



OB-GYN for salmon parrs

Jean-Olivier Irisson based on reviews by Hervé CAPRA and 1 anonymous reviewer

A recommendation of:

Marie Nevoux, Frédéric Marchand, Guillaume Forget, Dominique Huteau, Julien Tremblay, Jean-Pierre Destouches. **Field**

assessment of precocious maturation in salmon parr using

ultrasound imaging (2019), *bioRxiv*, 425561, ver. 3 peer-reviewed

and recommended by Peer Community in Ecology. [10.1101/425561](https://doi.org/10.1101/425561)

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Population dynamics and stock assessment models are only as good as the data used to parameterise them. For Atlantic salmon (*Salmo salar*) populations, a critical parameter may be frequency of precocious maturation. Indeed, the young males (parrs) that mature early, before leaving the river to reach the ocean, can contribute to reproduction but have much lower survival rates afterwards. The authors cite evidence of the potentially major consequences of this alternate reproductive strategy. So, to be parameterised correctly, it needs to be assessed correctly. Cue the ultrasound machine.

Through a thorough analysis of data collected on 850 individuals [1], over three years, the authors clearly show that the non-invasive examination of the internal cavity of young fishes to look

for gonads, using a portable ultrasound machine, provides reliable and replicable evidence of precocious maturation. They turned into OB-GYN for salmons (albeit for male salmons!) and it worked. While using ultrasounds to detect fish gonads is not a new idea (early attempts for salmonids date back to the 80s [2]), the value here is in the comparison with the classic visual inspection technique (which turns out to be less reliable) and the fact that ultrasounds can now easily be carried out in the field.

Beyond the potentially important consequences of this new technique for the correct assessment of salmon population dynamics, the authors also make the case for the acquisition of more reliable individual-level data in ecological studies, which I applaud.

References.

[1] Nevoux M, Marchand F, Forget G, Huteau D, Tremblay J, and Destouches J-P. (2019). Field assessment of precocious maturation in salmon parr using ultrasound imaging. bioRxiv 425561, ver. 3 peer-reviewed and recommended by PCI Ecology. doi: [10.1101/425561](https://doi.org/10.1101/425561) [2] Reimers E, Landmark P, Sorsdal T, Bohmer E, Solum T. (1987). Determination of salmonids' sex, maturation and size: an ultrasound and photocell approach. *Aquaculture Magazine*.13:41-44.

Revision round #2

2019-04-15

Thank you very much for the thorough revision of the paper. I think the split per year in the presentation and, most importantly, analysis of data improve it. I also like the new version of the figure very much.

I think it is almost ready. I made a few language comments on the tracked changes version that I ask you to consider before writing my recommendation.

Preprint DOI: [10.1101/425561](https://doi.org/10.1101/425561)

Author's reply:

Dear Jean-Olivier Irisson,

Thank you for reviewing a second time our manuscript. We are happy to see that you have appreciated the modifications we applied and that you now only have minor comments. We have applied every text modification suggested, as can be seen on the track-change version. To comply with PCI policy, we have also added an appendix with raw data, containing phenotypic and ultrasound records for each fish. Following the instruction from our PCI contact, we have formatted our preprint using the PCI template.

We look forward to your recommendation in PCI.

Yours sincerely,

Marie Nevoux

Revision round #1

2019-02-08

Dear authors,

First, let me sincerely apologise for the time it took to handle your submission. We had difficulty recruiting reviewers for this interesting but somewhat "niche" paper. I ended up writing one of the reviews myself.

In both reviews, we note that the technique is interesting and has potential but that the analysis of the data to prove the point of the paper could be improved, as well as the text itself. The numerous remarks should help you improve your preprint and submit an updated version.

Thank you in advance for your consideration of these remarks and sorry again for the long processing time. Sincerely,

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Reviewed by [Hervé CAPRA](#), 2019-01-07 10:47

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Reviewed by anonymous reviewer, 2019-02-08 09:48

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Author's reply:

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