



Voyage ss2012_t06

Survey of marine debris and phytoplankton activity off Australia's west coast.

Chris Wilcox, CSIRO (Chief Scientist)

Contribution to Australia's national benefit:

The voyage addresses the following national research priorities and goals:

1. An environmentally sustainable Australia, goal 5. Sustainable use of Australia's biodiversity.

The central focus of the marine debris project is to understand the impact of marine debris on aesthetic and ecological values in Australia's exclusive economic zone. The surveys from the national facility will form a validation dataset against which predictions of marine debris sources and distribution in our region can be compared. The eventual product of this project will be the compilation of a priority list of species that are threatened by marine debris, which will be a major contribution to the research needs outlined in the threat abatement plan for marine debris, under the Commonwealth EPBC Act.

2. Safeguarding Australia, goal 3. Protecting Australia from diseases and pests.

The research from this voyage will support our understanding of the introduction of marine invasive species via colonization of drifting anthropogenic debris. There is growing evidence that debris can lead to increased rates of invasions by marine pests, with the resulting impacts on the environment, natural resource harvesting, and other commercial activities such as shipping or port maintenance.

As a result of this voyage:

1. We have a better understanding of the distribution of marine debris in waters around Australia, an essential component for the threat abatement plan, mandated under the commonwealth EPBC act. A second science team quantified nitrogen fixation, an essential component in understanding climate change.
2. We have found that marine debris was widely distributed, albeit with significant variation, in the littoral region west of the Australian continent. The microbial team also identified areas with significant nitrogen fixation activity, suggesting that this is an important factor in uptake of carbon.
3. We have mapped marine debris at the national scale based on a series of survey voyages, and are developing models describing its sources, distribution, and likely impacts.
4. The marine debris surveys compose a portion of a program to develop a national risk assessment for the impacts of debris on marine wildlife. This risk assessment will prioritize species in terms of the realized or potential impacts from marine debris on their populations.

Itinerary

Departed Fremantle, WA,
08:00 Friday 7 September 2012

Arrived Darwin, NT,
08:00 Sunday 16 September 2012

> Voyage track ss2012_t06

