



FINAL PROJECT REPORT EVALUATION FORM

<u>Project Number:</u> 089	<u>Completion Date:</u> 19/2/16
<u>Project Title:</u> PAMP refreshment study	
<p>1. In your view have the scientific objectives been achieved. If not, does this need to be addressed by SARF?</p> <p>Yes. Scientific objectives were achieved with the completion of the first report. This revision addresses reviewers comments</p>	
<p>2. Comment on the overall results of the project, including their significance for SARF.</p> <p>As previously mentioned the findings of this report are extremely significant. They suggest that ememactin benzoate usage at fish farms may be having a significant effect on crustacean infaunal richness and abundance at distances from farms previously considered to be unimpacted. This may mean that our assumptions about the environmental fate and toxicity of EMB to non-target organisms is incorrect and needs to be revisited if the product (which is relied on heavily by the industry) is still to be consented for use.</p> <p>The findings do not identify a cause/effect relationship. What the authors have done is ewhat was requested of them. To take a significant dataset created for the purposes of licensing and analyse the contents for relationships between chemotherapeutant use and impacts on benthic fauna. In my view the authors have now done as much as could be expected to analyse this dataset, and are showing a disturbing significant relationship which casts some doubt on our confidence in the consenting process.</p> <p>The data that has been analysed however is far from ideally suited to being used in this way. There are few concomitant data to allow comparison of medicine residues and infauna at the same sites. This is because the drivers for the monitoring were done in relation to licence conditions rather than as a carefully controlled experiment with such analysis in mind as an end point. The authors themselves and the sponsoring body admit this and are well aware of the shortcomings of the dataset.</p> <p>In my opinion the findings presented here need to be acted on as a trigger for further study with some urgency, but they are far from conclusive evidence that EMB usage is having significant far field effects on benthic communities.</p>	
<p>3. Is there a need for further work? If so, explain.</p> <p>Not in relation to the specific scientific objectives of project 089. The authors have responded to the reviewers comments very robustly and the peer review process has strengthened the report and the robustness of the conclusions as worded.</p> <p>Specifically we requested that the reference site data were analysed separately. Thanks to the author for doing this and presenting the results in the revised report. This increases confidence in the most significant findings and ensures the relationships for the reference class were not influenced by the model as applied to all distances classes.</p>	

The significance of the findings however is such that further work is urgently needed to test the hypothesis generated by this analysis: that EMB usage is causing significant impacts on benthic communities at large distances from farms under certain environmental conditions and that these impacts are observable when EMB concentrations are at or below current detection limits. I would suggest a Before/after: Control/Impact BACI study design applied across a range of hydrographies with the same samples being used for residue and infaunal analysis would be the best approach.

Overall marking	1 - outstanding results 2 - results significantly above expectation <u>2</u> 3 - satisfactory results 4 - results below expectation 5 - poor results
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Signature

Print Name

Date 19/2/16

Please indicate whether you wish to receive payment (Yes/No) No

Additional Comments: