

Institute of
Marine Science



As part of a new “Oceans of Change” initiative IMS offers new opportunities via 3 PhD scholarships and 2 post-doctoral fellowships (<http://www.marine.auckland.ac.nz/en/about/news-and-events/news.html>)

Post-doctoral fellowships

The fellowships are specifically associated with two new research projects:

- Rock lobster (crayfish) in marine reserves and linking ecological, behavioural and physiological data to environmental change and ecosystem-based approaches to management
- Linking ecosystem function to the delivery of ecosystem services in estuarine and coastal soft-sediment habitats.

Successful candidates will be expected to mainly work in one of the two projects, but also to collaborate across the projects. Successful candidates should have strong numerical or statistical skills.

- Skills in collecting, analysing and modelling data on animal movement and the integration of habitat and individual behaviour would be beneficial for the lobster project.
- For the ecosystem services project, complex system modelling, or linking biogeochemical analysis/models to multiple ecosystem function and decision making or risk assessment would be beneficial.

Field work will be involved and boating and diving experience would be an advantage to complement core scientific skills. We seek individuals who will advance a successful research project that has potential for further development and extramural funding. Applicants should have a willingness to supervise post-graduate students. Successful applicants are expected to work in an interdisciplinary manner and foster collaboration with the Institute.

Candidates should provide a letter of application addressing their research experience, potential project(s) and future research goals, curriculum vitae, publication list and the names and e-mail address of at least 3 referees.

The fellowships are 2 years with the potential to renew for a further year. Positions available from 1 October 2016. Positions will stay open until we identify appropriate candidates.

Please email your application to Pam Brown <pam.brown@auckland.ac.nz>, Institute of Marine Science, University of Auckland.

PhD Opportunities

PhD project: The ecological role of rock lobster in a changing coastal environment (Dr Nick Shears lead supervisor)

Rock lobster are one of the most valuable seafood species in New Zealand. However, they also play an important role as predators in coastal ecosystems. This PhD project will form part of a larger project on rock lobster aimed at bridging the divide between conservation and fisheries management. The proposed PhD research will explore the ecological role of lobster in coastal habitats and the dependence of lobster populations on the fine-scale distribution of habitats and resources. This information will be important in developing a more adaptive and ecosystem-based approach to management, and to better understand how lobster populations are likely to be influenced by environmental change.



The research will involve:

- Tagging and tracking lobster inside marine reserves to assess habitat and resource use.
- Carrying out field surveys to investigate environmental and anthropogenic factors that affect the population dynamics and health of lobster.
- Conducting field and laboratory experiments to define the role of lobster in ecological interactions (such as predator-prey) and ecosystem functions (such as nutrient recycling).

The scholarship consists of a stipend of NZ\$27,000 per annum (tax-free) and also covers University of Auckland PhD fees. The duration of the scholarship is three years with a possible 6 months extension.

Applicants for this project should hold a first class MSc, honours degree, or equivalent. The project will involve SCUBA diving so the applicant should have relevant experience in research diving and at a minimum be qualified to Rescue Diver. The PhD position will be based at the Leigh Marine Laboratory (www.marine.auckland.ac.nz), which is located adjacent to New Zealand's oldest marine reserve. The laboratory has extensive seawater systems for experiments and a range of boats providing ready access to the surrounding coast.

Applications should include evidence of qualifications (academic transcript) and research experience, together with a curriculum vitae and contact details of two academic referees. Applications should be supported by a cover letter that states why the candidate is interested in the position and how their qualifications are suited to the proposed research. Please email n.shears@auckland.ac.nz with completed applications as well as any additional inquiries.

Closing date for applications is 01 October 2016 with the expectation of commencement before February 2017.

PhD project “Can the Somatogastric Neuronal Network be used to determine Food Types in Lobsters?” (Dr Craig Radford lead supervisor)

Crayfish or rock lobsters are one of the most valuable seafood species in New Zealand waters, with over 3000 tonnes harvested each year by commercial fishers and more than 300 tonnes by recreational fishers. But there are clues that lobsters also play important roles in the ecology of our coasts. As part of a broader project investigating the ecology and ecophysiology of lobsters, we offer a PhD scholarship linking ecophysiology to ecology and environmental change.

The aim of the research is to define the space needed to maintain viable populations of crays in marine reserves; understand how these animals affect the ecology of reef habitats and adjacent sand dwelling clam beds and assess the potential spill over benefits of reserve areas as a way of enhancing exploited stocks. The role of this PhD student in this project is to develop a technique for monitoring feeding behaviour in lobsters. This will involve recording from the stomatogastric nervous system, which controls stomach movements and is a model system for small neuronal networks. Neuronal responses to various food sources will be tested under controlled conditions. Following a lab component, the project involves the development of an implanted electrode combined with a localization tag to monitor the natural feeding behaviour of wild lobsters.

The scholarship consists of a stipend of NZ\$27,000 per annum tax-free and also covers University of Auckland PhD fees. The duration of the scholarship is three years.

Applicants for this project should hold a first class MSc or BSc honours degree with relevant research experience, or equivalent. The project will require neurophysiological techniques and analysis, along with some basic knowledge in lobster biology. Therefore, the student should have some basic understanding of neurophysiology and basic marine biology principles. Also, possession of PADI rescue diver or equivalent or ability to can this would be advantageous. The PhD position will be based in the Institute of Marine Science at the recently refurbished Leigh Marine Laboratory (www.marine.auckland.ac.nz; <https://www.auckland.ac.nz/en/for/current-students/cs-current-pg.html>) under the supervision of Dr's Craig Radford (c.radford@auckland.ac.nz) and Marie Goeritz (mgoe774@aucklanduni.ac.nz).

Applications should include evidence of qualifications (academic transcript) and research experience, together with a curriculum vitae and contact details of two academic referees. Applications should be supported by a cover letter that states why the candidate is interested in the position and how their qualifications are suited to the proposed research. Please email pam.brown@auckland.ac.nz with completed applications as well as any additional inquiries.

Closing date for applications is 03 October 2016 with the expectation of commencement before February 2017.

Coastal biogeochemistry

(Dr Luitgard Schwendenmann, School of Environment lead supervisor)

Estuarine and coastal sediments provide a range of ecosystem services such as carbon sequestration and nutrient cycling. The pools and fluxes of carbon and nutrients in estuarine and coastal sediments are highly variable reflecting the lateral and vertical exchange of elements and sediment-biota interactions at the land – ocean interface. However, the factors and processes driving blue carbon storage and transformation remain largely unknown. Further, the combined effects of changing environmental conditions (e.g., terrestrial nutrient input, warming, ocean acidification) on sedimentary ecosystem processes and the stability of organic carbon has received little attention in New Zealand. The role of the PhD student is to design and conduct field and laboratory studies to (1) measure accumulation and transformation of organic carbon and nutrients in estuarine and coastal sediments, (2) quantify greenhouse gas emissions at the land – ocean interface, (3) investigate the potential impact of terrestrial nutrient input, temperature and ocean acidification on sediment carbon and nutrient dynamics, and (3) examine the relationship between blue carbon and other coastal ecosystem processes.

The scholarship consists of a stipend of NZ\$27,000 per annum tax-free and also covers University of Auckland PhD fees. The duration of the scholarship is three years with a possible 6 months extension.

Applicants for this project should hold a first class MSc or honours degree in biogeochemistry, environmental chemistry or closely related fields. Experience with carbon and nutrient measurements and manipulative experiments is preferred. The project involves both field and lab work and may include boat work.

Applications should include evidence of qualifications (academic transcript) and research experience, together with a curriculum vitae and contact details of two academic referees. Applications should be supported by a cover letter that states why the candidate is interested in the position and how their qualifications are suited to the proposed research. Please email l.schwendenmann@auckland.ac.nz with completed applications as well as any additional inquiries. (<http://www.env.auckland.ac.nz/people/l-schwendenmann>)

Closing date for applications is 30 September 2016 with the expectation of commencement in December 2016.