

Experiencing Marine Reserves



EMR

Where fish are cool and hang in schools

www.emr.org.nz





Whakamana te maunga
Whakamana te wai
He mauri o ngā tangata
Ngā mea katoa he pai
Haumi e Hui e Taiki e !!

If we look after the water
from the mountains to the sea,
it will look after us.
It is our life force.

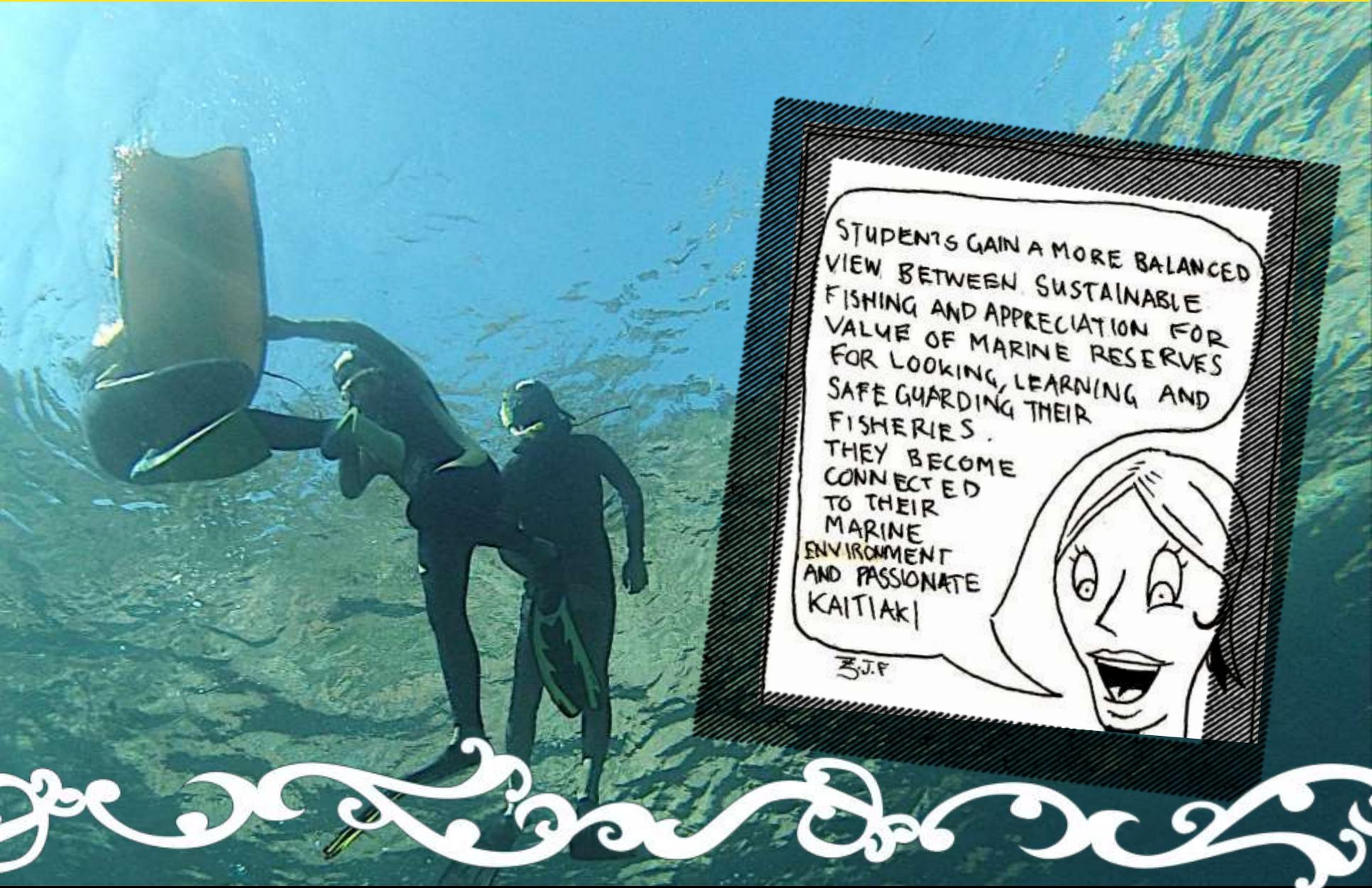
Te Kura Moana
The school of the ocean

EMR Goal

To raise awareness,
understanding and
support for marine
conservation
throughout Aotearoa
through dynamic
experiential education
opportunities



Encourage the ethic of Kaitiakitanga



STUDENTS GAIN A MORE BALANCED VIEW BETWEEN SUSTAINABLE FISHING AND APPRECIATION FOR VALUE OF MARINE RESERVES FOR LOOKING, LEARNING AND SAFE GUARDING THEIR FISHERIES. THEY BECOME CONNECTED TO THEIR MARINE ENVIRONMENT AND PASSIONATE KAITIAKI

S.J.P.

How do we achieve this?



Fully Funded School Programmes



Marine Biodiversity

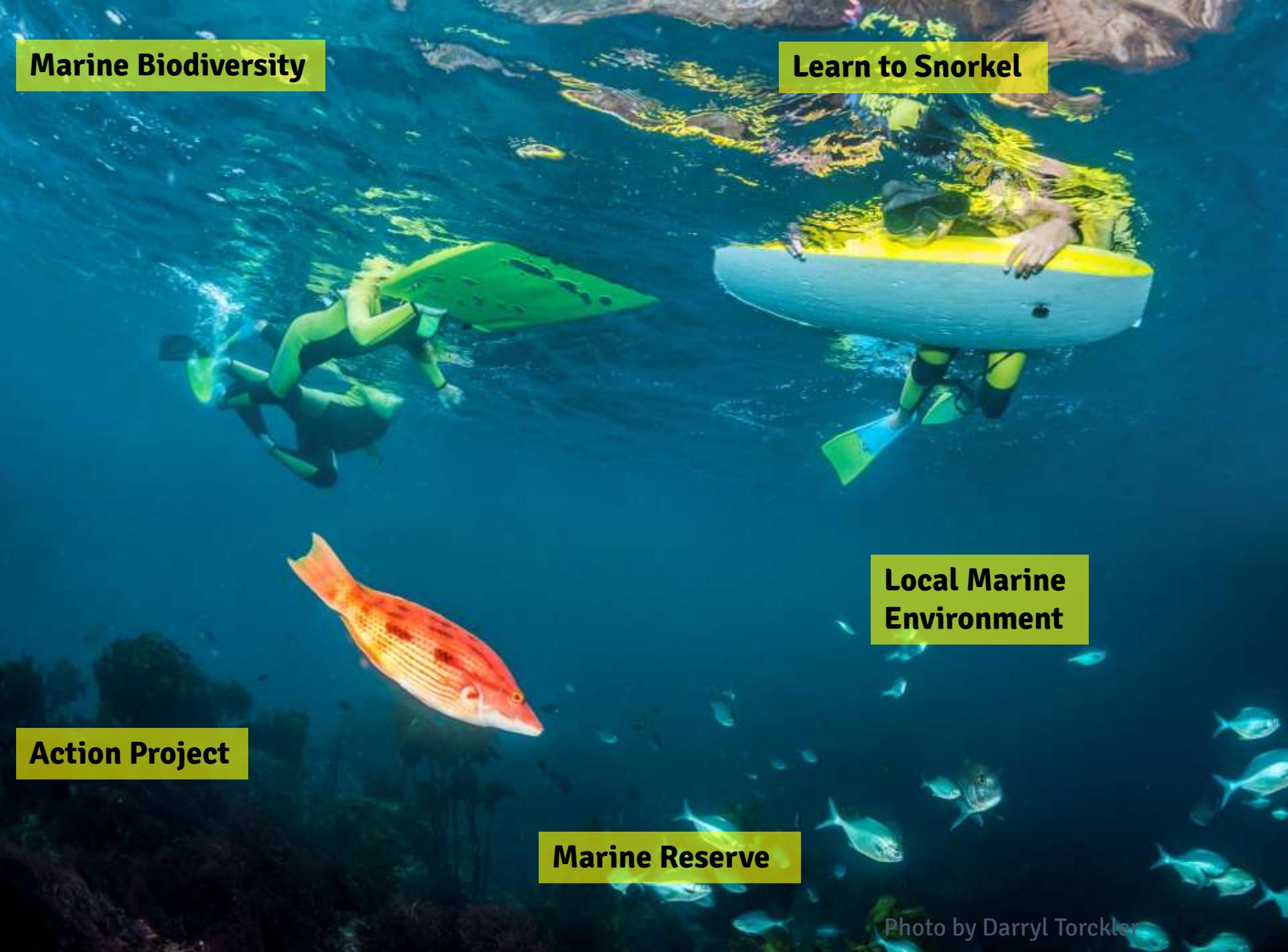
Learn to Snorkel

Local Marine Environment

Action Project

Marine Reserve

Photo by Darryl Torckler



Annual Poor Knights Trip



School Camps



Mountains to Sea Wānanga



Snorkel Days



SNORKEL SERIES 2018/19

Experiencing
Marine Reserves



Te Kura Moana



Experience the wonders of your local marine reserve or marine environment! The EMR programme has planned Community Guided Snorkel & Kayak Days around Auckland & Northland. We provide free hire of all snorkel equipment and provide experienced snorkel guides to lead your discovery. Participation by koha/donation.

Northland

- Reotahi - Sat 12th Jan
- Maitai Bay - Thurs 17th Jan
- Tapeka Pt - Sun 20th Jan *
- Kai Iwi Day - Sat 26th Jan
- Kai Iwi Night - Sat 26th Jan B
- Reotahi - Sunday 10th Feb
- Waikaraka - Sat 23rd Feb K B
- Reotahi - Sun 24th Feb
- Reotahi - Sun 12th Mar
- Waikaraka - Sun 24th Mar K B
- Poor Knights - Sun 19th May K B *

Bookings required B

Kayak K

Stand Up Paddleboard S

Still to be confirmed *

Auckland

- Hauturu - Sat 22nd Sept S K B
- Hauturu - Sun 23rd Sept S K B
- Motu Manawa - Sun 14th Oct K B
- Tawharanui - Sun 25th Nov B
- Shakespear - Sat 1st Dec
- Whangateau - Sun 2nd Dec
- Okura - Sat 15th Dec S K B
- Torbay - Sun 16th Dec
- Waiheke - Sat 12th Jan S B
- Te Matuku - Sun 13th Jan S B
- Motutapu - Sat 19th Jan
- Motuihe - Sat 2nd Feb
- Takapuna - Sun 10th Feb *
- Mokohinau - Sat 2nd Mar S K B
- Goat Island - Sat 16th Mar
- Rotoroa - Sat 6th April B
- Motu Manawa - Sat 13th Apr B
- Motu Manawa - Sun 14th Apr B

To book, for weather calls and back up dates visit www.facebook.com/emr.mtsct or www.emr.org.nz or contact auckland@emr.org.nz

The Bobby Stafford-Bush FOUNDATION

Version 2 - Updated Nov
See www.emr.org.nz for up to date information



Land based



Kayak/SUP



What do we do on a snorkel day?



Adventure

Island





Land-based
snorkel day



Kayak/SUP Day



Adventure Snorkel Days





Island Snorkel Days



Trophic Cascades



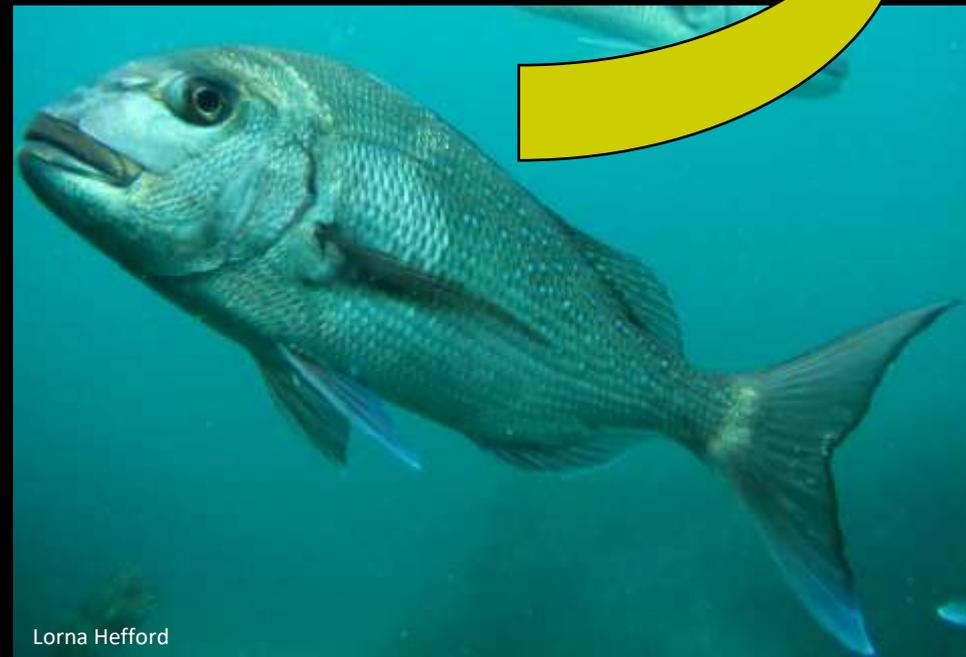
Photo by Paul Caiger



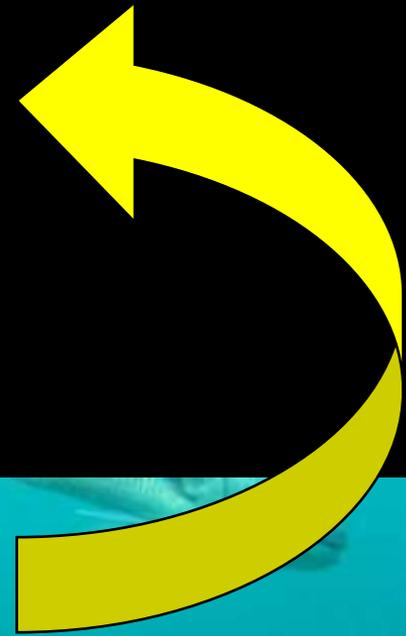
Photo by Jamie Quirk



EMR - Samara Nicholas



Lorna Hefford





Major threats to marine environment

- Overfishing and the depletion of large mature fish
- Habitat destruction
- Pollution
- Climate change



MARINE RESERVES



Protect segments of coastline to preserve different marine habitats in New Zealand

THE RULES

No fishing of any kind

No fish feeding (this disturbs their natural behaviour and is an offence)

No taking or disturbing of any marine life, including rocks, shells, shellfish, seaweed from the reserve

No building of any structures

No dumping

YOU CAN:

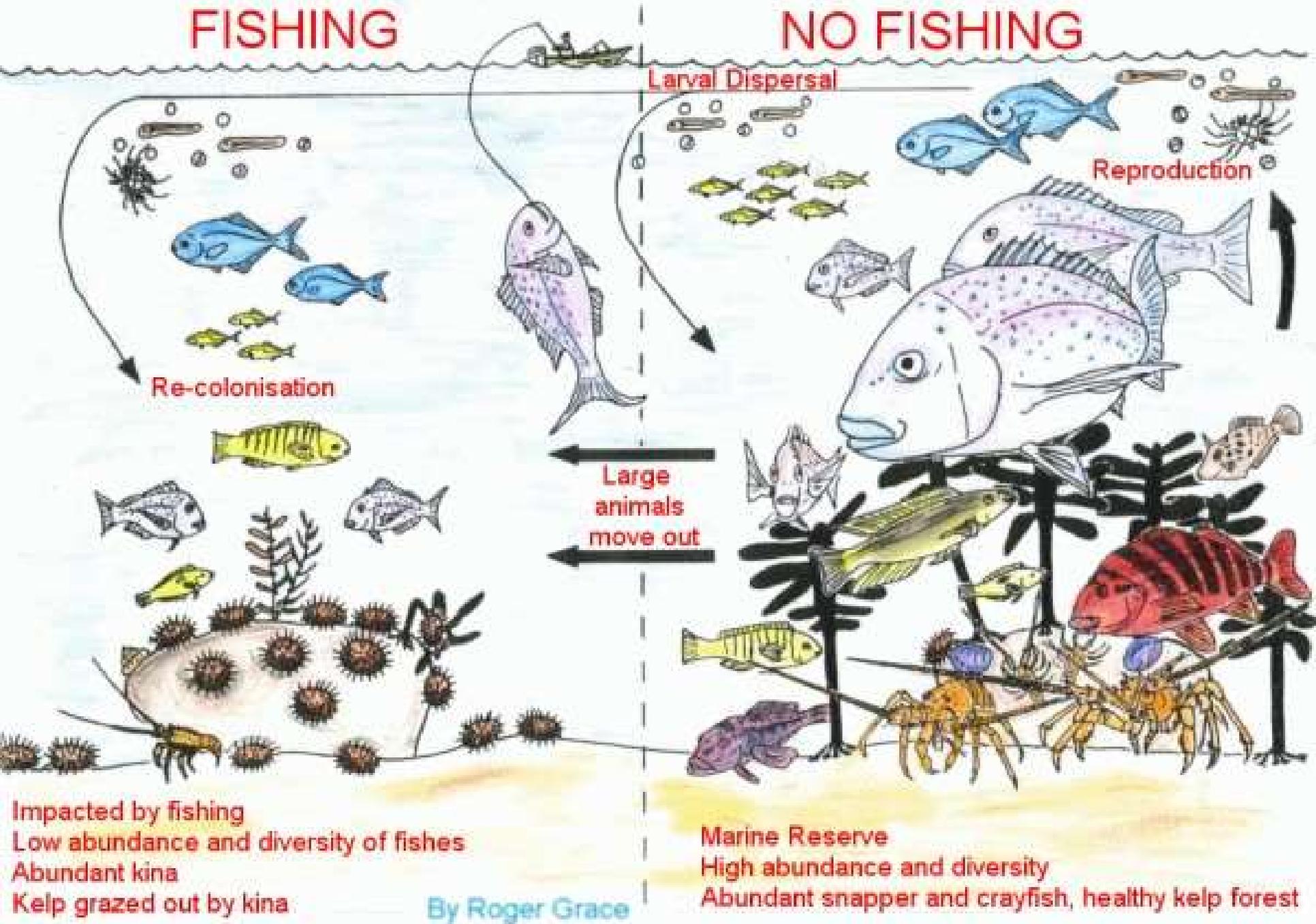
Swim, snorkel, dive or picnic in the marine reserve area



Paul Caiger

FISHING

NO FISHING



Re-colonisation

Larval Dispersal

Reproduction

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 and crayfish, healthy kelp forest

By Roger Grace



Sandager's wrasse (male)



Sandager's wrasse (female)

Clown Nudibranch



Seahorse



Photo by Samara Nicholas

Pipefish



Photo by Samara Nicholas

Leather Jacket



Kokiri

John Dory



Kuparu

Eagle Ray



Whio

Photo by Lorna Hefford

Stingray



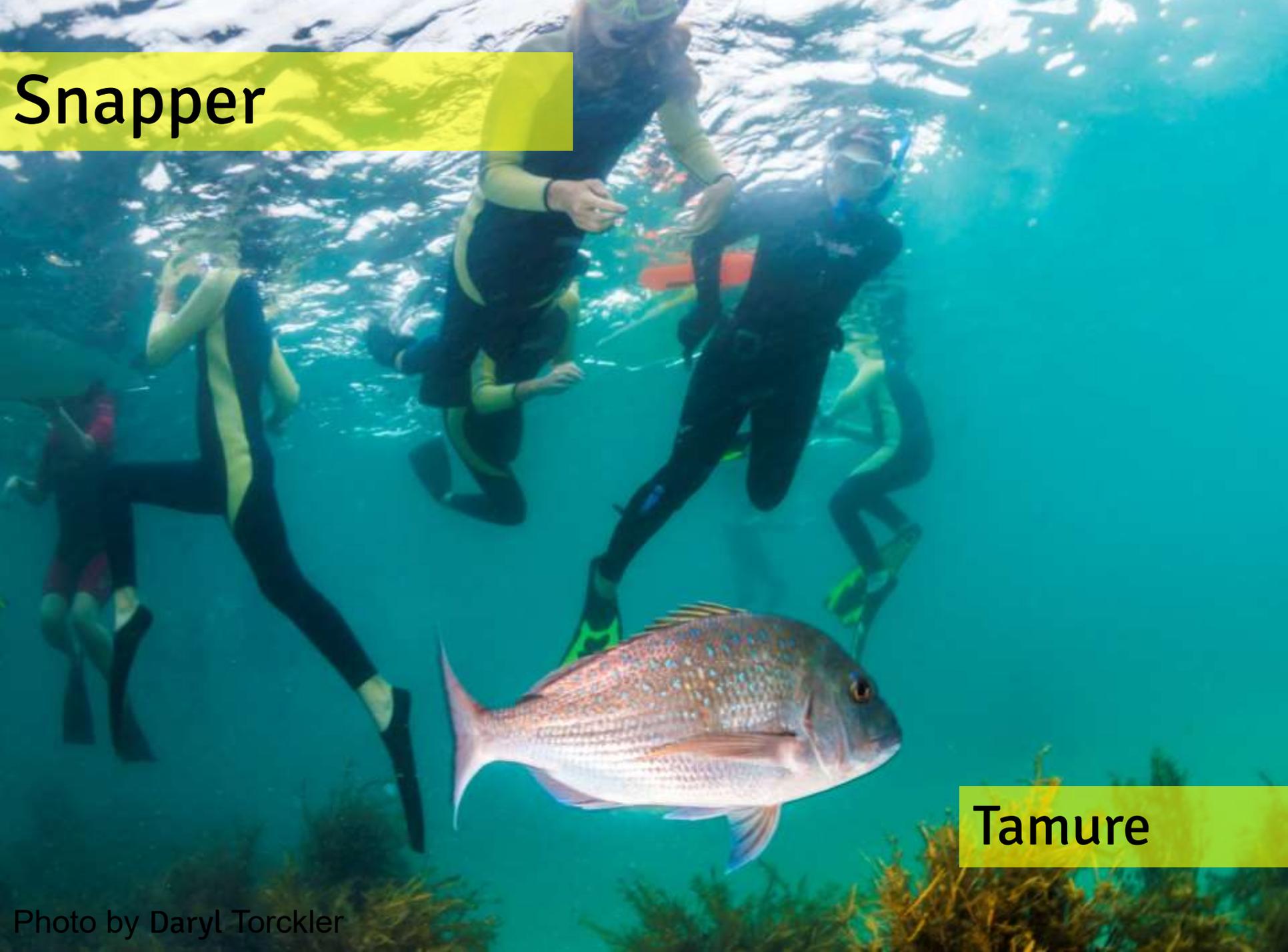
Whai

Paul Caiger ©

Parore



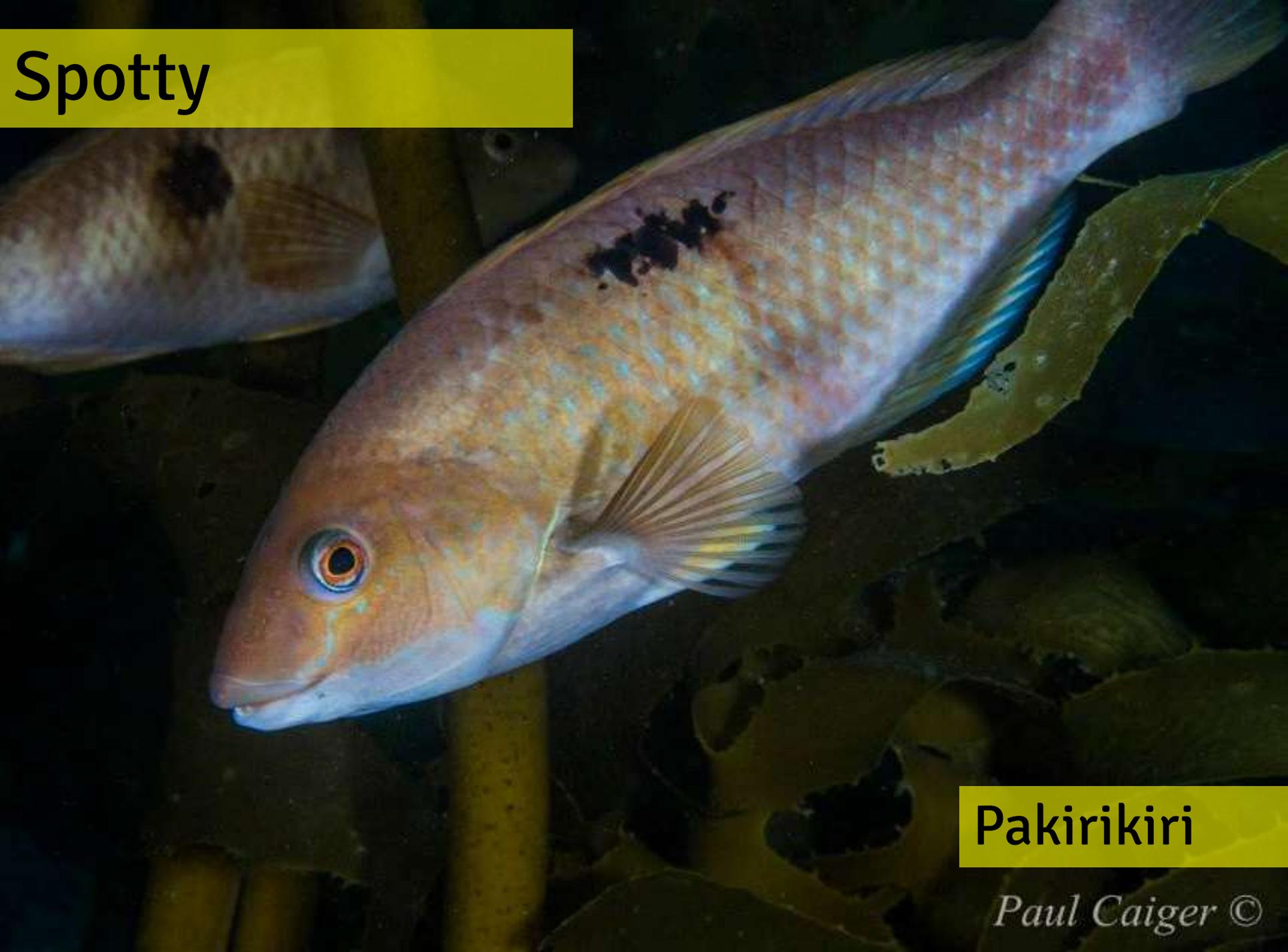
Photo by Tony and Jenny Enderby

An underwater photograph showing several divers in black wetsuits swimming in clear blue water. In the foreground, a large snapper fish with a pinkish-brown body and blue spots is swimming towards the right. The background shows more divers and a boat's surface. The water is bright and clear, with some green seaweed visible at the bottom.

Snapper

Tamure

Spotty



Pakirikiri

Paul Caiger ©

Can you spot the spotty?



Photo by Samara Nicholas

Variable Triplefin

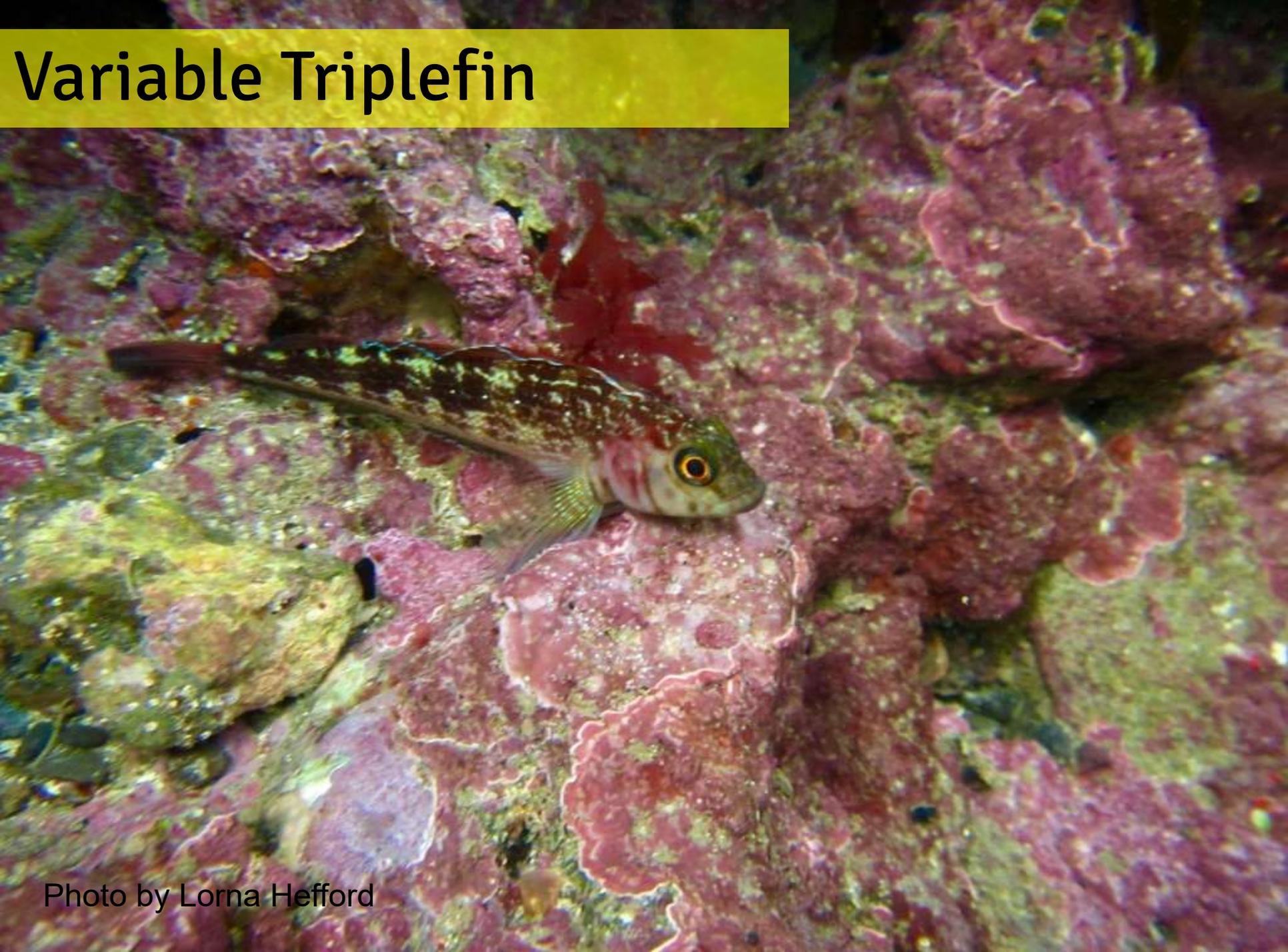


Photo by Lorna Hefford



Puffer Fish



Paul Caiger

An underwater photograph showing two large, smooth, brownish-green paua shells resting on a dark, rocky seabed. The shells are covered in a thin layer of green algae. The surrounding water is dark, and there are various pieces of seaweed and other marine life visible in the background. A yellow rectangular box is overlaid in the top left corner, and a yellow banner with black text is at the bottom.

Paua

DO YOU KNOW YOUR LOCAL LIMITS?

SNORKEL EQUIPMENT & SAFETY

EQUIPMENT

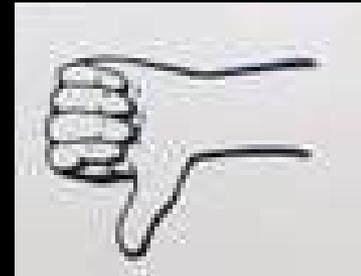
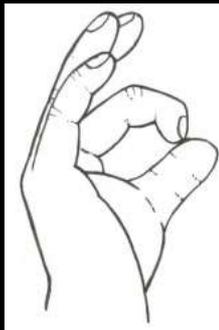
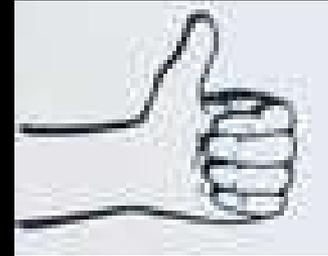
the essentials



EQUIPMENT



Hand Signals



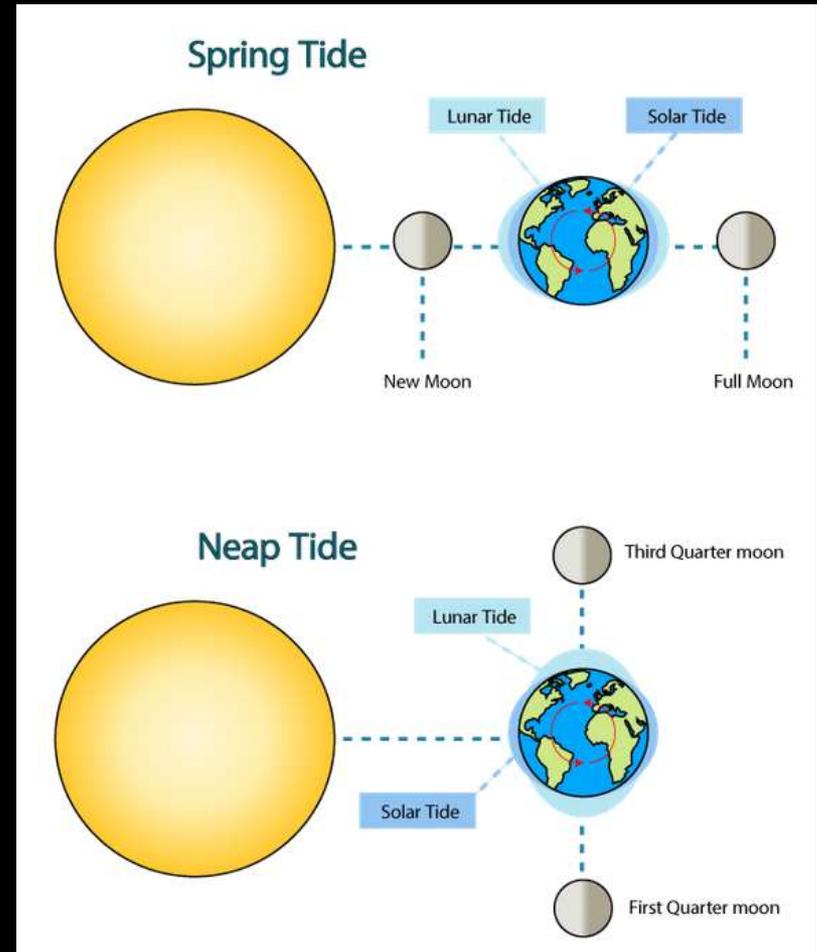
OPEN WATER ENVIRONMENT



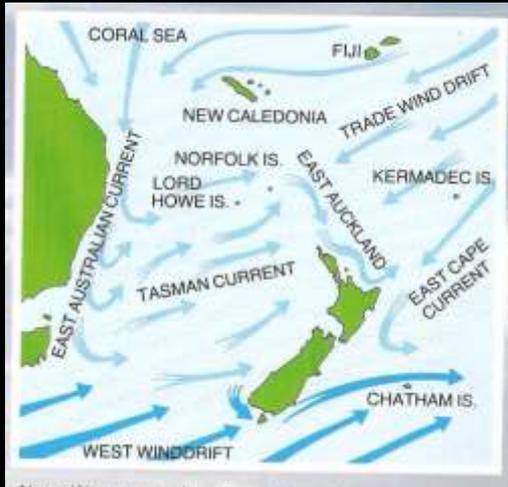
TIDES



Caused by the gravatational pull of the moon and sun on the earth



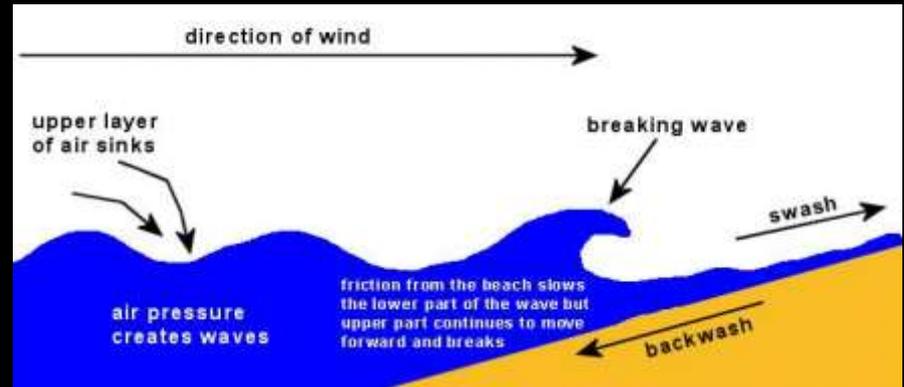
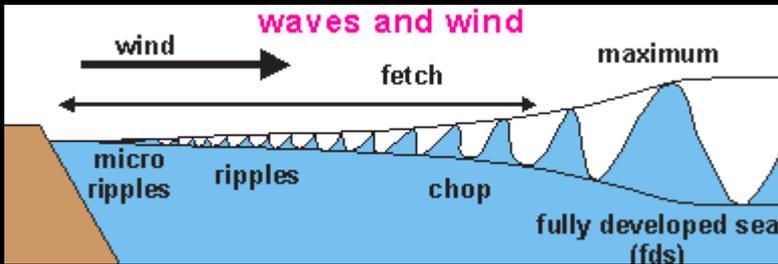
CURRENT



The tide moves more quickly in the middle period, either rising or falling



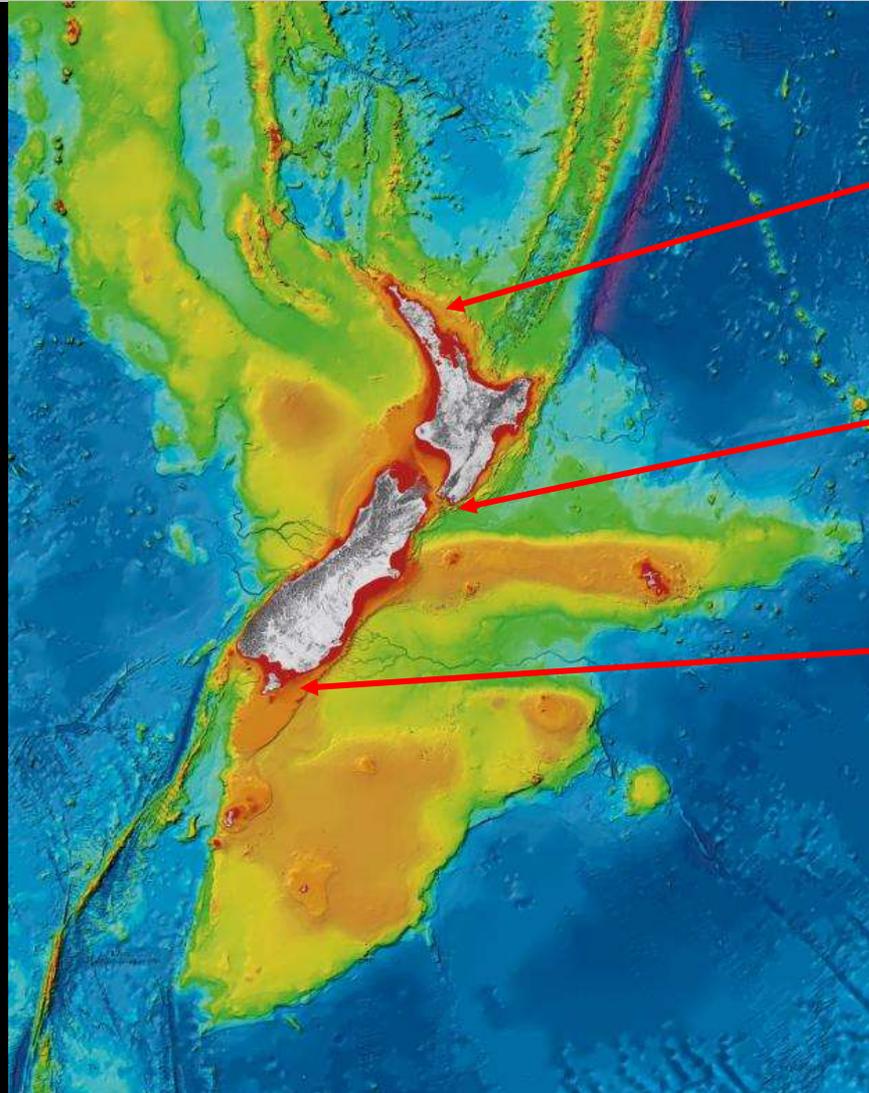
WAVES/SURGE



Waves and surge can prove dangerous to snorkellers

TEMPERATURE

Water
conducts
heat better
than air –
Get cold
faster in
the water
than air



Upper North Island
Summer 24°C
Winter 15°C

Lower North Island
Summer 18°C
Winter 8°C

Lower South Island
Summer 15°C
Winter 4°C

VISIBILITY



20m visibility - Whangateau Harbour

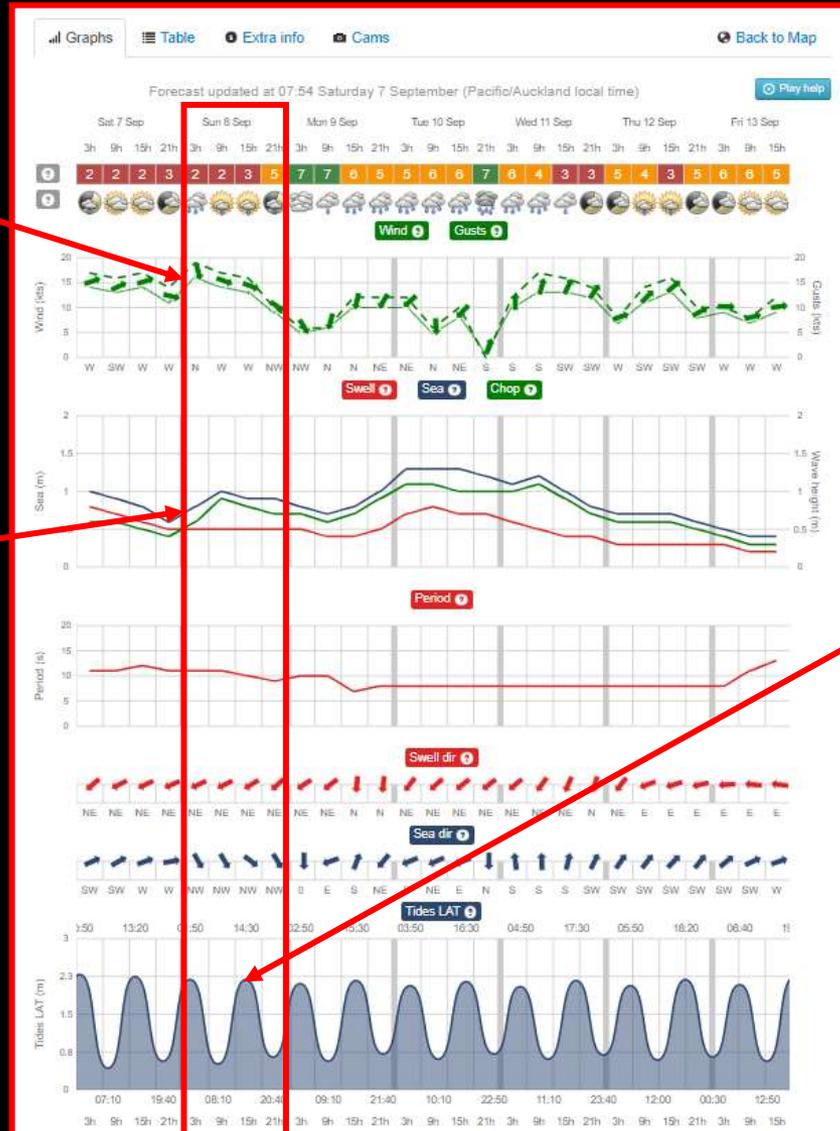


1.5m visibility – Auckland Harbour

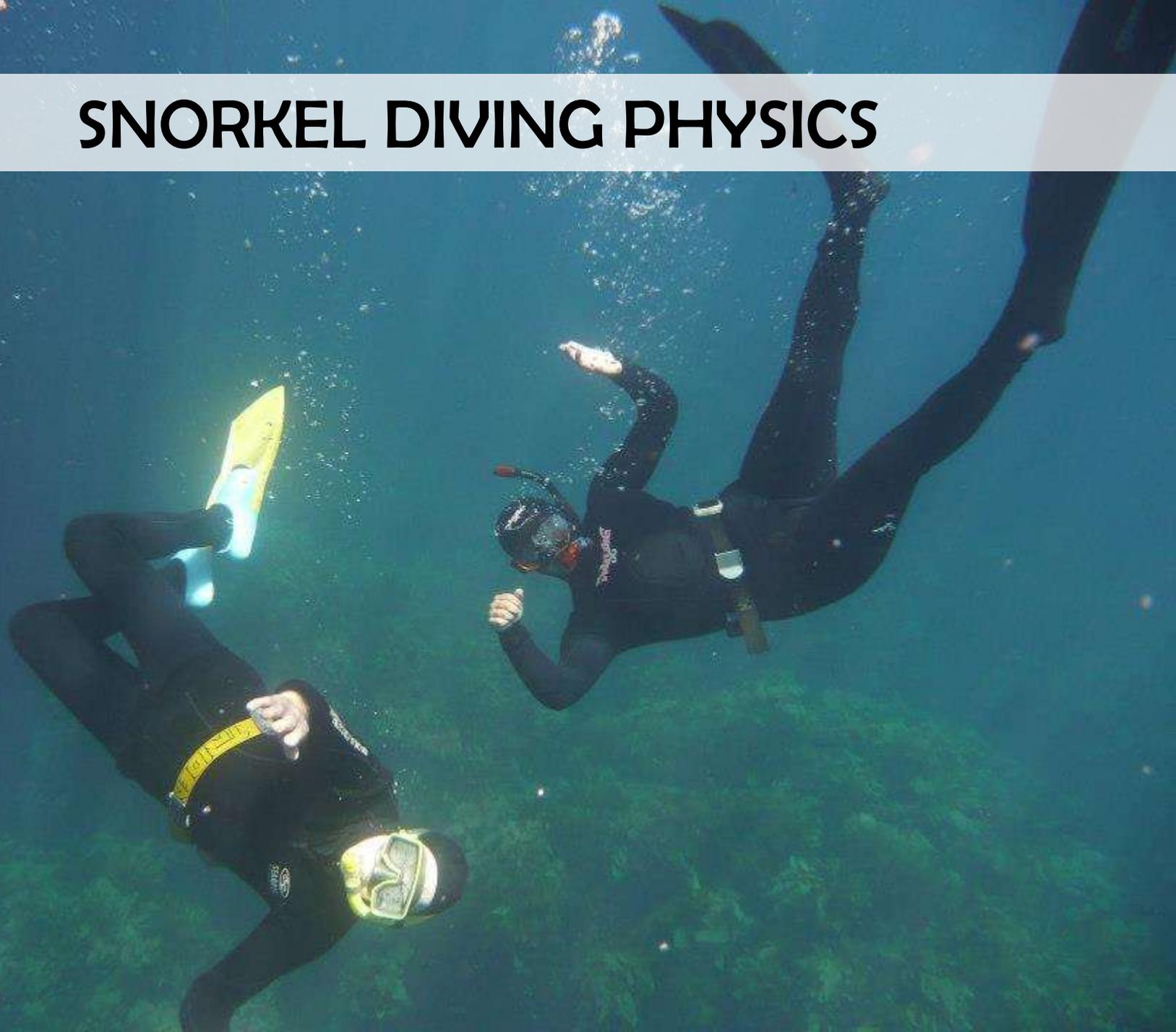
HAZARDOUS AQUATIC LIFE



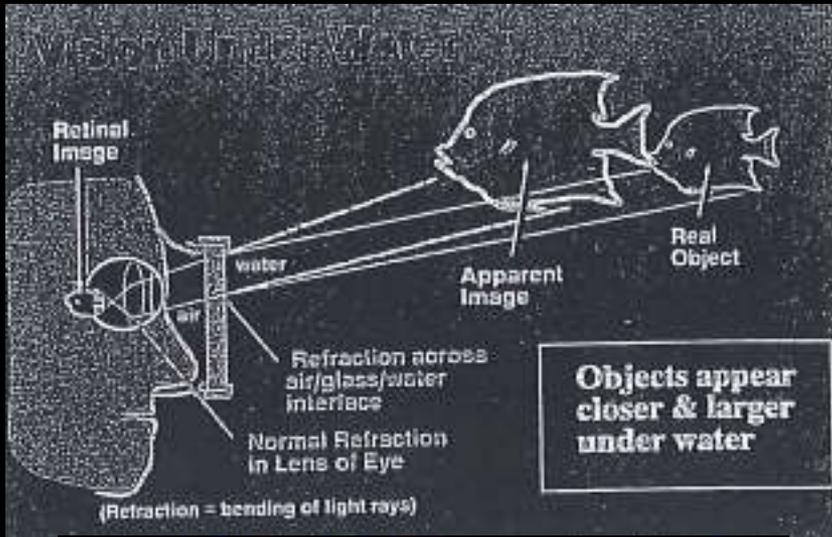
WEATHER FORECASTS



SNORKEL DIVING PHYSICS

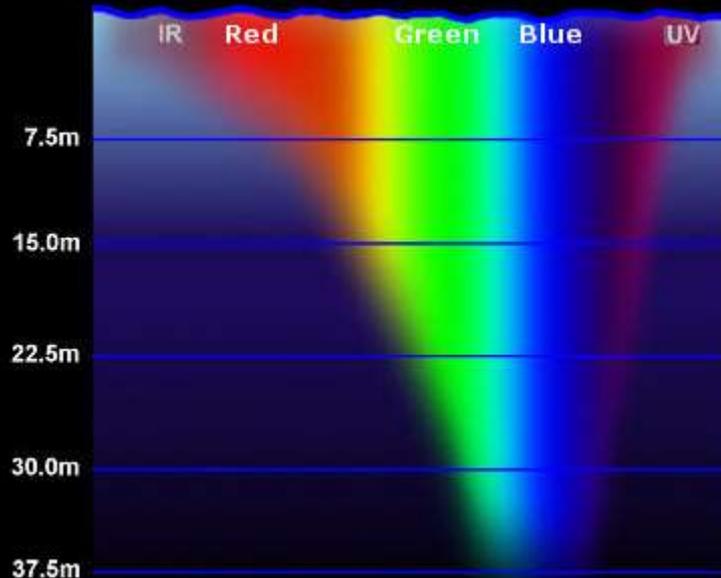


UNDERWATER MAGNIFICATION/VISION

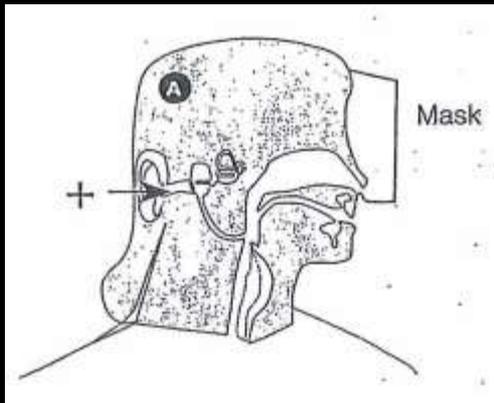
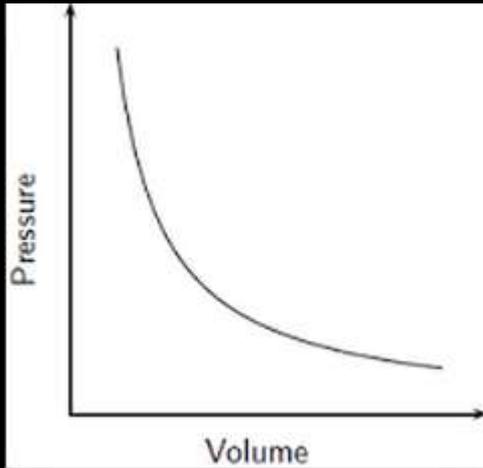


Objects appear larger and closer underwater due to the bending of light through the air and glass of the mask

The deeper you go the less colourful it becomes. This is due to the attenuation of light. Red disappears first until you are left with only blue



PRESSURE/VOLUME

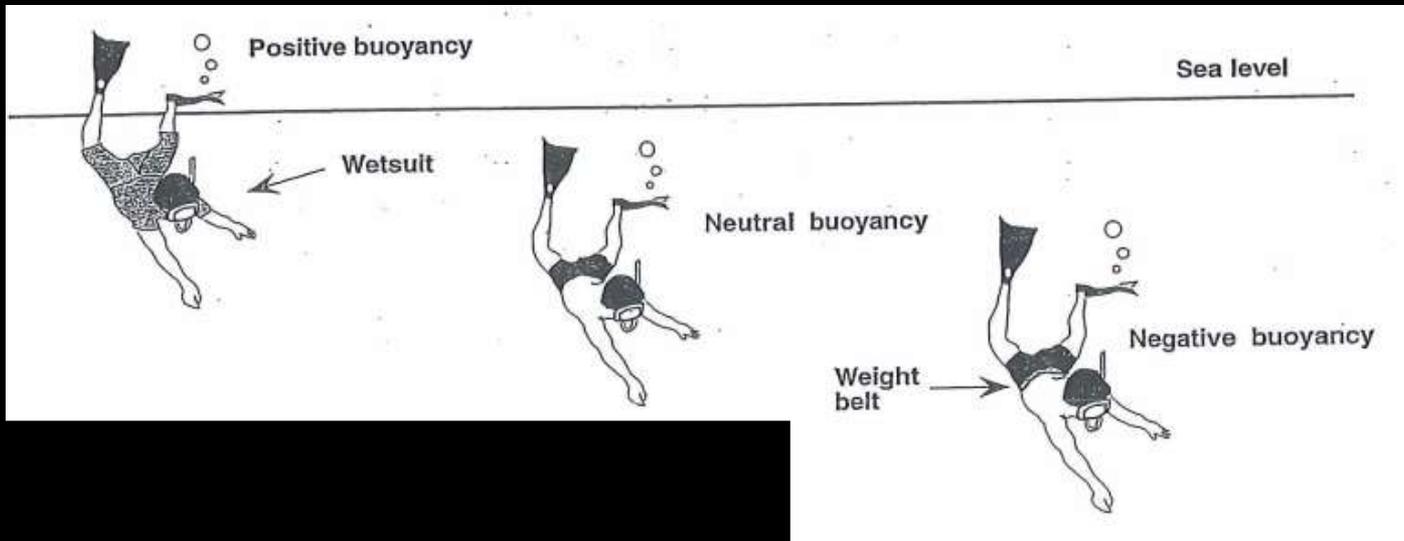
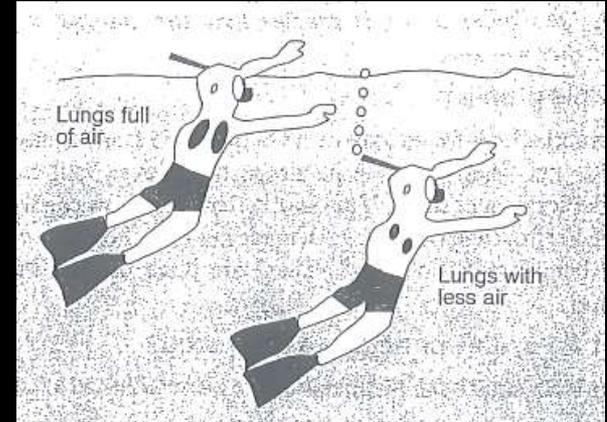


Boyles Law: As the pressure increases the volume decreases
If you take a plastic bottle full of air down 10m the bottle will be half empty

This law effects our body. We have air spaces in our ears, sinuses, lungs and mask. Our lungs are able to compress down in size but our ears can't. That's why we feel pain when we dive down

BUOYANCY

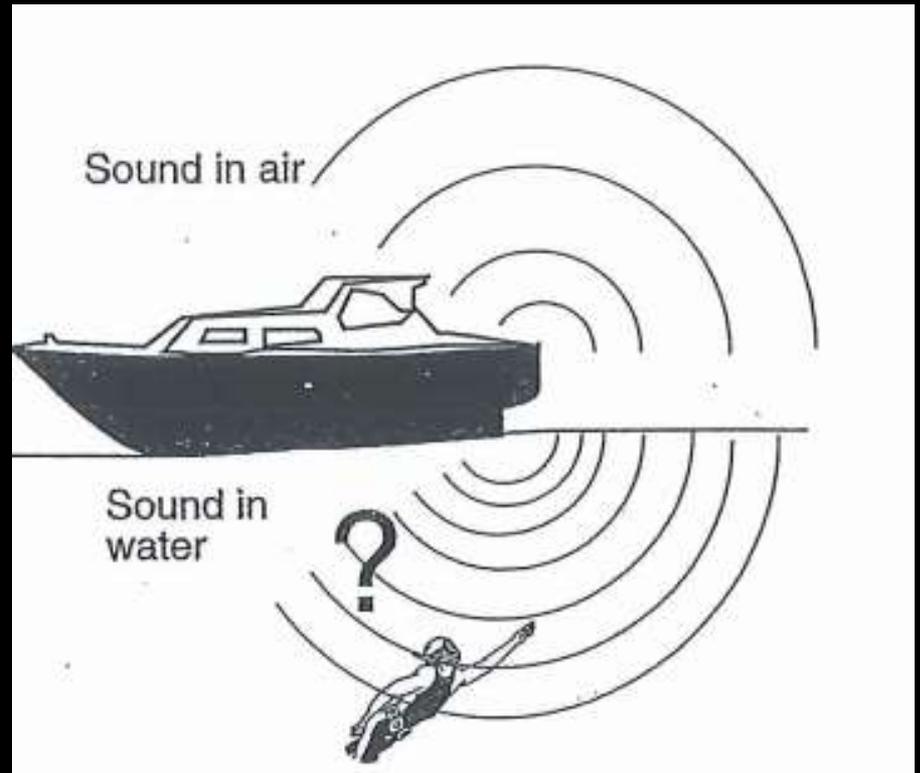
Positively buoyant things float
Negatively buoyant things sink
When we add air spaces (either in our lungs or within a neoprene wetsuit) a snorkeller will become more buoyant and float



SOUND

Sound travels a long way underwater but it is difficult to tell where it is coming from

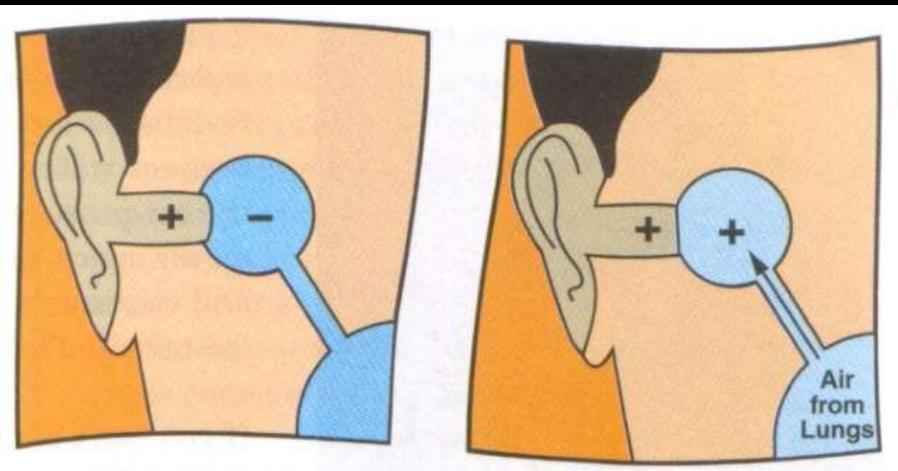
Travels 4x faster in water than air, this confuses our brain and doesn't allow us to tell the source



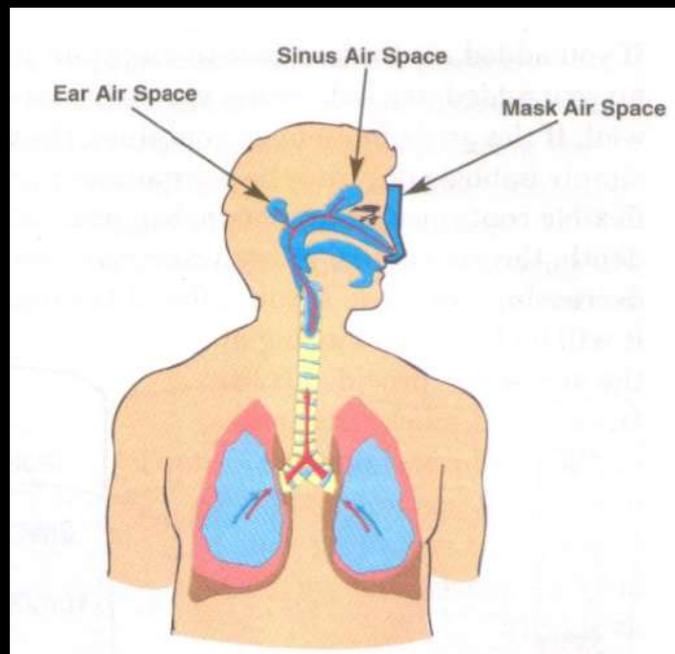
PHYSIOLOGY & HAZARDS



EQUALIZATION & BAROTRAUMAS



Change in pressure causes a change in volume of fixed air spaces within the body. This is why you get a pain in your ears as you dive down. Mask squeeze can cause blood vessels in the eye to burst



How to prevent/treat

- Gently squeeze nose and exhale to clear ears
- Blow air into mask with nose as you dive down
- ❖ If eardrum has burst- get back to shore/boat and seek medical attention. DO NOT DIVE.

NEAR DROWNING



Inhalation of water into the lungs preventing breathing

How to prevent/treat

- Snorkel within your limits, don't go out if it is too rough
- ❖ Get buddy to shore/boat ASAP, if not breathing give rescue breaths in water
- ❖ Once on shore/boat commence DRSABC

SHALLOW WATER BLACK OUT



Caused by hyperventilation

How to prevent/treat

- Always snorkel with a buddy
- 1 up 1 down rule
- Don't hyperventilate
- ❖ Get buddy to surface, ensure mouth is above water
- ❖ Get to shore/boat ASAP and commence DRSABC

INJURY FROM AQUATIC LIFE



Oysters are the most dangerous
Watch out for stingrays/eagle rays



Lorna Hefford

How to prevent/treat

- Wear a full wetsuit and avoid shallow areas where oysters are
- Do not swim over a stingray if in less than 2m of water
- ❖ Wash out scrapes with disinfectant
- ❖ Do not remove barb- immediate medical assistance

EXHAUSTION & CRAMP



Physical exhaustion while snorkelling
Calf cramps

How to prevent/treat

- Keep fit and healthy
- Keep hydrated
- ❖ Get buddy to help you to shore and rest
- ❖ Remove cramp by pulling fin up to chest

HYPERTHERMIA



Sunburn on exposed skin
Heat Exhaustion/ Stroke from
extended periods of time in a
wetsuit in the sun

How to prevent/treat

- Sunblock all exposed areas
- Ensure adequate hydration
- Stay out of the sun while in full wetsuit
- ❖ Get out of sun, remove wetsuit, give fluids, watch vitals

BOAT TRAFFIC



Ryan Slattery

Danger from boat strike
Lacerations from the
propeller

How to prevent/treat

- Ensure you have a visible dive flag on you at all time, this should mean that boats are only passing by at 5knots
- ❖ If hit: signal for help, remove from water, stop bleeding and watch vitals