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Title: Influence of fixed and moving bed biofilters on micro particle dynamics in a recirculating aquaculture system

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## Highlights

- Fixed and moving bed biofilter effects on particle and organic matter balances were assessed in a recirculating aquaculture system operated at a constant feed loading (1 kg feed/m<sup>3</sup> make-up water);
- Aeration and media movement disintegrated large (40 – 100 µm Ø) particles in moving bed reactors, while micro-particles (< 400 µm Ø) were retained by fixed bed reactors;
- Trends observed when both filter types were operated simultaneously were either conserved or enhanced when the filters (fixed or moving beds) were operated separately;
- Ammonia and nitrite concentrations in the system were higher when operating only moving beds, and lower when operating only fixed beds.
- Loading and removal of organic matter and particles did not seem to affect nitrification in either mode of operation.

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