



SPECIAL PERMIT

(563)

The Director General of the Ministry for Primary Industries (MPI) acting through his or her delegated officer (**Director General**) and pursuant to section 97(1) of the *Fisheries Act 1996* (**the Act**), hereby issues a special permit to:

Victoria University of Wellington
School of Biological Sciences
PO Box 600
WELLINGTON 6140
Client Number: 8730069

and agents, representatives and employees of Victoria University of Wellington, School of Biological Sciences (**the permit holder**), as part of their association with Victoria University of Wellington, School of Biological Sciences, subject to the conditions specified below.

Purposes

1. This special permit is issued for the following purposes specified in section 97(1)(a) of the Act:
 - education (section 97(1)(a)(i));
 - investigative research (section 97(1)(a)(ii)).
2. The permit holder is permitted to take and possess fish, aquatic life, or seaweed, for the above purposes.

Period of Issue

3. This special permit is valid from the date of signature until 30 November 2018, unless sooner varied or revoked.

Permitted Activities

4. This special permit allows the taking (as defined in s 2 of the Act) of fish, aquatic life, or seaweed for the purposes of education and investigative research by the permit holder, as specified in Schedule A (attached in Appendix One), as may be amended during the term of this special permit, unless:
 - i. it is likely that protected or restricted species may be taken (e.g. toheroa, black coral). Restricted species may be defined as: any species that are restricted in any way in fisheries legislation. This also includes the list of species set out in Schedule B attached as Appendix Two of this special permit, and glass eels in any area; or
 - ii. the areas proposed for fishing are included in the areas listed in Schedule C attached as Appendix Three; or

- iii. the areas proposed for collection are subject to specific fisheries restrictions (e.g. regulation or rāhui).
- 5. New or amended projects that relate to condition 4 above may only be carried out under the authority of this special permit through an amendment to the Schedule in Appendix One. An application for inclusion of new or amended projects must be lodged with the Spatial Allocations Manager (see Appendix Four for contact details).

Definition of Area

- 6. Fishing under the authority of this special permit may be undertaken in all New Zealand fisheries waters governed by the Act, except those waters that are closed by a regulation under that Act.
- 7. The permit holder is required to:
 - a) obtain specific written permission from the Director-General of the Department of Conservation prior to the taking any fish, aquatic life, or seaweed from within a marine reserve or marine mammal sanctuary; and
 - b) obtain written approval from the taiapure management committee or Tangata Kaitiaki/Tiaki (North Island) or Tangata Tiaki/Kaitiaki (South Island) prior to fishing in any taiapure–local fisheries or mātaimai area. The permit holder should contact the relevant District Compliance Manager (contact details attached as Appendix Four) for current details of taiapure-local fisheries or mātaimai reserves in the area where collection is proposed.

Conditions of Collection

- 8. Fish, aquatic life or seaweed taken pursuant to this special permit must not be used for personal usage, collection or consumption, bait or for sale.
- 9. The permit holder shall employ the methods and means as specified in accordance with projects approved in Schedule A in Appendix One.
- 10. The permit holder must employ methods and means that are appropriate to the research objective, provided they represent best practice in pursuing such goals. Best practice would include being sensitive to the aquatic environment (e.g. avoiding localised depletion of sample species).
- 11. The permit holder may use underwater breathing apparatus (UBA) to collect fish, aquatic life, or seaweed.
- 12. When a fishing vessel registered under section 103(1)(a) of the Act is used in association with this special permit, the use of UBA to collect fish, aquatic life, or seaweed is strictly prohibited unless written approval is given from a District Compliance Manager, MPI prior to the collection of aquatic material.
- 13. Explosive or toxic gas, or toxic, poisonous, or narcotic substances must not be used to collect fish, aquatic life, or seaweed under the authority of this special permit, with the exception that:
 - a) Clove oil may be used where appropriate;

- b) Rotenone may be used providing prior written approval is obtained from the Spatial Allocations Manager, MPI.
14. Where set nets are used, the permit holder shall observe the following fishing constraints:
- a) The permit holder shall not use set nets within any area where set netting is banned for either recreational or commercial fishing, unless prior written approval is obtained from MPI. Requests for approval should be lodged with the Spatial Allocations Manager. Requests for approval will be assessed on a case-by-case basis. MPI cannot guarantee written approval will be given. If MPI gives written approval, it may impose conditions on the use of the set nets.
 - b) When using a set net the permit holder must comply with the set net code of practice (<http://www.fish.govt.nz/en-nz/Recreational/Set+nets/default.htm>), and lift each net from the water after a maximum interval of 12 hours.
15. The use of electric fishing equipment is permitted provided the permit holder holds the written authorities required under regulation 51 of the *Freshwater Fisheries Regulations 1983*.
16. Any unattended equipment being used for the collection of fish, aquatic life, or seaweed should be labelled with the owner's name and "MPI Special Permit No. 563" at all times.
17. Prior to undertaking any fishing pursuant to this special permit, the permit holder must advise the relevant District Compliance Manager, MPI (nearest to where the activity is proposed to take place) of the intended collection activities. This notification should occur prior to any proposed fishing taking place (recognising that some circumstances (e.g. emergencies) may prevent prior notification), but preferably no earlier than four weeks prior to the proposed fishing activity. This notification shall include the permit holders name, special permit number, intended date(s), time(s) and location(s) of collection, the expected species to be collected, the vessel(s) (including vessel registration number if applicable) and method(s) to be used, and the name(s) of the person(s) responsible for the collection.
18. The permit holder may use any vessel to take fish, aquatic life, or seaweed under the authority of this special permit.
19. Any vessel(s) nominated to fish under the authority of this special permit must not engage in commercial fishing for any species under the authority of a fishing permit issued under section 91 of the Act while fishing under the authority of this special permit, unless written approval is obtained from a District Compliance Manager prior to the collection of aquatic material. For the purposes of interpretation, 'commercial fishing' is defined as the taking of fish, aquatic life, or seaweed within New Zealand fisheries waters for the purpose of sale.
20. Fish, aquatic life, or seaweed must not be taken in connection with investigative research involving the use of structures that require a consent under the authority of the *Resource Management Act 1991 (RMA)*, unless a resource consent is obtained under the RMA.

Biosecurity Conditions

21. The permit holder must not knowingly transfer any notifiable organism or unwanted organism.

22. Any transfer and/or release of any fish, aquatic life, or seaweed taken under the authority of this special permit shall be done in accordance with any relevant legislation (e.g. *Conservation Act 1987* or *Biosecurity Act 1993*) that relates to the transfer and/or release of such organisms.
23. During the collection of fish, aquatic life, or seaweed the permit holder shall ensure that no aquatic plant, noxious fish, or unwanted organism, including eggs and larvae of noxious fish or unwanted organisms, is introduced into any other waterway, either from the water holding the collected fish, aquatic life, or seaweed, or enmeshed in fishing gear.
24. To prevent the spread of unwanted aquatic plants and animals, all equipment used in the collection and removal of fish, aquatic life or seaweed must be thoroughly checked, cleaned and dried before and after being used for fishing under this special permit.

Conditions of Disposal

25. All live fish, aquatic life, or seaweed collected under the authority of this special permit must be returned alive immediately at point of capture, with the exception of organisms where retention is a component of the research or education project, or taken for reference use and appropriately stored.
26. All fish, aquatic life, or seaweed that are not required for research or education purposes and cannot be returned alive to the environment (including all dead, diseased or noxious fish, or unwanted organisms) must be disposed of in an appropriate manner consistent with public health standards.
27. All fish, aquatic life, or seaweed not released immediately at point of capture including progeny (e.g. retained for research or display) must be either:
 - a) euthanised and disposed of in an appropriate manner consistent with public health standards, once it is no longer required for research or display; or
 - b) by any other method approved in writing by the Spatial Allocations Manager or relevant District Compliance Manager.

Reporting Requirements

28. A brief annual report shall be sent to the MPI, Private Bag 14, Nelson 7042, providing permit holder details (including name and special permit number) a summary of the research projects undertaken, the number or type of each species or species groups collected, the general area where fishing occurred, and the fate of all such organisms taken. The first report shall be tendered no later than 12 months from the date of signature of this special permit and subsequent reports every 12 months thereafter.
29. For the purpose of fishing under the authority of this special permit, the permit holder is exempt from the requirements of the *Fisheries (Reporting) Regulations 2001* and *Fisheries (Recordkeeping) Regulations 1990*.
30. Notwithstanding condition 29, any vessel nominated to take fish, aquatic life, or seaweed under this special permit and has been given permission to engage in commercial fishing in accordance with condition 19 of this special permit, must furnish fisheries returns as required under the *Fisheries (Reporting) Regulations 2001*.

General Conditions

31. Except as otherwise provided to the contrary under this special permit, the provisions of the Act or any regulation, notice, direction, restriction, requirement, or condition under this Act shall apply to any fishing, or any person engaged in fishing, carried out under the auspices of this special permit. Fishing shall have the same meaning as defined in section 2 of the Act.
32. This special permit must be held at the office of the permit holder. Persons authorised to fish under the authority of this special permit must have a copy of this special permit in their possession while taking and possessing fish, aquatic life, or seaweed under the authority of this special permit. In all cases, copies of this special permit must be produced for sighting on request by a Fishery Officer.
33. The permit holder must ensure that all personnel and the Master of any vessel used in conjunction with this special permit, read, understand and are fully conversant with the conditions of the special permit before the taking of fish, aquatic life, or seaweed commences under the authority of this special permit.
34. At any time this special permit is valid, the Director General of MPI, or his or her delegate, may amend any of the conditions of this special permit, or revoke this special permit, by notice in writing to the permit holder.
35. No fishing undertaken, or catch taken or otherwise possessed under the authority of this special permit shall give rise to any right, privilege, or expectation or preference in regard to the granting of any future permit, license, authorisation, quota, catch history, individual catch entitlement or other right whatsoever under the Act or any statutory amendment or re-enactment of that Act.

DATED at Nelson on this 19th day of November 2013.



David Scramney

Spatial Allocations Manager

Acting pursuant to a delegation issued under Section 41 of the *State Sector Act 1988*.

APPENDIX ONE

Schedule A - Aquatic life that may be taken pursuant to condition 4 a) of Special Permit (563)

EDUCATIONAL REQUIREMENTS

Overview - The School of Biological Sciences routinely makes use of marine and aquatic plants, algae, and animals (fishes and invertebrates) for educational purposes (e.g., laboratory demonstrations, field studies, ecological, physiological, and taxonomic studies).

Species targeted in support of Teaching Activities (note that species listings are indicative only, and these may be substituted with closely related taxa, dependent upon availability). Anticipated quantities are given in brackets; collections made for purposes of teaching will not exceed 10kg green weight per day, across all species.

Porifera (assorted samples, up to 10kg per year comprising a range)

Shallow water sponges (1kg/yr)

Planktonic hydroid jellyfish (1kg/yr)

Anthopleura aureoradiata (1kg/yr)

Mollusca

Assorted chitons (100/yr)

Haliotis iris (50/yr)

H. australis (50/yr)

Whelks--*Cominella maculosa*, *virgata* and *adspersa*. (500/yr per species)

Siphonaria sp. limpets (300/yr)

Haminoea zelandiae bubblesnails (300/yr)

Assorted limpets, mainly *Cellana* sp. (100/yr)

Periwinkles (100/yr)

Turbo smaragdus (100/yr)

Amphibola crenata (100/yr)

Paphies ventricosum (30/yr)

Tellina liliiana (20/yr)

Paphies spp. (30/yr)

Spisula aequilatera (30/yr)

Mactra sp. (10/yr)

Austrovenus stutchburyi (20/yr)

Pecten novaezelandiae (20/yr)

Perna canaliculus (500/yr)

Mytilus galloprovincialis (500/yr)

Aulacomya maoriana (500/yr)

Crustacea

Planktonic copepods (1kg)

Rock barnacles (1kg/yr)

Mantis shrimps – *Squilla* (20/yr)

Mysid shrimps (1kg/yr)

Amphipods (1kg/yr)

Jasus edwardsii (30 juveniles/yr)

Ovalipes catharus (40/yr)

Pagurus spp (20/yr)

Petrolisthes sp (100/yr)

Echinodermata

Patiriella regularis (30/yr)

Pectinura sp. (20/yr)
Evechinus chloroticus (100/yr)
Echinocardium caudatum (10/yr)
Stichopus sp (30/yr)

Assorted other invertebrates

Assorted aquatic insects (200/yr)
Assorted Annelid worms (1kg/yr)
Ascidians, various species (5 kg/yr)
Bryozoans, various species (5 kg/yr)

Fishes

Notolabrus celidotus (10/yr)
Tripterygiidae (triplefins, 100/yr)
Clinidae (weedfishes, 10/yr)
Galaxidae (galaxies, 30/yr)
Family *Salmonidae* (trouts, salmon, chars, 10/yr)
Perca fluviatilis (20/yr)

Marine/Salt marsh Plants and Algae-assorted samples, up to 10kg per day comprising a range of species.

Vessels used and Methods of Capture

We expect to use a combination of the following listed vessels to facilitate these collections: Raukawa Challenger (MNZ No122256), Pipi, (MNZ No131132), Tuatua, (MNZ No131949) Tipa (MNZ No 134586). Methods of collection include coarse mesh plankton tow, water bottle sampling, vanVeen grab sampling, SCUBA diving, snorkelling, and hand collection as appropriate. In most cases surviving specimens will be returned alive to site of collection. Collections will be made as needed throughout the year; most marine collections will be made from Wellington Harbour and along the Wellington South Coast, however, collections may be undertaken throughout New Zealand when appropriate (e.g., during field courses, etc.).

Personnel Involved

Dr Jeff Shima
Dr Simon Davy
Dr Nicole Phillips
Dr Matt Dunn
Prof Jonathan Gardner
Dr James Bell
Dr Joe Zuccarello
Dr Ken Ryan
Dr Phil Lester
Dr Peter Ritchie
Dr George Gibbs
Dr Mark Kaemingk
Mr Alan Hoverd
Mr John van der Sman
Mr Daniel McNaughtan
Mr Stephen Journee
Ms Jennifer Howe

Mr Neville Higginson
Ms Sue Keal
Ms Sushila Pillai
Ms Chris Thorn
Mr Adrian Pike

(up to 100 undergraduate students and 15 graduate student Teaching Assistants, under supervision)

RESEARCH REQUIREMENTS

Overview:

The School of Biological Sciences supports a wide range of research programmes undertaken by both graduate students and academic staff. Research questions and objectives likely to fall under the jurisdiction of this permit cover a range of topics (mainly focusing on ecology, taxonomy, physiology, and evolutionary biology of marine and aquatic life). Specific project objectives and personnel change from year-to-year depending upon funding environments and postgraduate student turnover.

We detail 7 programmes that may very rarely exceed 10kg greenweight per day. For these programmes (which may comprise multiple projects), we provide details outlined in the MPI document "Research Proposal Requirements". All of our other collecting activities (combined across all other research projects) will not exceed 10kg green weight per day. Consequently, for these we append a generic research proposal ("Programme 6") for a "blanket" permit that encompasses all of these separate activities, with the understanding that (1) we will provide MPI with more detailed and specific information should this be required, and (2) we will submit amendments to this proposal to cover any new projects in the event that these may result in daily collections in excess of 10kg greenweight.

Programme 1:

Title: Sampling pelagic larval assemblages.

Intentions/Purpose: Several research projects undertaken by academic staff and postgraduate students seek to evaluate patterns of abundance, dispersal, phenotypes, and genotypes of marine larvae that are supplied to coastal habitats (across a wide range of taxa; see the list given above, under 'Educational Requirements'). Successful recruitment by pelagic larvae is essential for the replenishment of most coastal marine populations, and these projects examine patterns and sources of variation in the composition, abundance, and condition of larval assemblages.

Geographic Areas Investigated: Wellington harbour, Cook Strait, Kapiti, Marlborough Sounds, with occasional sampling further afield.

Programme of Sampling, Analyses, and Time-Frame: These projects makes use of a range of sampling approaches, including: (1) deployments and recoveries of artificial substrates (e.g., simulated algal canopies, settlement plates, kitchen scrub pads) which passively collect larvae and/or settlement-stage organisms, and light traps (which attract the larval stages of certain species of fishes and invertebrates); (2) sampling with plankton nets; (3) sampling by hand. Collections are generally made on weekly or fortnightly schedules, and may occur year-round but are typically concentrated between November and April of each year (i.e., the period of peak larval recruitment for many coastal marine species in our area). Collected specimens may be counted, measured, and sampled for, e.g., stable isotopes, otolith microchemistry, body condition, genetic fingerprinting, etc.

Projects that fall under this programme are ongoing. Samples collected under this programme will generally not exceed 10kg green weight per day across all individual projects (and rare exceptions are generally attributable to occasional influxes of non-targeted pelagic swarming species, e.g., euphausiids, that may be captured in light traps).

Background and Ethical Considerations: This programme encompasses a range of projects that seek to evaluate processes that contribute to population dynamics and/or evolution of marine species. These projects are minimally invasive (collecting only a minute fraction of larvae that are available in the pelagic environment), and they pose minimal risk to targeted and non-targeted species. Moreover, these projects aim to increase our understanding of recruitment variability and patterns of connectivity within marine metapopulations. Both aspects have important implications for sustainable management of marine resources. All projects undertaken by the University are required to abide by strict Animal Ethics regulations, and Health and Safety policies.

Key Personnel:

Dr Jeff Shima
Dr Simon Davy
Dr Nicole Phillips
Dr Matt Dunn
Prof Jonathan Gardner
Dr James Bell
Dr Joe Zuccarello
Dr Ken Ryan
Dr Peter Ritchie
Dr Mark Kaemingk
Mr John van der Sman
Mr Daniel McNaughtan
Mr Stephen Journee
(up to 20 postgraduate students and/or research assistants)

Vessels used, Methods of Capture and Disposal:

We expect to use a combination of the following listed vessels to facilitate these collections: Raukawa Challenger (MNZ No122256), Pipi, (MNZ No131132), Tuatua, (MNZ No131949) Tipa (MNZ No 134586). These projects make use of a range of sampling approaches, including: (1) deployments and recoveries of artificial substrates (e.g., simulated algal canopies, settlement plates, kitchen scrub pads) which passively collect larvae and/or settlement-stage organisms, and light traps (which attract the larval stages of certain species of fishes and invertebrates); (2) sampling with plankton nets; (3) sampling by hand (possibly with the aid of SCUBA). Collections will be made as needed throughout the year; most marine collections will be made from Wellington Harbour and along the Wellington South Coast, however, collections may be undertaken throughout New Zealand when appropriate (e.g., during field courses, etc.). Much of the collected material is to be preserved (by freezing, freeze-drying, or in ethanol. All other material will be disposed of as biological waste according to University Policy.

Programme 2:

Title: Assessment of Stunted Paua Populations in Tasman Bay and Marlborough Sounds

Intentions/ Purpose: This project forms part of the PhD research of Alix Laferriere. The aim of this research is to assess “stunted” and normal paua populations and the environment that they inhabit.

The project involves both an assessment of paua density and individual size and habitat characteristics and a translocation experiment.

Geographic Areas Investigated: Tasman Bay & Marlborough Sounds

Programme of Sampling, Analyses and Time- Frame:

This research consists of two field components; an assessment and an experiment to examine the effect of habitat on stunting. The assessment will include subtidal surveys via SCUBA to enumerate paua and measure individual size with calipers to the nearest mm. Primary and secondary substrate will be classed into the JNCC classification system (bedrock, large boulder, small boulder, cobble, sand, shell hash and a measure of rugosity). Percent cover of four algal classes (canopy, understory, ACA and CCA) will be determined.

The experiment will be a reciprocal translocation experiment moving “stunted” paua into “normal” conditions and “normal” into a “stunted” environment. These exact locations will be chosen based off the data in the assessment described above, where I will be able to define stunted and normal populations based off mean length for a sampling area. Paua will be collected from both “stunted” and “normal” populations, measured to the nearest millimeter and tagged with a polyethylene disc following the methods of Naylor & Andrew (2004). Paua will be placed back in their native habitat as well as transplanted to the reciprocal site. Based on other tagging and recapture experiments which yield a 10-15% recovery rate, I would like to take between 600-800 paua per site. I will collect paua from 75mm-125mm to cover both the stunted and normal populations. This would be 2 sites in Tasman Bay for a translocation experiment and 2 sites in Marlborough sounds for a translocation experiment. To capture all growing and climatic seasons, paua will be set at liberty for 12 months and then recollected and measured. Growth will be estimated using the maximum likelihood approach of Francis (1988, 1995).

Background and ethical considerations:

Haliotis iris, commonly referred to as the black-foot paua, inhabits intertidal and subtidal rocky reefs of New Zealand and is the focus of an important customary, recreational and commercial fishery. It has been shown that demography, morphology and growth rates of abalone populations and individuals are highly variable on broad and fine spatial scales (Breen & Adkins 1982; McShane et al., 1994; McShane & Naylor 1995) and it has been suggested that physical and biogenic habitat and food availability may affect the demography of the population (McShane & Naylor 1995; Sasaki & Shepherd 2001; Pederson et al., 2008).

There are specific areas along the north and south island of New Zealand, where the paua populations do not reach the minimum legal size limit of 125 mm, these are referred to as “stunted” populations (Shiel & Breen 1991, Naylor & Andrew 2000). Compared to standard abalone the stunted abalone are smaller with shorter shells that are higher, wider and thicker. They are usually found in dense aggregations on reefs that are protected from wave action (McShane & Naylor 1995). In one study of 34 NZ locations, sea surface temperature and relative wave exposure explained a significant amount of variation in mean abalone length among areas (McShane et al, 1994). Low amounts of drift algae has been suggested as a possible mechanism or contribution to the establishment of stunted stocks (Day & Fleming 1992; Shephard et al., 1992; McShane & Naylor 1995). However, the biological mechanism of stunting needs further examination to determine if this morphological difference is a plastic response to the environment or a fixed genetic trait or an interaction of genotype and environment.

Outside of New Zealand translocation of stunted abalone to an area of typical size abalone has been shown to increase growth rates. Such studies suggest that the favourable response in growth is a

plastic (phenotypic) response to more and better quality food (Emmett & Jamieson 1989; McShane & Naylor 1995; Dixon & Day 2004). In Australia, a reciprocal transplant experiment of *Haliotis rubra* showed that stunted individuals grew faster in non-stunted areas and non-stunted individuals grew slower in stunted areas. This was explained by stunted populations occurring in areas of low food availability and topographic simplicity whereas non-stunted populations had more food available and topographic complexity (Saunders et al., 2009).

In February 2013, we conducted SCUBA surveys to determine paua density and individual size and to classify habitat at 12 sites within the Horoirangi Marine Reserve and associated control sites in Tasman Bay. The mean size was 80mm, suggesting that these paua populations are stunted. In February 2013, we conducted SCUBA surveys to determine paua density and individual size and to classify habitat at 18 sites within the Long Island Marine Reserve and associated control sites in Marlborough sounds. We found that on the southern end of the marine reserve paua reached a mean length of 90mm and on the northern more exposed end of the island a mean length of 110-125mm. We hypothesise that this gradient in size is due to exposure and therefore would like to conduct both a fine scale assessment and translocation within the Long Island Marine Reserve.

**** Great care will be taken with each individual paua to ensure the safety and health of the animal. Minimal exposure to air, gentle treatment, hand placement onto the reef and a non-invasive external tag on the shell will be conducted to achieve the upmost in animal husbandry and safety.**

I am in the process of submitting a permit proposal to work within the marine reserve with the Department of Conservation.

Key Personnel

Alix Laferriere (PhD candidate, primary investigator)

Prof Jonathan Gardner (Laferriere's Supervisor),

Up to 4 graduate and undergraduate students or volunteers

Vessels used, Methods of Capture and Disposal: We expect to use a combination of University owned vessels [e.g., Raukawa Challenger (MNZ No122256), Pipi, (MNZ No131132), Tuatua, (MNZ No131949) Tipa (MNZ No 134586)] and undefined commercial vessels. Methods of collection include SCUBA, snorkelling, collection with a "paua tool", hand collection and placement. Organisms' exposure to air will be as limited as possible. All organisms will be kept alive.

Programme 3:

Title: Connectivity of *Jasus edwardsii* and the influence of habitat characteristics on recruitment rates

Background

The aim of this project is to support and potentially enhance the existing Rock Lobster fishery by allowing a reassessment of connectivity patterns and levels of genetic diversity in *Jasus edwardsii* populations.

Purpose of the project

Analysis of the settlement patterns involve sampling adult and pueruli lobsters from up to 40 different populations from different sampling locations around New Zealand. Adult lobster samples (noting that only small tissue samples will be collected) will be obtained from Rock lobster fishermen as part of normal commercial operations. Lobsters will be caught using standard industry mesh pots.

Pueruli samples (young lobsters) will be obtained from industry standard NIWA and Rock lobster fishery collectors. Current industry settlement assessments do not monitor settlement levels on Wellington South coast on regular basis, thus additional sampling is required for completion of this project. Twenty four pueruli collectors of 3 different types (bottle brush collectors, standard shore crevice collectors and “catch bags”) will be deployed and monitored monthly for two years at eight sites on Wellington South coast: Barret Reef, Breaker Bay, Palmer Head, Princess Bay, The Sirens, Yungh Pen, Red Rocks and Sinclair Head. All individuals caught will be immersed in absolute ethanol and later used for DNA extraction. DNA will be assessed with a SNP marker panel to analyse population structure of *Jasus edwardsii* larvae/juveniles and conduct assignment tests with adult population SNP markers to track potential larval dispersal and model settlement patterns.

Data obtained will allow us to:

- 1) Determine *Jasus edwardsii* population genetic structure, and connectivity and settlement patterns;
- 2) Explore human-induced selection through selective harvesting of desired phenotypes.

Collection method, species, quantity, fishing area/s and date/s

Collection will be carried out using pueruli collectors with an aid of SCUBA.

Species – Red Rock Lobster, *Jasus edwardsii*.

Quantity – Up to 100 individuals per site, total of 40 sites, for adults noting that only a single pleopod will be collected and these will be taken from lob. For settlers, up to 100 per site will be collected at the 8 sites on the Wellington South coast.

Collection sites – Barret Reef, Breaker Bay, Palmer Head, Princess Bay, The Sirens, Yungh Pen, Red Rocks and Sinclair Head.

Dates – October 2013 to March 2016.

Programme of sampling and time frame

All collectors will be deployed 6 months prior to commencing monthly (fortnightly if possible) sampling to allow for a build-up of biofouling and ‘conditioning’, which is important for collector performance and to allow any alterations in collector network configuration and position to ensure stable pueruli (lobster larvae) catches. Monthly/fortnightly sampling involves divers retrieving collectors, and attaching them to a line to be hauled to a servicing vessel. On the vessel, pueruli will be removed from collectors. Groups of at least 3 collectors will be installed at each site. All pueruli caught will be collected for DNA analysis. The number of pueruli caught will vary with season: expected to be from around a dozen during the non-settlement season (October - May) up to hundred during settlement season (June - September). Since average pueruli size is small (~ 8 mm carapace length) we only anticipate taking not more than 250g of material every month.

Key personnel

Dr James J. Bell (VUW Academic)

Ms Irina Ilyushkina (PhD candidate)

Mr Daniel McNaughtan (Technician)

Mr John van der Sman (Technician)

Vessels used

Diving will be carried out from the 8.5m tri-hull *Raukawa Challenger* or three 4.6m aluminium StabiCraft vessels (the *Pipi*, *Tuatua* and the *Tipa*) depending on the weather conditions and distance to the destination. [*Raukawa Challenger* (MNZ No122256), *Pipi*, (MNZ No131132), *Tuatua*, (MNZ No131949) *Tipa* (MNZ No 134586)].

Background and ethical considerations

Given the very high levels of natural larval mortality in lobsters, the additional removal of such a small number will have no detectable impact on the lobster population. We will abide by all VUW ethical guidelines. In addition to VUW ethics approval, a research permit for this project will be obtained from Department of Conservation for sites within the Marine Reserve.

Disposal method

Tissue not used for genetic analyses will be disposed of according to the Victoria University of Wellington policy for the disposal of biological material.

Programme 4:

Title: *The biodiversity, distribution and ecology of the New Zealand sponge fauna*

Intentions/Purpose: The primary aim of this research programme is: 1) to determine the distribution, abundance and biodiversity of the NZ shallow (<30m) sponge fauna, 2) identify the important functional roles that sponges play in NZ marine ecosystems (including primary production, secondary production, spatial competition and interactions with the water column), and 3) conduct experimental studies to explain/examine aims 1) and 2).

Sampling locations: This project will predominately focus on the Wellington South coast region and Wellington harbour, but will also include sampling trips to other locations throughout NZ.

Programme of sampling, analyses and time frame: The initiation of this research project will involve the establishment of semi-permanent quadrats on the Wellington South and in Wellington harbour. We will use these fixed areas to monitor changes in sponge assemblages over time and examine spatial competition. These will be sampled approximately every 3 months. Positive identification of sponges requires small samples to be taken (<1cm²). These are then dissolved in acid to remove the organic material and only the skeleton remains, which is used to identify the sponge. Since only small samples are needed for spicule (sponge skeletal material) analysis we only anticipate taking approximately 500g of material (depending on how many new species arrive) every 3 months. We are also examining how sponges interact with the water column so we will be collecting water samples on a monthly basis (possibly shorter depending on preliminary data) to examine nutrient availability, and utilisation by sponges. We also anticipate conducting laboratory experiments with sponges, which will require the collection of whole specimens, which may exceed 10 kg in total in any one day (but no more than 20kg). When short term sampling expeditions are made to other locations we also anticipate collecting more than 10 kg of sponge in one day (but no more than 20kg).

Vessels used, method of capture and disposal: Depending on the sampling location we may collect sponges by shore diving/snorkelling or using the VUW vessels; *Raukawa Challenger* (MNZ No122256), *Pipi*, (MNZ No131132), *Tuatua*, (MNZ No131949) *Tipa* (MNZ No 134586). Sponge specimens are usually removed from hard substratum environments using a knife or scalpel. These samples will be persevered in ethanol for spicule analysis or maintained in the laboratory for experiments. All other non-preserved material will be disposed of as biological waste according to the Universities policy.

Background and ethical considerations: Since in the majority of cases only small pieces of a sponge are taken (i.e. not the whole specimen), the impact of our sampling will be minimal as sponges are very good regenerators. Where sponges are to be removed for experiments, only the most abundant

sponge species will be used (yet to be determined, but work is ongoing), therefore we perceive little environmental impact. We will abide by all VUW ethical guidelines.

Key Personnel

Dr James J. Bell

Mr Daniel McNaughtan

Mr John van der Sman

(up to 10 postgraduate students and/or research assistants)

Programme 5:

Title: Coastal connectivity and population genetics of the New Zealand scallop, *Pecten novaezelandiae*

Background: This research forms part of the Fisheries funded project called “Multi-species coastal connectivity” which is contract number ZBD2009-10. The inclusion of work on NZ scallops was completed at the end of 2011 as a formal contract variation to the original contract. The overall project seeks to describe patterns of genetic connectivity among coastal taxa within NZ. The inclusion of research on scallops now incorporates a specific fisheries management component (in particular based around the Coromandel/Hauraki Gulf region) as well as a larger spatial scale project complementing (additional to) the original coastal connectivity work on two species of shellfish and two species of flatfish.

Purpose of the project: To achieve our aims of quantifying scallop genetic connectivity at the spatial scale of New Zealand we need to collect scallops from a variety of different locations. We would like to collect scallops in additional sites around New Zealand.

Scallop tissue samples will be tested from around NZ for genetic variation at microsatellite loci to permit quantification of genetic connectivity (gene flow) among all NZ populations and interpretation of this in the context of the management of the NZ scallop stocks.

Collection method, species, quantity, fishing area/s and date/s: Scallops will be collected by whatever methods are most appropriate at any given site. Collection methods are likely to include: by hand by divers on SCUBA, dredging from a vessel, snorkeling, etc.

Species – New Zealand scallop, *Pecten novaezelandiae*.

Quantity – Up to 100 individuals of any size range from any one location (site).

Fishing areas – estuaries and bays around New Zealand.

Dates – October 2013 to September 2014.

Key personnel

PI on the coastal connectivity project is Prof. Jonathan Gardner and the PhD student doing the research is Ms. Catarina Silva, both of Victoria University of Wellington.

Disposal method

Tissue not used for genetic analyses will be disposed of according to the Victoria University of Wellington policy for the disposal of biological material.

Programme 6:

Title: Estimation of Catch per Unit Effort for *Jasus edwardsii*

Intentions/Purpose: The goal of this research is to compare Catch Per Unit Effort (CPUE) of fished populations and non-fished population for one of the most important commercial species in New Zealand, the rock lobster (*Jasus edwardsii*).

Geographic Areas Investigated: Wellington coast, Kapiti coast, Hawkes Bay, Gisborn

Programme of Sampling, Analyses and Time-Frame: The method includes the use of lobster pots, similar to those used by commercial fishermen to assess variation in the level of CPUE. We will catch rock lobster with cray pots, and then after collecting the data, **all lobsters will be released in the area where they were caught**. This will be repeated in areas outside the marine reserves.

The pot deployment will be carried out for four days per month in the different locations. During these four days we will leave 6-8 pots (maximum) in open areas for 4 x 24 hour consecutive periods. After 24 hours we will retrieve each pot and record the abundance, size, weight and sex of lobsters. When we have finished, all animals will be released at the site of capture. This methodology will be carried on the same sample sites, during two seasons (summer and winter) annually.

A small piece of tissue will be taken from one pleopod from each animal for genetic analysis. The animal can repair the small injuries produced by the cut on the pleopod quite quickly. To minimise any potential problems, the cut will be small (<1.5cm²) and on only one pleopod using sterilised scissors.

Background and Ethical Considerations: Methods pose minimal threat to lobster populations, and results will help inform sustainable management of marine resources.

Rock lobster pots and escapes gap restrictions: We will use rectangular pots that have four escape gaps/or apertures (other than the mouth) in opposite ends of the pot. Each aperture is not less than 80% of the height or length of the face of the pot in which the apertures are contained. Each aperture has an internal dimension of not less than 54 mm x 200 mm. All requirements related to escape gaps meet those set out in the Fisheries Regulations 1986 Amendment No. 4 (1992/114).

All projects undertaken by the University are required to abide by strict Animal Ethics regulations, and Health and Safety policies

Key Personnel:

Dr. James Bell

Prof Jonathan Gardner

(up to 5 postgraduate students and/or research assistants)

Vessels used, Methods of Capture and Disposal: We expect to use a combination of the following listed vessels to facilitate these collections: Raukawa Challenger (MNZ No122256), Pipi, (MNZ No131132), Tuatua, (MNZ No131949) Tipa (MNZ No 134586). Collected animals will be released alive at the point of capture.

Programme 7:

Title: Blanket Permit for Victoria University Research Programmes on the Ecology, Taxonomy, Physiology, and Evolutionary Biology of Marine and Aquatic Life

Intentions/Purpose: The remainder of our active and anticipated research programs do not require collections of biological material that exceed 10kg per day (all species and projects combined). We therefore request a blanket permit to cover these activities as per condition 2b of our previous permit (Special Permit 395). All projects are entirely academic and are not commercial enterprises (e.g., no collected material is to be sold, etc). The environmental impacts of all projects are considered NIL. Additional information or details about any of our projects may be requested at any time.

Species and Quantities Likely to be Collected in Support of Research Activities– (only a subset of these species will likely be collected in any given year, and our activities may occasionally target other species in small quantities. In many cases, only a small quantity of tissue may be collected (e.g., a fin-clip, for genetic analysis, with immediate return of captured specimens alive at the point of capture).

Species listings are indicative only, and these may be substituted with closely related taxa, dependent upon specific projects and/or availability. Anticipated quantities are given in brackets; collections made under this category will not exceed 10kg green weight per day, across all species.

Anticipated Non-targeted Collections (i.e., Community sampling):

Hard-shore encrusting invertebrate communities on settlement plates (10kg greenweight per year)

Larval reef fishes in light traps plankton tows, or artificial collectors (mainly Tripterygiidae, Galaxiidae, and Labridae, 20kg greenweight per year)

Larval invertebrates on settling plates, tube traps, plankton tows, or artificial collectors (mainly mussels and barnacles, 2kg greenweight per year)

Phytoplankton/Zooplankton in bottle samples and tube traps (2kg greenweight per year)

Anticipated Targeted Collections:

Assorted chitons (100/yr)

Haliotis iris (50/yr)

H. australis (50/yr)

Whelks--Cominella maculosa, virgata and adspersa. (500/yr per species)

Siphonaria sp. limpets (300/yr)

Haminoea zelandiae bubblesnails (300/yr)

Assorted limpets, mainly Cellana sp. (300/yr)

Periwinkles (200/yr)

Turbo smaragdus (200/yr)

Amphibola crenata (200/yr)

Paphies ventricosum (50/yr)

Panopea zelandica (10/yr)

Tellina liliana (10/yr)

Paphies spp. (30/yr)

Spisula aequilatera (10/yr)

Macra sp. (10/yr)

Austrovenus stutchburyi (20/yr)
Pecten novaezelandiae (100/yr)
Perna canaliculus (500/yr)
Mytilus galloprovincialis (500/yr)
Aulacomya maoriana (500/yr)
Anthopleura aureoradiata (1kg/yr)
Cricophorus nutrix (1kg/yr)
Ostrea chilensis (800/year)

Crustacea

Planktonic copepods (3kg/yr)
Rock barnacles (3kg/yr)
Mantis shrimps – Squilla (30/yr)
Mysid shrimps (3kg/yr)
Amphipods (3kg/yr)
Jasus edwardsii (50 juveniles/yr)
Ovalipes catharus (40/yr)
Pagurus spp (20/yr)
Petrolisthes sp (20/yr)

Echinodermata

Patiriella regularis (100/yr)
Pectinura sp. (10/yr)
Evechinus chloroticus (100/yr)
Fellaster zelandica (10/yr)
Echinocardium caudatum (20/yr)
Stichopus sp (30/yr)

Assorted other invertebrates

Ascidians, various species (5 kg/yr)
Bryozoans, various species (5 kg/yr)
Assorted aquatic insects (200/yr)

Fishes

Notolabrus celidotus (10/yr)
Tripterygiidae (triplefins, 500/yr)
Clinidae (weedfishes, 100/yr)
Galaxiidae (whitebait species, 5kg/yr)
Cheimarrichthys fosteri (200/yr)
Retropinna retropinna (200/yr)
Stokellia anisodon (200/yr)
Family Salmonidae (trouts, salmon, chars, 50/yr)
Perca fluviatilis (50/yr)
Parapercis colias (500/yr)
Chrysophrys auratus (300/yr)
Polyprion oxygeneios (300/yr)
Polyprion americanus (300/yr)
Seriola grandis (300/yr)
Sprattus antipodum (300/yr)
Sprattus muelleri (300/yr)
Hyporhamphus ihi (300/yr)

Arripis trutta (300/yr)
Rhombosolea plebeian (300/yr)
Rhombosolea leporine (300/yr)
Rhombosolea retiaria (300/yr)
Rhombosolea tapirina (300/yr)
Mustelus lenticulatus (300/yr)
Aldrichetta forsteri (300/yr)
Dipturus nasutus (300/yr)
Dipturus innominata (300/yr)
Ovalipes catharus (300/yr)

Marine/Salt marsh Plants and Algae-assorted samples, up to 10kg per day comprising a range of species.

Vessels used and Methods of Capture

We expect to use a combination of the following listed vessels to facilitate these collections: Raukawa Challenger (MNZ No122256), Pipi, (MNZ No131132), Tuatua, (MNZ No131949) Tipa (MNZ No 134586). Methods of collection include coarse mesh plankton tow, water bottle sampling, vanVeen grab sampling, SCUBA diving, snorkelling, and hand collection as appropriate. In most cases surviving specimens will be returned alive to site of collection. Collections will be made as needed throughout the year; most marine collections will be made from Wellington Harbour and along the Wellington South Coast, however, collections may be undertaken throughout New Zealand when appropriate (e.g., during field courses, etc.).

Personnel Involved

Dr Jeff Shima
Dr Simon Davy
Dr Nicole Phillips
Dr Matt Dunn
Prof Jonathan Gardner
Dr James Bell
Dr Joe Zuccarello
Dr Ken Ryan
Dr Peter Ritchie
Dr Mark Kaemingk
Mr John van der Sman
Mr Daniel McNaughtan
Mr Stephen Journee
(up to 5 postdoctoral researchers, 50 postgraduate students and/or research assistants)

APPENDIX TWO

Schedule B - Species of special importance to tangata whenua

Name in English	Scientific Name	Name in Māori	General Area
-	<i>Longimactra elongata</i>	Poua	Te Roroa (south of Hokianga Harbour)
Agar	Class <i>rhodophaycea</i>		Te Roroa (south of Hokianga Harbour)
Black flounder	<i>Rhombosolea retiara</i>	Patiki mohaoa	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Black mussel	<i>Xenostrobus pulex</i>	Kutae	Te Uri O Hau (north Kaipara)
Blue moki	<i>Latridopus ciliaris</i>	Moki	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Blue mussel	<i>Mytilus galloprovincialis</i> / <i>Mytilus edulis</i>	Kuku/Kutae	Ngāti Ruanui (south Taranaki) Ngāti Ruanui (south Taranaki)
Bull kelp	<i>Durvillea</i> spp.	Rimurapa	Ngāi Tahu claim area Te Roroa (south of Hokianga Harbour)
Butterfish	<i>Odax pullus</i>	Marari	Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Canterbury mudfish	<i>Neochanna burrowsius</i>	Kawaro	Ngāi Tahu claim area
Cats eye	<i>Turbo smaragdus</i>	Korama, Pupu	Ngāti Ruanui (south Taranaki) Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Roroa (south of Hokianga Harbour)
Cockle	<i>Austrovenus stutchburyi</i>	Tuangi	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Common shrimp	<i>Palaemon affinis</i>	Koeke	Ngāi Tahu claim area Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Common smelt	<i>Retropinna retropinna</i>	Paraki, Ngaiore	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki)
Conger eel	<i>Conger verreauxi</i>	Koiro, ngoiro, totoke, hao, ngoio, ngoingoi, putu	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Cooks turban	<i>Cookia sulcata</i>	Karekawa	Te Roroa (south of Hokianga Harbour)
Crayfish	<i>Jasus edwardsii</i>	Koura	Te Uri O Hau (north Kaipara)
Eel – longfin and shortfin	<i>Anguilla australis</i> <i>Anguilla dieffenbachii</i>	Tuna heke	Te Uri O Hau (north Kaipara) Ngāti Awa (Bay of Plenty, Whakatane area) Ngāti Tuwharetoa (Bay of Plenty, Matata area) Ngāti Mutunga (Taranaki, north of New

			Plymouth) Ngāti Rauru (south Taranaki) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour) Waikato-Tainui
Elephant fish	<i>Callorhynchus millii</i>	Reperepe	Ngāti Ruanui (south Taranaki)
Flounder	<i>Rhombosolea</i> spp	Patiki	Te Roroa (south of Hokianga Harbour)
Freshwater crayfish	<i>Paranephrops</i> spp.	Waikoura, Kewai	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki) Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Roroa (south of Hokianga Harbour)
Freshwater mussel	<i>Unio menziesi</i>	Kakahi, Koaru	Ngāi Tahu claim area Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth)
Frostfish	<i>Lepidopus caudatus</i>	Para	Ngāti Ruanui (south Taranaki)
Giant bully	<i>Gobiomorphus gobioides</i>	Kokopu, Hawai	Ngāi Tahu claim area
Giant kokopu	<i>Galaxias argenteus</i>	Taiwharu	Ngāi Tahu claim area
Green lipped mussel	<i>Perna canaliculus/Mytilus edulis</i>	Kutae, Kuku, Kutai	Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara)
Grey mullet	<i>Mugil cephalus</i>	Kanae	Te Roroa (south of Hokianga Harbour)
Groper	<i>Polypion oxygenios</i>	Hapuka	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Gurnard	<i>Chelidonichthys kumu</i>	Kumukumu	Te Uri O Hau (north Kaipara)
Hermit crab	<i>Pagurus novaezeelandiae</i>	Kaunga	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Horse mussel	<i>Atrina zelandica</i>	Waharaoa	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Kahawai	<i>Arripis trutta</i>	Kahawai	Te Roroa (south of Hokianga Harbour)
Karengo / Nori	<i>Porphyra columbina</i>	Karengo	Ngāi Tahu claim area Te Roroa (south of Hokianga Harbour)
Kelp fish	<i>Chironemus marmoratus</i>	Ngakoikoi	Te Roroa (south of Hokianga Harbour)
Kina	<i>Evechinus chloroticus</i>	Kina	Ngāti Ruanui (south Taranaki) Ngāti Tama (north Taranaki) Te Uri O Hau (north Kaipara)
King fish	<i>Seriola grandis</i>	Haku	Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara)
Lamprey	<i>Geotria australis</i>	Pihirau	

Lamprey / Southern lamprey	<i>Geotria australis</i>	Kanakana, Ute Piharau	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Roroa (south of Hokianga Harbour)
Lemon sole	<i>Pelotretus flavilatus</i>	Patiki tore	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Limpet	Families <i>Patellidae</i> , <i>Acmaeidae</i> and <i>Lepetidae</i>	Ngakahi	Te Roroa (south of Hokianga Harbour)
Ling	<i>Genypterus blacodes</i>	Hokorari	Te Roroa (south of Hokianga Harbour)
Moki	<i>Latridopsis ciliaris</i>	Moki	Te Roroa (south of Hokianga Harbour)
Mud crab	<i>Helice</i> sp.	Papaka parupatu	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Mud snail	<i>Amphibola crenata</i> / <i>Turbo smaragdus</i> / <i>Zedilom</i> spp.	Waikaka	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)
Mullet	<i>Mugil cephalus</i>	Kanae	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Nerita	<i>Nerita atramentosa melanotragus</i>	Makerekere	Te Roroa (south of Hokianga Harbour)
New Zealand sole	<i>Peltorhamphus novaezeelandiae</i>	Patiki rore	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)
Octopus	<i>Octopus maorum</i>	Wheke	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Paddle crab	<i>Ovalipes catharus</i>	Papaka	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Parore	<i>Girella tricuspidata</i>	Parore	Te Roroa (south of Hokianga Harbour)
Paua	<i>Haliotis iris</i> , <i>Haliotis australis</i>		Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Pilchard	<i>Sardinops neopilchardus</i>	Mohimohi	Te Roroa (south of Hokianga Harbour)
Pipi	<i>Paphies australis</i>	Pipi	Ngāti Ruanui (south Taranaki)
Pipi	<i>Paphies australis</i>	Pipi	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Pupu	<i>Turbo smaragdus</i>	Pupu	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Red shore crab	<i>Plagusia chabrus</i>	Papaka	Te Roroa (south of Hokianga Harbour)
Rock cod	<i>Lotella rhacinus</i> <i>Parapercis colias</i>	Patukituki	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Rock lobster	<i>Jasus edwardsii</i> , <i>Jasus verreauxi</i>	Koura	Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour) Ngāti Ruanui (south Taranaki)

Rock oyster	<i>Crassostrea glomerata</i>	Karauria	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Sand flounder	<i>Rhombosolea plebeia</i>	Patiki	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Scallop	<i>Pecten novaezelandiae</i>	Kuakua, pure, tipa, tipai, kopa	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
School shark	<i>Galeorhinus galeus</i>	Pioke	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Sea anemone	<i>Actinia</i> spp. Cnidaria group <i>Actinia tenebrosa</i>	Kotoretore, Kotore moana, Kotore, humenga	Ngāti Tama (north Taranaki) Ngāti Rauru (south Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth) Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Sea cucumber	<i>Stichopus mollis</i> Class holothuroidea	Rori, Rore	Ngāti Rauru (south Taranaki) Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Sea lettuce	<i>Ulva</i> spp.	Karengo	Ngāi Tahu claim area Ngāti Tama (north Taranaki) Ngāti Mutunga (Taranaki, north of New Plymouth)
Sea trout	<i>Arripus trutta</i>	Kahawai	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Sea tulip	<i>Pyura pachydermatum</i>	Kaeo	Ngāi Tahu claim area Ngāti Ruanui (south Taranaki)
Sea urchin	<i>Evechinus</i> spp.	Kina	Te Roroa (south of Hokianga Harbour) Ngāti Ruanui (south Taranaki)
Sea snail	<i>Scutus breviculus</i>	Rori	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)
Shark	Order <i>ellasmobranchus</i>	Mango	Te Roroa (south of Hokianga Harbour)
Shark (all species) includes, Great white, bronze whaler, Hammerhead etc	<i>Elasmobranchii</i> spp.	Pioke	Te Uri O Hau (north Kaipara)
Smelt	<i>Retropinna retropinna</i>	Ngaiore, Karawaka	Te Roroa (south of Hokianga Harbour)
Snapper	<i>Pagrus auratus</i>	Tamure	Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour)
Sole	<i>Peltorhampus novaezeelandiae</i>	Patiki rori	Te Roroa (south of Hokianga Harbour)
Sprat	<i>Sprattus antipodum</i>	Kupae	Te Roroa (south of Hokianga Harbour)
Starfish	<i>Echinoderms</i>	Patangatanga, patangaroa, pekapeka	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)

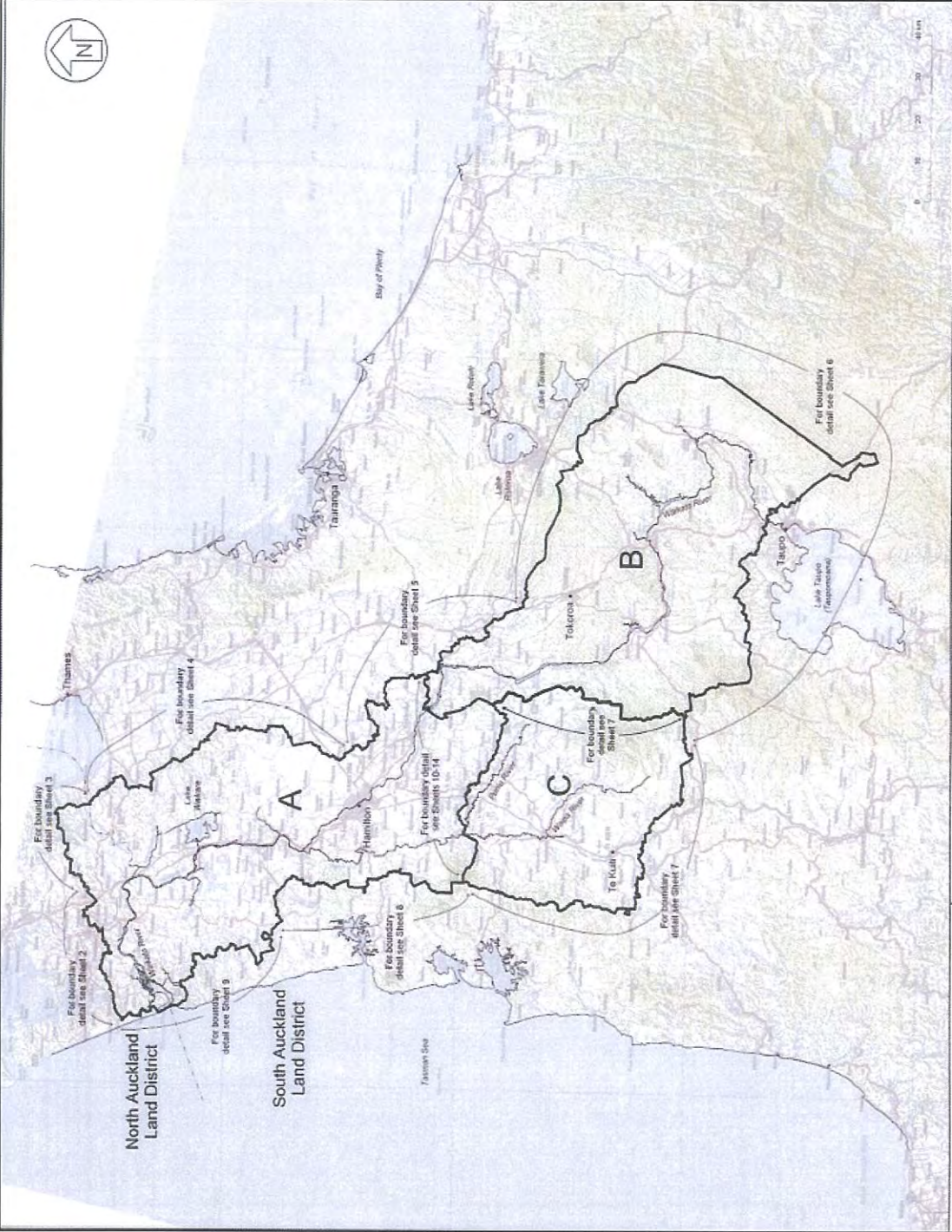
Stingray	<i>Dasyatis rhinobatis</i> spp <i>Dasyatis brevicaudatus</i>	Whai	Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour)
Surf clam	<i>Dosinia anus</i> , <i>Paphies donacina</i> , <i>Mactra discor</i> , <i>Mactra murchsoni</i> , <i>Spisula aequilateralis</i> , <i>Basina yatei</i> , or <i>Dosinia subrosa</i> , <i>maetra species</i>	Purimu	Ngāti Ruanui (south Taranaki) Te Uri O Hau (north Kaipara)
Toheroa	<i>Paphies ventricosa</i>	Toheroa, Tupehokura	Ngāi Tahu claim area Te Uri O Hau (north Kaipara) Te Roroa (south of Hokianga Harbour)
Torrent fish	<i>Cheimarrichthys fosteri</i>	Piripiripohatu	Ngāi Tahu claim area
Trevally	<i>Caranx geogianus</i>	Araara	Te Roroa (south of Hokianga Harbour) Te Uri O Hau (north Kaipara)
Tuatua	<i>Paphies subtriangulata</i> <i>Paphies donacina</i>	Tuatua	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki) Te Roroa (south of Hokianga Harbour)
Yellowbelly flounder	<i>Rhombosolea leporina</i>	Patiki totara	Te Uri O Hau (north Kaipara) Ngāti Ruanui (south Taranaki)

APPENDIX THREE

Schedule C – Areas that may only be fished by an amendment to the schedule of approved projects attached as Appendix One

Area	Iwi
Te Arawa Lakes, Rotorua, Bay of Plenty: Lakes Rotorua, Rotoiti, Rotoehu, Rotoma, Ōkātina, Tikitapu, Ōkareka, Tarawera, Rotomahana, Rerewhakaaitu, Ōkaro (also known as Ngākaro), Ngāhewa, Ngāpouri (also known as Ōpouri) and Tutaeinanga.	Affiliate Te Arawa iwi/Hapu (Ngati Tahu, Ngati Whaoa, Ngati Kearoa, Ngati Tuara and Tuhourangi, Ngati Wahiao, Raukawa)
Waikato (see map below)	Area A - Waikato-Tainui Area B - Raukawa, Te Arawa, Tuwharetoa Area C - Maniapoto
Rotoma Forest Conservation Area, Lake Rotoma Scenic Reserve, Lake Tamurenuī Wildlife Management Reserve, parts of the Tarawera and Rangitaiki Rivers.	Ngāti Tūwharetoa
Lake Taupo	Ngāti Tūwharetoa
Lake Kohangatera and Lake Kohangapiripiri (the Parangarahu, commonly referred to as the Pencarrow Lakes)	Taranaki Whānui ki Te Upoko o Te Ika

Map of Waikato Areas



Land Districts: South Auckland and North Auckland Regional Authority: Environment Waikato	WAIKATO RIVER AND WAIKATO RIVER CO-GOVERNANCE AREAS	UPPER WAIKATO RIVER CATCHMENT area marked C hereon. Prepared by Office of Treaty Settlements Date June 2010
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APPENDIX FOUR

Schedule D – list of contact details

MPI District Compliance Managers can be contacted on the following phone and fax numbers:

Whangarei	Darren Edwards Tel (09) 470 0580, Fax (09) 470 0569 Email Darren.Edwards@mpi.govt.nz cc. Julie.Tarr@mpi.govt.nz
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