

ICES/PICES 6ZPS 2016/S3: The diversity and role of macrozooplankton in marine ecosystems

Swarm formation and cohesion by the marine crustacean *Mysidium gracile*

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A unique aspect of mysid biology is their tendency to form aggregations (swarms) strikingly similar in cohesiveness, precision of locomotion, and anti-predation responses to those formed by fish. Formation and maintenance of these aggregations involve behavioral and environmental components, with topography, hydrodynamics, and light intensity influencing their location and nature.

One characteristic of mysid aggregations is the frequency with which swarms are associated with other organisms, particularly the frequency with which they are located within damselfish territories. Damselfish are extremely territorial, aggressively defending territories from intruders, including other planktivorous fish. A damselfish territory may serve as a refuge from predation as the damselfish drives away potential predators. Given that damselfish are planktivores, the question asked is why damselfish do not eat the mysids in its territory, although they aggressively pursue any other organism that enters its territory.

I will present the results of field and lab investigations conducted over a number of summers at the Discovery Bay Marine Lab, Jamaica, using both in-situ transect analyses of swarm location, and in-situ and lab video analyses of swarm behavior. The results to be discussed include individual and group responses to environmental variables as well as the interaction between damselfish and swarms located within their territories. The latter results are particularly intriguing, as the damselfish will indeed eat mysids. I will present results suggesting how those swarms manage to arrive and stay in a territory without themselves being preyed upon.

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