



Biological Assessment Zooplankton Results

Executive Summary

The purpose of the shore based trials carried out at the University of Newcastle was to carry out a series of experiments using a standard test sea water containing a representative mix of phytoplankton and zooplankton. These experiments were designed to assess the biological efficiency of the different treatment methods.

Zooplankton

Following the MARTOB laboratory-scale trials, a protocol for assessing ballast water treatment methods has been used successfully. The 'soup' designed was simple to use, highly reliable and effective. The control test showed that organisms in the soup survived for 24 hours. Hence a meaningful and reliable means to assess and compare different ballast water treatment methodologies has been identified. Based on the percentage kill of animals in the test soup the results indicated which of the methodologies were the most effective and which had more potential for ballast water treatment. Unfortunately only some of the tests had replications, and it was only on these that a more rigorous statistical analysis could be carried out, and the results interpreted with confidence.

The mortality of the different species varied depending on the treatment tested, *Nereis virens* usually being the most sensitive organism and *Tisbe battagliai* the most resistant. Sometimes the numbers obtained from the after-treatment samples were very low. This could have been due to the fact that some of the equipment had long pipes with corners where possibly organisms could have hidden. Moreover during the first three and a half days a pump was utilised as a means to introduce the water into one of the systems. After it was shown that the pump itself was eliminating all the zooplankton, a gravity system was used to supply the water. For future tests these aspects should be considered and the redesign of some of the treatment systems and their sampling points is therefore recommended.