GMIT
GALWAY-MAYO INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA NA GAILLIMHE-MAIGH EO

Strategic Research Theme : Natural Resources and Sustainability

Research Project undertaken within the **Centre for Marine and Freshwater Research**

Project Title:	An Investigation of the Reproductive Cycle in the Edible Mussel Mytilus Edulis, the Mediterranean Mussel, Mytilus Galloprovincialis and Hybrids on Irish Coasts
Research Team:	Dr. Elizabeth Gosling and Deirdre Brophy
Postgraduate:	Sandra Doherty
Funding Body:	Department of Education & Science - TSR Strand 1

Project Summary

Since the last ice age the Mediterranean mussel, *Mytilus galloprovincialis*, has extended its range northwards onto the Atlantic coasts of western Europe where it interbreeds to varying extents with the native mussel, *M. edulis*. Until relatively recently, there was no single morphological or genetic marker that could unequivocally discriminate between the two forms. However, a nuclear DNA marker has been developed that is diagnostic for the two mussel types and their hybrids. Using this marker the genetic composition of mussels on Irish Atlantic coasts has been investigated and it is now apparent that *M. galloprovincialis* and hybrids are at considerably higher frequencies on both exposed and sheltered sites, than was previously thought. There is also preliminary evidence that *M. galloprovincialis* has superior fitness to *M. edulis* and hybrids at exposed sites, which has implications for the aquaculture industry, which uses these sites as a seed source for rope culture. This project will investigate, for the first time, the reproductive cycle, reproductive output and differential viability of the three mussel taxa in Irish waters. In addition, it will seek to establish whether the Mediterranean mussel, *M. galloprovincialis* has increased in frequency on Irish Atlantic coasts over the past 25-30 years.

Project Aims

1) Compare the reproductive cycles of *M. edulis*, *M. galloprovincialis* and hybrids of both sexes in samples of mussels from selected sites in Galway Bay
2) Establish if there are differences in reproductive output between the three taxa
3) Investigate whether there are viability differences between the three taxa
4) Establish whether the Mediterranean mussel, *M. galloprovincialis* has increased in frequency on Irish Atlantic coasts over the past 25-30 years.

The project is funded by the Department of Education under the Technological Sector Research Strand I Post-graduate R & D Skills Programme.