

Kōura

Dive

Survey



**WAIHEKE
MARINE PROJECT**

WAIHEKE KI UTA WAIHEKE KI TAI WAIHEKE KI TUA

Contents

7	Karakia
9	Introduction
10	The Kōura Dive Survey
10	Where to survey
10	How are surveys undertaken?
11	Survey Teams
11	Survey Method
12	Data Sheet
20	Kōura Identification
24	Skipper & Diver: Important Information
24	Rosters & Responsibilities
25	Survey Gear Pick Up Point
26	Health & Safety
28	Contact Details
29	Dive Dates
30	Observations

Mai Mōkau ki runga
Ko Tāmaki ki raro
Ko Mangatoatoa ki waenganui
Ko Pare Waikato Ko Pare Hauraki
Te Kaokaoroa o Patetere

Mōkau above
Tāmaki below
Mangatoatoa in the centre
Waikato people, Hauraki people
To the extended armpit of Patetere

Karakia

E whakawhetai ana mo tenei rā
E whakamaumahara ki ngā taonga tuku iho
Ngā maunga, ngā awa, ngā moana, ngā
rakau, ngā manu, ngā tamariki o Tangaroa
Hei tiritiri mo tātou katoa
O tātou wairua hei hanga tangata kotahi
Kia mahi tai ai mo te ao hou tino pai rawa

Āmine

We give thanks for this day
We will respect our heritage
The mountains, the rivers, the seas, the
trees, the birds, the children of Tangaroa
We will share our views without anger
Built on friendships and respect
Working together for a better world

Amen

Waiata

Māku rā pea
Māku rā pea
Māku koe, e āwhi e
Ki te ara, ara tupu
Māku koe
E āwhi e

Introduction

Ngā mihi nui ki a koutou
Huge thanks to all you wonderful volunteer divers and boat skippers who are contributing your time, passion and expertise to the 2nd annual Kōura survey run by the Waiheke Marine Project.

We know the problem:

Overfishing and poor recruitment of juveniles has meant that the Waiheke Kōura/crayfish populations 'today' are only a fraction of what is required to enable Kōura to perform their critical ecological role as a top predator, and support any level of take.

We know we have a window of protection:

Kōura are one of the four species protected by Ngāti Paoa's rāhui and s. 186a of the Fisheries Act that places a two-year temporary closure on any fishing of these species.

What we don't know and need to know is current baselines on Kōura abundance, distribution, and habitat. With such data, we can support an extension to the rāhui with reliable data

This is an annual survey, with the aim of tracking the rebuild of a healthy functioning Kōura stock on Waiheke Reefs and to run social processes that are Te Tiriti partnered and collaborative.

The inaugural Kōura survey was run in June 2021 and covered 18,000m² of near shore reef and recorded only 23 Kōura (13 red spiny and 10 packhorse). 89 divers registered to participate with 27 divers then able (weather and logistics issues) to get in the water supported by 7 boats.

This year we are excited to welcome the 24 recently qualified divers from the WMP dive training programme to join the 100 (at time of printing this info pack) registered volunteers. Your efforts are directly contributing to the regeneration of Kōura / crayfish to Tikapa Moana.

Be proud and be safe.

Nāku iti nei

The Kōura dive survey support team

Adam Whatton, Carys Templer, Craig Thorburn, Mallory Sea, Mereana Berger, Miranda Cassidy-O'Connell, Te Ata Paul-Sumich (Kōura Kaimahi / Coordinator)

The Kōura Dive Survey

It is not possible or practical to survey the entire coastline of Waiheke Island for Kōura, so samples of reef can be surveyed to determine the relative numbers of Kōura present.

By repeating surveys annually (at the same time) it may be determined if the populations are increasing, decreasing, or stable, and whether there is evidence of changes to the abundance of different size classes (including the presence of juveniles).

Getting Started

Where to survey

Annual Kōura surveys will take place along the northern coast of Waiheke. This coastline is divided into 5 sections (below). Each boat will be assigned to a different section of coastline to ensure a variety of areas are covered. Check out the centrefold map to see the area locations and boundaries!

How are surveys undertaken?

The WMP Kōura survey is a community-led survey based on methodologies established by scientists from Auckland University and NIWA. The best time of year for surveys is typically May/June, when male and female Kōura are known to move into shallow waters to breed. The method involves divers visually surveying, counting and recording Kōura numbers and locations along a 50m x 10m transect line (500m² area).

The WMP Kōura dive survey fully respects the rāhui laid by Ngāti Paoa and supported by MPI with a s186a Fisheries Act temporary closure. **For this reason, surveying is solely observation with no handling of kōura.**

Survey Teams

Diving from boats is a great way to survey Kōura populations. Shore-based diving locations will also be evaluated and allocated on a case-by-case basis. Divers will be assigned to boats by the survey coordinators. Teams should always consist of at least a buddy pair of divers and (if applicable) a boatman. As a rule of thumb a pair of divers should be able to complete the below dives in one day:

- 1 x (50m x 10m) transect line at 20m depth
- 2 x (50m x 10m) transect line at <10m depth

However, divers can choose to do as many or as few transects as they feel comfortable completing. Each diver should assess his or her own ability to successfully and safely complete multiple surveys on a given day.

Survey Method

- Upon arrival at the dive site, each buddy team is allocated a datasheet, clipboard, pencil, and 50m tape. Secure the datasheet to the clipboard with multiple rubber bands and fill in known pre-dive information (date, time, area, etc.)
- Each buddy pair agrees upon a general survey direction

Suggestion: using the boat as a starting point, each team of divers should survey in a different cardinal direction, ensuring that transects do not overlap. Record your planned compass bearing on your datasheet.

- Each buddy team descends the anchor line and runs a 50m tape marked at 1m intervals over the selected terrain. The terrain should be similar over the 50m length

Suggestion: 1 diver unreels the tape while the other navigates using the predetermined compass bearing

For safety reasons, do not secure your tape to the anchor. Weights are provided to keep the transect line in place.

Divers first complete one side of the transect together (spaced ~2m apart), so that each diver covers a 2.5m x 50m area. This process is then repeated on the opposite side of the transect line so that visual contact is maintained at all times.

Data Sheet

Within each 5 x 10m block of the datasheet, buddy pairs should fill out the following information:

1. Kōura sightings

- Circle the general area the Kōura was found, and the number of individuals you saw. Record red spiny lobsters and packhorse crayfish separately (see reference sheet)
- If known, record the sex (M, F, or U for unknown)
- Classify each individual by size (Lg for legal or Sm for small)

2. Major habitat type observed

- A list of habitat types is provided in the transect key on the datasheet. Note you can add more than one if the habitat is quite varied. We are especially interested in what the habitat is like where Kōura are found!

3. General kelp density

- Circle the kelp density estimate which best describes that 5 x 10m area (pictures for reference on page 22)
- Recover the tape at the end of the survey.

Finalise your data sheet. Fill in any missing information, including depth, temperature, and the general kina density observed (see reference pictures on page 23).

Completed datasheets are to be returned with the survey pack, but it is good practice to take a picture of your finalised data sheet (in case it gets misplaced among dive gear or blows away!).

Send us pictures of your journey, above and below the water!
Direct email communications to Te Ata (Kōura Kaimahi)

Kourakaimahi@waihekemarineproject.org

Example of completed Data sheet

AREA	1	2	3	4	5	6	DATE	May 21, 2022	
SITE NAME (opt.)	Thompson Point						TIME	10:03 AM	
GPS (boat)	30°45.955 (S)		175°05.955 (E)				COMPASS BEARING	140° SE	
DEPTH (start)	0.2 m						TEMP	19.5° C	
DEPTH (end)	10.0 m						KINA DENSITY	High Med Low	
DIVER 1: Craig					DIVER 2: Whitford				

DEPTH (m)	0	5	10	15	20	25	30	35	40	45	50	
0-5	LBC		LBC									
5-10	SBC		SBC									
10-15	YR		C									
15-20	S		SBC		S							
20-25	YRC		S		S							
25-30												
30-35												
35-40												
40-45												
45-50												

OTHER OBSERVATIONS (what else did you see?)
 Saw a lot of kelp here and some a few stars (very high numbers near the buoy marker). Saw 2 ticks off our transect at about the 2.0 m mark. (good visibility today)

TRANSECT KEY		LITTER KEY	
Large Boulder Complex (LBC)	Small Boulder Complex (SBC)	Small Rock	Scattered kelp (SK)
Pattern Reef, common areas (PRC)	Pattern Reef, scattered edge (PRE)	Crustal / Sand (C)	
Low Complexity Pattern Reef (LPC)			
Red Rock Complex (RRC) = 100 (R), 1, or 10 + 100 (S) or 100 + number (S)			
High Complexity Pattern Reef (HPC) = 100 (R), 1, or 10 + 100 (S) or 100 + number (S)			

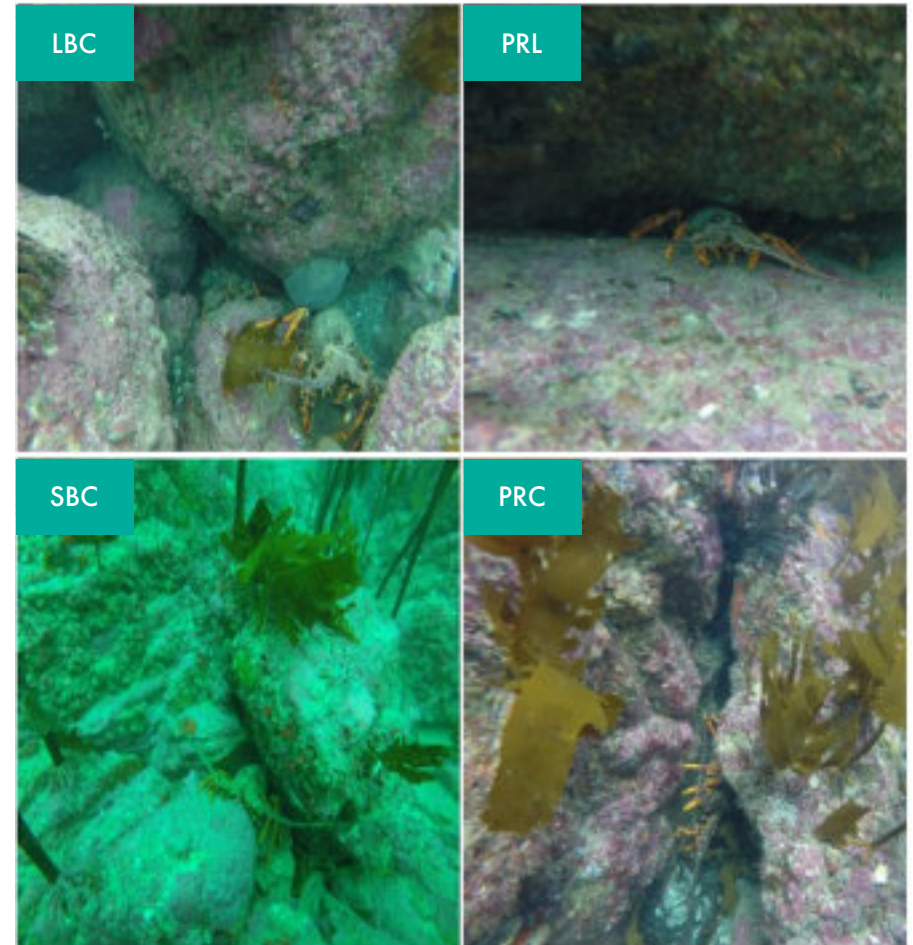
Where to survey: Area Boundaries

Area	Beginning	Ending
1	Northern Head Matiatia	Western Side of Oneroa
2	Eastern Side of Oneroa	Western Side of Onetangi
3	Eastern side of Onetangi	Western side of Owhiti
4	Eastern Side of Owhiti	Northern end of Hooks Bay
5	South Eastern End of Hooks Bay (Beach)	South Eastern point of Waiti Bay

Habitat descriptions



Rocky reef type	Description
Large Boulder complex (LBC)	Boulders > 750 mm diameter. High to moderate complexity.
Small Boulder complex (SBC)	Boulders 250 mm – 750 mm diameter.
Platform reef with vertical crevices (PRC)	Rock substrata with vertical crevices. Complexity ranging from high to moderate depending on crevice number, crevice depth, and crevice spatial extent.
Platform reef with horizontal ledges (PRL)	Rock substrata with horizontal ledges and undercuts, commonly at the base of vertical reef walls. Complexity ranging from high to moderate depending on ledge depth and ledge spatial extent.
Platform reef (PR)	Low lying platform reef with minimal topographic features and low complexity.

Habitat descriptions



Information and images from Cape Rodney to Okakari Point Marine Reserve and Tawharanui Marine Reserve Lobster Monitoring Programme: 2014 Survey by Tim Haggitt & Debbie Freeman

Kōura Identification

Pack Horse	Spiny Red
Greenish in colour,	Darker red in colour
Typically larger (but not always!)	Rougher surface along tail
	

In-water images of packhorse (left) and red spiny (right) kōura / lobsters.
 Photos from MPI Fisheries Northland (<https://www.facebook.com/MPIFisheriesNorthland/posts/packhorse-vs-red-crays-can-you-tell-the-difference-packhorse-crayfish-on-the-lef/272787363081564/>)



In-water images of packhorse (left) and red spiny (right) kōura / lobsters.
 Photos from Craig Thorburn

Relative Densities: Kelp

Low Density



Medium Density

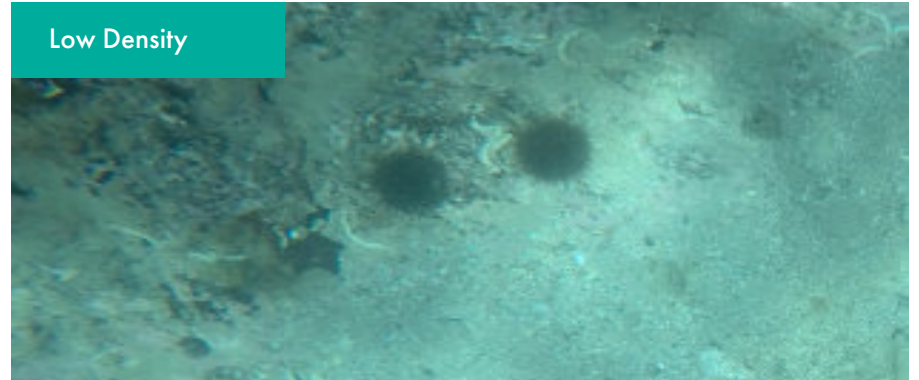


High Density



Relative Densities: Kina

Low Density



Medium Density



High Density



Skipper & Diver:

Important Information

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Rosters & Responsibilities

- For each day of the survey, divers will be allocated to a skipper. You will be emailed your dive roster at the start of the survey that outlines who your skipper and divers are, plus their contact details.
- The survey coordinators will keep you informed of any changes, and a weekly zoom will be hosted to answer any questions that may arise.
- It is up to each group to self-organise their meeting time and location, but we generally encourage Auckland-based teams to meet at their skipper's launching point, and for Waiheke-based teams to meet at Matiatia early or mid-morning to ensure enough time to complete surveys.

Survey Gear Pick Up Point

- All survey teams are required to stop at Matiatia between **9 and 11 AM** to pick up survey materials and (if necessary) any dive rental equipment. These materials are to be dropped off at Matiatia Wharf **before 5 PM**.
- Please contact Waiheke Dive (shop phone (09) 217 4892 or Adam's cell 021 153 2715) roughly 30 minutes prior to your arrival at Matiatia wharf at **both the beginning and end of the day** to arrange equipment pick up and drop off.
- Divers are responsible for hiring all necessary gear from a local dive shop prior to their scheduled survey date(s).
- Note that equipment rented through Waiheke Dive can be picked up and dropped off at Matiatia wharf, along with the survey equipment. Gear rentals through Waiheke Dive need to be confirmed at least 48 hours in advance via email please clarify all gear required, sizes (if applicable), and proof of dive certification.

This survey wouldn't be possible without the skippers volunteering their boats and their time to get all our wonderful divers out on to the water. A small koha to the skipper for the journey, is encouraged.

The Coast Guard have an App for logging trip reports, don't forget to log your trip before you depart.

There is always time for safety 🙌

Health & Safety

The Kōura Dive Survey is a volunteer project. There's a few things that are important to keep in mind while you are out on the survey:

- 1 Get comfortable with your dive buddies & skippers (share important information, such as medical conditions with them in case of an emergency).
- 2 All divers will be expected to behave in accordance with the 'standard safe diving practices' that they were taught on their certification course and to have self assessed as "medically fit" for diving.
<https://pros-blog.padi.com/standard-safe-diving-practices-for-both-scuba-divers-and-freedivers>
- 3 All skippers are expected to behave within the appropriate Maritime Rules & regulations for safe boating.
<https://www.maritimenz.govt.nz/recreational>
- 4 Failure to abide by the above can put yourself and your fellow volunteers in serious danger, and may lead to you no longer being able to participate in the survey.
- 5 It is strongly recommended skippers have a safety briefing with all passengers before departing, which includes vessel specific details, and log a trip report with the coast guard.
- 6 While every effort will be made to look after the safety and well-being of all people participating in this survey, SCUBA diving, boating and other activities related to the survey have an inherent risk of harm associated with them.

- 7 The Waiheke Marine Project, Waiheke Dive & Snorkel LTD, Kelly Tarltons Marine Wildlife Trust, The Survey organisers, volunteers, sponsors and any other parties associated with the survey have no liability to you whatsoever for any direct or indirect loss (including, but not limited to, injury or death) sustained by you or any party in your care, during or 'in any way' related to your participation in the survey.
- 8 Participants are fully responsible for their own actions and personal safety at all times and accept this and agree to the above by completing this form.
- 9 COVID-19 presents a significant risk for SCUBA divers. If you have previously tested positive with COVID-19, please read the following guidelines from D.A.N. for returning to diving and, if in any doubt, contact your GP before SCUBA diving.
<https://www.daneurope.org/en/-/ftd-after-covid-update>

Contact Details

Survey Coordinators

Te Ata (WMP Kōura Kaimahi)

Email:
Kōurakaimahi@waihekeproject.org
Phone:
022 0214945

Mallory (KTMWT Mentor)

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msea579@aucklanduni.ac.nz
Phone:
027 230 4740

Waiheke Dive & Snorkel

Email:
adam@waihekedive.com
Phone shop:
(09) 217 4892
Phone Adam:
021 153 2715

Waiheke Marine Project

Carys (WMP Kaimahi)

Email:
team@waihekeproject.org

Mereana (NPKW Kaimahi)

Email:
manawhenua@waihekeproject.org

Coast Guard

In an emergency, call 111 and ask for police.

If you're on the water and have a VHF radio, call Channel 16, the international channel for maritime distress, and issue a Mayday call.

Don't forget to log you trip via the Coast Guard app before you depart!

Dive Dates

Get in touch with the Kōura Kaimahi if you are keen and available for dives during the week.

Saturday 21 st May	Sunday 22 nd May	Saturday 28 th May	Sunday 29 th May
Saturday 4 th June	Sunday 5 th June	Saturday 11 th June	Sunday 12 th June
Saturday 18 th June	Sunday 19 th June		

Observations

Ētahi momo tamariki ā Tangaroa?
Children of Tangaroa – What did you see?

He aha te ahua o te moana?
Did the moana look healthy?

He pūrata?
Was the visibility clear?

He aha nga mea i tipu i runga i era kohatu?
What did you see growing on the rocks below the sea?

I pehea te ahua o ngā rimurimu?
Did the seaweed look healthy? Was it plentiful?

