

Project Baseline Wellington Kelp Survey Report for Kelp Surveys 28 November 2021 & 06 June 2022

Kau Bay Kelp Observation – D14 (28 Nov 2021)

Reference: KB D14

Date: **28 Nov 2021 (referred to as Dec 2021)**

Time: 7.44pm – 8.20pm

Route: From Kau Bay into Mahanga Bay

Surface snorkel observation

Snorkeler: Nicole Miller

Method: GPS tracking with Garmin etrex 20x in waterproof housing.

Visibility: Not available

Surface Temp: Not available (Hobo in approx. 3.6m 16.3°C)

Tide: outgoing (low tide approx. 6.30pm, 0.7, Linz)

Kelp Bed Size: **area covered 2,447m²**



Dec 2020 (yellow, 1,628m²) & Dec 2021 (green, 2,447m²).



June 2021 (white, 3,011m²) & Dec 2021 (green, 2,447m²).

No Photos / videos available of the day

Kau Bay Kelp Observation – D15 (06 Jun 2022)

Reference: KB D15

Date: **06 Jun 2022**

Time: 4.15-5pm

Route: From Kau Bay into Mahanga Bay

Surface snorkel observation

Snorkeler: Nicole Miller

Method: GPS tracking with Garmin etrex 10x in waterproof housing.

Visibility: 3m

Surface Temp: 14.3 °C (Sony TG-6 camera sensor)

Tide: slight outgoing (low tide approx. 4.06pm, 0.8, Linz)

Kelp Bed Size: **area covered 2,525m²**



June 2021 (white, 3,011m²) & **June 2022 (blue, 2,525m²)**.

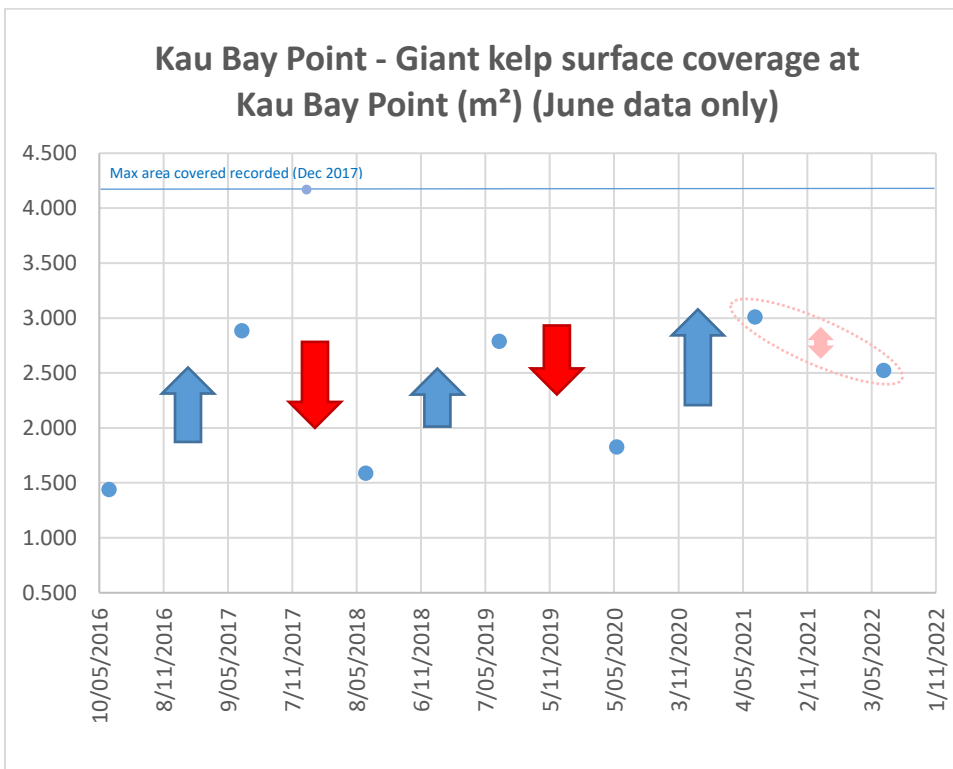
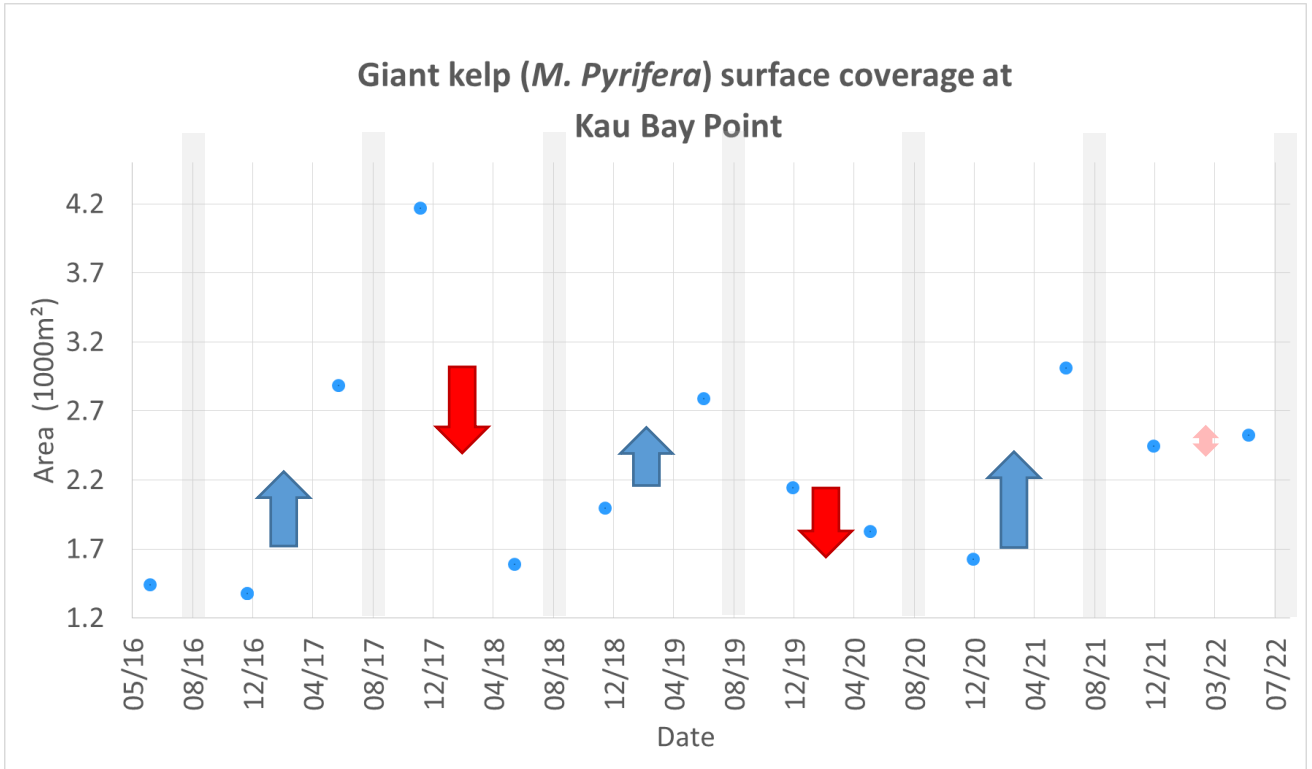


Dec 2021 (green, 2,447m²) & **June 2022 (blue, 2,525m²)**.

Notes: Barren rocks round northern edge of kelp forest were very obvious, also some huge undaria stands at northern corners. Good kelp growth in the shallows in Mahanga Bay. We also observed very visible barren patches at the northern / north east borders.

Expected more surface coverage at the project site for the June 2022 survey with water temperatures not spiking as much as other warm summer seasons. From observations around the coastline Jan/Feb was looking like a good season for macrocystis growth along the eastern bays of the harbour, the Miramar Peninsula, harbour entrance and along the South Coast.

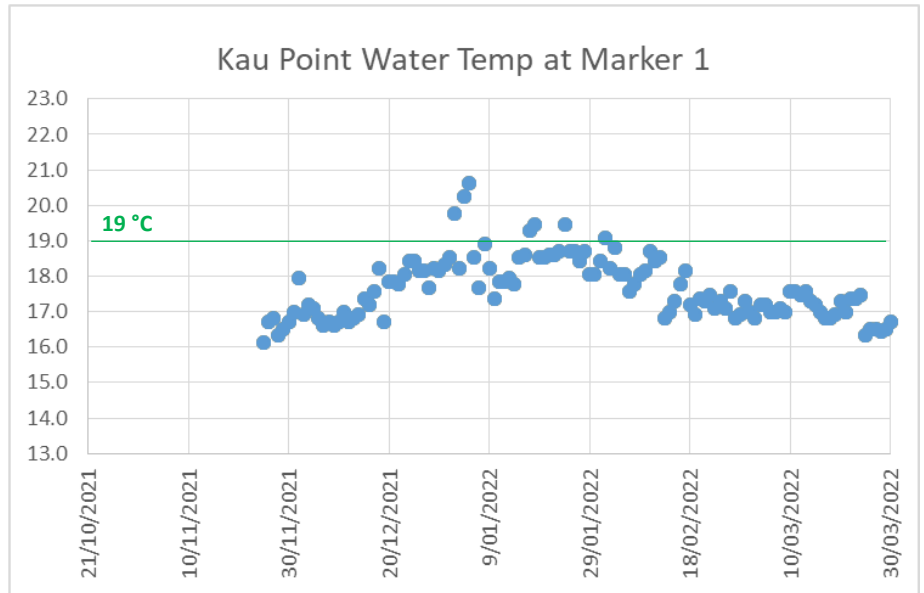
The temperature data from the Greater Wellington Regional Council is only measured on a fortnightly basis and temperature spikes might not be captured. To obtain higher resolution monitoring data we deployed a HOBO temperature logger at permanent marker 1 in the project area at Kau Point (approx. 3.6m depth). We collated the temperature data from November 2021 to end of March 2022 using one data point per day (1pm record in the data log). Comparison of the temperature graph from the GWRC and the Hobo are below. Hobo data shows water ≥ 19.0 °C throughout January.



Temperature Data from Kau Point Hobo for 2021/22 season

Hobo - daily 1pm Data Point

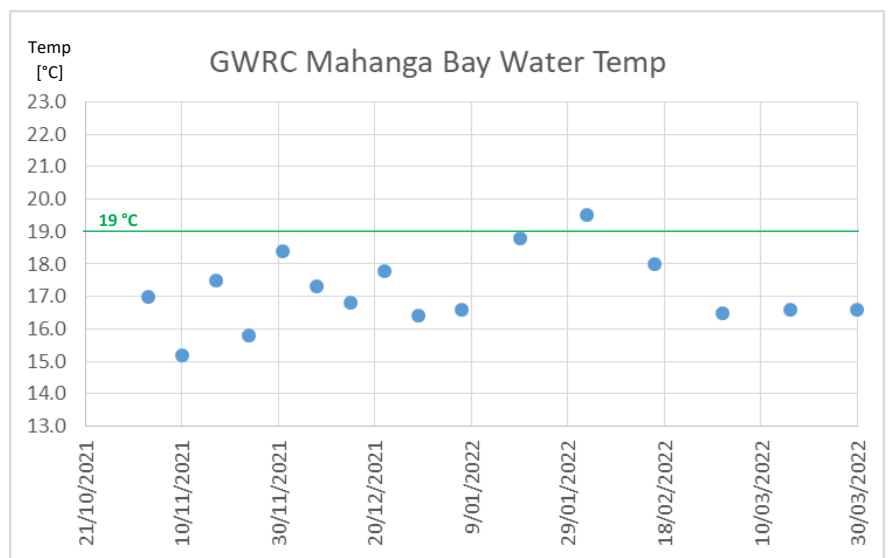
Date	°C
1/01/2022	18.5
2/01/2022	19.8
3/01/2022	18.2
4/01/2022	20.2
5/01/2022	20.6
6/01/2022	18.5
16/01/2022	18.6
17/01/2022	19.3
18/01/2022	19.5
19/01/2022	18.5
23/01/2022	18.7
24/01/2022	19.5
25/01/2022	18.7
31/01/2022	18.4
1/02/2022	19.1
2/02/2022	18.2



> 19.5 °C
19.5 °C
19.1-19.4 °C

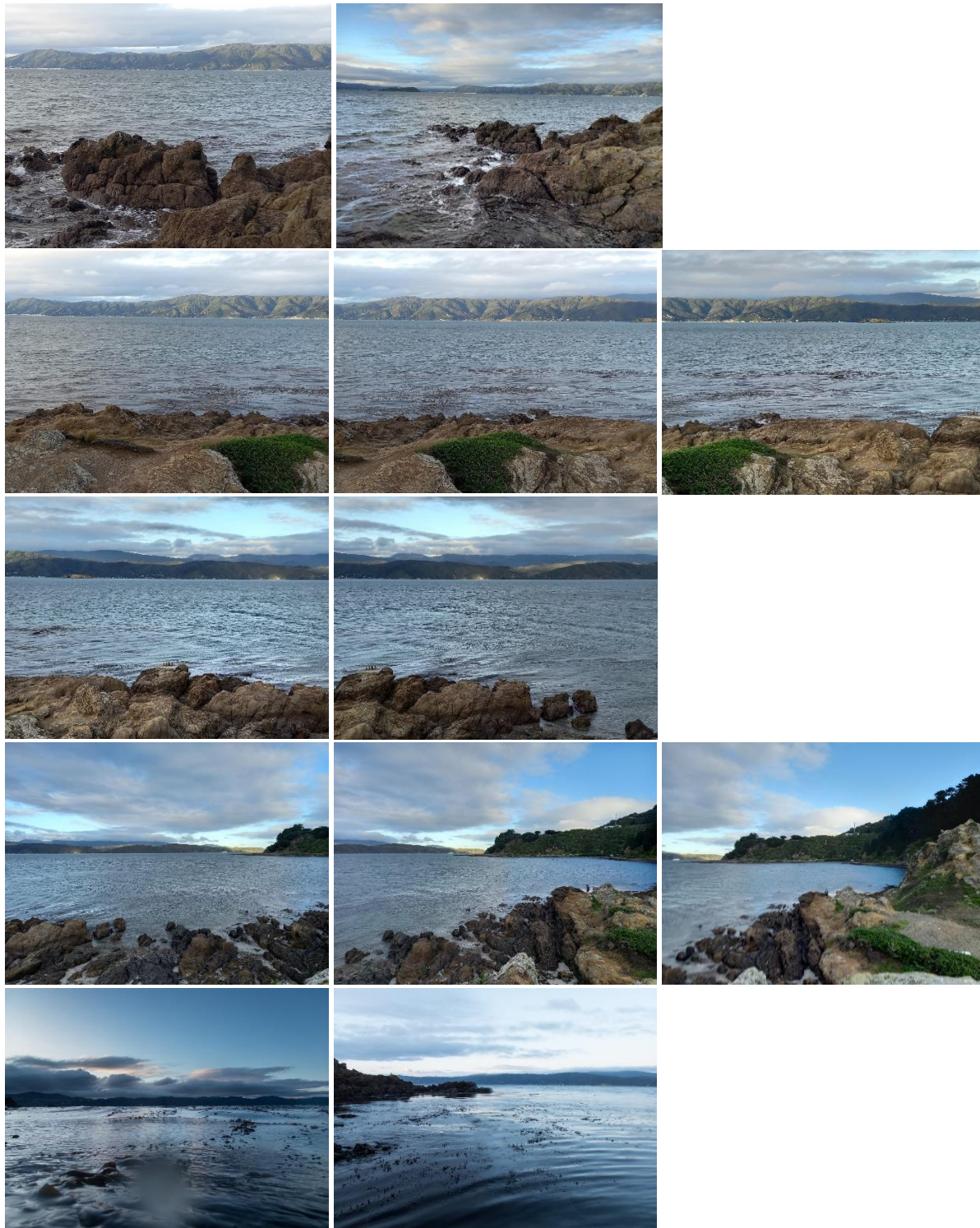
Temperature Data from the GWR Council site for 2021/22 season

Date	Temp [°C]
3/11/2021	17.0
10/11/2021	15.2
17/11/2021	17.5
24/11/2021	15.8
1/12/2021	18.4
8/12/2021	17.3
15/12/2021	16.8
22/12/2021	17.8
29/12/2021	16.4
7/01/2022	16.6
19/01/2022	18.8
2/02/2022	19.5
16/02/2022	18.0
2/03/2022	16.5
16/03/2022	16.6

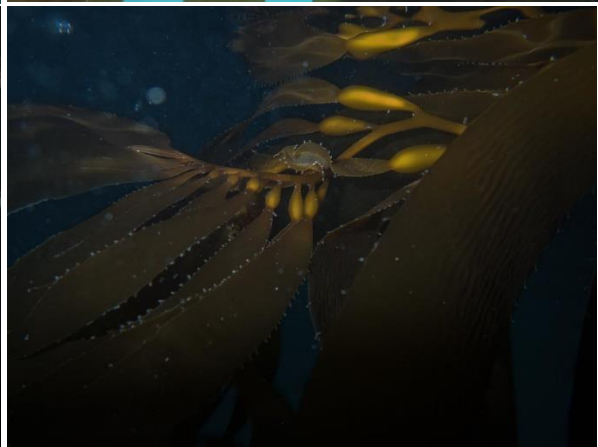


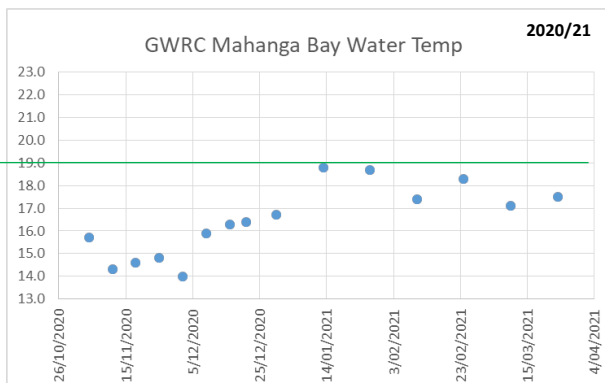
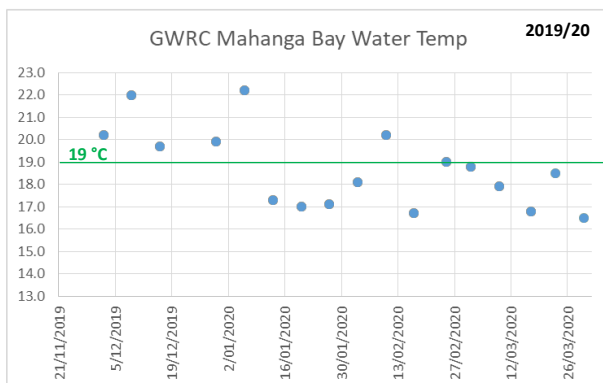
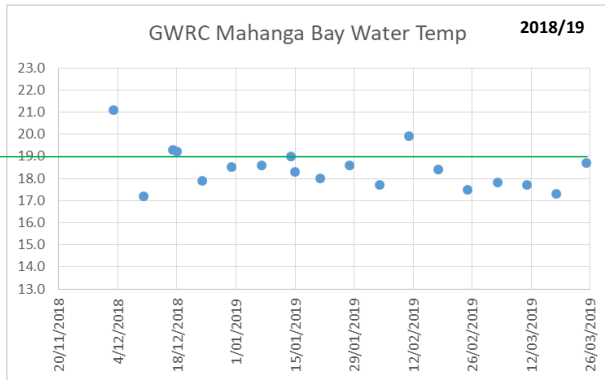
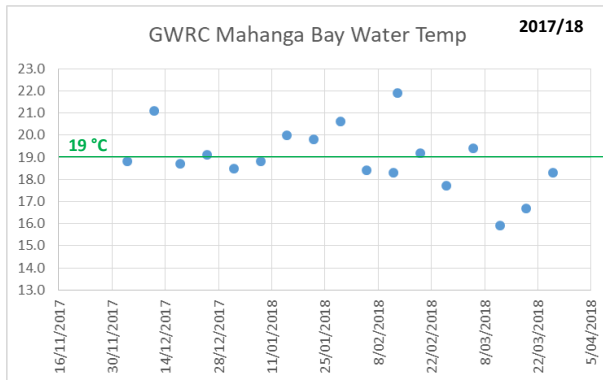
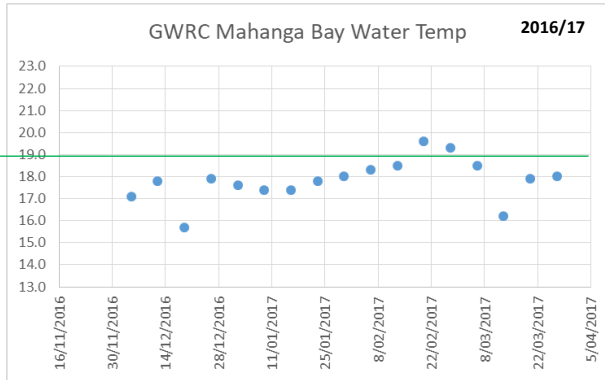
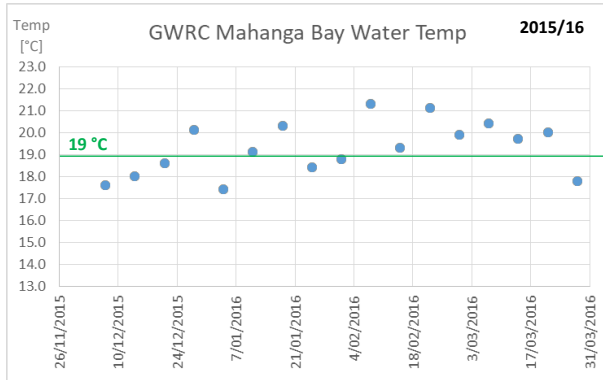
2022-June-06 Survey Photos

Topside photos and surface snorkel (all uw photos taken from surface).









Season	Date	Water Temp > 19.5 °C
2015/16	8/02/2016	21.3
2016/17	20/02/2017	19.6
2017/18	13/02/2018	21.9
2018/19	3/12/2018	21.1
	11/02/2019	19.9
2019/20	2/12/2019	20.2
	9/12/2019	22.0
	16/12/2019	19.7
	30/12/2019	19.9
	6/01/2020	22.2
	10/02/2020	20.2
2020/21	N/A*	

Season	Date	Water Temp ≥ 19.5 °C
2021/22	2/01/2022	19.8
HOBO	4/01/2022	20.2
	5/01/2022	20.6
	18/01/2022	19.5
	24/01/2022	19.5

* no measurements > 19.0 °C

