



**SPECIAL PERMIT AMENDMENT  
(731-5)**

The Director-General of the Ministry for Primary Industries (**Director-General**) acting through his delegated officer and pursuant to section 97(5) of the Fisheries Act 1996 (*the Act*), hereby amends a special permit issued to:

**The Director-General of Conservation  
Department of Conservation  
PO Box 10420  
WELLINGTON**

and agents, representatives or employees, as part of their association with Department of Conservation (**the permit holder**), are hereby notified that in respect of special permit 731-4 issued to the permit holder on 17<sup>th</sup> December 2024, the following amendment to the special permit is made:

**Schedule A**

1. Schedule A under special permit 731-4 is hereby revoked and replaced with the attached Schedule A – approved under special permit 731-5.

All other conditions of the special permit remain unchanged.

9(2)(a)

**Christine Bowden**

Manager Fisheries & Aquaculture Permitting

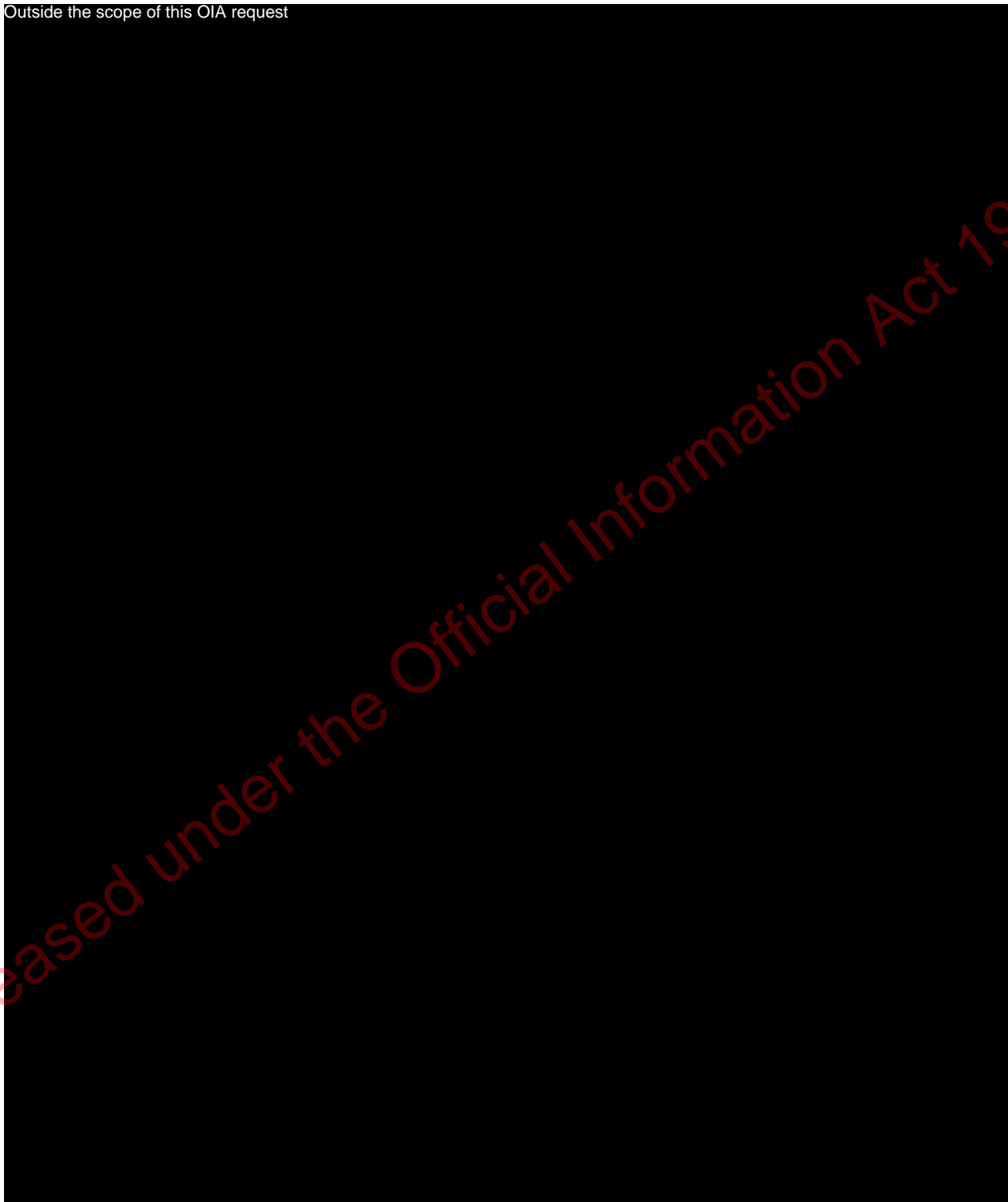
DATED at Nelson on this 6<sup>th</sup> day of May 2025

Acting pursuant to a clause 2 of Schedule 6 of the *Public Service Act 2020*

**Schedule A:**

List of approved projects under special permit 731-5

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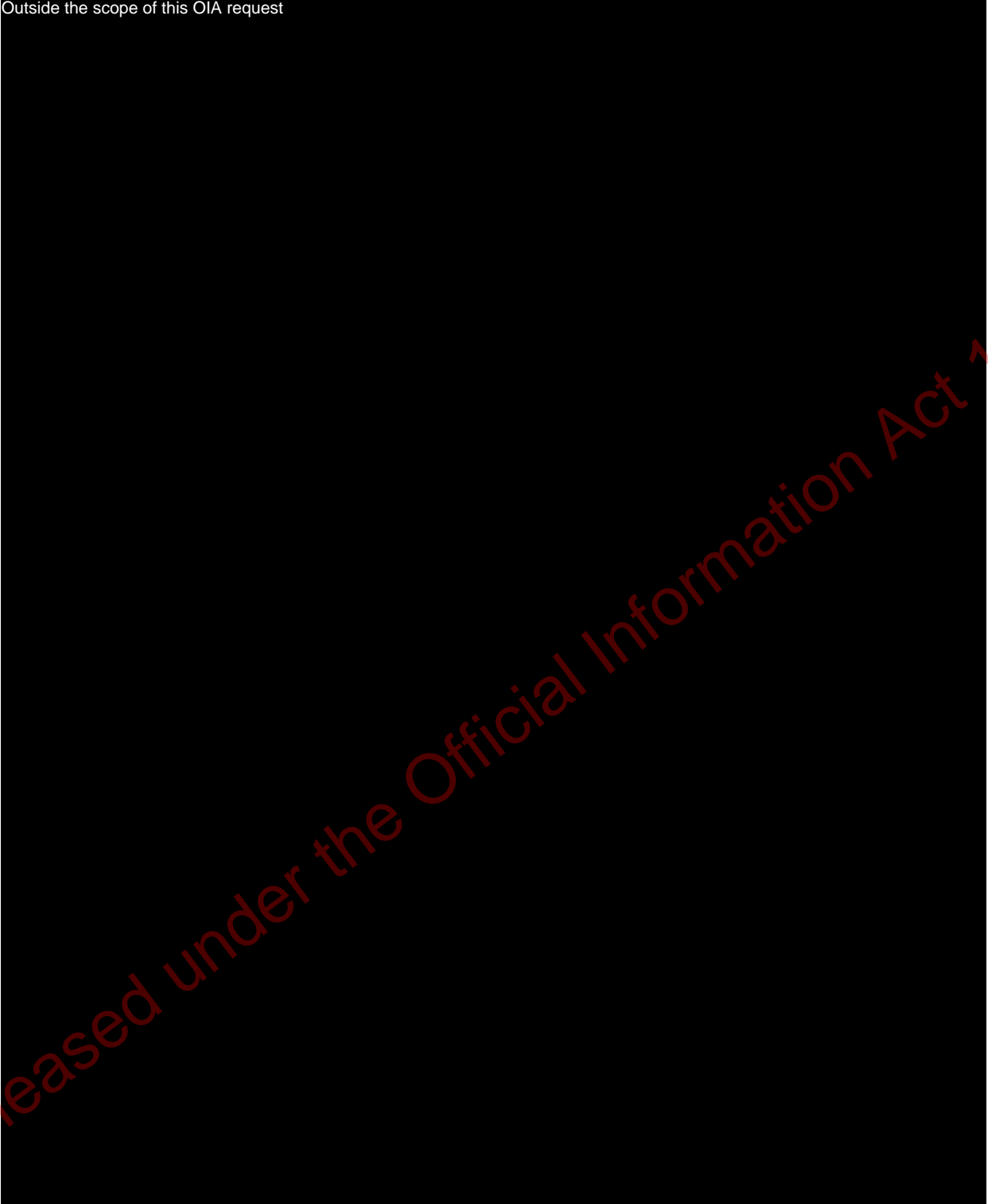
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**Population management of the sea urchin *Centrostephanus rodgersii* at the Poor Knights Islands Marine Reserve (PKIMR)**

**Summary**

- *C. rodgersii* is becoming a big and increasing problem at PKIMR and New Zealand generally
- Initial trial removals proved to be successful
- Phase two aims to increase scale and type of habitats *C. rodgersii* is removed from
- Large-scale removals of *C. rodgersii* will be undertaken from areas at PKIMR and the recovery of kelp and benthic communities will be monitored over a 5 year period

**Purpose**

1. To reduce *C. rodgersii* density to 0 per m<sup>2</sup> in priority sites as selected by the partners.
2. To ensure *C. rodgersii* density is maintained at less than 0.3 per m<sup>2</sup> in priority sites, while expanding on these sites.

**Management areas**

The Poor Knights Marine Reserve. Urchin control sites selected with University of Auckland and mana whenua – Te Whanau o Rangiwahakaaahu.

Primary Packages – preferred sites that will allow the team to meet the objectives of the project with given resources and timeframes.

- Package 1: Middle arch - Easily defined area, not too deep, many *C. rodgersii*, relatively discrete location yet still a tourism location. Options to expand if primary location is cleared quickly. Good shake down location for dive team.
- Package 2: Landing Bay Pinnacle - An iconic location where the destruction by *C. rodgersii* has been well documented. Easily defined area of location due to pinnacles. Deep could be an issue and may be restricted to the 20m depth mark. Many Centro present.
- Package 5: South Harbour – South facing so protected in Northerly winds and easterly swells. Would require some effort to define removal area.

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Secondary Packages – Areas to be managed if time allows, or if new locations are required due to weather restrictions to the primary areas.

- Package 3: Trev's Rock - Easy to define area with the option to expand if time allows. Not deep, many Centro present, high tourism location so effects of operation can be observed by the public (positive).
- Package 4: Rikoriko Cave (going East) - This location drops below 20m in depth, however, a 20m depth ceiling could be used. It would be a slightly more complex site due to the depth and terrain structure (boulders, crevasses). The area is easy to define, sheltered from the normal prevailing winds (SW).
- Package 6: Coastline between Pinakianga Point and Magic Wall - Sheltered location, relatively shallow, easily defined area of operation.
- Package 7: Ngoio Rock - Trial location so basically would be an extension of removals from this location. Easy to define locations – pinnacles/reef dropping to sand. +20m depth in some parts.
- Package 8: Coastline between Nursery Cove and Urupa Point - Proposed experimental site for University of Auckland research.

- Package 9: Tye Dye Arch, High Peak Rocks – Preventative site. No large-scale barrens yet, but numbers signs of impact are present and likely to increase.



Urchin population management sites

### Methods

To reduce further loss and allow recovery of reef communities from *C. rodgersii* grazing within the Poor Knights Marine Reserve, DOC propose undertaking population management within given areas of the reserve.

- Before culling, selected areas will be monitored using the methods described in Phase 1 and around 500 urchins will be collected for genetic sampling.
- *C. rodgersii* will be culled in-situ within a defined area at each of the sites. These removal areas range in size from 4,000m<sup>2</sup> to 16,000m<sup>2</sup>.
- *C. rodgersii* density will be calculated at each site before culling.
- *C. rodgersii* will be culled by SCUBA divers by piercing them in situ (as described in the permit). While average densities of sea urchins are 0.7 – 2.4 m<sup>2</sup> on rock walls at the Poor Knights Marine Reserve, DOC anticipate slightly higher densities at these highly impacted sites: it is estimated between 7,000 and 40,000 urchins will be culled at each site. Culling of urchins in

situ has been found to be 1.9 - 4.4 times faster than collection and ensures that the resources from the sea urchins stay in the same system and can provide food for other organisms.

- Divers will attempt to cull all visible *C. rodgersii*.
- Culling at a site is estimated to take between 40 and 240 dives. The short-term and one-off nature of the cull and subsequent smaller follow up culls at each site is expected to only have a temporary effect on fish behaviour.
- Return to sites after X months to ensure that all urchins have been removed.
- Results from Australia show that the areas would need to be cleared of urchins every 5-10 years to maintain urchin density below levels that would lead to kelp loss.

### Time frame

The project will begin in late April 2025 with initial site monitoring and removal. Annual monitoring of removal and control areas will be carried out. There will be follow-up removals over the duration of the project at sites.

### Why management is necessary

*C. rodgersii* numbers have increased elevenfold since 1999 due to having few natural predators in the reserve and its reproductive rate increasing due to climate induced sea temperature rises. *C. rodgersii* barrens are increasing and pose serious concern to DOC and Fisheries New Zealand, due to their potential for widespread ecological damage and impacts on fisheries.

To address the risk *C. rodgersii* poses, the Department, in partnership with Te Whanau o Rangiwahakaahu and the University of Auckland conducted a trial removal programme at three sites within Poor Knight marine reserve from 2023-2025.

Initial ecological surveys and removal of *C. rodgersii* were undertaken in April 2023. Removal areas covered ~30-40 m of coast, extended to ~18 m depth, and had a total area of ~540-1000m<sup>2</sup>. Sea urchins were removed using a combination of harvest and culling. A total of 4,140 *C. rodgersii* were removed in the initial removal, with a further 1,230 removed at the 6-month and 12-month follow-up

After one year, the kelp (*Ecklonia radiata*) canopy cover increased dramatically and dominated the wall at two sites, but there was only a small increase at the third site, which had lower light levels. The response of the rock wall communities within the removal areas varied among the three sites after one year. However, all sites showed a general trend of increasing turfing algae and bryozoans, with a decline in bare rock and encrusting algae.

The results from these trials clearly confirm the impact of *C. rodgersii* on rock wall communities and show that the urchin must be reduced below a density of 0.3 per m<sup>2</sup> in order for the wall communities to recover.

For this programme to be successful the urchins need to be reduced below a density of 0.3 per m<sup>2</sup>. Results from Australia show that the area would need to be cleared of urchins every 5-10 years to maintain recovery.

### Key personnel

Project leads - Evan Davies (marine reserve ranger, DOC) and Monique Ladds (marine technical advisor, DOC)

Dive safety officer – Cameron Hunt (DSO, DOC)

Mātauranga lead – 9(2)(a) (Te Whanau o Rangiwahakaahu)

Cultural advisor - Matiu Mataira (Kaiarahi Matua, DOC)

Science lead - 9(2)(a), 9(2)(a), University of Auckland)

Science advice – 9(2)(a) (University of Auckland)  
Science advice – 9(2)(a) (University of Auckland)  
Science advice – 9(2)(a) (University of Auckland)

### Vessels

DOC vessel: 9(2)(g)(ii)

University of Auckland research vessels:

- 9(2)(a)
- 9(2)(a)
- 9(2)(a)

Northland Dive: 9(2)(a)

### Cooperative arrangements

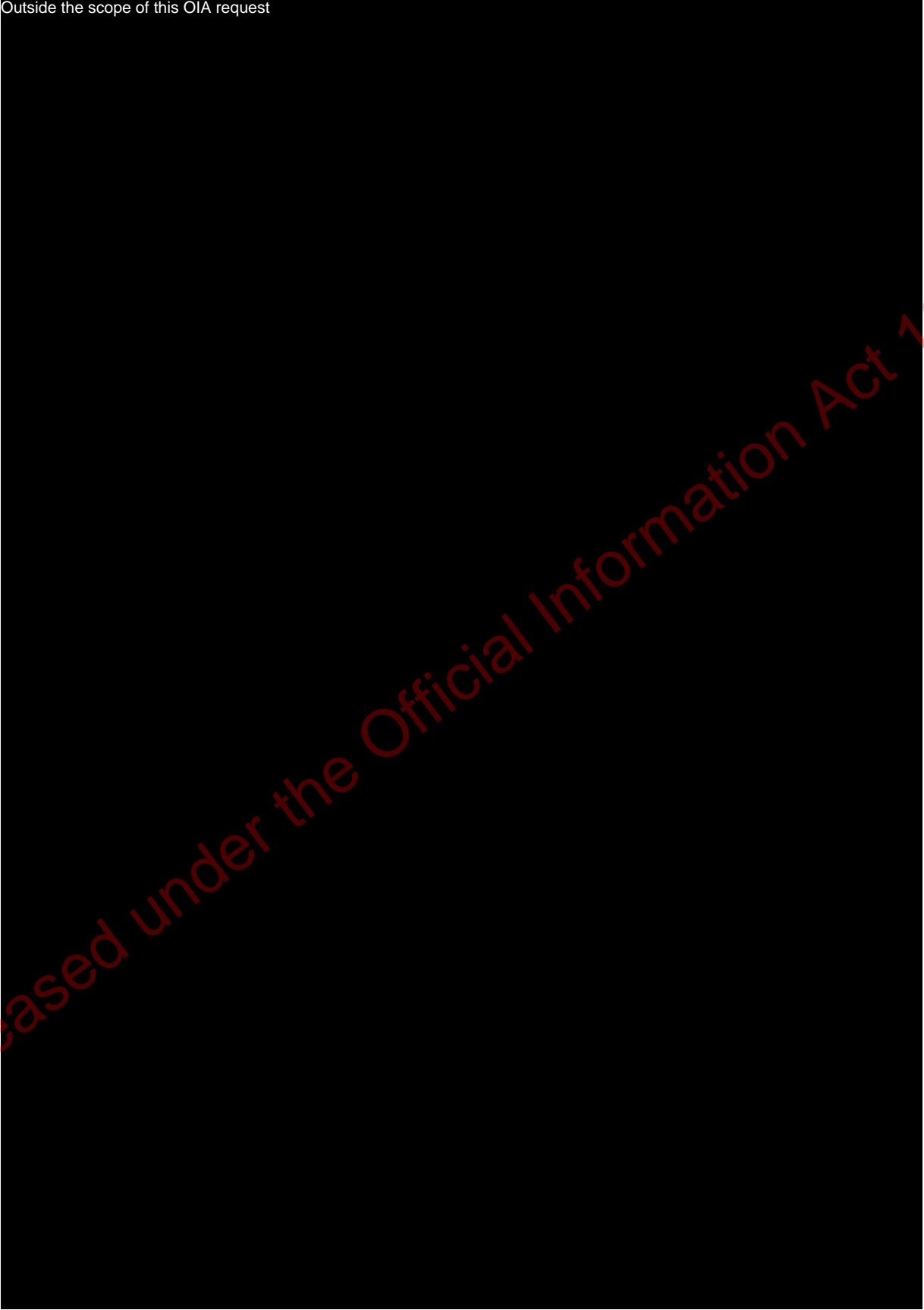
DOC is working with University of Auckland. The University of Auckland have been conducting the monitoring of reef communities including *C. rodgersii* at Poor Knights Marine Reserve since 1999 and are advising on the best approach for removal.

### Disposal

*C. rodgersii* will be culled (crushed) in situ, with none being taken for consumption. For genetic sampling, 10 urchins per removal area will be collected. Additional *C. rodgersii* (up to 20 per site) will be taken for isotopic and gut contents analysis.


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