

A little hapu with a very big idea

FOUR PEOPLE HAVE AN IDEA



Photo by Seascology - Cristina MacLellan



"I love learning about the interconnectedness of it all. The way the water connects the mountains to the sea and the people too"



Photo by Anna Peters


Mountains To Sea
 Conservation Trust
 Nga Maunga ki te Moana



Photo by Seascology - Cristina MacLellan

"It is great to know that there are lots of people out there teaching us how to care for the colourful sea creatures in the ocean, when I am older I want to be a snorkeler like you, I cannot wait!"



Our goal is to empower and support communities to achieve marine and freshwater conservation through science based experiential programmes, resources, projects and community engagement.

Whakamana te maunga Whakamana te wai He mauri o ngā tangata Ngā mea katoa he pai
 If we look after the water from the mountains to sea, it will look after us. It is our life force.

visit www.emr.org.nz and www.whitebaitconnection.co.nz and www.mountaintosea.org.nz or email us at info@emr.org.nz

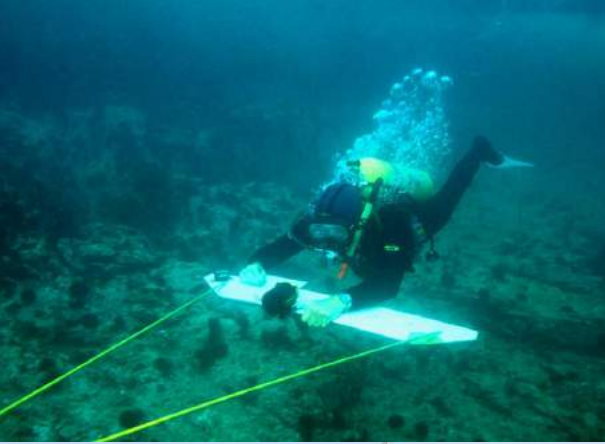


This banner was made possible through support from the Department of Conservation



EMR Simone Nelder

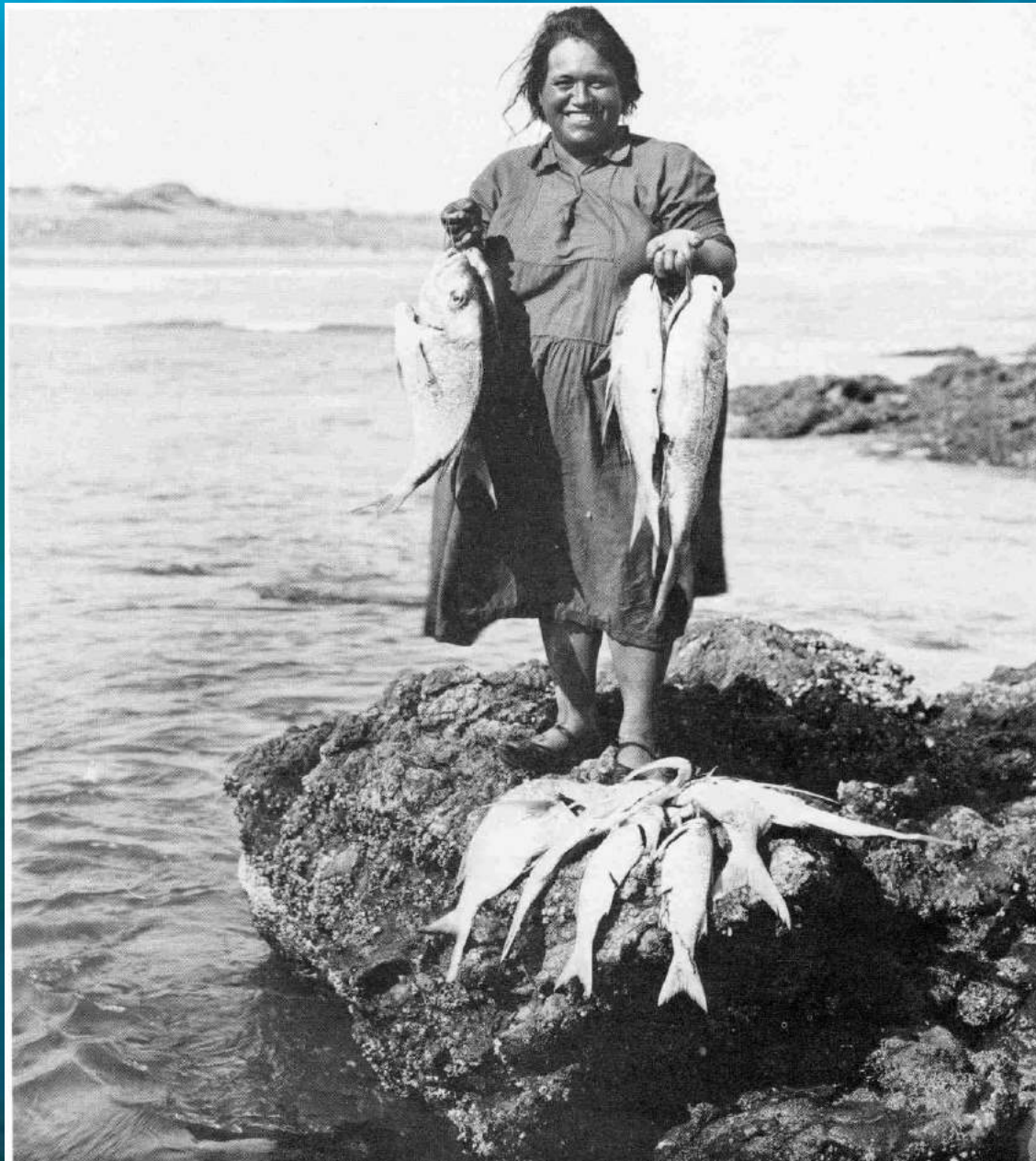
Back to the Future



Roger Grace









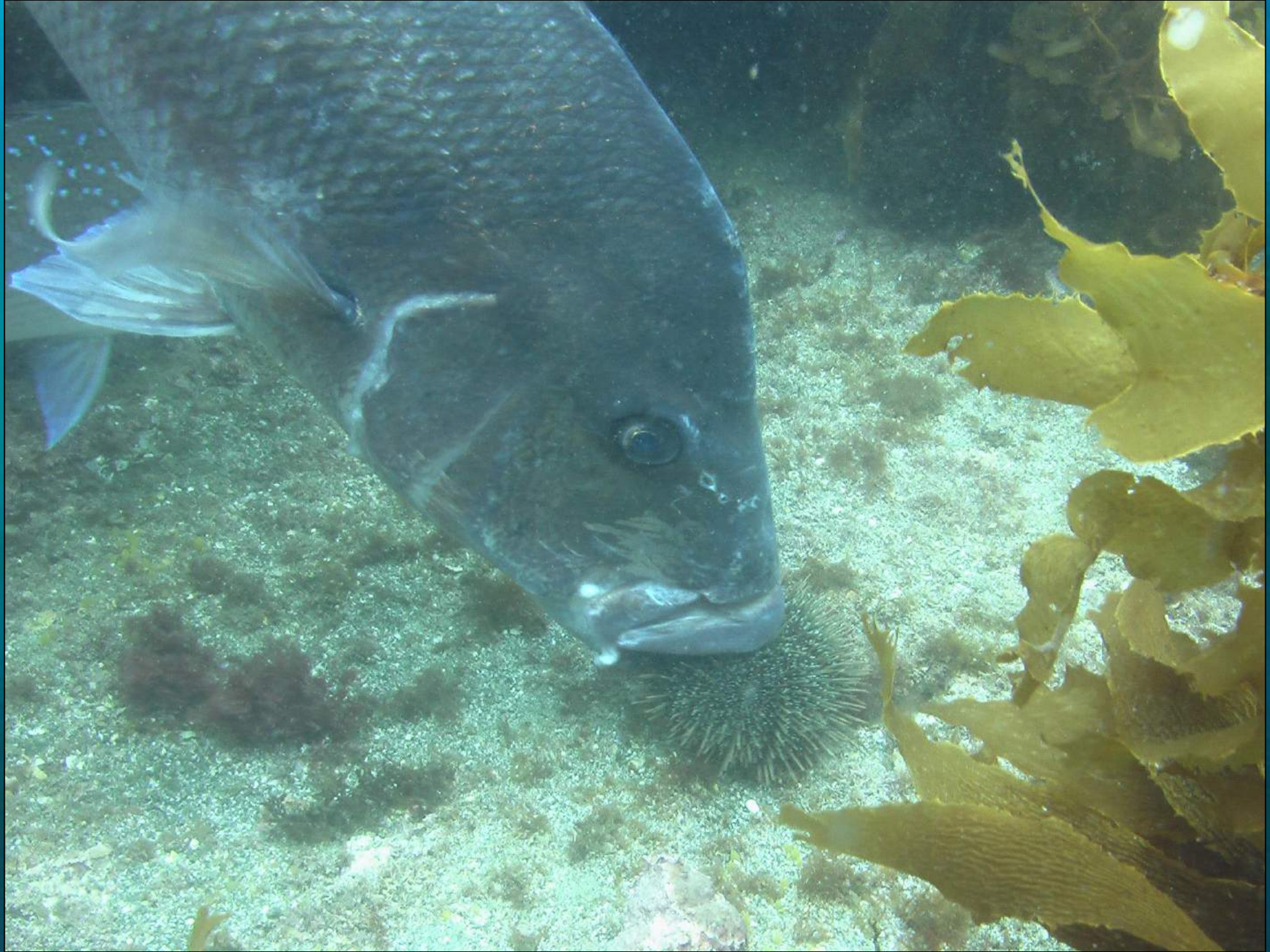


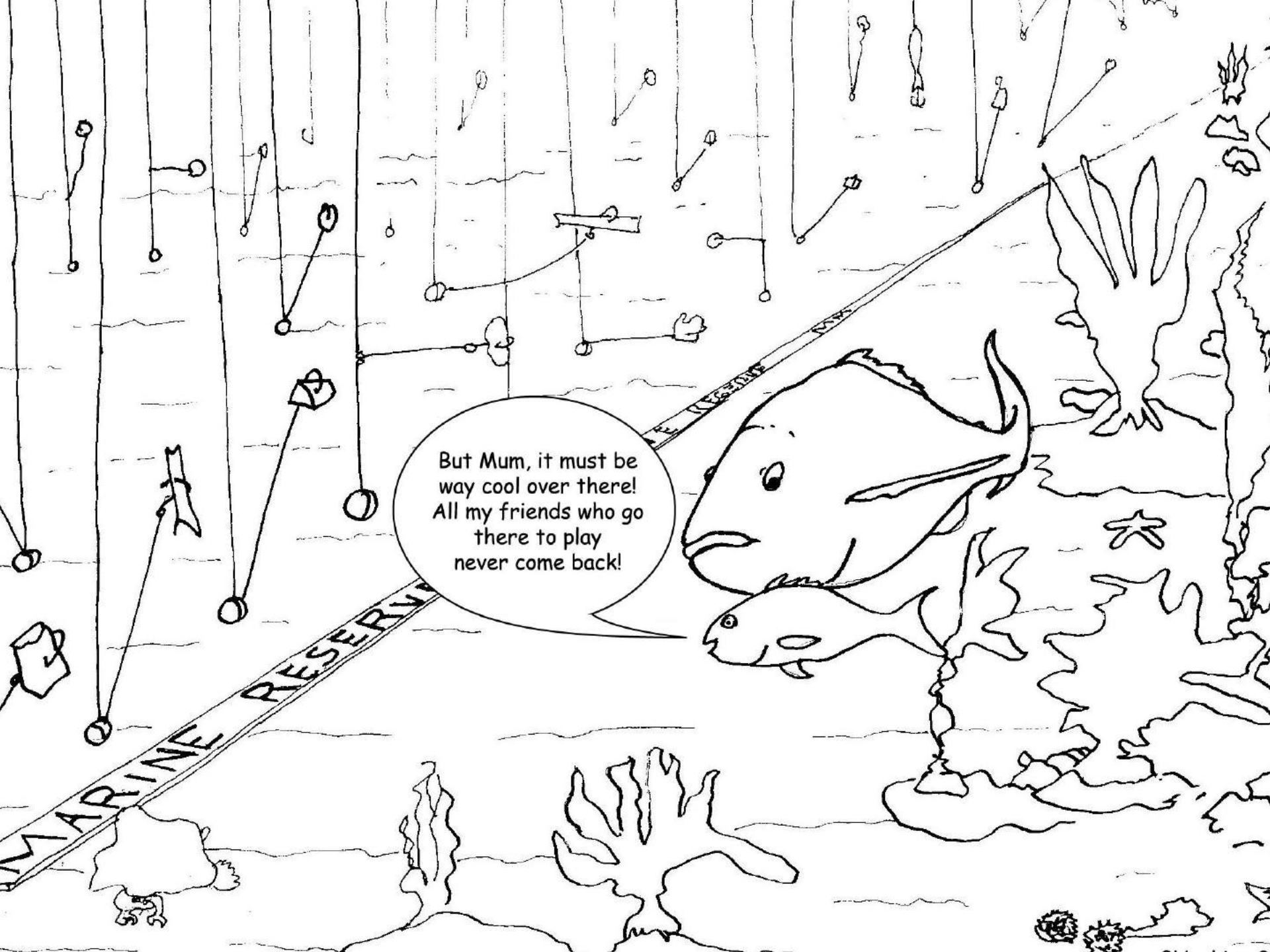








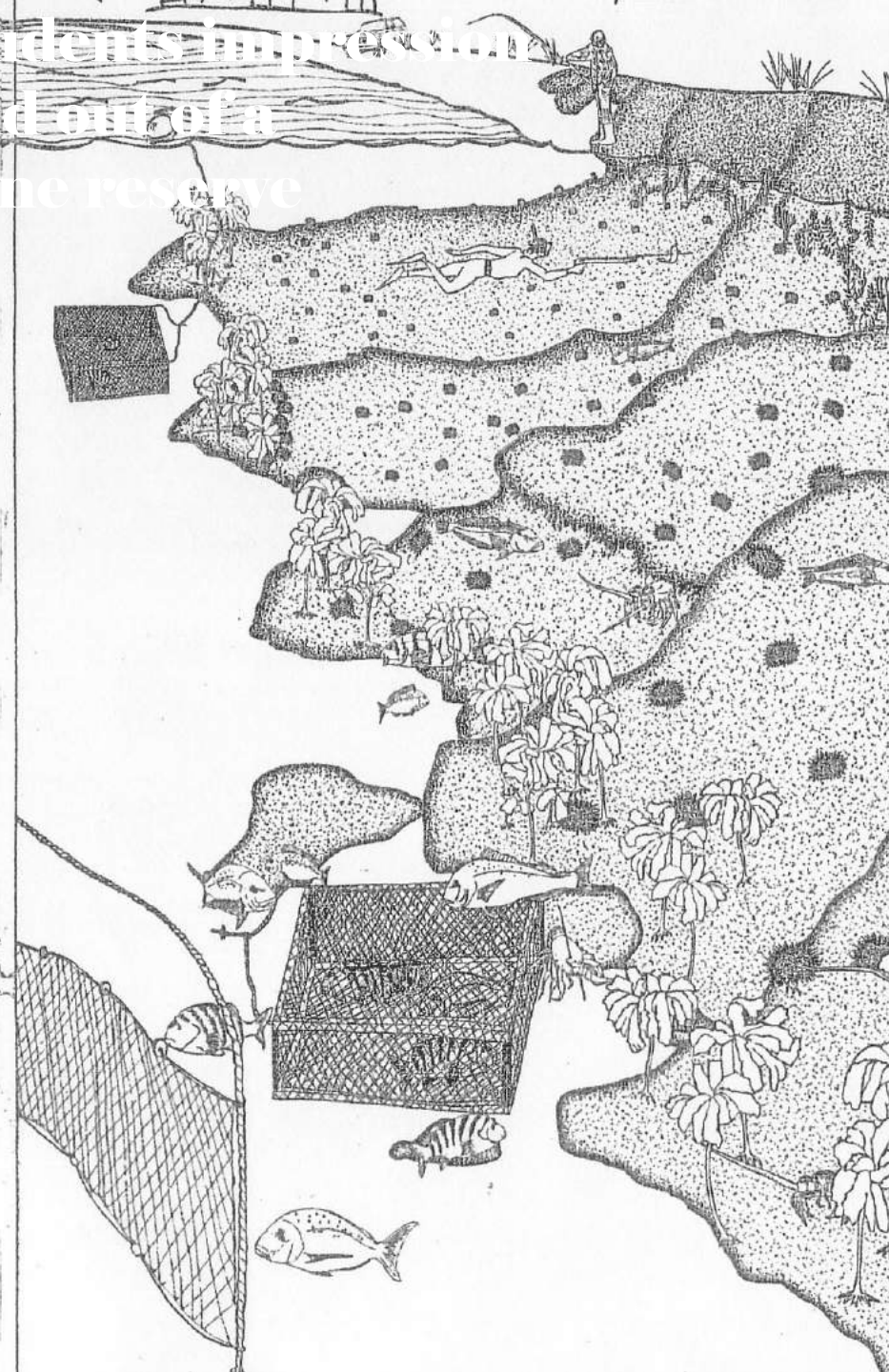




But Mum, it must be way cool over there! All my friends who go there to play never come back!

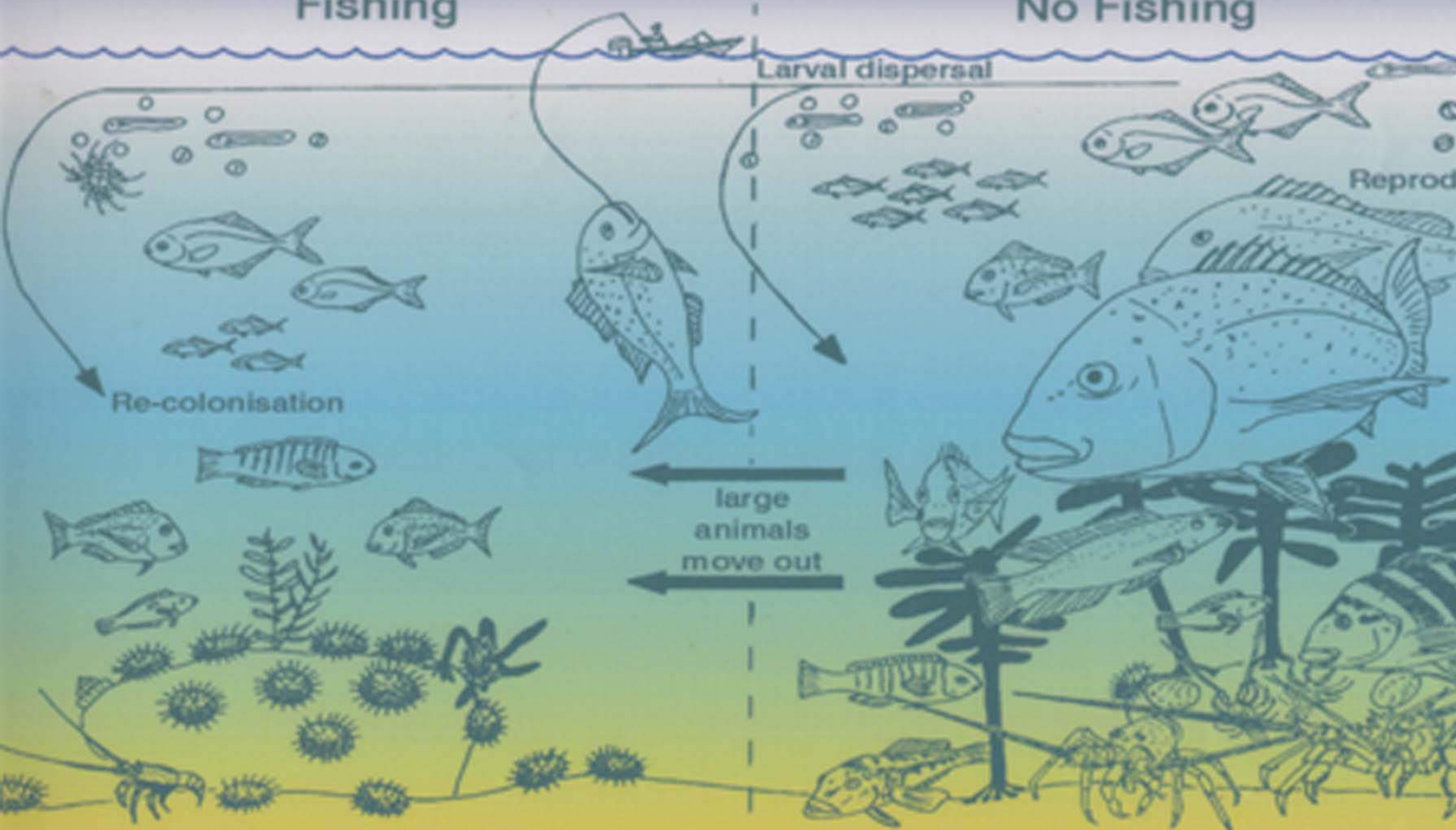
MARINE RESERVE

A Student's Impact in and out of a Marine Reserve



Fishing

No Fishing



Larval dispersal

Reprod

Re-colonisation

large animals move out

Impacted by fishing
Low abundance and diversity of fishes
Abundant kina
kelp grazed out by kina

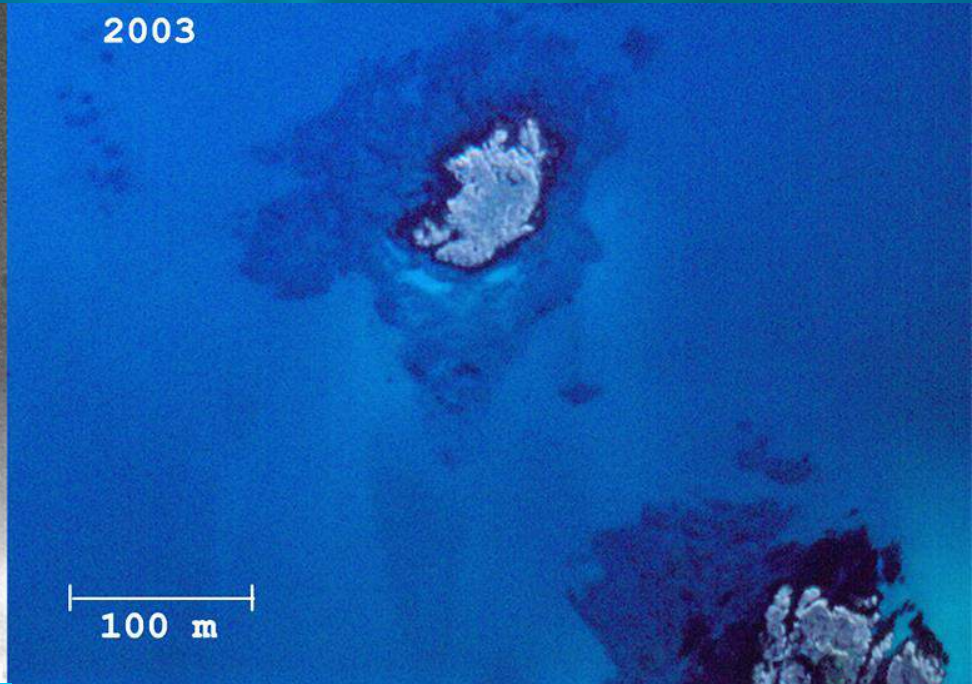
Marine Reserve
High abundance and diversity
Abundant snapper, healthy kelp forest
and rock lobster

Pa Point 1950 - 2003

1950



2003



Shallow Mixed Weed



Kina Barren



Tangle Weed Forest

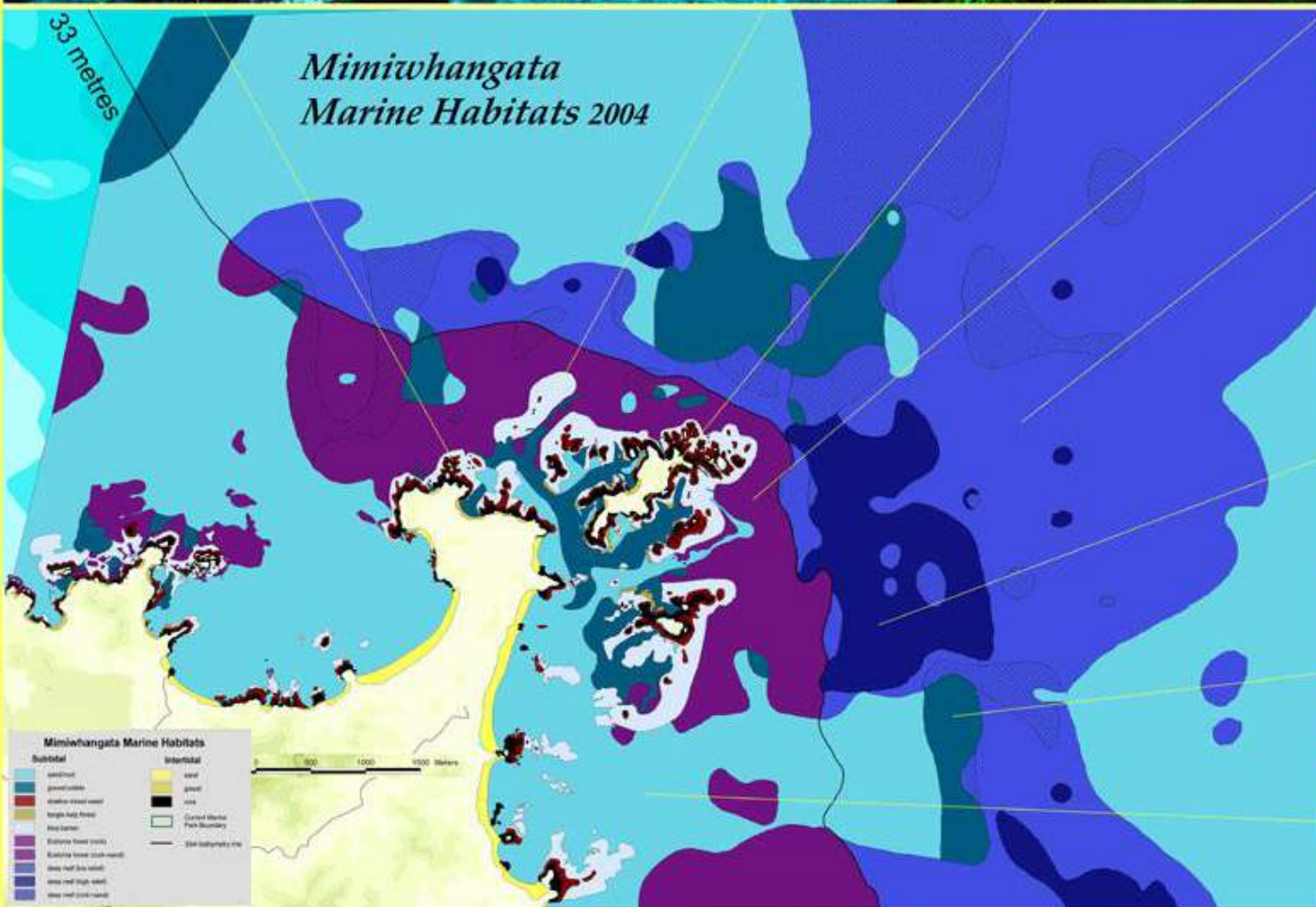


Ecklonia Forest



33 metres

*Mimiwhangata
Marine Habitats 2004*



Mimiwhangata Marine Habitats

Subtidal	Intertidal
seaweed	grass
green/white	grass
purple/red seaweed	rock
tangle weed forest	Gravel/cobble
kina barren	Sand
Ecklonia forest canopy	Starfish/porcupine sea
Shallow lower rock-mound	
deep reef low relief	
deep reef high relief	
deep reef high relief	
deep reef low-mound	

*Deep Reef
Sponge and
Gorgonian
Corals*



*High Relief
Deep Reef
Sponge and
Gorgonian
Corals*

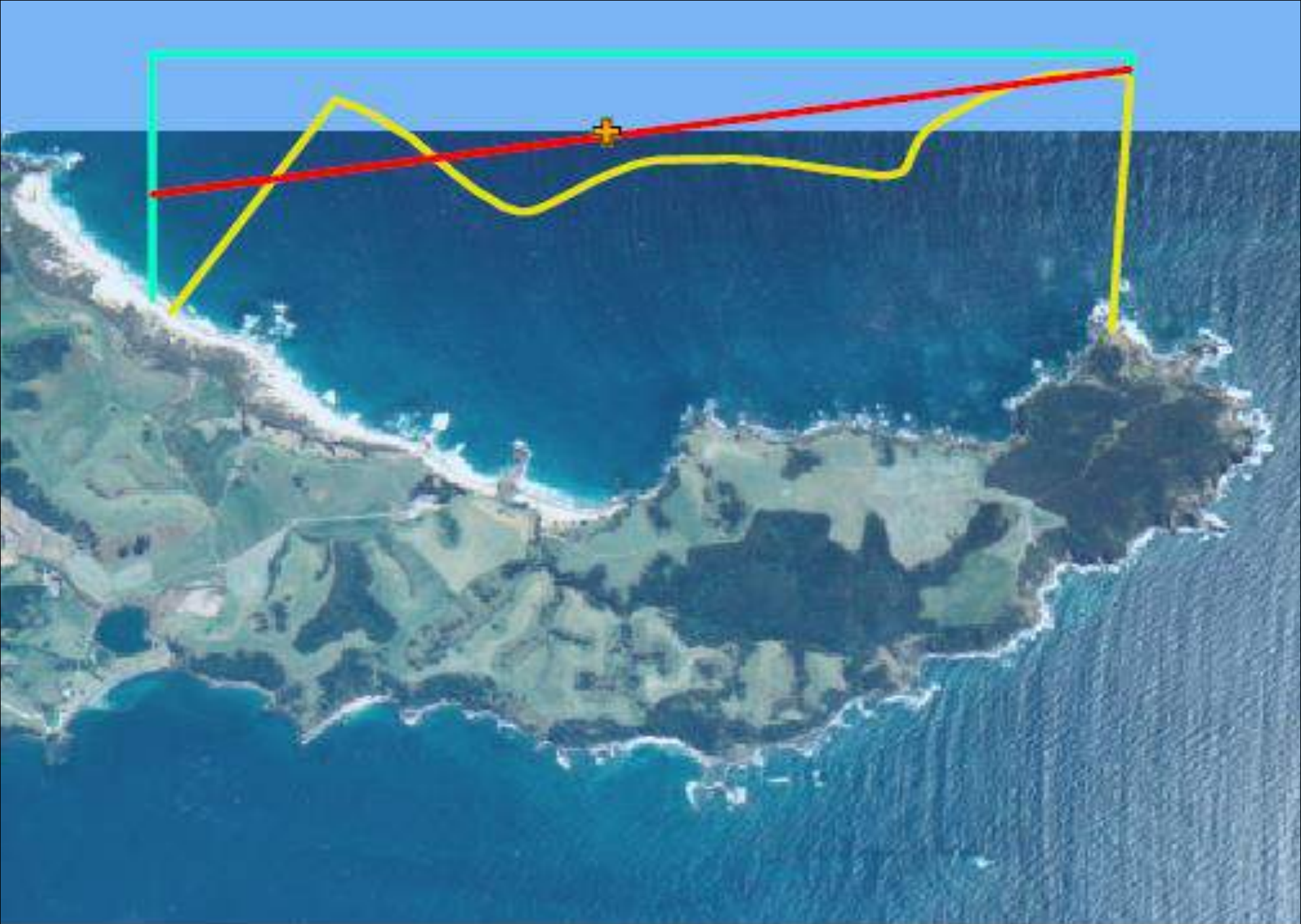


Gravel/Cobble Bottom



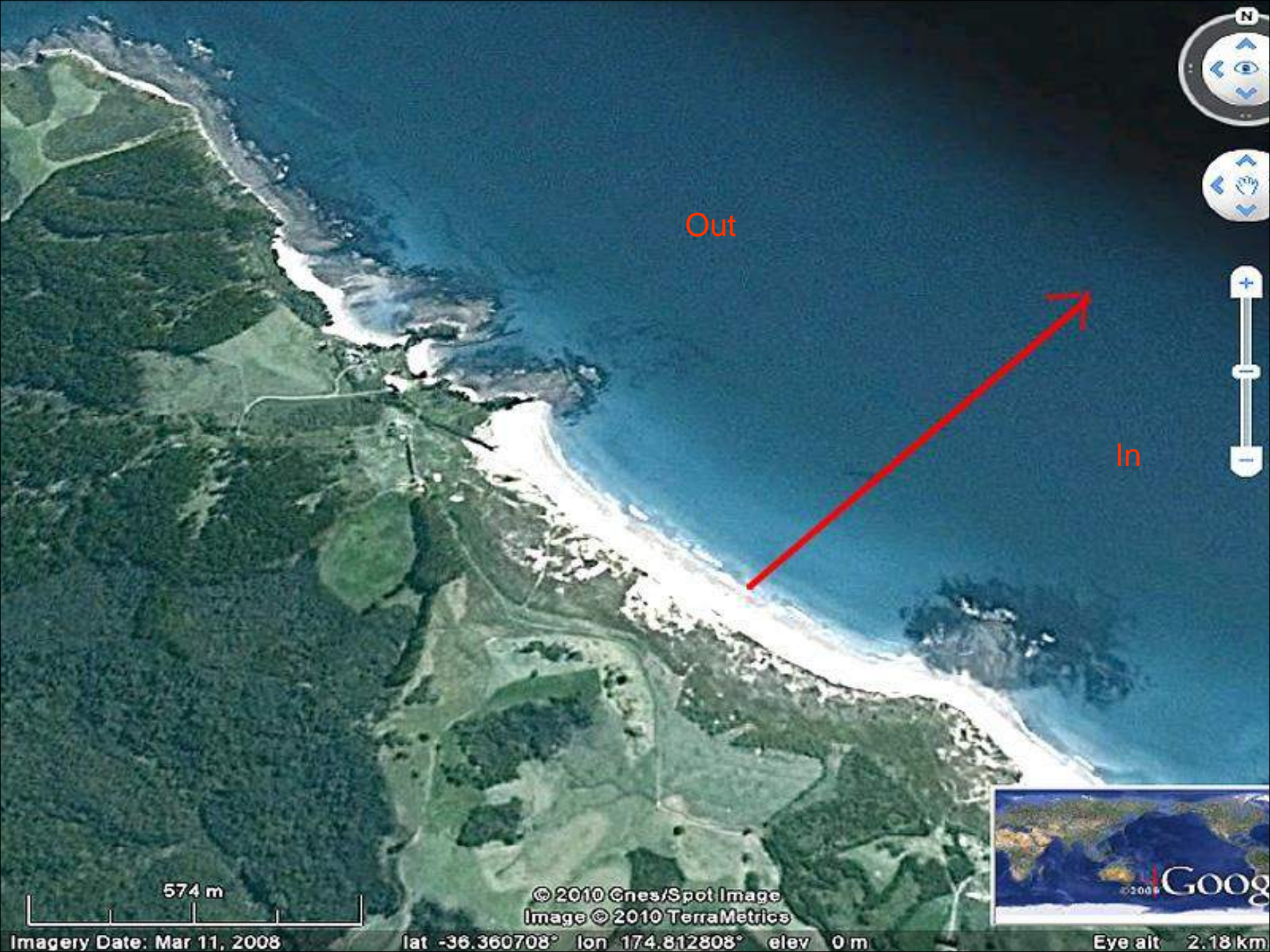
Sand Bottom





0 0.125 0.25 0.5 0.75 1 Kilometres





Out

In

574 m

© 2010 Cnes/Spot Image
Image © 2010 TerraMetrics



Imagery Date: Mar 11, 2008

lat -36.360708° lon 174.812808° elev 0 m

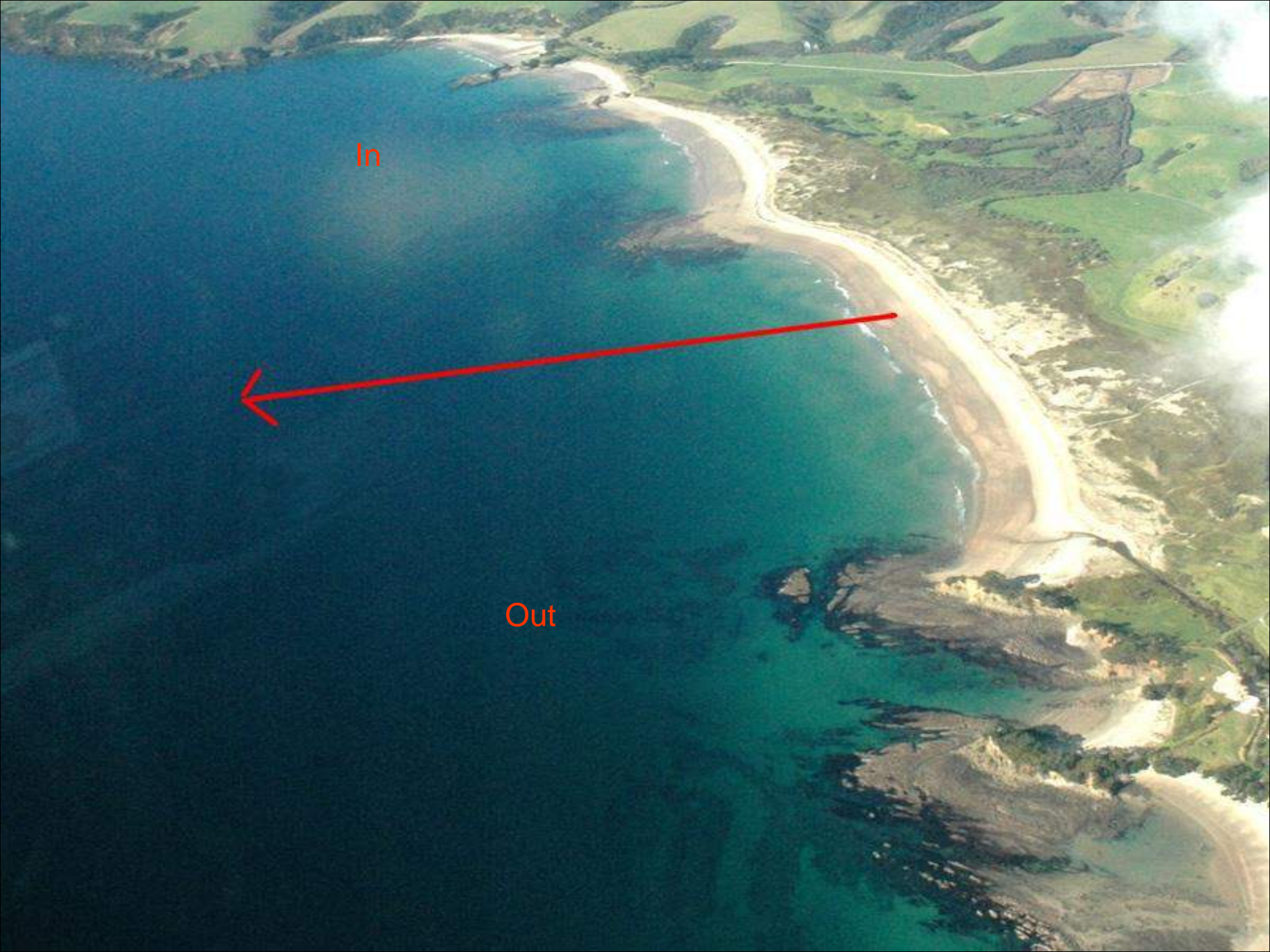
Eye alt 2.18 km

In Comet Reef



Out Pukenihihi Reef





In

Out







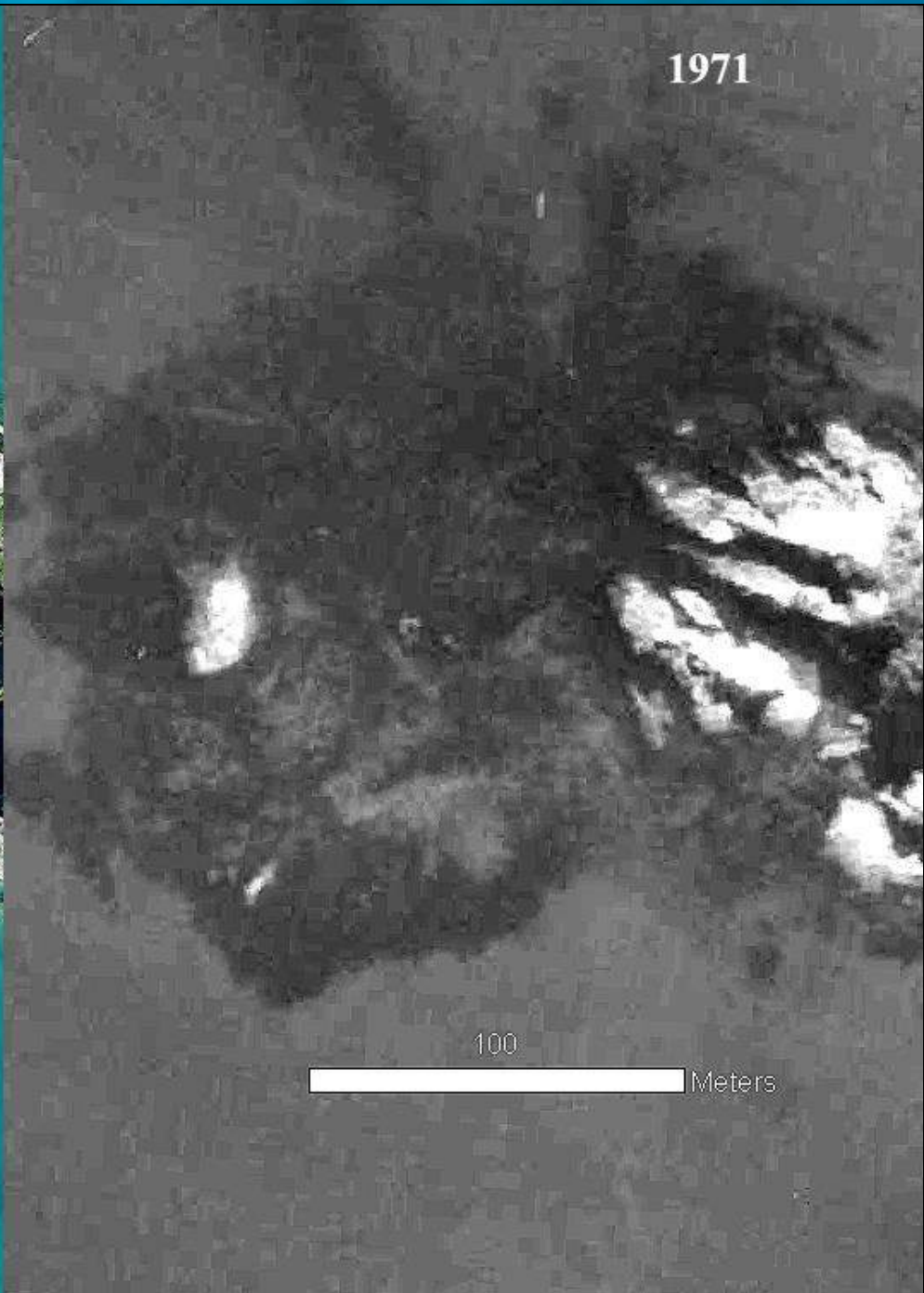
2010

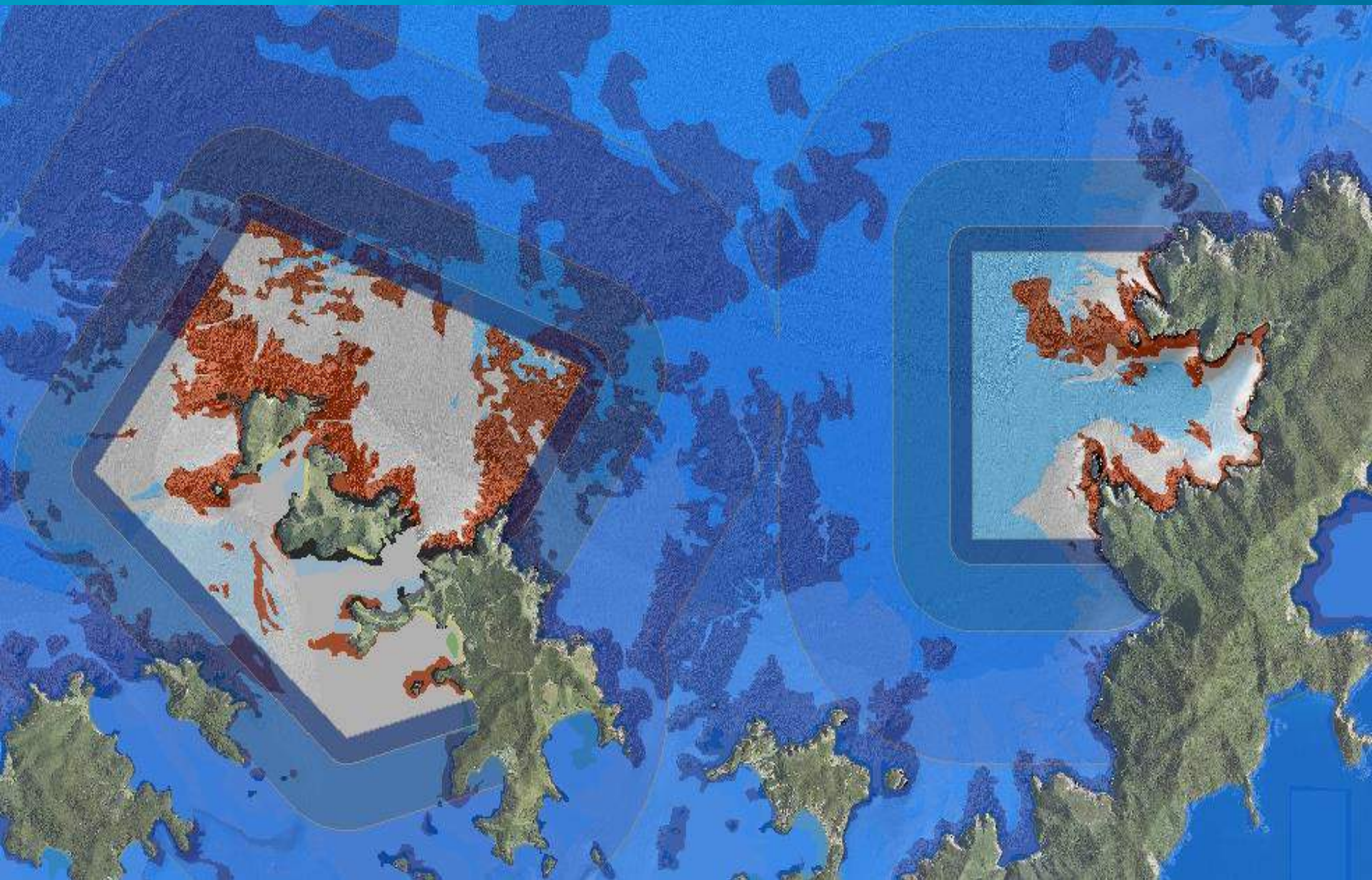


2010



1971





A look at the numbers - what can we expect from long term protection in shallow waters for crayfish

A 100 fold increase in total biomass for good habitat!
In reserves something like a biomass density of 1 tonne/ha
Outside the reserve ? What's the management??

Reserve Candidate Areas

Area in hectares of shallow crayfish habitat

Okahu	114	hectares
Maunganui Bay	38	hectares

Legal size crays

Tawharanui crayfish biomass	1000	kg/ha
Helena Bay to Whananaki (320 transects)	1.5	kg/ha

Potential biomass in reserves

Okahu	114	tonnes
Maunganui Bay	38	tonnes

300 Meters



Fish diversity dives 2019

- ▲ Diversity dives 2019
- Diversity dive route

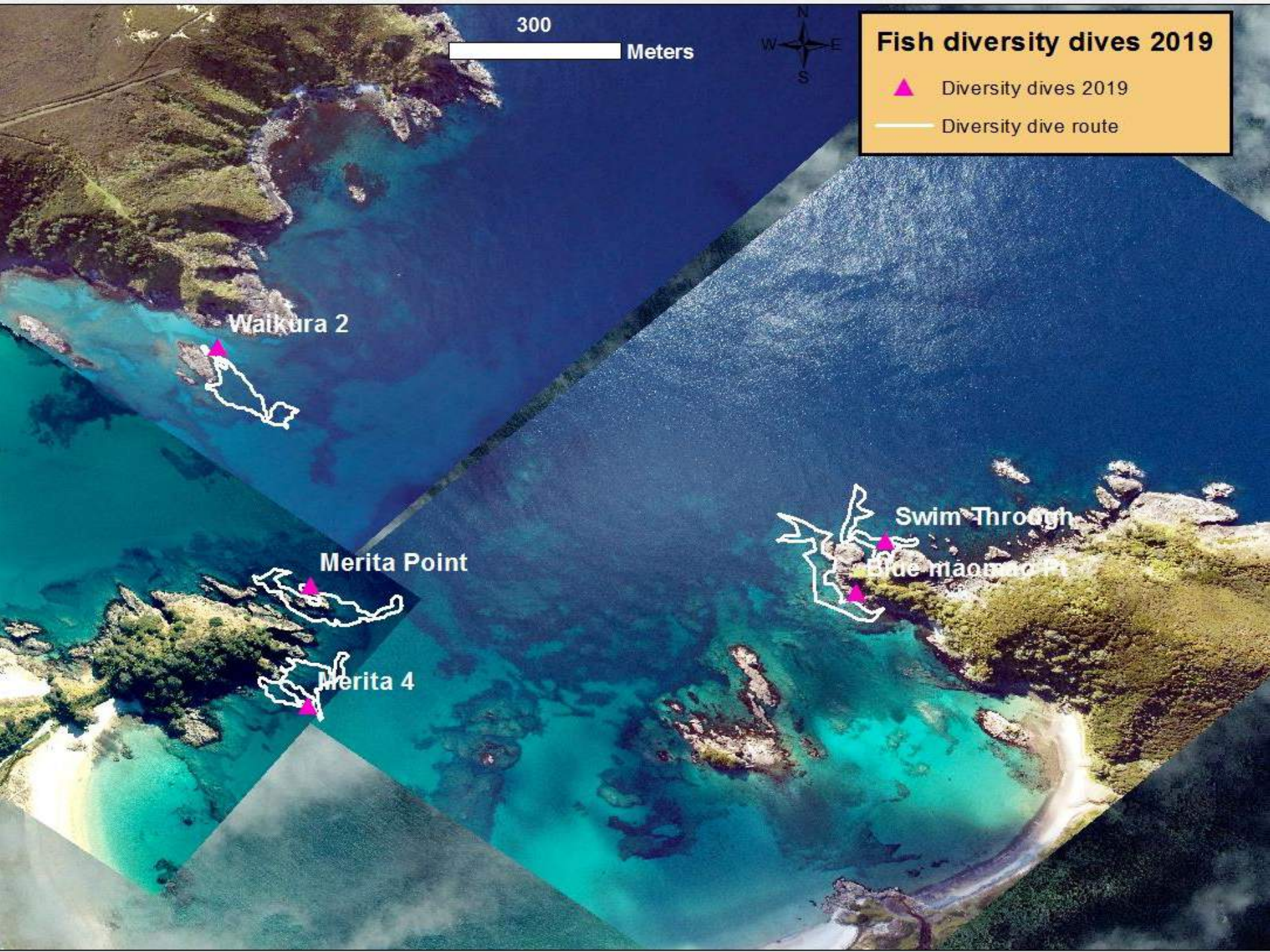
Waikura 2

Merita Point

Merita 4

Swim Through

Hide maomao Pt

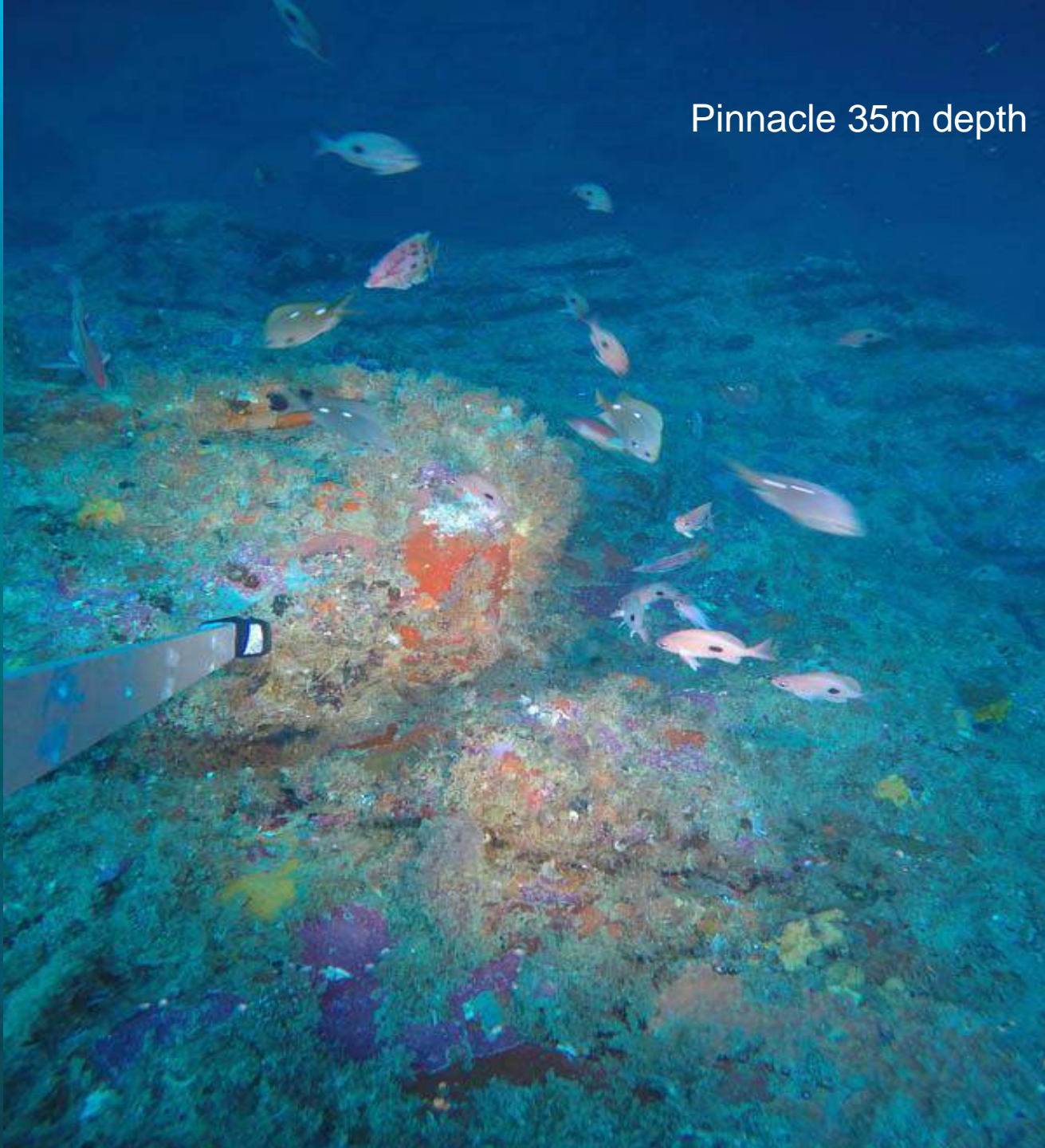








Pinnacle 35m depth













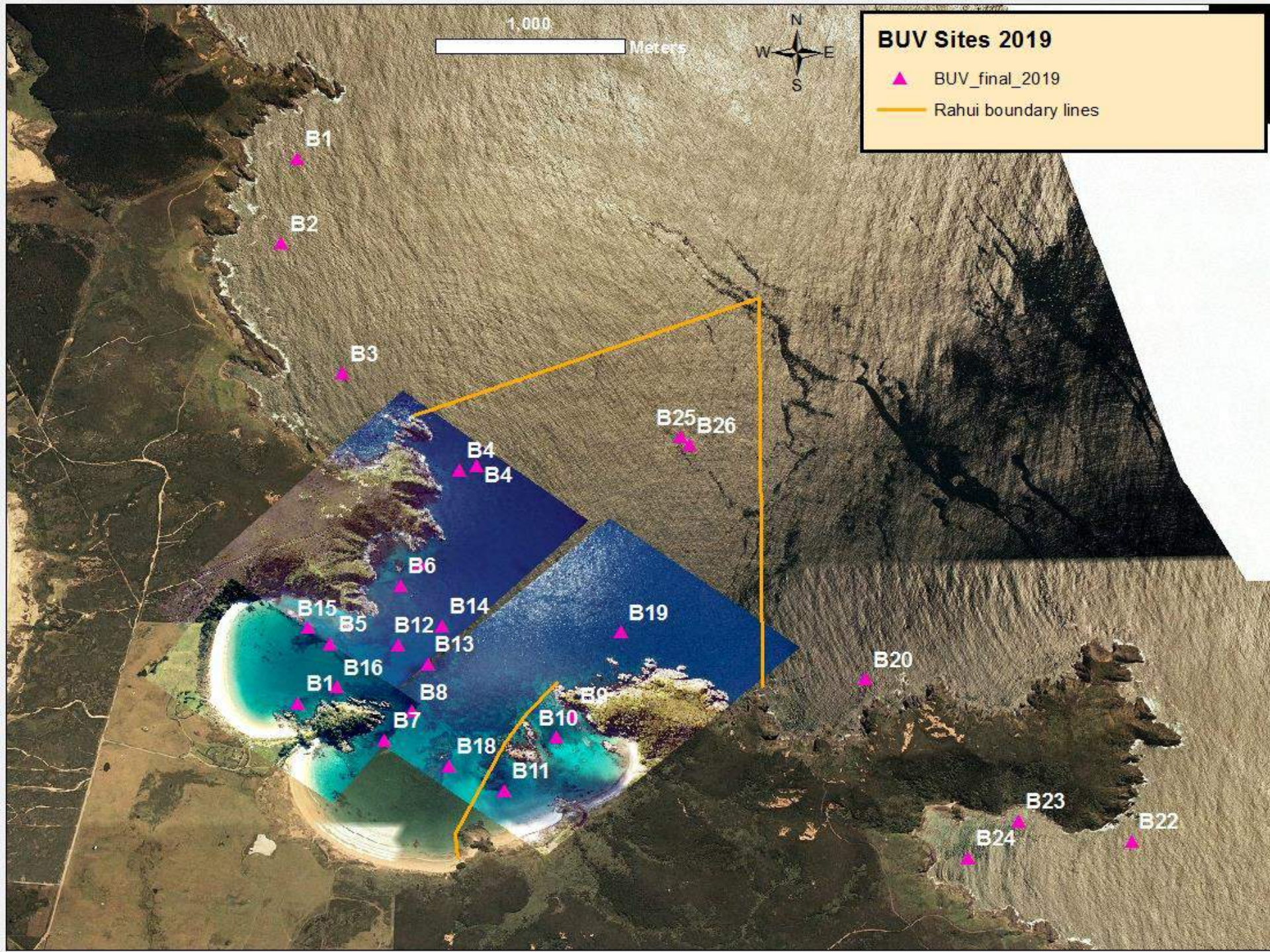
1 000

Meters



BUV Sites 2019

- ▲ BUV_final_2019
- Rahui boundary lines







100
Meters

O2

O1

W1

W2

M1

M2

M3





100
Meters





200
Meters



M2

M3

M4

S2

S1

S3

S5

S4

What have we learned from studying no take reserves



Lessons

Long term fully protected reserves work

More fish, bigger fish,

Large fish and healthy habitats matter

The 10 & 100 rule applies generally to restoring overfished degraded habitats

Marine life returns 10x more fish and 100-1000x biomass, diversity triples

1 km of no take reserves equals 10km of heavily fished coast in terms of productivity

No take Reserves support all forms of local management

Principles

Protect some of every habitat

As the network grows the benefits increase dramatically

Maximise the advantages of traditional management

and local fisheries management working alongside long term protection

Nga mihi

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kerr
& associates