

Content

Estimating the Kina Population at Kau Bay Point (January 2021)	1
Summary	1
Counting Method and Population Estimate.....	2
Point Halswell Observations.....	4
50m Transects 15 January 2022	4
25m Transect further east 16 January 2022	18
Kina Observations at Kau Bay Point from 2016	20
Overview of the Project Area	20
Video Records.....	21
Kina Counts.....	21
Initial observations at Kau Bay Point by volunteer divers June 06, 2016	21
Kina Video Survey at Kau Bay Point - August 04, 2019	22
Kina Dive – December 21, 2020	28
Kina Count at Shallow Marker - June 2021 (GPS).....	30
Video Transect around Shallow Marker - June 2021 (GPS).....	30
WUC Video Dive – 24 July 2021.....	31
Short Video Transect – 25 July 2021 (GPS)	35
More Video Dive Screenshots (07 Aug 2021).....	36
Temperature Sensor, Transect and 10min Kina Counts (24 Nov 2021)	38
10min Kina Counts (Nov/Dec 2021)	42
Fisheries NZ data	44

Estimating the Kina Population at Kau Bay Point (January 2021)

Summary

Scuba divers counted all kina within 1m either side of 50m transects at approximately 4m (3x50m) and 6m (4x50m) depth. Divers also classified benthic habitat as rocky reef / non-rocky reef. For better spatial resolution data was recorded for 1-25m and 25-50m on each transect. GPS tracks were recorded, and tracks plotted on Google Earth (Figure 1).

The density of kina on rocky reef per square meter at 4m and 6m depth could be calculated using the number of kina counted and the estimated extent of rocky reef recorded (data records see page 2). The overall average recorded is 5.3 kina/m².

Using the GPS tracks and benthic habitat classification the area of rocky reef in the monitoring area was plotted to on Google Earth (Figure 1, white polygons). The estimated area of rocky reef in the monitoring area is 2,550m².

Using a density of 5.3 kina/m² the estimated overall number in 2,550m² of rocky reef is 13,544. However, kina can be found outside the monitored area and at greater depth, so overall numbers of kina could reach 15,500-20,000 around Bay Kau Point.



Figure 1: Transect lines in 4m (T1 to T3, T3 only recorded start and endpoint, yellow line indicates approximate route taken) and 6m (T1 to T4) depth. Highlighted in white is the approximate area of rocky substrate used to estimate the overall kina number in the monitoring area. Average density was calculated using the kina counts and approximate extent of rocky substrate on the transects (see below).

Counting Method and Population Estimate

Data collection:

Date/Time: 31 Jan 2021, 11am – 12.30pm

Counting method: Scuba buddy pairs deploy 50m transect lines at 6m and 4m. Divers count all kina within 1m either side of transect line and classify benthic habitat in rocky reef / non-rocky reef for each 25m of transect.

GPS tracking: Garmin etrex 20x in waterproof housing (for 6m transects) and mobile phone/tracking app on surface float (for 4m transects)

Visibility: 2 m

Surface Temp: Shearwater Perdix 19°C max / 17°C min
Tide / wind: Outgoing (low tide 2.05pm, 0.7, Linz tide timetable), no wind

Monitoring Data 6m Transects

6m Transects		1m shallower side	1m deeper side	substrate type comments	approx length of rocky reef
T1	1m to 25m	57	40	all rocky substrate	25
	25m to 50m	38	69	all rocky substrate	25
			204		
T2	1m to 25m	109	152	10m rocky substrate	10
	25m to 50m	0	2	4m rocky substrate	4
			263		
T3	1m to 25m	130	78	15m rocky substrate	15
	25m to 50m	3	0	0m rocky substrate	0
			211		
T4	1m to 25m	68	168	16m rocky substrate	16
	25m to 50m	4	6	0m rocky substrate	0
			246		
Overall kina 6m			924	Square metre rocky substrate	190

Monitoring Data 4m Transects

4m Transects		1m shallower side	1m deeper side	substrate type comments	approx length of rocky reef
T1	1m to 25m	51	73	rocky/shells substrate	25
	25m to 50m	254	86	rocky/shells substrate	25
			464		
T2	1m to 25m	150	183	all first part	25
	25m to 50m	32	67	last 2m	2
			432		
T3	1m to 25m	108	81	first 10m	10
	25m to 50m	20	0	9m	9
			209		
Overall kina 4m			1105	Square metre rocky substrate	192

Density of kina per m² rocky reef (approximately)

6m	Density per m ² rocky reef	4.9
4 m	Density per m ² rocky reef	5.8
4-6 m	Average density per m ² rocky reef	5.3

Estimate of kina population

m ²	2,550	kina numbers	13,544
m ²	3,000	includes more rocky substrate in the area (number for reference only)	15,935

Point Halswell Observations

50m Transects 15 January 2022

Two divers counted kina along two 50m transects (count 1m either side).

East of point			West of point		
Transect	Kina # (1m either side of tape)	Depth	Transect	Kina # (1m either side of tape)	Depth
50-45m	20		50-45m	4	
45-40m	19		45-40m	10	
40-35m	31		40-35m	31	
35-30m	41		35-30m	40	5.3
30-25m	60	4.3	30-25m	20	
50-25m:	171	(8.4-4.3m)	50-25m:	105	(8.9-4.8m)
25-20m	70		25-20m	31	
20-15m	45		20-15m	53	
15-10m	10		15-10m	71	2.5
10-5m	165	1.7	10-5m	59	
5-0m	44		5-0m	4	
25-0m:	334	(4.3-1.2m)	25-0m:	218	(4.8-1.1m)
50-0m:	505	Kina (100m²)	50-0m:	323	Kina (100m²)

Notes:

- Kina roe was very small
- Kina are smaller than at Kau Point and a wider range of sizes was observed (down to 2.5cm approx.)
- There is no large brown seaweed past the visible seaweed line – to about 1.5/2m
- Kina form dense barren around the point in shallows
- Purple sponge in shallows died off (heatwave?), also pink coral was pale in shallows



Map Monitoring at Point Halswell, 15 Jan 2022.

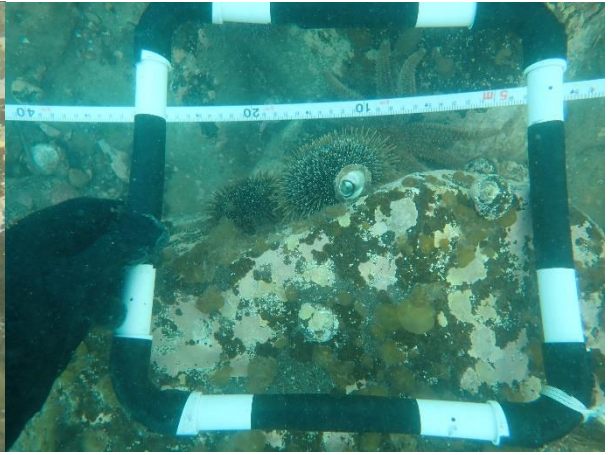


Photos: Point Halswell topside, 15 Jan 2022, significant number of people using the area & kina collected from the site

Transect 1 (East of Point)



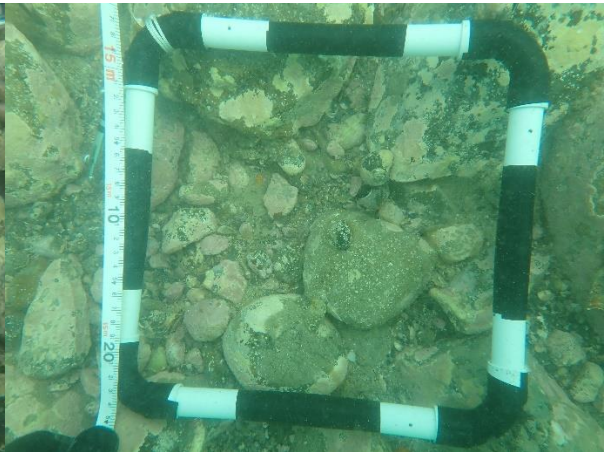
0m



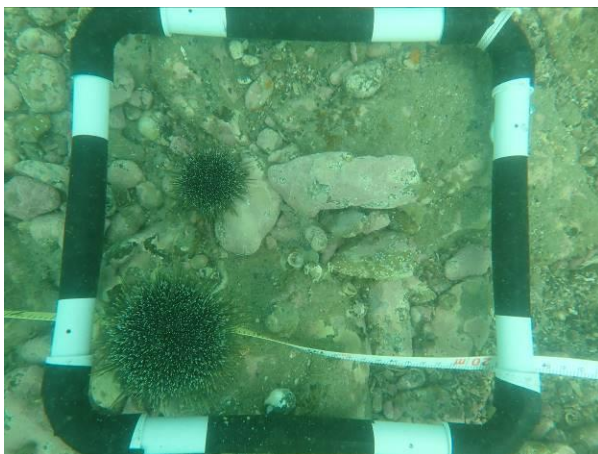
5m



10m



15m



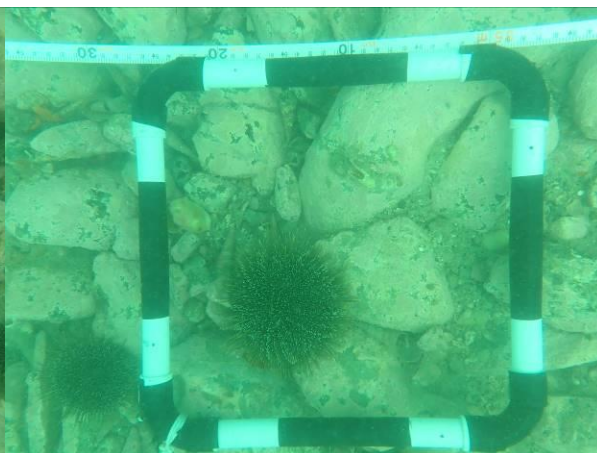
20m



25m



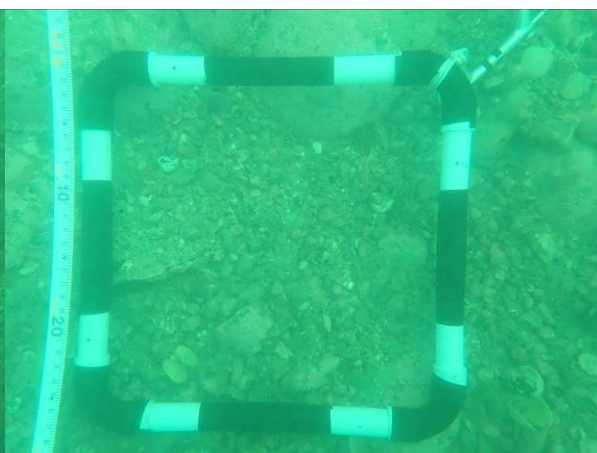
30m



35m



40m



45m

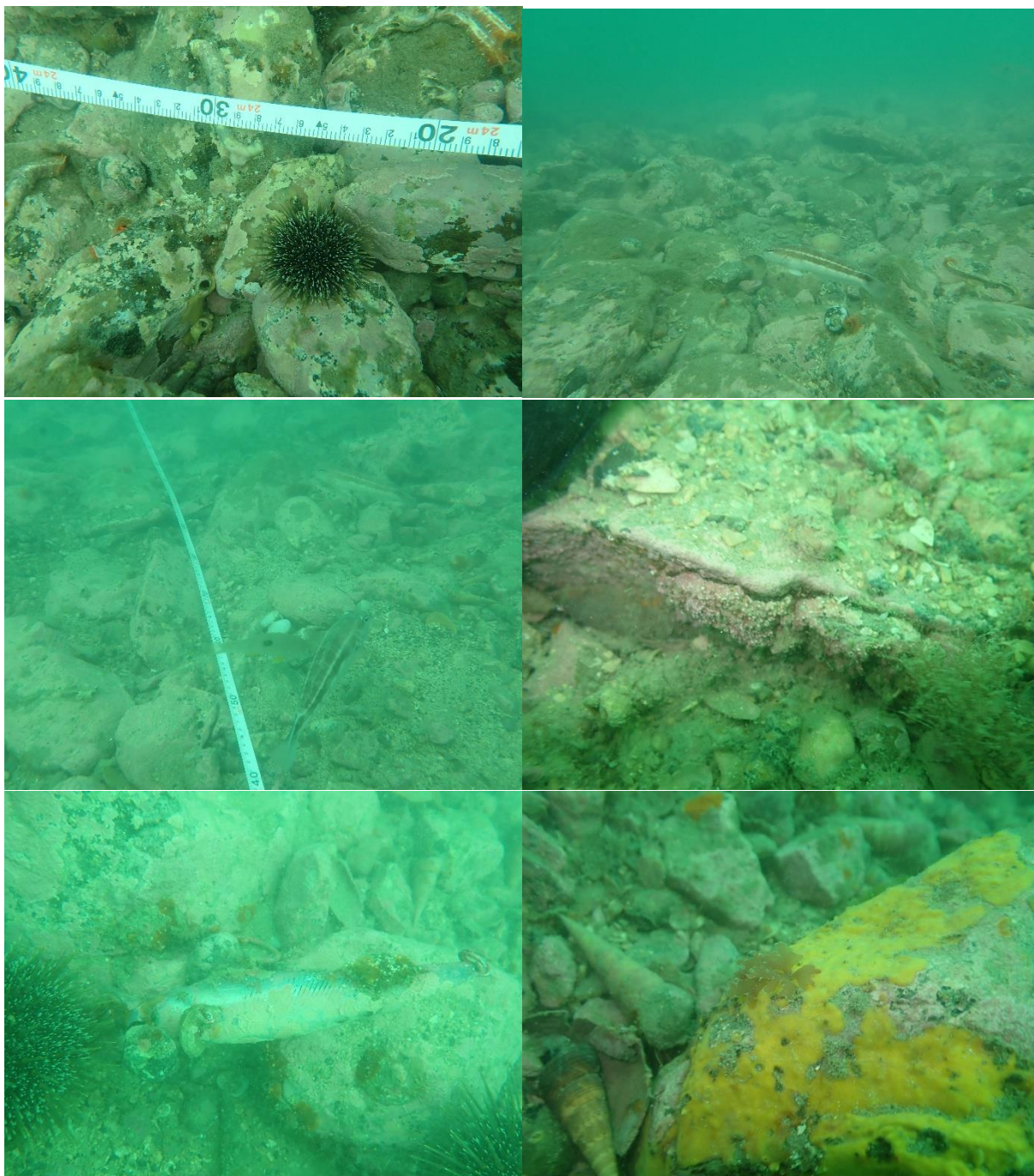


50m



Photos Dive 1



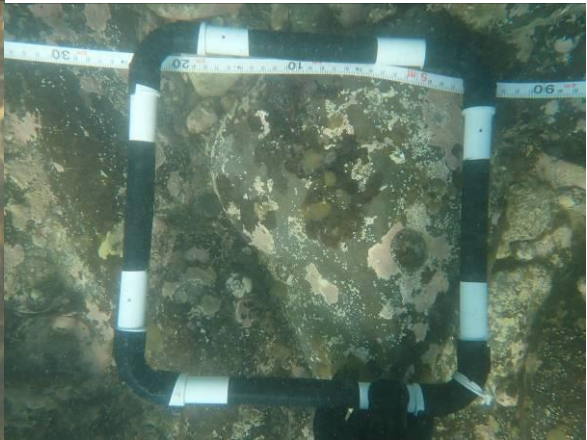




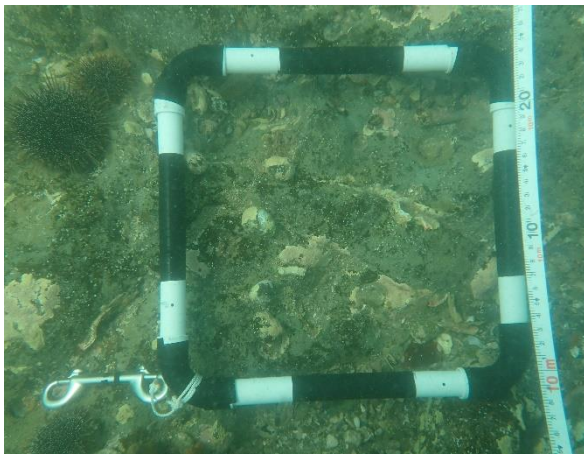
Transect 2 (West of Point)



0m



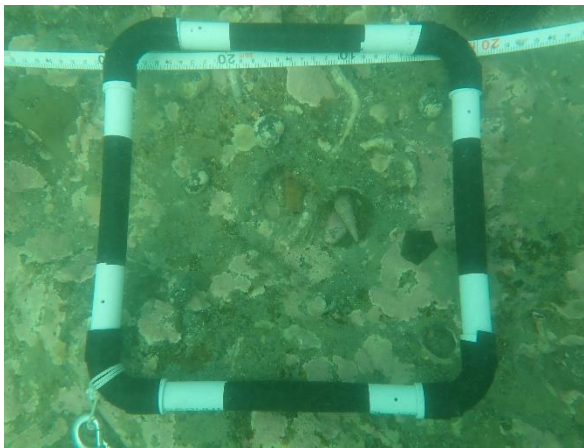
5m



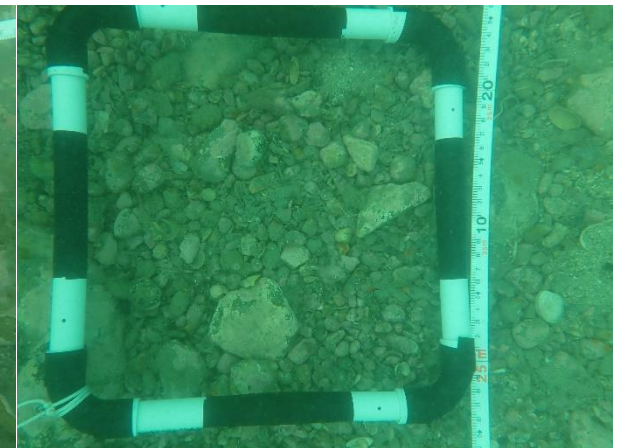
10m



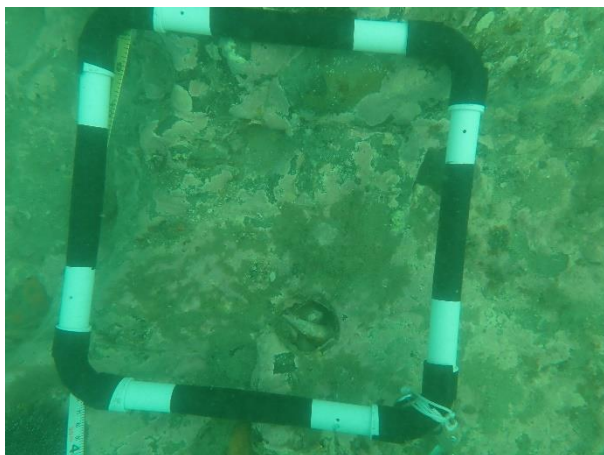
15m



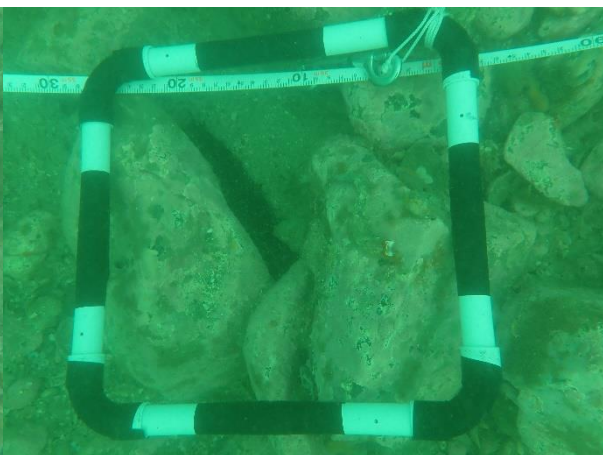
20m



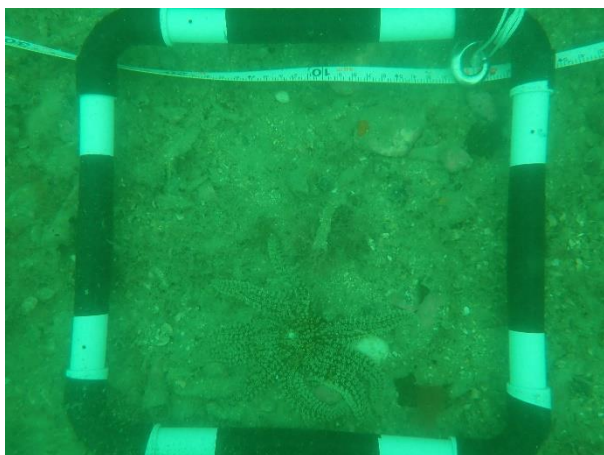
25m



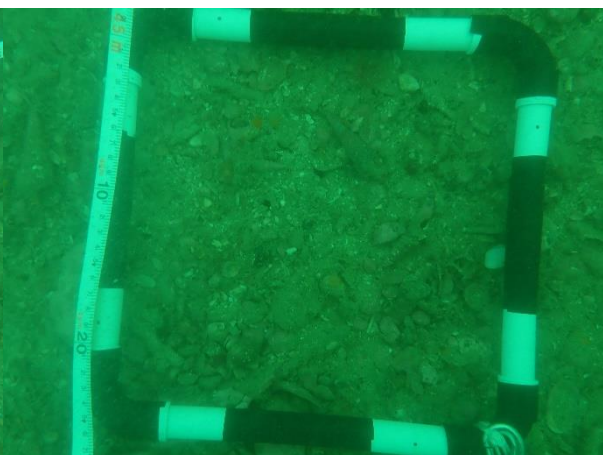
30m



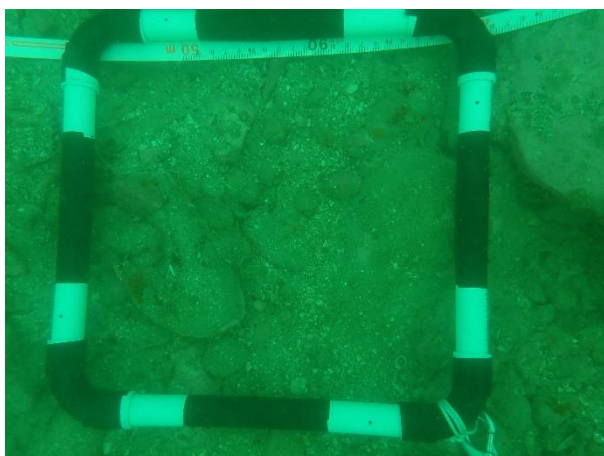
35m



40m



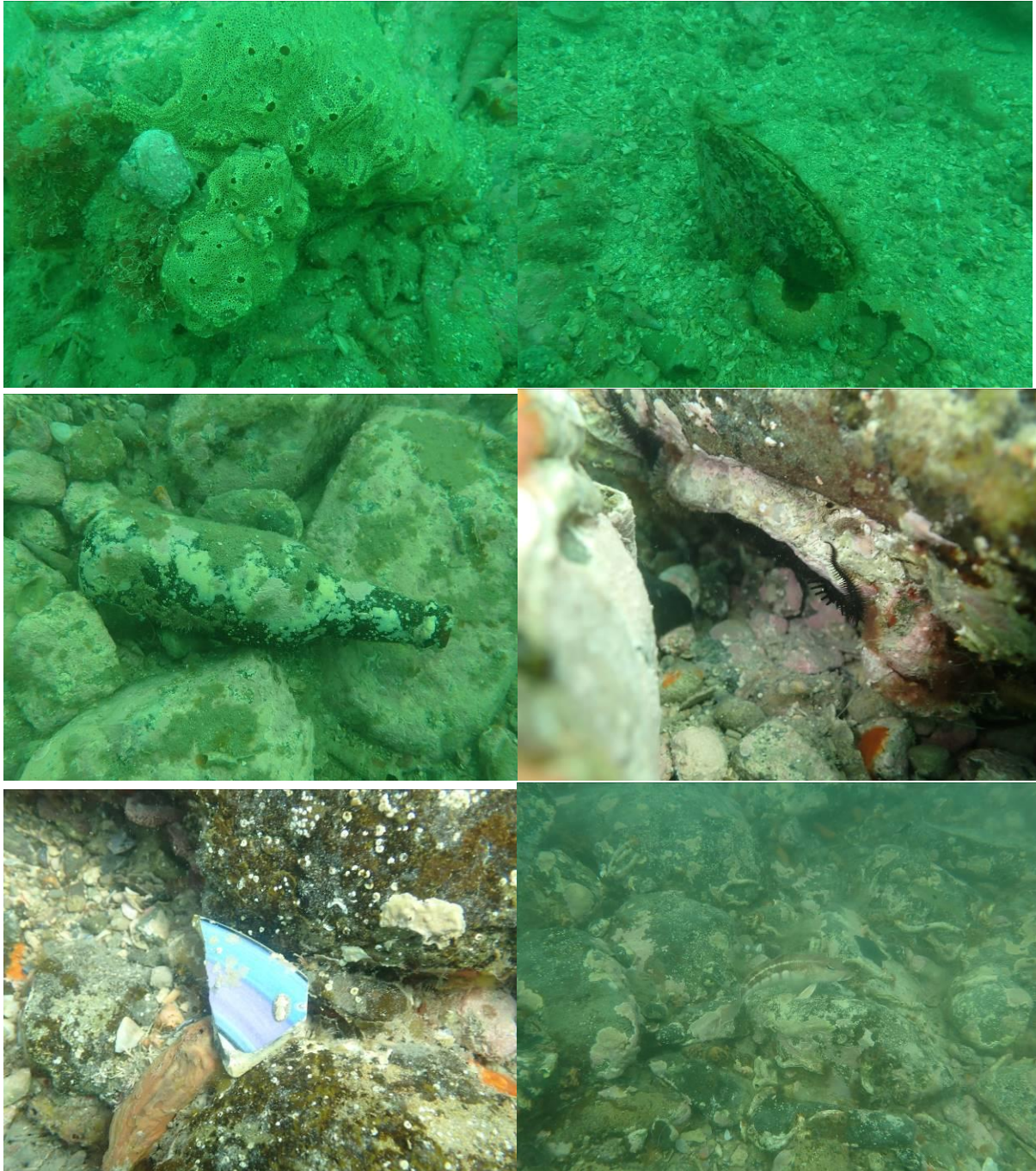
45m



50m



Photos Dive 2









Dive round the point between transects (not included in counts):





25m Transect further east 16 January 2022

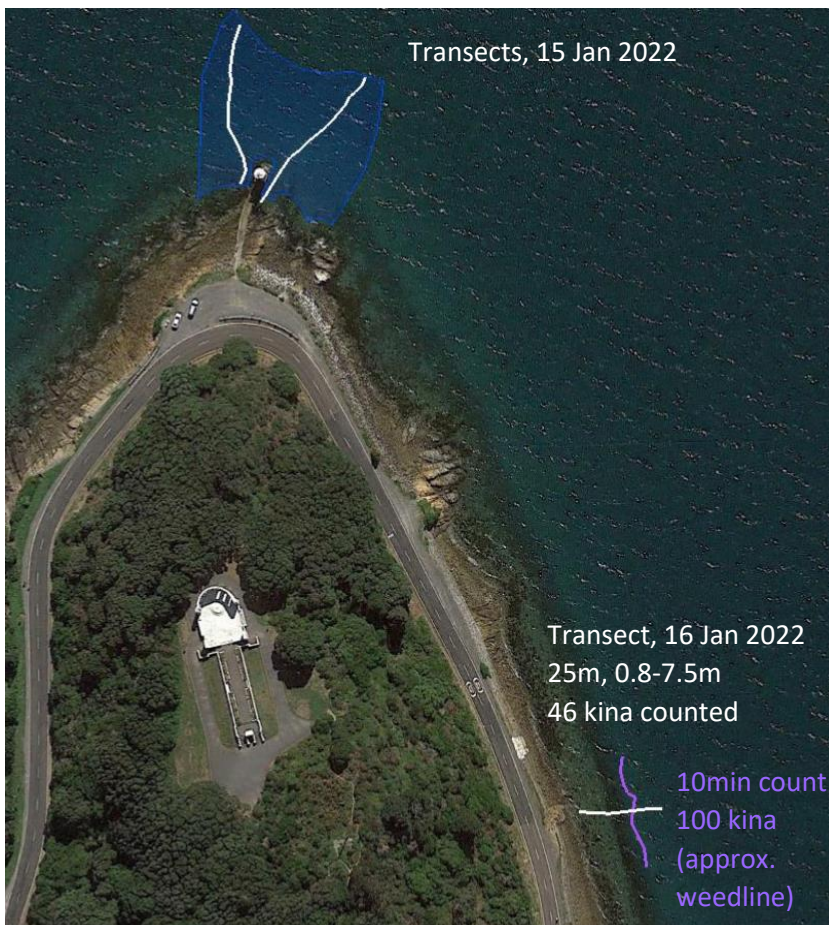
Counted kina along 25m transect (1m either side).

Dive 1			
Transect	kina	Depths (m)	
25-20m	15	6	(@20m)
20-15m	18	3.8	
15-10m	6	1.5	
10-5m	6	1.1	
5-0m	1	0.8	(@0m)
	46	(7.5-0.8m)	

10 min count: 5.3-3.5m – 100 kina

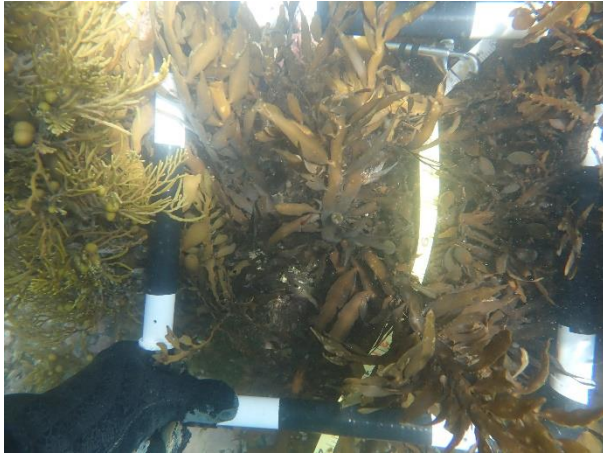
Notes:

- Kina in the shallows are hiding, lower numbers in seaweed
- Weedline in about 4.1m
- Larger kina deeper and on rocks below weedline



Map Monitoring East of Point Halswell, 16 Jan 2022 and 10min count.

Transect 25m



0m



5m



10m



10m (2)



15m



20m



25m

More images of giant kelp, large browns, kina etc on file.

Kina Observations at Kau Bay Point from 2016

Overview of the Project Area



Figure 2: Basemap – Estimating Kina at Kau Bay January 2021 (see above); Feature 1 (blue lines): 25m transects between markers and going north from shallow marker; Feature 2 (yellow/black markers): Fixed markers (depth measured close to high tide); Purple line (around northern edge): August 2019 video survey (covered in Quest magazine article); Purple line at shallow marker: video transect (12 June 2021); White line at shallow marker: 12 June 2021 count; Orange line – random video transect (25 July 2021).

Video Records

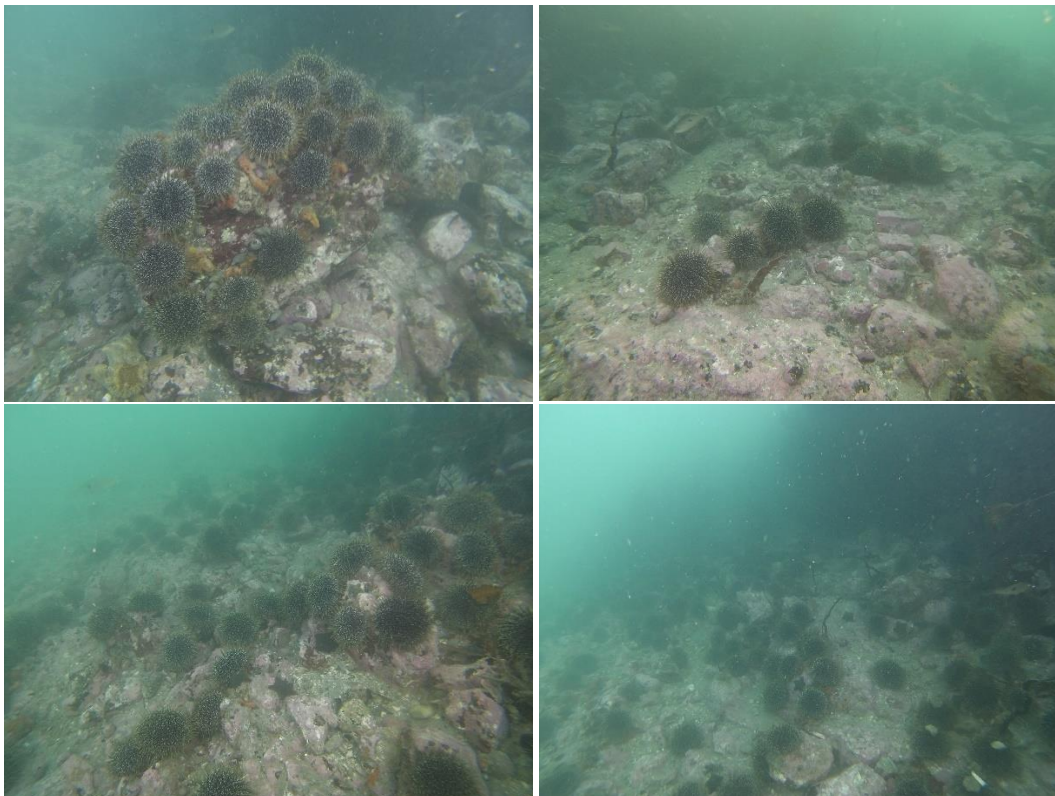
- August 04 2019 – gps tracked video survey along the kelp perimeter (see link below)
- June 12, 2021 – gps tracked video survey around the shallow marker
- July 24, 2021 – WUC video dive around Kau Bay Point (long and short version with barren)
- July 25, 2021 – gps tracked video (4.3m to surface along rock outcrop on south end of kelp bed) plus timelaps on rock outcorp.

Kina Counts

- December 21, 2020 – Kina collection (see below) with sampling of wet weight and roe weight
- January 31, 2021 – Estimating Kina at Kau Bay (see above), counts were gps tracked
- June 12, 2021 – Counting kina from shallow marker north (see below), gps tracked

Initial observations at Kau Bay Point by volunteer divers June 06, 2016

Divers noted an area of kina barren along the margin of the kelp bed with an estimated size of approx. 30x15m (no measurements were taken).



Crayfish nursery:



Kina Video Survey at Kau Bay Point - August 04, 2019

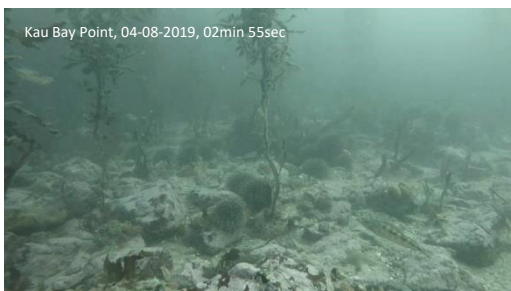
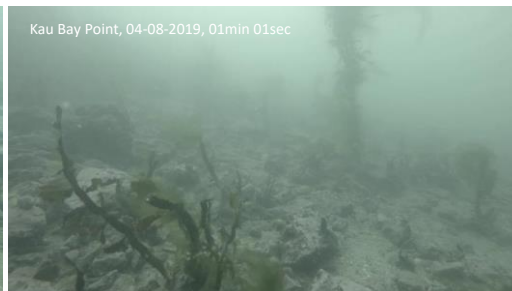
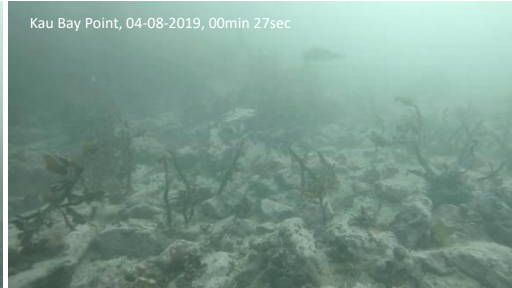
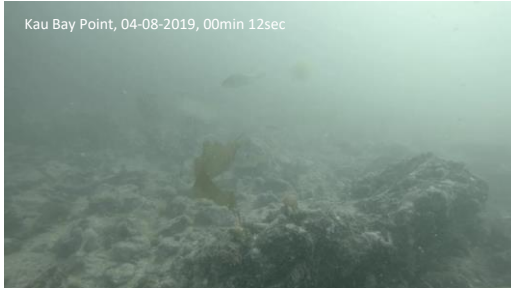


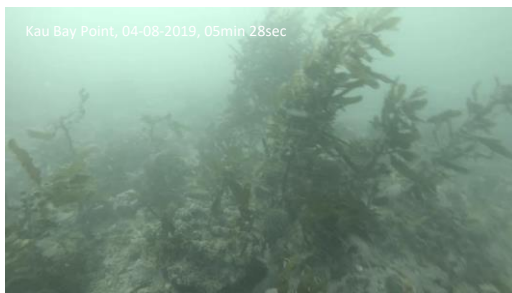
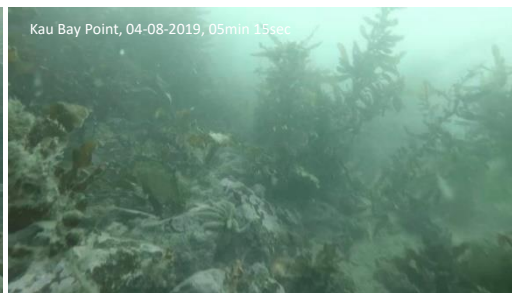
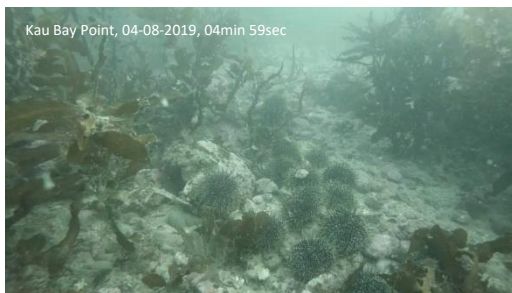
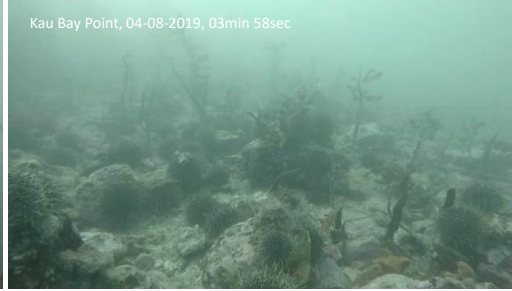
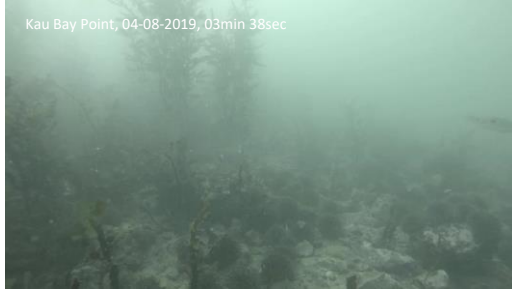
Track of the survey video dive (about 97m gps tracked video survey). Started on the Mahanga Bay side and made way north-west towards middle of the kelp bed.

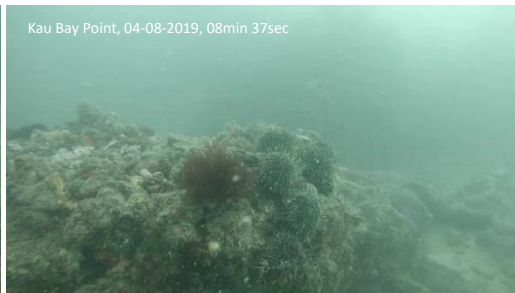
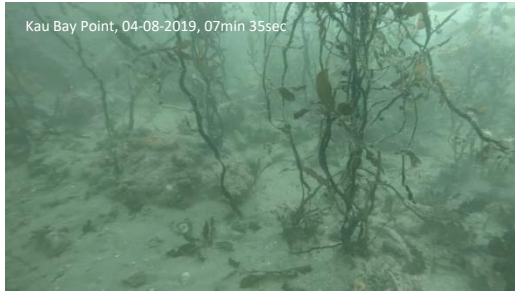
GPS Track: 97m length
Date: 04 Aug 2019
Start: 12:41:38 pm
Finish: 12:54:52 pm (Duration: 13min 14sec)
Video length: 13min 45sec

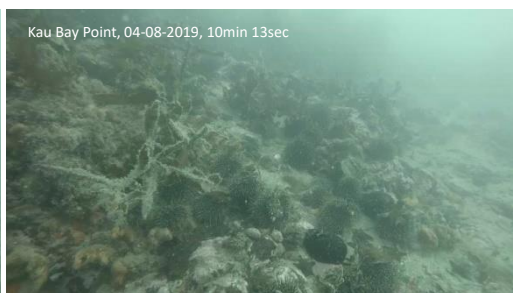
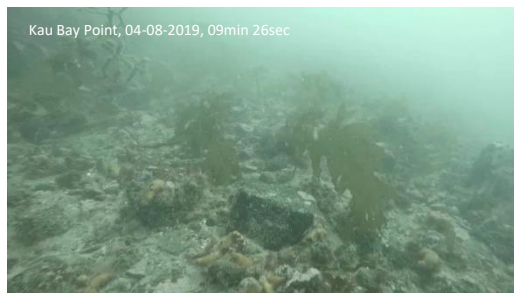
Kina Video Survey (04 Aug 2019), Kau Bay Point – Screenshots

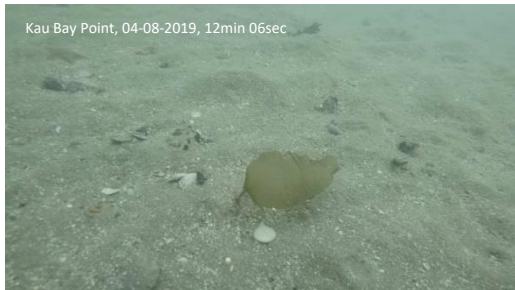
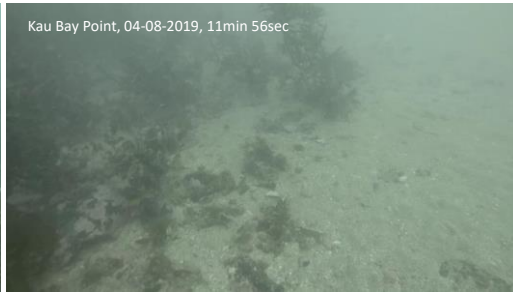
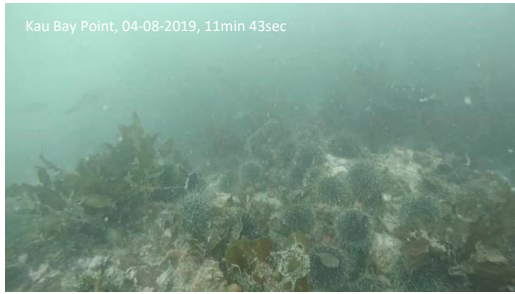
Link to Video on Vimeo: <https://vimeo.com/354616414> (Password: Kina)











Kina Dive – December 21, 2020

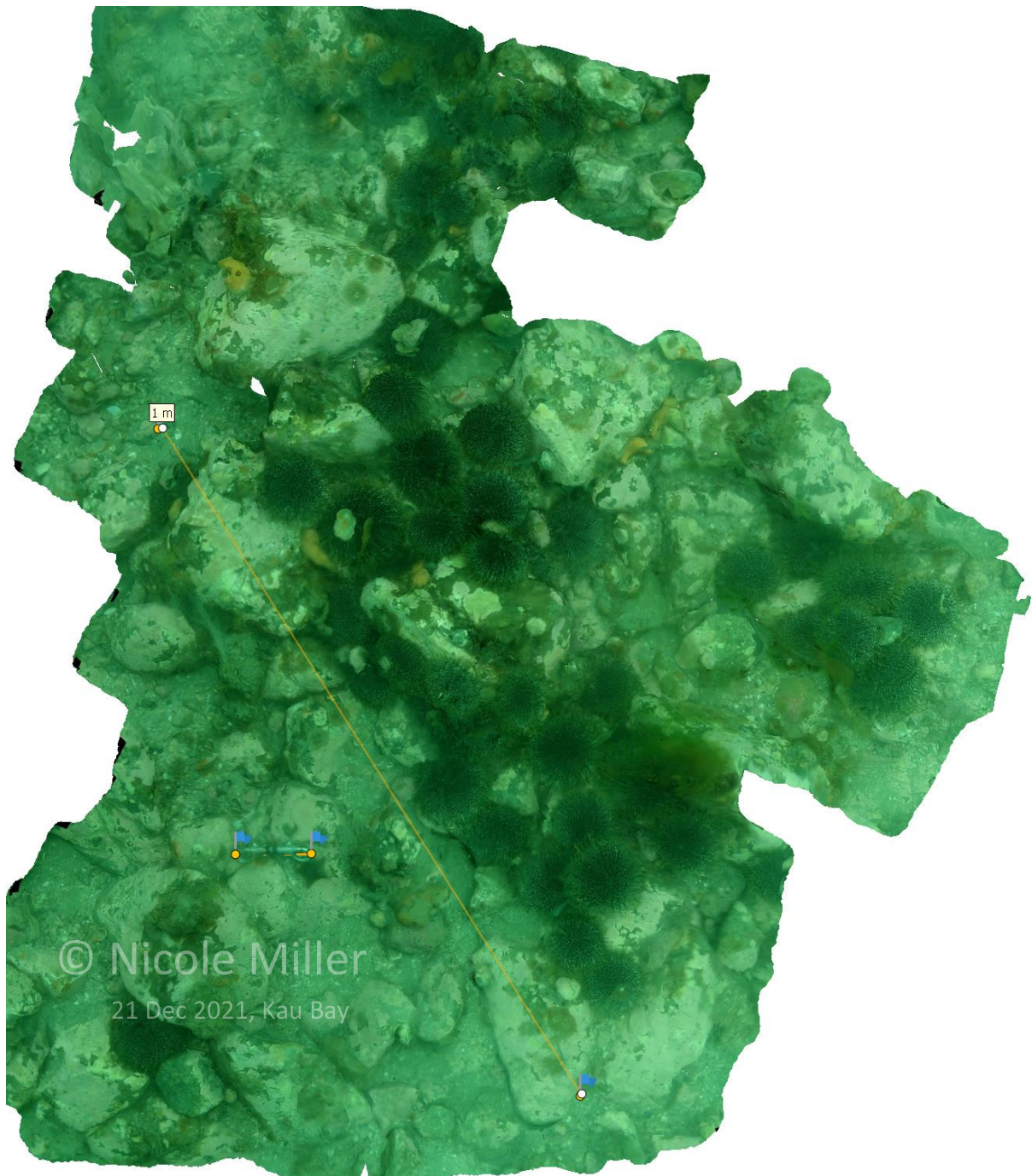
- Divers started their dive in the area previously identified as hotspot (indicated on map below).
- Before collecting kina divers took video footage to create a photomosaic (images below).
- It would have been possible to collect the full quota for a person (50 kina) in an area of 1-1.5m x 1m.
- The team of 2 divers collected 70 kina for consumption, hence collected the larger kina sizes only in an area of approximately 5m x 2m.
- Sampling:
 - Wet weight of 10 intact kina: 2.04kg
 - Roe collected of the 10 kina: 181g
fyi 150g pottle (Chatham Island) is 20\$
 - Size distribution of 10 kina:

9.5 cm	1
9 cm	2
8.5 cm	4
8 cm	2
7 cm	1

- On exiting on the Mahanga Bay side dense patches of kina were observed in about 2m depth (blue circle indicated below)



Figure 3: Basemap - Purple line: Video survey on 04 Aug 2019 with kina hotspot noted; Light purple area – surface area covered by giant kelp on 15 June 2019. Light yellow area – surface area covered by giant kelp on 03 Dec 2020. Blue circle: dense patch of kina observed on 21 Dec 2020 in about 2m depth.



Kina Count at Shallow Marker - June 2021 (GPS)

12 June 2021 - Starting at marker moving north, counting 1m either side of transect line. Kina were very patchy. Results:

Section	No of kina
0-5m	1
5-10m	15
10-15m	22
15-20m	13
20-25m	12

Video Transect around Shallow Marker - June 2021 (GPS)

12 June 2021, video transect around shallow marker:

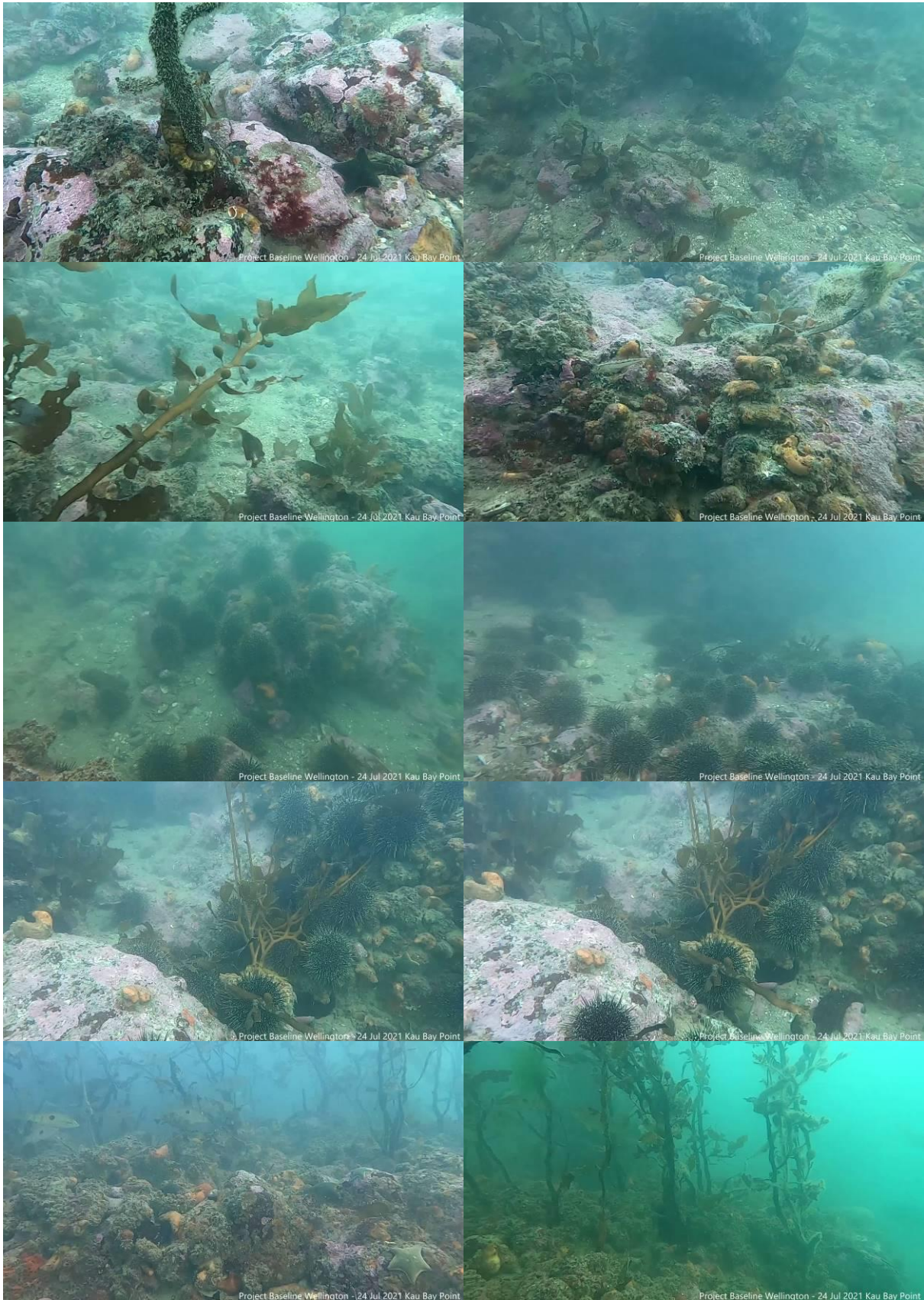




WUC Video Dive – 24 July 2021

From Mahanga to Kau Bay around the point in approx. 5-4m.









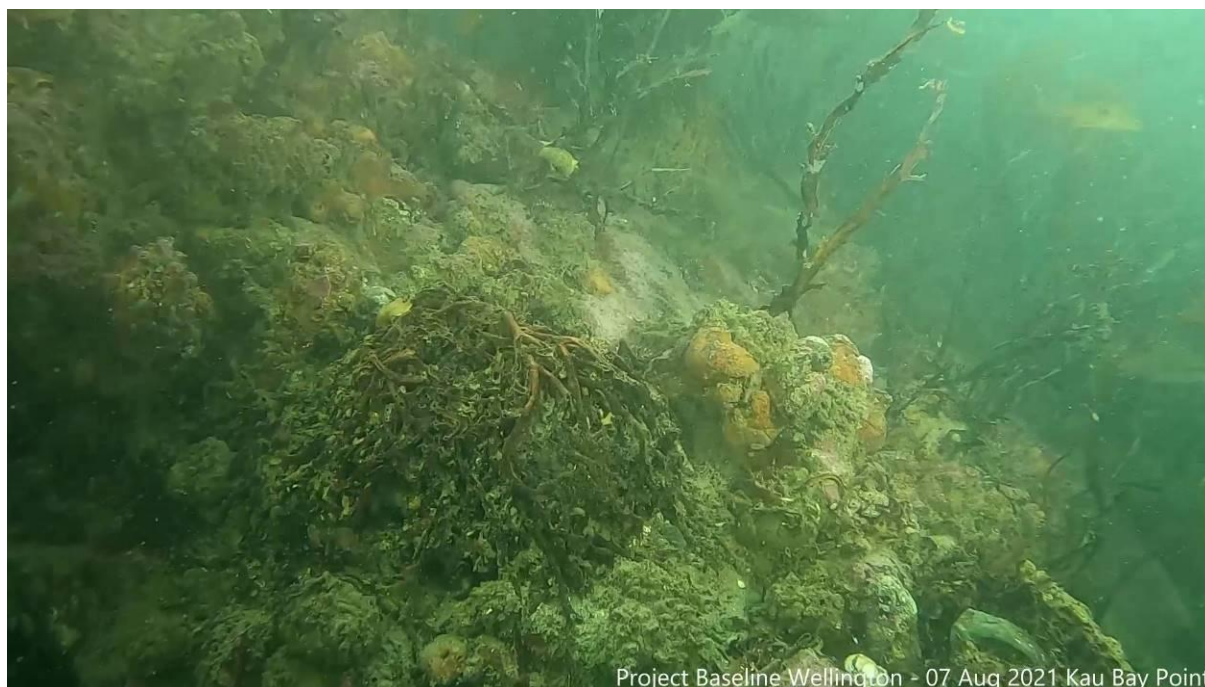
Short Video Transect – 25 July 2021 (GPS)

From 4.3m to surface (gps track is only 6.2m long)





More Video Dive Screenshots (07 Aug 2021)



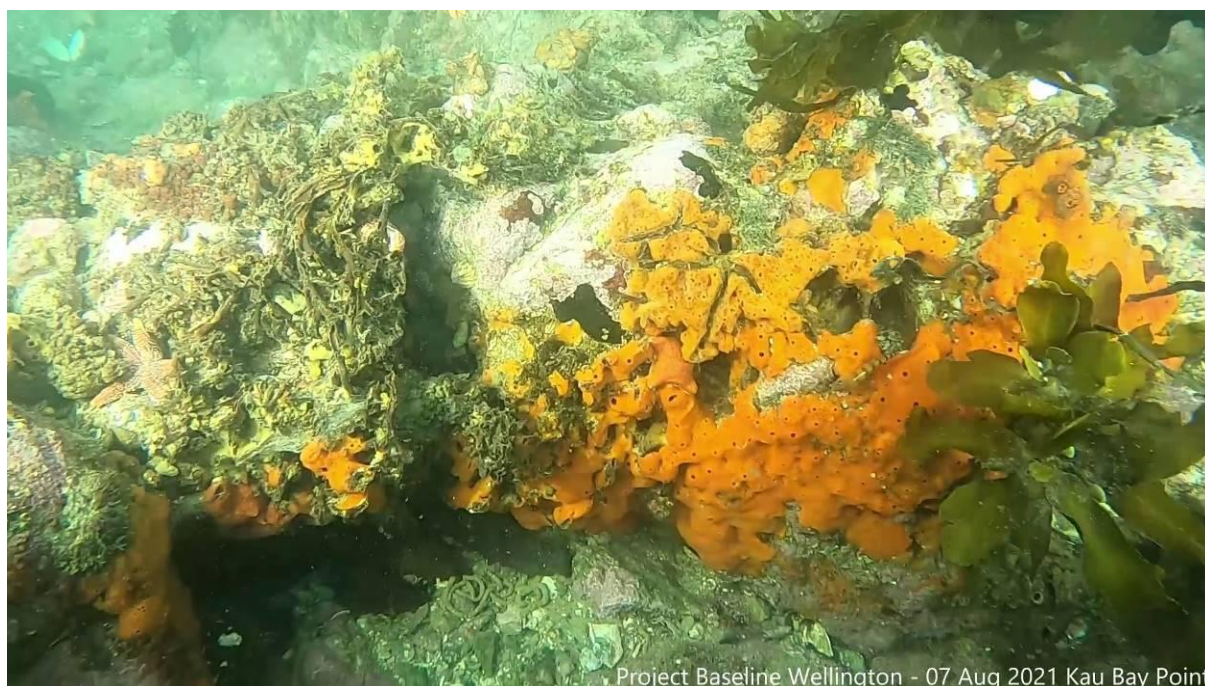
Project Baseline Wellington - 07 Aug 2021 Kau Bay Point



Project Baseline Wellington - 07 Aug 2021 Kau Bay Point



Project Baseline Wellington - 07 Aug 2021 Kau Bay Point

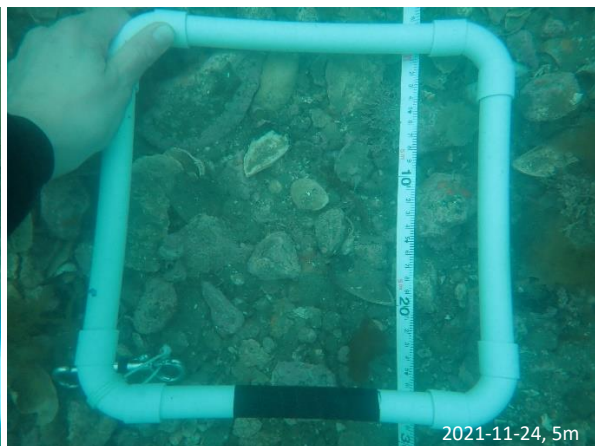
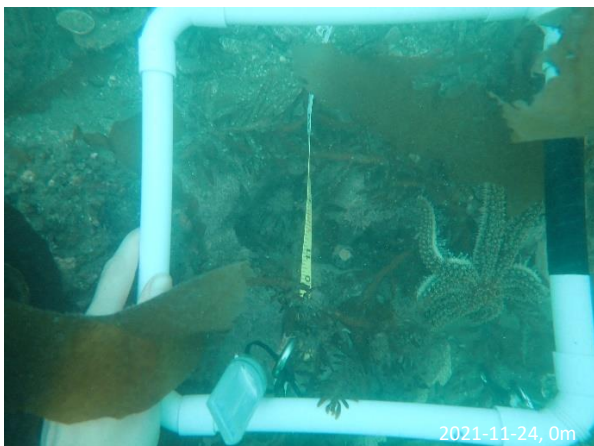


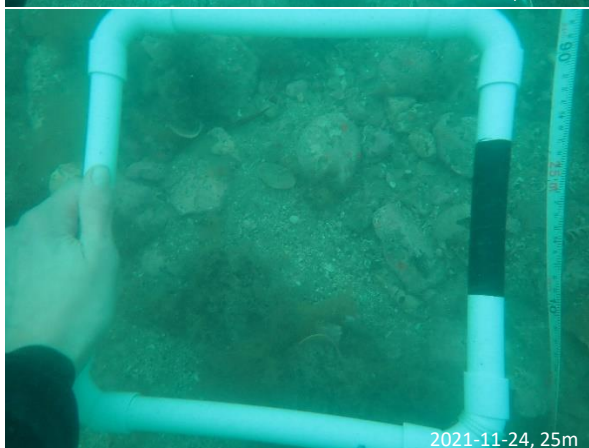
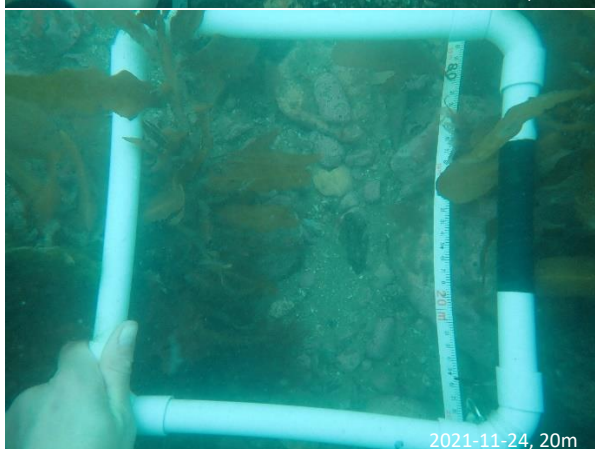
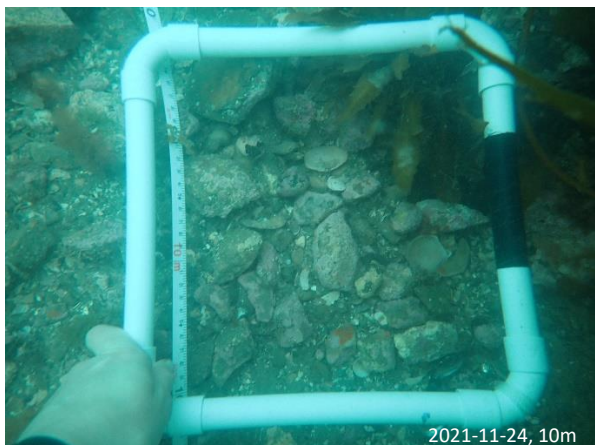
Project Baseline Wellington - 07 Aug 2021 Kau Bay Point

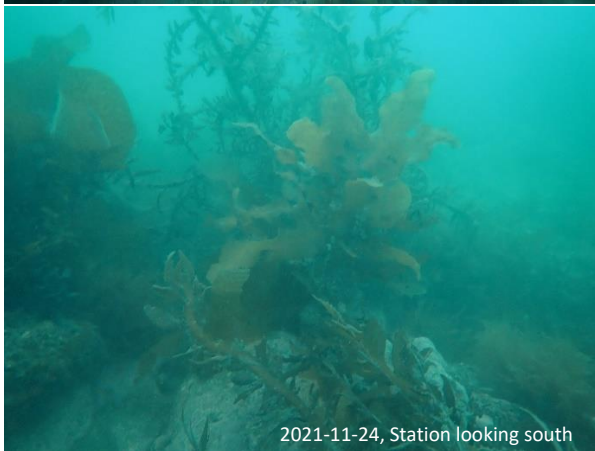
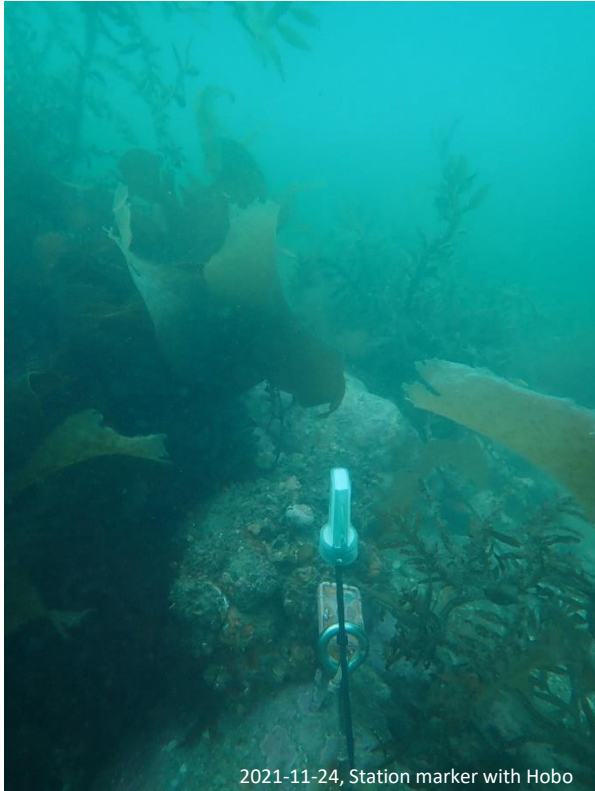


Temperature Sensor, Transect and 10min Kina Counts (24 Nov 2021)

- Deployed Hobo (Temp/Light) on shallow transect marker
- Deployed 25m transect line from shallow marker - see track on google earth, photos of 25x25cm every 5m (Olympus TG-6) (see photos below)
- First 10min kina count along part of transect line (see map below)
- Second 10min kina count further south - see both on google earth (see map below)









25m Transect from shallow marker (Mahanga Bay side of Kau Point) and area of 10 min kina count



10min Kina Counts (Nov/Dec 2021)

Initial dives to trail method in different habitats. Results of counts from 24 Nov & 05 Dec 2021 shown below.



Date	Reference	Site	Depth Start (m)	Depth End (m)	Point location middle - Google earth	Kina Counted	Category
24-Nov-21	KC21-WUC-001	Kau Bay	3.0	3.2	41°17'21.31"S, 174°50'4.68"E	175	5
24-Nov-21	KC21-WUC-002	Kau Bay	3.1	3.3	41°17'21.58"S, 174°50'4.77"E	439	6
5-Dec-21	KC21-WUC-003	Scorching Bay North	1.5	2.1	41°17'46.93"S, 174°50'11.39"E	14	2
5-Dec-21	KC21-WUC-004	Scorching Bay North	3	2.4	41°17'47.28"S, 174°50'12.07"E	9	1

Kina counted	Category
>250	6
100-250	5
51-100	4
21-50	3
11-20	2
0-10	1

Kina dive 05 Dec 2021

Sampling of 2 kina from the site of the second count (kelp forest):

Size	9.4 cm
	9.8 cm
Combined green weight	571 g
Combined roe weight	116 g

Fisheries NZ data

<https://fs.fish.govt.nz/Page.aspx?pk=8&tk=41&stock=SUR2B> (retrieved 09 Nov 2021)

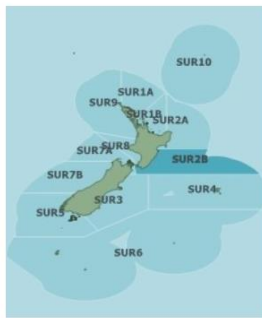
Fisheries Infosite

Search:

Related links:

- Species - Kina
- Region - Central (East) (FMA2)
- Fishery - East Coast North Island S...
- Stock - Kina Auckland (West)
- Stock - Kina Central (Egmont)
- Stock - Kina Challenger (Nelson/Mar...
- Stock - Kina Challenger (Westland)
- Stock - Kina East Coast
- Stock - Kina East Northland
- Stock - Kina Extra Territorial (200...
- Stock - Kina Hauraki Gulf and Bay o...
- Stock - Kina Kermadec
- Stock - Kina South-East (Chatham Ri...
- Stock - Kina South-East (Coast)
- Stock - Kina Southland
- Stock - Kina Sub-Antarctic

Map: Species fishstocks



Explore more map features at [NABIS](#)

Jump to:

Tools:

Kina Wairarapa and Wellington (SUR2B)

Maori name [Multiple names](#)
Scientific name *Evechinus chloroticus*



[Overview OLD](#) | [Catch](#) | [Value](#) | [Sustainability](#)

2016 2017 2018 2019 2020 2021 **2022**
for the 12 month period to 30/09/2022

Commercial use

Reported catch MHR (kg) 0

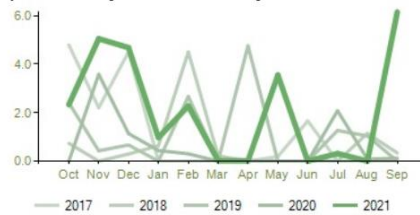
Commercial allowance TACC (kg) 30,000

Estimated domestic consumption (kg) Unknown

Reported catch by month* - Trend

No chart to display

Reported catch by month* - Seasonality



*All amounts are shown in thousands of kgs.

Customary use

Customary allowance (kg) 35,000

Customary take (kg) Unknown

Recreational use

Recreational allowance (kg) 35,000

Recreational take (kg) Unknown

Other sources of mortality

Other mortality allowance (kg) 2,000

Illegal take (kg) Unknown

Commercial Catch vs. Allowance* - Trend

