



Voyage ss2011_v04

The Biological Oceanography of Western Rock Lobster Larvae

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Contribution to Australia's national benefit

The Western Rock Lobster is the largest single fishery in Australia. Managers have recently warned that the fishery may be suffering low recruitment, with small numbers of juveniles returning to the coast to grow into adults. Our work investigates the environmental factors that may be responsible. We studied the 9 – 11 month larval stage (the phyllosoma), which are carried offshore and mixed in large rotating water masses called eddies (~200 km diameter). We collected phyllosoma in the open ocean and studied their feeding behaviour in shipboard experimental tanks. We identified a favourite food for the larvae, and are determining how their diet supports their health and nutrition. Our work will contribute to a more evidence-based, better managed fishery by identifying key planktonic systems known to support the nutrition of larval lobsters, as well as oceanographic mechanisms transporting them back to shore. We work closely with both Department of Fisheries and lobster aquaculturalists, ensuring immediate transfer to management of the new knowledge we generate.

As a result of this voyage:

1. We have a better understanding of the nutrition of larval lobsters. They prefer arrow worms to other equally nutritious food, such as krill. Their nutrition may depend on the patchiness of such prey in the open ocean.
2. We found large numbers of larvae (over 1000 collected in 21 days) spread across thousands of square kilometres of open ocean. The large eddies off Western Australia often create strong landward jets, moving the larvae back to shore.
3. Mapping the intensity and location of these jets, which are visible from space via satellites, may be important for understanding success of recruitment in a particular year.
4. We plan to investigate further the movement of the larval lobsters into the offshore eddy field, as well as tracking juveniles as they mature and migrate back across the continental shelf to support a new adult population.

Itinerary

Departed Fremantle
10:00 Thursday 25 August 2011

Arrived Geraldton
14:00 Tuesday 13 September 2011

> Voyage track ss2011_v04

