

SUBMISSION TO THE COHEN COMMISSION

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SUMMARY: The Cohen Commission should recommend development of an integrated data collection program, comprehensive research to evaluate identified links between and conflicting scientific conclusions about aquaculture and sockeye health, and action on governance problems (including contradictory mandate and industry capture) in fisheries management.

KEYWORDS: governance, industry capture, data collection, aquaculture

As a graduate student in SFU's Master of Resource and Environmental Management program and a keen observer of fisheries management in BC, I appreciate the opportunity to contribute my views to the Cohen Commission.

I am concerned that, from my read of the technical reports and other evidence submitted to the Cohen Commission, insufficient data and time allotted to reach firm conclusions about low 2009 returns of Fraser River sockeye was a prominent and recurring theme.

I won't pretend to have mastered all of the science presented in Commission hearings but I do support Marmorek et al.'s (2011) conclusion that climate change is very possibly playing a role in the long-term decline not just of Fraser River sockeye but of non-Fraser sockeye stocks (Marmorek et al. 2011), and that poor marine conditions caused by warmer than usual ocean temperatures during the coastal migration life stage of sockeye in 2007 were a very likely contributor to poor returns in 2009. This makes sense, given that available data showed it was one of the few factors in vary substantially from one year to another and that considerably cooler marine temperatures in 2008 can be plausibly linked to much better returns in 2010.

But like many people, I am seized by highly divergent opinions of scientists (Dill 2011, Noakes 2011) charged with investigating possible links between aquaculture, disease, and sockeye declines. It is very problematic that, as acknowledged in the Backgrounder to Technical Report 5, "only three to five years of overlapping Fraser River sockeye survival and salmon farm data [was] available for statistical evaluation, so inferences from statistical analyses that correlate trends in abundance or survival of Fraser River sockeye with trends in pathogens found in salmon farms are extremely limited (2)." Considering the existence of credible evidence linking salmon aquaculture, sea lice, and wild salmon (ex. Krkosek et al. 2007), groundbreaking research by Miller et al. (2010) that has revealed a potentially devastating virus among wild sockeye, and Technical Report 5B (Dill 2011)'s identification of a negative association between sockeye productivity and farmed salmon, it is clear that more

comprehensive research on aquaculture's relationship to wild salmon is imperative.

It also seems like a no-brainer that provincial government would immediately release results of salmon farm audits, including data on dead and diseased fish. The obvious question is: When the fate of this precious resource is in jeopardy and such data could provide answers, why would the provincial government have sided with the aquaculture industry in its resistance to do so? This leads me to the issue that most concerns me about management of Fraser River sockeye in particular and provincial and federal decisions that affect fisheries generally, and which (unlike sockeye) show no signs of abatement: governance. Lam and Pauly (2010) (the latter a veteran marine scientist with the Fisheries Centre of UBC and principal investigator on its Sea Around Us project) have argued that effective fisheries management requires that we "evolve social institutions and governance based on an understanding of the motivations and behaviors of not only fishers . . . but also of *government agents* (elected representatives and public servants), consumers, and citizens [*italics added*]." Governance issues arguably have the most profound impact on fisheries management and are the most challenging to address, but ignoring them altogether would be an egregious waste of Cohen Commission's resources.

The most obvious governance problem is the DFO's contradictory mandate to both regulate and promote the aquaculture industry. Recall that on Sept. 7th, Clare Backman, director of Environmental Compliance for Marine Harvest Canada defended this state of affairs in testimony to the Commission, claiming that "in the modern system of governance it's quite common to have an agency that actually plays dual roles." Backman cited the example of how government health and safety workers promote "compliance with operation of health and safety while bringing forward the regulations (Backman 2011, lines 5-17)." But this rationale and example can hardly be applied to common-pool, state-owned resources like Fraser River sockeye, rivers, and oceans. It belies the fact that *all* industries have an interest in public oversight of safety in workplaces, and that agencies charged with oversight of

workplace safety are not simultaneously and explicitly dedicated to ensuring profitable business conditions for select powerful industries it regulates. Furthermore, if the numbers, causes, and prevention of "accidents" relating to poor management in fisheries could be tracked as easily as workplace accidents, and if accountability and penalties for non-compliance and accidents could be as readily, economically and transparently evaluated and assigned, there would not be a need for a Cohen Commission. I believe this schizophrenic mandate explains DFO's apparent inability to distinguish industry economic performance from the public interest, and to permit scrutiny of its science and decision-making processes by its real boss: the public.

Other evidence suggests the line between science and politics is being blurred. The decision from the Privy Council Office to disallow Dr. Kristina Miller to speak to the press/public for more than a year about her research on a pathogen newly appearing among sockeye (Miller et al. 2011) is disturbing, and not only because it demonstrates political interference in timely dissemination of taxpayer-funded science from the highest level of government. What's worse is that this was not a breach of rules but just one expression of day-to-day political interference in the DFO operations. Although media organizations have noted an unprecedented tightening of communication between the BC and federal governments over the past decade (see, for example, CAJ 2008), we know that the tensions between DFO science and information control, and the negative consequences for Pacific salmon, are not new (Hutchins 1997). This blurring was stunningly obvious when DFO scientists found themselves pressed by supervisors to step out of their usual roles to help write speeches for politicians following the poor 2009 sockeye returns (Hume 2011).

Actions like these suggest that DFO sockeye science and monitoring is very possibly in a state of *industry capture*, which occurs when when an agency fails to protect the public and the environment because regulators friendly to industry block regulatory efforts or do not enforce the laws and regulations in effect. The dynamics of industry capture as it relates to marine science were described by

Slooten (2011). She observed that "the intrusion of political and economic agendas into science is likely to cause public distrust and undermine the role of science in decision making . . . One effect of increasing commercialization is a narrowing of the research agenda towards research with potential economical benefits and away from basic science and research that might result in increased regulation or environmental protection (p. 110)."

Here I would draw your attention to Lam and Pauly's (2010) argument that *rights* to derive private gain from state-owned fishery resources ought rather viewed as *privileges* which entail corresponding obligations. These are embedded within a social contract, one whose terms must be renegotiated and made explicit if it harms society. According to them, the emergence of sustainable fisheries here and around the world requires a new social contract that espouses the precautionary principle and is designed by the "emerging societal consensus that acknowledges the socioecological value of protecting living fish, while constraining sustainable exploitation of fishery resources with corporate responsibility (n.p.)." In light of the foregoing, I urge the Cohen Commission to call for the Government of Canada to reconsider features of that social contract and make its terms explicit. My suggested actions include:

- **Convene** an independent body of experts that would consult with DFO and other agencies to set up an integrated data collection system to address the many problems with data gaps and inconsistency identified by Cohen Commission technical reports and witnesses. These should be at least as comprehensive as (public and private sector) systems that monitor farmed salmon.
- **Prioritize** completion of a comprehensive and transparent research program to pin down any causal relationships between aquaculture, disease (parasites and pathogens), and the health of wild salmon stocks. Consider a wide range of scientific opinion in developing this program.
- **Press** government to resolve the problematic mandate of DFO. Explicitly consider its implications

in *all* of your final recommendations.

- **Undertake** a systematic, independent, transparent investigation of the incidence of *industry capture* within the DFO, with an explicit focus on the regulation of wild salmon. This should include a thorough literature review on the topic of what constitutes industry capture, the mechanisms by which it occurs, and the regulatory and policy measures available to address it, as well as an unflinching, arm's length assessment of signs of industry capture within DFO as it relates to Fraser River sockeye salmon management. This review should offer career-safe opportunities to DFO employees to express their views and recommend a whistle-blower protection program to serve as a check against the emergence or entrenchment of industry capture. Publish a final report and implement the recommendations.

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