

March 27, 2019

Frontiers in Physiology Editorial Office,

I have concerns about a potential conflict of interest with regards to the following scientific paper published this month in Frontiers in Physiology: <https://doi.org/10.3389/fphys.2019.00114>

**High-Load Reovirus Infections Do Not Imply Physiological Impairment in Salmon**

Yangfan Zhang<sup>1</sup>, Mark P. Polinski<sup>2</sup>, Phillip R. Morrison<sup>3</sup>, Colin J. Brauner<sup>3</sup>, Anthony P. Farrell<sup>1,3</sup> and Kyle A. Garver<sup>2</sup>

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In the paper it states under the “Conflict of Interest Statement” section:

**"The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest."**

It also states under the “Funding” section:

**"This study was supported by a grant from the Aquaculture Collaborative Research and Development Program within Fisheries and Oceans Canada awarded to KG." (i.e., Kyle Garver, Fisheries and Oceans, Canada)**

I have two concerns with this.

1. The Aquaculture Collaborative Research and Development Program (ACRDP) has industry funding requirements that are described here:

<http://www.dfo-mpo.gc.ca/aquaculture/acrdp-pcrda/info-eng.html>

The ACRDP website states:

**"The minimum industry contribution is 30% of the ACRDP amount requested, at least 7.5% of which must be a cash contribution with the remainder as in-kind contributions."**

There also exists an ACRDP research description for a project that I think may have led to the published research paper in question, found here: <http://www.dfo-mpo.gc.ca/aquaculture/rp-pr/acrdp-pcrda/projects-projets/16-1-p-03-eng.html>

Most of the authors of the published paper are also listed as researchers in this ACRDP project description; however, the ACRDP project also lists an industry collaborator, Jeremy Dunn from the British Columbia Salmon Farmers Association. I assume the B.C. Salmon Farmers Association funded part of this research, according to the ACRDP requirements.

Both contacts listed in the published paper, Kyle Garver, DFO and Mark Polinski, DFO, have not yet responded to my March 14, 2019, inquiries about their project.

If the industry did contribute financially and/or in-kind to this work, does this not appear to be a clear financial conflict of interest? A note, it would also seem to me that, such an ethical lapse by DFO authors may also violate the Conflict of Interest section (Part 3) of DFO's Ethics Code.<sup>1</sup>

2. The goals of ACRDP are found here: <http://www.dfo-mpo.gc.ca/aquaculture/acrdp-pcrda/info-eng.html>

"The **key goals** of the program are to:

- Improve the competitiveness and sustainability of the Canadian aquaculture industry;
- Increase collaborative research between the department and industry;
- Facilitate the process of technology transfer and knowledge mobilization; and
- Increase scientific capacity of the Canadian aquaculture industry for essential aquaculture research and development."

These goals suggest that research funded through this program may have a predetermined purpose, to "improve the competitiveness" of the salmon farming industry, among other forms of aquaculture. I think these goals may have the potential to impart a bias to projects funded through this program.

There is much scientific debate around the risks and impacts of parasites and viruses from marine salmon farms to wild fish, and while genuine debate can produce robust scientific

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<sup>1</sup>DFO Ethics Code. <http://www.dfo-mpo.gc.ca/reports-rapports/vicr-virc/vicr-virc2012-eng.htm#part3>

conclusions, manufactured debate can delay meaningful policy change through a strategy known as Scientific Certainty Argumentation Methods (or SCAMs).<sup>2,3</sup>

I think the B.C. Salmon Farmers Association, a potential funder of this research, may have a vested interest in scientific papers that do not find significant negative impacts and risks from their operations on salmonids (including wild salmon). Two reasons for this include:

1. Positive media stories arising from published scientific papers about the salmon farming industry can benefit the industry's "social licence" and marketability of their product. A few examples of positive media stories that resulted from this paper include:

Sea West News. New studies reaffirm PRV is not a salmon killer <https://seawestnews.com/new-studies-reaffirm-prv-is-not-a-salmon-killer/>

Globe and Mail. Deadly PRV virus not 'sole cause' of disease affecting farmed Atlantic salmon in B.C., study finds <https://www.theglobeandmail.com/canada/british-columbia/article-deadly-prv-virus-not-sole-cause-of-disease-affecting-farmed-atlantic/>

CBC. Virus at centre of farmed salmon controversy isn't as harmful as some believe, studies suggest <https://www.cbc.ca/news/canada/british-columbia/studies-shed-light-on-impact-of-virus-on-farmed-atlantic-salmon-in-bc-1.5056464>

2. Published papers reporting insignificant effects of piscine reovirus on salmonids may support the continuation of salmon farm operations in the Discovery Islands (near Campbell River, British Columbia). Canada's current federal government committed to implementing the recommendations from the Federal Cohen Inquiry into the Decline of Fraser River Sockeye Salmon.<sup>4</sup> Recommendations 18 and 19 from the Inquiry state a significant number of salmon farms should be removed in September 2020, unless the government can provide evidence that the farms are not more than a minimal risk of serious harm to wild salmon.<sup>5</sup> They also state those salmon farms should be removed immediately if at any point before 2020, the risk is deemed greater than a minimal risk of

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<sup>2</sup> Proboszcz, S. (2018) Integrity of DFO's Science Process in Question. Policy Options. <http://policyoptions.irpp.org/magazines/april-2018/integrity-of-the-dfos-science-advisory-process-in-question/>

<sup>3</sup> Freudenburg, W., et. al. (2008) Scientific Certainty Argumentation Methods (SCAMs): Science and the Politics of Doubt. Sociological Inquiry. 78:2-38 <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1475-682X.2008.00219.x>

<sup>4</sup> Trudeau, J., (2018) Prime Minister of Canada Mandate Letter to the Minister of Fisheries and Oceans. <https://pm.gc.ca/eng/minister-fisheries-oceans-and-canadian-coast-guard-mandate-letter-august-28-2018>

<sup>5</sup> Fisheries and Oceans Canada's update on the implementation of the Cohen Commission's recommendations. <http://www.dfo-mpo.gc.ca/cohen/report-rapport-eng.htm>

serious harm to wild salmon. Therefore, any published science that reports negative results on this topic, such as the paper in question, may have significant commercial benefits to the industry, in facilitating the perpetuation of these salmon farms in British Columbia.

Finally, I also suggest that all previous and future projects funded through the ACRDP may have potential conflict of interest issues, due to the industry funding requirements of this research program. This may be something to keep in mind.

Thank you for your time. I hope you consider the conflict of interest concerns I've raised and take appropriate action to remedy any issues. I am not aware of what course of action your journal usually takes on these types of matters; hence, I look forward to your response and hearing about the steps and action that are to come.

Sincerely,

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