Population dynamics of the ampharetid polychaete, *Melinna palmata* Grube, in Inner Galway Bay, west coast of Ireland*

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The ampharetid, *Melinna palmata* is a common member of the polychaete infauna occurring along the north shore of Galway Bay, (O'Connor, 1981). A high density population at one location was the focus for a two year study (April, 1983 to March, 1985). Five samples were taken each month with a modified 0.12 m² van Veen grab (hinged 0.5 mm mesh doors fitted to the top to reduce bow wave). Samples were sieved on a 0.5 mm mesh and fixed in 10% buffered formalin. They were subsequently divided into 2 mm, 1 mm and 0.5 mm fractions. *M. palmata* were sorted from the 2 mm and 1 mm fractions and measured (10th setiger width) for construction of size frequency histograms. Monthly examination of coelomic contents from anaesthetised worms revealed the principal events of the reproductive cycle.

Melinna palmata in Galway Bay was shown to be polytelic with a breeding season extending from May to July. This is earlier than reported for the Breton coast (Retière, 1979; Guillou & Hily, 1983). Adult worms were gravid in May with spawning taking place until August when water temperatures were at their maxima, (approx. 17°C). Simultaneously, proliferation of the following season's population of gametes commenced and increased

proportionally during the breeding period as spawning was completed. At the end of the spawning period, residual oocytes were reabsorbed and by October only new previtellogenic oocytes were present. Little change in oocyte diameter was apparent during the winter when water temperatures were at a minimum, (approx. 5°C), but a rapid increase in oocyte diameter was observed in February coinciding with increasing water temperature.

Recruitment took place each year of the study as confirmed by additional samples taken in the post-spawning period with a Muus sampler (quantitative meiofaunal samples from the top 2 cm of sediment with an area of ca. 160 cm²). At least three year classes could be discerned from the size frequency histograms.

References

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