



## WAMSI Biannual Progress Report to 31 May 2007 for

### *WAMSI Node 1 Project 2 (WAMSI Code 1.2):*

*Coastal ecosystem characterisation, benthic ecology, connectivity and client delivery modules*

#### Executive Summary

This project explores a range of important ecological processes affected by natural biophysical dynamics or by human influences such as fishing. A model has been developed to determine the factors most important in giving rise to the patterns of habitat distribution and habitat patchiness observed on coastal reefs.

Field measurements to characterise habitat patchiness and the influence of wave energy on habitats have been made and these will be used to test and refine the model. Work has begun to contrast ecological processes in fished and non-fished areas at Rottnest Island and Marmion Marine Park with field data collection completed at inshore sites in Marmion, with abundance of consumers (predatory and herbivorous fish and invertebrates) obtained from reef, seagrass and sand habitats.

Fieldwork was also completed at a number of sites at Rottnest Island, focusing on abundances of consumers and consumption of kelp on reef habitats. This work revealed useful insights into potentially important indicator characteristics of fish communities which differ between fished and non-fished areas and may have important consequences for animals and plants at lower trophic levels.

The project examining dispersal patterns of marine organisms using a sea urchin model has made progress in genetic sequencing of three sea urchin species to look for genetic variation within species across a large geographic range. Particle-track modelling has started to determine likely dispersal patterns for larvae, and preliminary animations are viewable on the CSIRO website at <http://www.per.marine.csiro.au/wamsi/ptrack2.mov>.

These will soon be available on the CSIRO extranet. Results from research carried out in Node 1 of WAMSI are made accessible to WA State government agencies via interactive visualisation software called DIVE. This software has been improved over the last year and modifications made to improve accessibility across different computing networks and security systems.

These are only preliminary findings in the first year of a five year program.