



**Water Research Group**  
**Unit for Environmental Sciences and Management**  
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## 9 Questions with WRG authors

**Title of the paper:** Insights into the drivers of histopathological changes and potential as bio-indicator of riverine health of an aquatic apex predator from a premier conservation area: A multiple lines of evidence and multivariate statistics approach

**Journal:** Ecological Indicators

**Authors:** R. Gerber, G.M. Wagenaar, W. Smith, Y. Ikenaka, N.J. Smit

**Read the article:** <https://doi.org/10.1016/j.ecolind.2016.08.048>



[Dr. Ruan Gerber](#)



**1. What previous work was integral to the new study?**

The development and adaptation of a semi-quantitative histological assessment as well as the determination of levels of the specific contaminants within the selected bio-indicator.



**2. Why do you care about this particular subject?**

This particular subject is of great interest, especially to myself as I have always wondered what effect and impact we as humans have on the environment and even more so in areas where conservation is a priority.





**3. Did any of the findings surprise you?**

Many of our results were surprising, especially if you consider that we were evaluating the effects of metals and OCPs on tigerfish, where the OCP concentrations were the highest ever measured in South Africa and metal levels were lower than previous assessments and the results showed that the metals were the primary drivers behind the histological alterations and not these exceptionally high OCP levels.



**4. What are some of the limitations of this study?**

The fact that metals and OCPs are not the only contaminants within these systems and that there may be some other type of pollutant which may explain more of the alterations.



**5. Do you expect these findings to be controversial in your field?**

Not necessarily controversial, but as explained we found some interesting results where even “low” concentrations of metals were shown to result in histopathological alterations.



**6. What are the broader implications of these findings?**

That using multiple lines of evidence, a suite of multivariate statistics and different levels of biological organization we were able to determine patterns in fish health which were caused by selected contaminants.



**7. What do people usually get wrong about this subject?**

Many people only consider single pollutants whereas in the field these contaminants are mostly present as mixtures with various interactions.



**8. Looking back on the study, what were some of the most memorable moments for you and your colleagues?**

The privilege of being able to work within arguably the world's most renowned conservation area. In areas where very few people have been or even seen and having various interactions with wildlife including an extremely inquisitive elephant bull.



**9. What are you working on next?**

Currently, I am busy with an article regarding the intracellular responses of the tigerfish to contaminants and developing a suite of biomarkers to be used in this species to identify polluted areas.



**Thank you for your time, Ruan!**

# Q&A WITH AUTHORS