

Report

FA1304 WG1 Workshop on Mechanisms underlying beneficial effects of sustained exercise in finfish aquaculture : state of the art and prospects for development.

Attendees:

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Simon MACKENZIE (University of Stirling, UK)
David MCKENZIE (CNRS, France) Local Organiser
Peter SKOV (DTU Aqua, Denmark)
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Venue : Station Marine, Sète, France

This small workshop was held after the Elsevier conference '*Aquaculture 2015: Cutting Edge Science in Aquaculture*' where there were various presentations on the state of the art in the field.

Objectives were to discuss:

- (1) current knowledge on the functional mechanisms underlying beneficial effects of exercise in aquaculture
- (1) new candidate species for which exercise might prove valuable
- (2) new ideas and applications for exercise performance in the quantification and optimisation of welfare at different life stages

The workshop comprised an informal roundtable discussion of each point, in turn. The idea was to contribute to structuring dialogue at the large WG1 meeting in the Action conference in 2016. Also, how WG1 can feed forward ideas for WG3 at that Conference and beyond, as the Action develops. Also, to consider potential areas for research and therefore STSMs.

1) Functional mechanisms and beneficial effects

Major areas that have received attention are effects on growth, immunity, stress and agonistic behaviour, and reproduction. Overall therefore, research into beneficial effects can be categorised into three main areas : production, mitigation and selection. There was an overall consensus that a challenge was the transfer of results from small-scale laboratory studies at low densities, to production realities at high densities. Also, that the various studies have used different protocols and exercise intensities, in various different species.

2) Candidate species

This element received less attention, given the restricted number of participants. Species groups that have not yet been studied for potential beneficial effects of exercise include tilapias and sturgeon; other single species might include red drum. Exercise at early stages, for selection purposes, is also a potential area for development.

3) New applications

Discussion revolved around issues such as performance as a selection tool, exercise to improve cognition and neural plasticity, and integrating exercise into analyses of operational welfare indicators.

Conclusions

The workshop highlighted issues that can structure dialogue WG1 at the Action conference in 2016, when the WG1 leaders will be in attendance. In particular, the three topics of production, mitigation and selection, major species groups where exercise needs to be studied (tilapia, sturgeon), and some novel areas where exercise research might be extended (as a selection tool, to improve cognition, in contexts of OWI).

Photographs of the workshop:

