



Fisheries

Notes

21 August 2003

FN 0565

ISSN 1329-8062

Research & Education

Monitoring southern rock lobster larval settlement to assess future catches.

David Hobday, Marine and Freshwater Systems Platform, DPI R&D Division

Small transparent larval rock lobsters (called pueruli, singular puerulus) are providing valuable information about the future status of Victoria's southern rock lobster fishery.

Southern rock lobsters are harvested in south eastern Australia and in New Zealand. The Victorian fishery represents 10% of total landings in south-eastern Australia and has a landed value of \$19 million.

Rock lobsters have a very extended larval life during which they develop through 14 moult stages, spending 12 to 24 months in offshore waters, drifting with the prevailing currents. Larvae move up and down in the water column on a daily cycle coming up near the surface at night before swimming deeper during the day.

By the time they are transported back to shallower coastal waters, the larvae have transformed and look like a typical – though transparent – rock lobster. This life stage – the puerulus (pictured below) – is capable of swimming. These larval lobsters settle on rocky reefs, where they undergo another series of moults developing into a juvenile rock lobster.



Puerulus – small transparent larval rock lobster
(photograph courtesy of the University of Tasmania)

Fishery scientists from DPI's Marine and Freshwater Systems Platform (MFSP) at Queenscliff, on behalf of Fisheries Victoria, monitor the numbers of pueruli that settle onto special synthetic collectors each year. These collectors resemble clumps of floating seaweed and are suspended in the ocean at two sites in western Victoria – Apollo Bay and Port Campbell. Each month these collectors are retrieved and the number of newly settled larvae counted.

Monitoring the variation in the number of puerulus larvae that settle helps to increase our understanding of the processes that determine recruitment success in this species.

The same type of monitoring programs are also undertaken in South Australia, Tasmania and New Zealand to help piece together big picture.

MFSP scientists lead by rock lobster specialist Mr David Hobday have been monitoring larval settlement at Apollo Bay since 1994.

Monitoring to date has found that larval settlement varies markedly between sites in each state, but strong pulses of settlement are generally observed at the same times in each state.

“Peak settlement usually occurs July – October.” Mr Hobday says “However, last year (2002) was unusual with the highest settlement in January. It suggests that the pattern of ocean currents may have been different this year from normal, transporting larger numbers of the larvae back to coastal waters in summer rather than in the usual winter/spring period.”



Monitoring southern rock lobster larval settlement to assess future catches.

Very high levels of settlement were recorded in 1995, 97, 99 and 2002 and similar patterns in larval rock lobster settlement were observed in South Australia and Tasmania.

Mr Hobday and his team are now working towards commercial catch prediction and are beginning to see relationships between patterns of settlement and the commercial catch that is taken a few years later.

Mr Hobday and his team found that the peak 1995 settlement corresponded to an increase in commercial catch rate four years later. Similar relationships have been observed in South Australia and Tasmania.

The information gained from the monitoring program has improved our knowledge of processes which govern rock lobster numbers and how this impacts on a most valuable fishery resource.

This information is used by Fisheries Victoria to fine tune management arrangements so that Victoria's rock lobster fisheries are managed sustainably.

For further information about this project please call Mr David Hobday at the Marine and Freshwater Systems Platform, Queenscliff on (03) 5258 0256.

The advice provided in this publication is intended as a source of information only. The State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.