

Predicting the impacts of *Carcinus maenus* predation on cultivated *Mytilus edulis* beds.

L.G. Murray<sup>1</sup>, R. Seed<sup>1</sup>, T. Jones<sup>2</sup>

<sup>1</sup>*School of Ocean Sciences, University of Wales, Bangor, Menai Bridge LL59 5AB, United Kingdom*

<sup>2</sup>*Extramussel Ltd., Refail, Llanfinan, Llangefni LL77 7SN, United Kingdom*

ABSTRACT

Cultivated mussels may be subjected to heavy predation by several predators including the shore crab *Carcinus maenas*, and crab predation can result in substantial losses from commercial fisheries. In the present study methods were developed to quantify the effects of crab predation on mussel beds, with the aim of estimating losses of mussels to crabs in the mussel fishery located in the Menai Strait, United Kingdom. There were significant linear relationships between crab carapace width and the number and size of mussels consumed. Increases in the mean length of mussels presented to crabs resulted in an exponential decline in the number of mussels consumed. Consequently, there was a similar decline in the predicted losses of mussels during the cultivation process as mussels increased in body size. It was estimated that *C. maenas* consumed 10% of seed mussels laid in the Menai Strait during their growth to a marketable size. Although crab abundance and size, and seawater temperature substantially influenced the number of mussels eaten, the size of mussels was by far the dominant factor in determining losses. Therefore, efforts to control crab predation should focus on the early stages of the cultivation process and on areas where the smaller, more vulnerable, mussels are present. The coefficients and formulae presented here could be applied to other areas of *Mytilus edulis* cultivation subject to predation by *C. maenas*.

© 2007 Journal of Shellfish Research

If you would like the full paper please contact the author:

[l.murray@bangor.ac.uk](mailto:l.murray@bangor.ac.uk)

OR

[fisheries@bangor.ac.uk](mailto:fisheries@bangor.ac.uk)