

**Title: Size is almost everything! Size and trait based processes and models in ecosystems and management (F)**

**Conveners: Ken Haste Andersen (Denmark), Jorn Bruggeman (Netherlands), and John Pope (Norway)**

The characterization of ecosystems in terms of a few species-surpassing traits can explain key ecosystem behaviours without the need for detailed information on individual species. A prime example of such traits is size: marine ecosystems are organized by size-based processes and relationships. Examples of these relationships are the sinking rate, the diffusion rate of nutrients to a surface, the scaling of metabolic rate with size, or scaling of search volume with size. These relationships constrain all organisms from bacteria to commercial fish. Similarly, the diversity and functioning of planktonic systems is well characterized by traits related to metabolic strategy, e.g. autotrophy and heterotrophy. Ecosystem models defined in terms of traits rather than species can reproduce important ecosystem features with minimal complexity. This theme session will bring together new ideas on understanding and modelling trait-based processes and relationships at the species and ecosystem level. It will provide a forum for marine scientists working on all or any aspect of the ecosystem organization (from bacteria to mammals) and also a place for discussion of trait-based approaches, whether of ecosystems or of species.

Contributions are invited on trait-based approaches to:

- understanding ecosystem-level behaviours
- producing quantitative predictions of ecosystem response to exploitation.
- studying the relationship between biodiversity and functioning of aquatic systems

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