

PhD project opportunity (James Cook University):

***Population connectivity, adaptation and dispersal in rock lobsters (PhD top up scholarship available)***

Spiny rock lobsters are commercially important species with extremely long larval dispersal phases (up to 24 months). Because there are no obvious barriers to dispersal within the world's oceans, species with extremely long larval durations would be expected to have single, large 'open' (or panmictic) populations. Surprisingly, recent studies have detected significant population structure in this species however the processes underpinning this unexpected population genetic structure and allopatric species distributions are unknown. Local adaptation and self-recruitment are likely to play an important role in shaping the demography of marine lobsters because they can counteract the impact of an extremely long larval duration.

This PhD project will employ population genomic sequencing technologies with unparalleled spatial and temporal sampling to identify the factors shaping genetic structure in the commercially important spiny rock lobsters. This project will seek to:

- discover the factors causing fine-scale population differentiation within these species by examining the contribution of a) sweepstake reproduction, b) larval cohesiveness, c) self-recruitment and d) selection
- detect local adaptation by identifying signatures of adaptive genetic diversity a) within disjunct populations and b) at range margins, comparing these to central parts of the distribution

The PhD project will be co-supervised by Assoc. Prof. Jan Strugnell (James Cook University) and Dr Nick Murphy (La Trobe University).

**Requirements:** The successful applicant will have a First Class Honours (or equivalent) in biological science or a related field and will pick up extra points in the scoring system if they have a first authored paper. Applicants must be eligible for an Australian Postgraduate Award (APA). Preference will be given to those applicants with previous experience in genetics and/or evidence of strong technical and laboratory skills. Journal publications in these fields are desirable but not essential. A top-up (\$5,190) per year for three years are available for this project.

Enquiries are welcome. Please submit a CV with contact details for two referees by email to:

Assoc Prof Jan Strugnell and Dr Nick Murphy

e-mail: [jan.strugnell@gmail.com](mailto:jan.strugnell@gmail.com), [N.Murphy@latrobe.edu.au](mailto:N.Murphy@latrobe.edu.au)

phone: +61 94793663