England that the public right of fishing is limited to tidal waters,[167] there is some Canadian authority for the view that the public right of fishing also exists in waters that are navigable though not tidal.[168] If this were so the restriction in Magna Charta against the granting of several fisheries by the Crown would be inapplicable, that restriction being limited to tidal waters.[169] In any event the weight of authority is very clearly against the existence of a general public right of fishing in non-tidal waters.[170] There are some statements, however, that a public right of fishing exists in non-tidal waters where the bed is owned by the Crown,[171] but while fishing may be public in the sense that it is provincial property and the province may permit the public to fish there, it is not public in the sense that a general right exists in the public.

The public right of fishing does not extend to fishing by means of kiddles, weirs and other instruments fixed to the soil. Such methods of fishing involve a use of the bed which under English law is vested either in the Crown or a private owner.[172] If the soil is to be used in this manner, the permission of the owner must be obtained.[173] This can give rise to duplication of administration at the federal

164. *Gage v. Bates* (1858), 7 U.C.C.P. 116; *Reg. v. Lord* (1861), 1 P.E.I. 245; *Rose v. Belyea* (1867), 12 N.B.R. 109; *Steadman v. Robertson* (1879), 18 N.B.R. 580; *Dogerty v. Power* (1881), R.E.D. 419; Can. Abridg., vol. 20, col. 378; *Reg. v. Robertson* (1882), 6 S.C.R. 52; *Nash v. Newton* (1891), 30 N.B.R. 610; *McNeil v. Jones* (1854), 26 N.S.R. 299; *In re Provincial Fisheries* (1895), 26 S.C.R. 444; *Donnelly v. Vroom* (1907), 40 N.S.R. 585; affirmed: (1909) 42 N.S.R. 327; *City of St. John v. Belyea* (1919), 47 N.B.R. 155: *Attorney-General of British Columbia v. Attorney-General of Canada*, [1914] A.C. 153; *Attorney-General of Canada v. Attorney-General of Quebec*, [1921] 1 A.C. 413.

165. *Ibid.*

166. *Meisner v. Fanning* (1842), 3 N.S.R. 97; *Rose v. Belyea* (1867), 12 N.B.R. 109; *Donnelly v. Vroom* (1907), 40 N.S.R. 585; affirmed: (1909), 42 N.S.R. 327, *Attorney-General of British Columbia v. Attorney-General of Canada*, [1914] A.C. 153; *Attorney-General of Canada v. Attorney-General of Quebec*, [1921] 1 A.C. 413. *In Re Provincial Fisheries* (1895), 26 S.C.R. 444, Girouard J. seemed to doubt the application of Magna Charta outside England, but Strong C.J. and Gwynne J. thought it applied.

167. See *Attorney-General of British Columbia v. Attorney-General of Canada*, [1914] A.C. 153; *Attorney-General of Canada v. Attorney-General of Quebec*, [1921] 1 A.C. 413.

168. *Gage v. Bates* (1858), 7 U.C.C.P. 116; *Reg. v. Robertson* (1882), 6 S.C.R. 52, *per* Strong J.; *Moffatt v. Roddy* (1889), 4 Ont. Cas. Law Dig. 7323; *Re Provincial Fisheries* (1895), 26 S.C.R. 444, *per* Strong C.J. and Girouard J.

169. *Re Provincial Fisheries* (1895), 26 S.C.R. 444, *per* Strong J.; *cf., Moffatt v. Roddy* (1889), 4 Ont. Cas. Law Dig. 7323.

170. *Steadman v. Robertson* (1879), 18 N.B.R. 580; *Reg. v. Robertson* (1882), 6 S.C.R. 52, *per* Ritchie C.J.; *Re Provincial Fisheries* (1895), 26 S.C.R. 444; *Keewatin Power Co. v. Town of Kenora* (1908), 16 O.L.R. 184; *R. v. Harron* (1912), 21 O.W.R. 951; *Attorney-General of British Columbia v. Attorney General of Canada* [1914] A.C. 153; *Barber v. Andrews* (1921), 20 O.W.N. 239; *Rice Lake Fur Co. v. McAllister*, [1925] 2 D.L.R. 506.

171. See *Robertson v. Steadman* (1876), 16 N.B.R. 621 (the court, however, reversed this view in the later case of *Steadman v. Robertson*, (1879), 18 N.B.R. 580); *Re Iverson and Greater Winnipeg Water District* (1921), 57 D.L.R. 184, *per* Dennistoun J.; *McDonald v. Linton* (1926), 53 N.B.R. 107, *per* Barry C.J.

172. *Attorney-General of British Columbia v. Attorney-General of Canada*, [1914] A.C. 153; *Attorney-General of Canada v. Attorney-General of Quebec*, [1921] 1 A.C. 413.

173. *Attorney-General of Canada v. Attorney-General of Quebec* [1921] 1 A.C. 413.

and provincial levels. For example, when lobster fishing is conducted by the use of beds belonging to a province, the person conducting such fisheries must comply with federal licensing and regulatory laws, and he may also be required to obtain a lease or licence from the province to use the soil, which may attach conditions to its use by the terms of the instrument or by legislation.

But the incidental use of private or Crown owned foreshore or seabed in the exercise of the public right of fishing that does not amount to an appropriation of the property is permissible. The public right here prevails over the private.[174] It may be, for example, that a person may have a right of way over the foreshore, or may land his fish, or draw his boat there in the incidental exercise of his right of fishing,[175] though he must do so with due regard for the rights of others, including the landowner.[176]

The incidental use of the soil is also permitted in fishing for shell fish such as clams and oysters. Thus in *Donnelly* v. *Vroom*,[177] the defendant had been granted lands extending down to low water and the grant purported to include the right of fishing, but the plaintiff had nonetheless dug for clams on the flats between high and low water marks. The court held that the plaintiff was entitled to do so. The public right of fishing was not limited to swimming fish, but extended to shell fish covered by the soil as well. Accordingly the plaintiff could dig up the soil for clams, the public right of fishing taking priority over the private right of the defendant. Any additional use of the land not incidental to fishing, for example for storing the fish, would not come within the public right.[178] It is doubtful, too, that there is a right to take shells, as opposed to shell fish on another person's land.[179]

The public right of fishing must, as already mentioned, be exercised reasonably having regard to the same rights of other people and to the public right of navigation and private rights.[180] But it is not unreasonable for a person to erect weirs in such a position as to prevent another from securing as many fish as he might otherwise have done.[181] Ordinarily, the reasonable exercise of the public rights of navigation and of fishing can be exercised concurrently. Thus a person navigating water would ordinarily be expected to use reasonable care to avoid injuring the nets of fishermen, but where it becomes impossible to exercise both rights concurrently, the public right of navigation is paramount and will prevail.[182]

The Crown as *parens patriae* is a trustee for the public of the public right of fishing.[183] Accordingly where a person so interferes with the public right of fishing as to constitute a nuisance, an indictment or an action may be brought against him

174. See *Reg.* v. *Lord* (1964), 1 P.E.I. 245; *Donnelly* v. *Vroom* (1907), 40 N.S.R. 585; affirmed: (1909), 42 N.S.R. 327.
175. See *Reg.* v. *Lord* (1864), 1 P.E.I. 245.
176. *Ibid.*; see also *Donnelly* v. *Vroom* (1907), 40 N.S.R. 585; affirmed: (1909), 42 N.S.R. 327; *City of Saint John* v. *Belyea* (1919), 47 N.B.R. 155; *Delap* v. *Hayden* (1924-5), 57 N.S.R. 346.
177. (1907), 40 N.S.R. 585; affirmed: (1909), 42 N.S.R. 327; see also *Delap* v. *Hayden* (1924-5), 57 N.S.R. 346.
178. See *Coulson & Forbes on Waters and Land Drainage* 6th ed., (London, 1952), at pp. 379 et seq.
179. *Donnelly* v. *Vroom* (1909), 42 N.S.R. 327.
180. *Reg.* v. *Lord* (1864), 1 P.E.I. 245; *Donnelly* v. *Vroom* (1907), 40 N.S.R. 585; affirmed: (1909), 42 N.S.R. 327; *City of St. John* v. *Belyea* (1919), 47 N.B.R. 155; *Delap* v. *Hayden* (1924-5), 57 N.S.R. 346.
181. *Cheney* v. *Guptill* (1871), 13 N.B.R. 378.
182. *McInsley* v. *Gilley* (1907), 7 W.L.R. 22.
183. *McNeil* v. *Jones* (1894), 26 N.S.R. 299.

at the suit of the Attorney-General of Canada[184] and, no doubt, at the suit of the Attorney-General of the province.[185] If a person has suffered a special injury from the nuisance he may bring an action without the intervention of the Attorney-General.[186] *St. John Gas Light Co.* v. *Reg.*[187] is an instructive case. There the Attorney-General of Canada filed an information in the Exchequer Court of Canada to restrain the defendants from interfering with the public rights of navigation and fishing in the harbour of Saint John. The alleged nuisance was that the defendant discharged tar and other noxious substances, and refuse water at the wrong phase of the tide, to the injury of navigation and the fishery. The court granted the injunction notwithstanding that the harbour was then vested in the city, which was also the conservator of the harbour, and that the inhabitants of the city had the exclusive right to fish therein under the City Charter. In fact, regulation of this fishery was vested in the city by the Charter. The court held that while the city had these powers over the fishery for the benefit of the inhabitants, yet others were interested in the fishery, for many of the fish went up the river to spawn. Another defence offered was that there was a pre-Confederation New Brunswick statute governing the defendants' works that prescribed a penalty for the defendants' acts, and accordingly the common law remedy by indictment could not be pursued. The court, however, held that the common law and statutory remedies were cumulative.

Though the Crown cannot grant an exclusive fishery in tidal waters because of the prohibition in Magna Charta, there is some Canadian authority that a person may acquire a several fishery by prescription.[188] But the better view is that this is impossible in Canada because the theoretical basis for prescription is that a grant was once made. While in England, it is possible to establish that such a grant was made before Magna Charta, this is, of course, impossible in Canada because the country was settled long after that time.[189] In any event, the difficulty of establishing exclusive possession of a fishery would in many cases at least be well-nigh insurmountable.[190]

But if a several fishery in tidal waters cannot under Magna Charta be created by Crown grant, and probably not by prescription, it can be created by the appropriate legislature. For example, under the Saint John City Charter, a Royal charter validated and subsequently modified by the New Brunswick legislature, the inhabitants of the east side of the harbour were given the exclusive right of fishing on that side of the harbour subject to regulation by the city, and a similar right was given to the inhabitants of the west side. This right was frequently upheld by the courts,[191] though they left no doubt that the federal Parliament could, in exercise

184. *Saint John Gas Light Co.* v. *Reg* (1895), 4 Ex. C.R. 326.
185. See the law of nuisance in relation to the public right of navigation discussed at pp. 187-90.
186. *Baldwin* v. *Chaplin* (1915), 21 D.L.R. 846.
187. (1895), 4 Ex. C.R. 326.
188. *Dogerty* v. *Power* (1881), R.E.D. 419; Can. Abridg., vol. 20, p. 378; see also *Meisner* v. *Fanning* (1842), 3 N.S.R. 97.
189. *Donnelly* v. *Vroom* (1907), 40 N.S.R. 585; affirmed: (1909), 42 N.S.R. 327 where Townshend J. agreed with the judge below, but Russell J. refused to pass on the point.
190. See *Meisner* v. *Fanning* (1842), 3 N.S.R. 97.
191. *Wilson* v. *Codyre* (1888), 27 N.B.R. 320; *City of St. John* v. *Wilson* (1907), 2 N.B.R. Eq. 398; *City of St. John* v. *Belyea* (1919), 47 N.B.R. 155.

of its jurisdiction over fisheries, regulate this right.[192] In fact the fisheries in the Saint John Harbour are now owned by the federal authorities.[193]

In areas where the subsoil belongs to the province or a private individual, however, it may require action at both the federal and provincial levels to establish an exclusive right of fishery in anyone but the owner of the sub-soil. There is no question that the regulation of the public right of fishery falls exclusively within the federal domain,[194] but it is equally clear that the Dominion cannot take a fishing right incidental to a right of property from the owner of that property and give it to another; this is a matter of property and civil rights falling within provincial jurisdiction.[195] In *Attorney-General of British Columbia* v. *Attorney-General of Canada*[196] the Privy Council asserted that the private right of fishery incidental to ownership of the soil continued even in tidal waters, though the public right of fishing prevailed. Accordingly it would seem to follow that to establish an exclusive fishery in waters over soil owned by the province or a private individual action would be required by both the federal and provincial legislatures.

192. *Ex Parte Wilson* (1885), 25 N.B.R. 209; *The St. John Gas Light Co.* v. *Reg.* (1895), 4 Ex. C.R. 326.

193. See (1931), 21 Geo. V, c. 68 (N.B.); see also The Saint John Harbour Commissioners Act (1927), 17 Geo. V, c. 67 (Can.); National Harbours Board Act (1936), 1 Edw. VIII, c. 42, s. 39 (Can.).

194. *Attorney-General of Canada* v. *Attorney-General of Ontario*, [1898] A.C. 700; *Attorney-General of British Columbia* v. *Attorney-General of Canada*, [1914] A.C. 153.

195. *Reg.* v. *Robertson* (1882), 6 S.C.R. 52.

196. [1914] A.C. 153.

COMMISSION OF INQUIRY INTO THE DECLINE OF SOCKEYE SALMON IN THE FRASER RIVER

In the matter of Her Excellency the Governor General in Council, on the recommendation of the Prime Minister, directing that a Commission do issue under Part I of the Inquiries Act and under the Great Seal of Canada appointing the Honourable Bruce Cohen as Commissioner to conduct an inquiry into the decline of sockeye salmon in the Fraser River .

LIST OF AUTHORITIES
REPLY SUBMISSIONS ON BEHALF OF WEST COAST TROLLERS (AREA G) ASSOCIATION and UNITED FISHERMEN AND ALLIED WORKERS' UNION

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LIST OF AUTHORITIES

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2. *Attorney-General of Canada* v. *Attorney-General of Ontario*, [1898] A.C. 700
3. *Attorney-General of British Columbia* v. *Attorney-General of Canada*, [1914] A.C. 153
4. *Northwest Falling Contractors Ltd. v. The Queen,* [1980] 2 S.C.R. 292
5. *Reference as to the Constitutional Validity of Certain Sections of the Fisheries Act, 1914,* [1928] S.C.R. 457 (Q.L.)
6. *Reg.* v. *Robertson* (1882), 6 S.C.R. 52
7. Walters and Martell, *Fisheries Ecology and Management*, Princeton University Press, 2004