

## **Title: Ecological Carrying Capacity in Shellfish Culture (H)**

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The ability to predict carrying capacity is crucial to the development of bivalve aquaculture operations. To date, the development of models has focused on identifying production carrying capacity, which is the theoretical maximum bivalve culture that could be supported in an embayment. With the development of the ecosystem approach to providing advice for the management of marine ecosystems, there has been a change in focus from the maximum sustainable yield of the culture (i.e. an economic and farm management perspective) to consideration of significant changes in ecological energy flow, material fluxes, and the structure of the food web (ecosystem perspective). The development of ecological carrying capacity models is still in its infancy but has the potential to feed into ecosystem-based management systems for marine areas. In addition, they reflect the ideals and goals of the ecosystem approach. This theme session provides a forum for scientists, managers and aquaculturists to provide updates on the status of ecological carrying capacity concepts and applied ecological models. Contributions to this session of the 2008 ICES ASC will include, but not be limited to, the following topics;

- definition of ecological carrying capacity including discussion of theoretical and socio-economic considerations towards defining an “unacceptable” ecological impact (i.e. identification of the critical limits and thresholds at which the levels of shellfish aquaculture stress lead to the disruption of the system),
- research on the development, value and application of predictive ecological models in shellfish aquaculture systems,
- time-series observations of ecological responses to shellfish aquaculture development and validation of model predictions,
- site-specific factors affecting ecological carrying capacity,
- direction for scientists from stakeholders (e.g. habitat and farm managers and non-governmental organizations) on potential components of interest that need to be evaluated in unbiased ecological carrying capacity assessments, and
- discussion on how models of aquaculture systems complement the ecosystem approach to marine management.

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