



### Voyage SS05-2006

Mesoscale Eddies as coastal pumps: Quantifying eddy-mediated cross-shelf transport of nutrients, production and fish larvae off the WA coast.

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### Contribution to Australia's national benefit:

The main objective of the voyage was to quantify the cross-shelf transport of nutrients, primary production and fish larvae by eddies forming off the WA coast. The work is fundamental to understanding the shelf ecosystem and its dynamics in this area.

The oceanography off the coast of West Australia (WA) is dominated by the dynamics of the Leeuwin Current, which transports surface waters poleward, suppressing upwelling which would otherwise supply surface nutrients for productivity in these regions. The WA coast is therefore very low in nutrients. In such waters, production hinges on the delivery of nutrients into surface waters via upwelling, atmospheric fixation, or the presence of meso-scale cyclonic eddies that "pump" nutrients into surface waters.

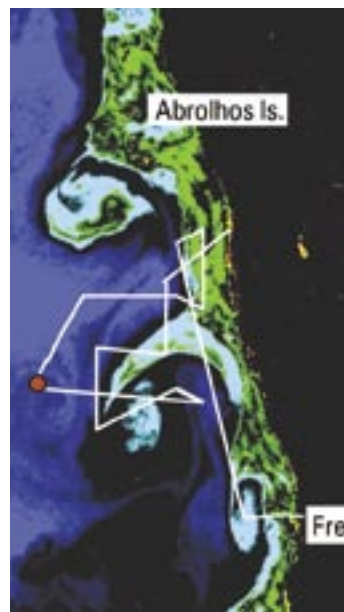
A large mesoscale eddy field is formed seasonally by the Leeuwin Current, with its highest energy in autumn/winter between the Abrolhos Is. and Cape Leeuwin. Eddy dynamics clearly influence the biological productivity of the region, and may control the recruitment dynamics of fish and shellfish larvae, through nutrient pumping and the transport of productive coastal waters offshore.

We hypothesize that this transfer could have widespread implications for regional ecology, including enhancement of offshore production rates, and removal of finfish and shellfish larvae from the coastal zone.

### Itinerary

Depart Fremantle 1600 hrs, Tuesday 2nd May 2006.

Arrive Geraldton 0800 hrs, Saturday 27th May 2006.



### > SS05-2006 voyage track:

Leg 1 – SeaSoar runs punctuated with Production Stations.

Leg 2 – Intensive Survey with 6-8 CTD stations/day