THE USE OF PASSIVE ACOUSTICS IN RAS FOR MONITORING OF FISH AND SYSTEM OPERATION

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1. Introduction

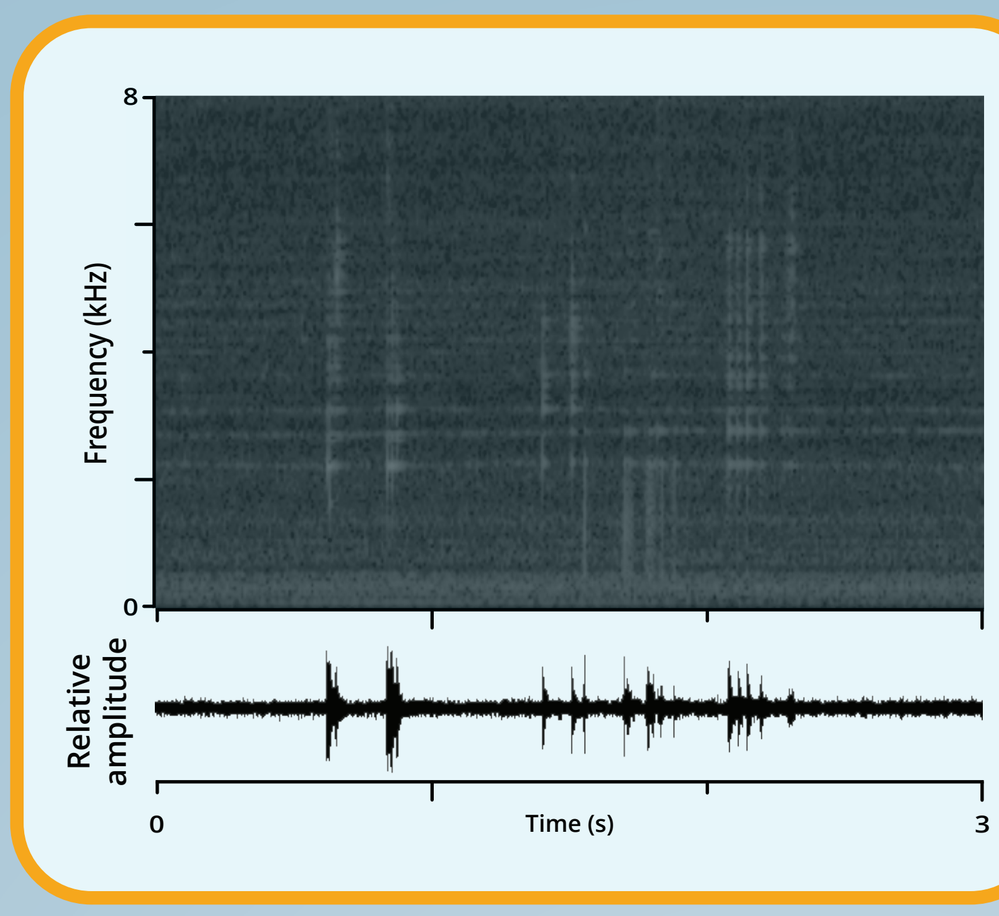
Recirculating aquaculture systems (RAS) are complex production facilities that require close monitoring of processes and farmed fish, however real-time monitoring of fish is still lacking. In addition, improved monitoring of system operation can reduce risks that can lead to unexpected mortalities or reduced fish welfare. In this study, passive acoustic monitoring (PAM) was tested to investigate sounds produced by the fish and equipment in RAS.

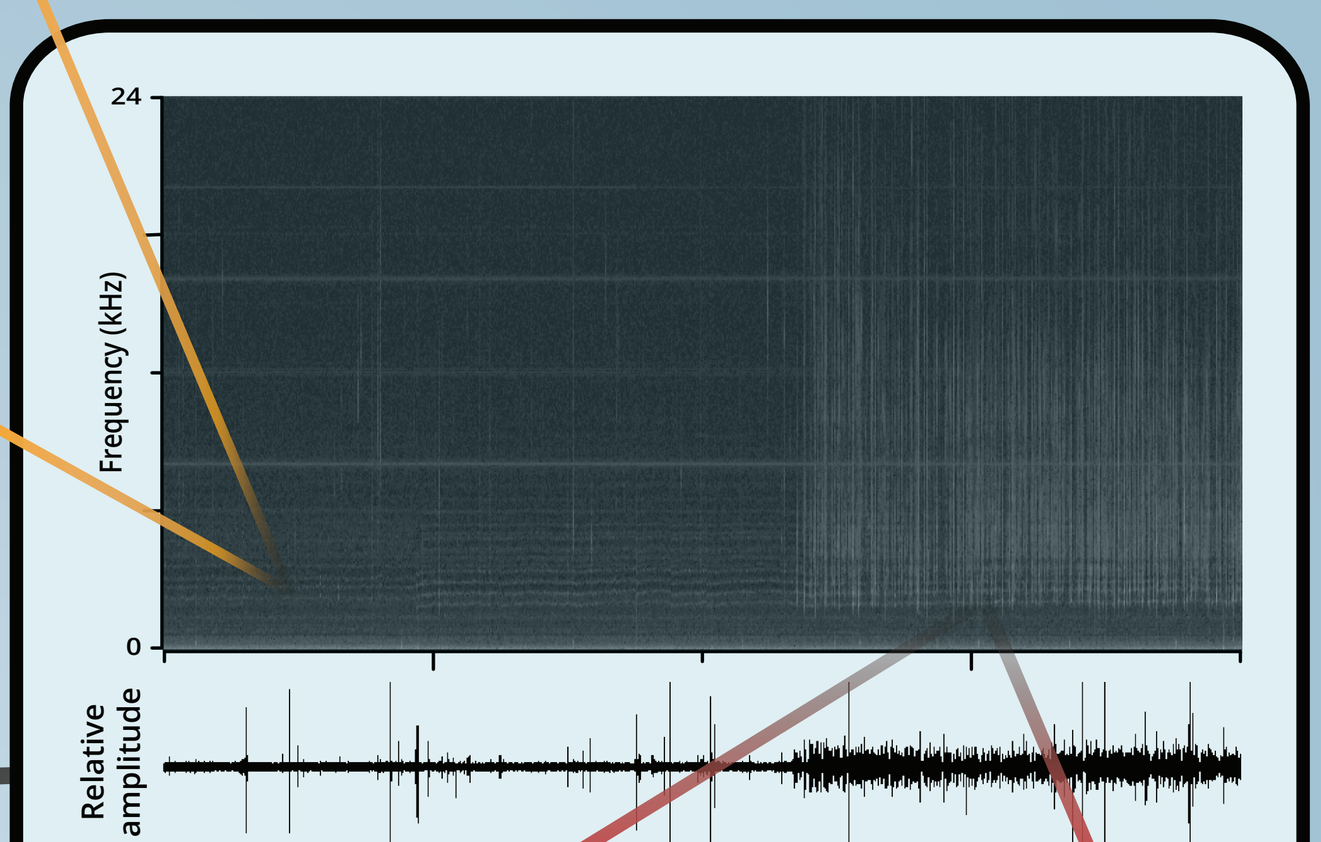
2. Methods

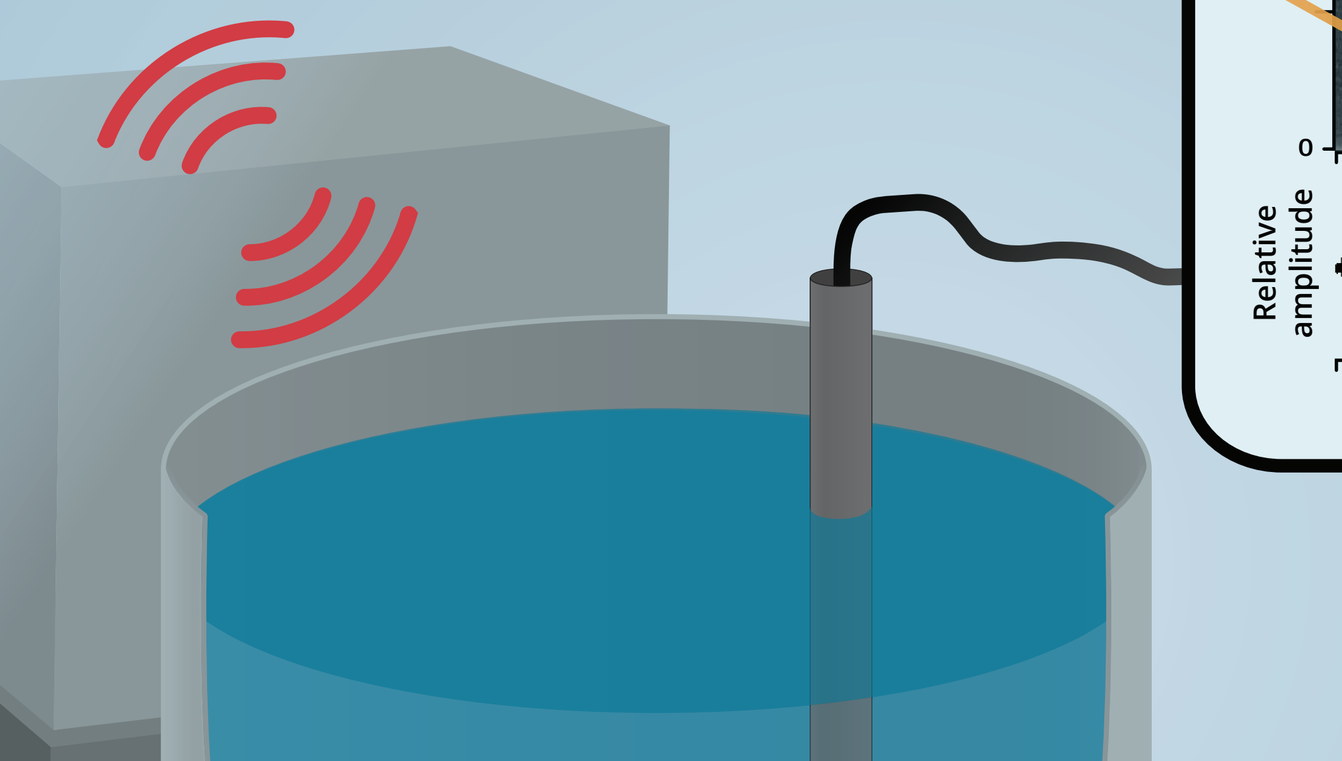
Hydrophones (AS-1, Aquarian Audio) were used to record audio (48 kHz, 24-bit) from 8 small scale RAS tanks (0.5 m^3) with Atlantic salmon (*Salmo salar*) during system operation. Spectrograms (FFT size 1024, overlap 50%, Hann window) were made to visualise sound, and those with yellow and red borders in this poster were filtered (high-pass 250 Hz) to remove low-frequency background noise.

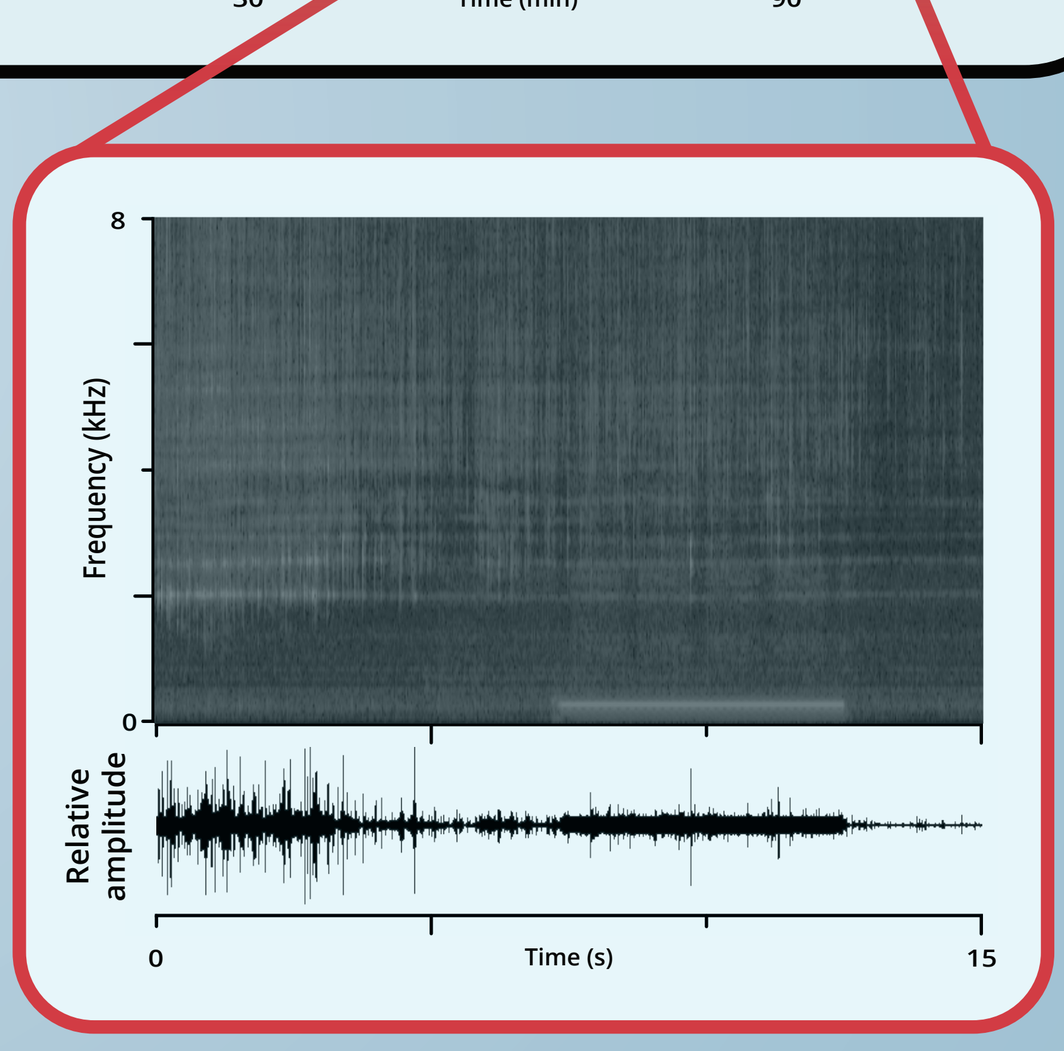
3. Results and conclusion

- Operational changes affect tank soundscape
- Sounds produced by Atlantic salmon
- Emergency oxygenation and drum filter sounds









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