



## Voyage ss2011\_t02

### Towards an understanding of mid-trophic biomass, distribution, variability and energetics in ocean ecosystems

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#### Contribution to Australia's national benefit

This transit voyage developed and applied new methods to understand the zooplankton and micronekton of the Tasman Sea. This voyage value adds ongoing data collections from bio-acoustic and continuous plankton recorder (CPR) facilities within the Integrated Marine Observing System (IMOS). The Tasman Sea is a climate change hot spot with temperature predicted to rise due to East Australian Current strengthening. A baseline and monitoring of the ecosystem responses and its potential flow on effects to the goods and services that the ecosystem provides in this region has high priority. Monitoring the zooplanktonic and micronekton communities ~2 to 20 cm length (including small fish, crustaceans, squids and gelatinous) at basin scales should provide valuable inputs to ecosystem-based fisheries management, marine planning and monitoring impacts of climate change for the region. Despite the enormous pelagic realm these organisms occupy and their pivotal role in the functioning of ecosystems linking biogeochemistry to the distribution and abundance of predators they remain one of the least known components of the ecosystem.

#### As a result of this voyage:

1. We have a better understanding of the community structure and biomass of zooplankton and fish species across the Tasman Sea.
2. We have found fish diversity and biomass is low in the East Tasman and High in the West Tasman along the 41° S latitude. This appears to be in direct contrast to ecosystem model predictions of biomass for the region.
3. We have mapped the distribution of micronekton using acoustic methods from New Zealand to Tasmania across the Tasman Sea to a depth of 1200 m and physically sampled this distribution with depth stratified nets. Data collected will form the basis of several student PhD, masters and honours works.
4. We have commenced a program to understand mid-trophic biomass, distribution, variability and energetics in ocean ecosystems that should enable better modelling of the ecosystems and input into ecosystem-based fisheries management, marine planning and monitoring impacts of climate change for the region.

#### Itinerary

Departed Auckland  
08:00 Tuesday 7 June 2011  
Arrived Hobart  
08:00 Wednesday 15 June 2011

#### > Voyage track ss2010\_t02

