

# Experiencing Marine Reserves



EMR

Where fish are cool and hang in schools

[www.emr.org.nz](http://www.emr.org.nz)

# Volunteer Training

Thank you for signing up as an EMR Volunteer

Either through training days or onsite training we will be marking you on the following aspects. If you have any questions please email [lorna@emr.org.nz](mailto:lorna@emr.org.nz) or [info@emr.org.nz](mailto:info@emr.org.nz)



## Volunteer Training Record

4= Very competent, 3= Competent, 2= Needs work, 1= Unable to complete.

Average 4 mark= Senior guide, Average 3 mark= assistant guide, Average 2 mark= Trainee guide, Average 1 mark= land based roles only

Trainee Name	Snorkelling Skills	Briefing	Karakia	Equipment knowledge	Guiding a group	Rescue Scenarios	Kayak Safety

Te Kura Moana  
The school of the ocean

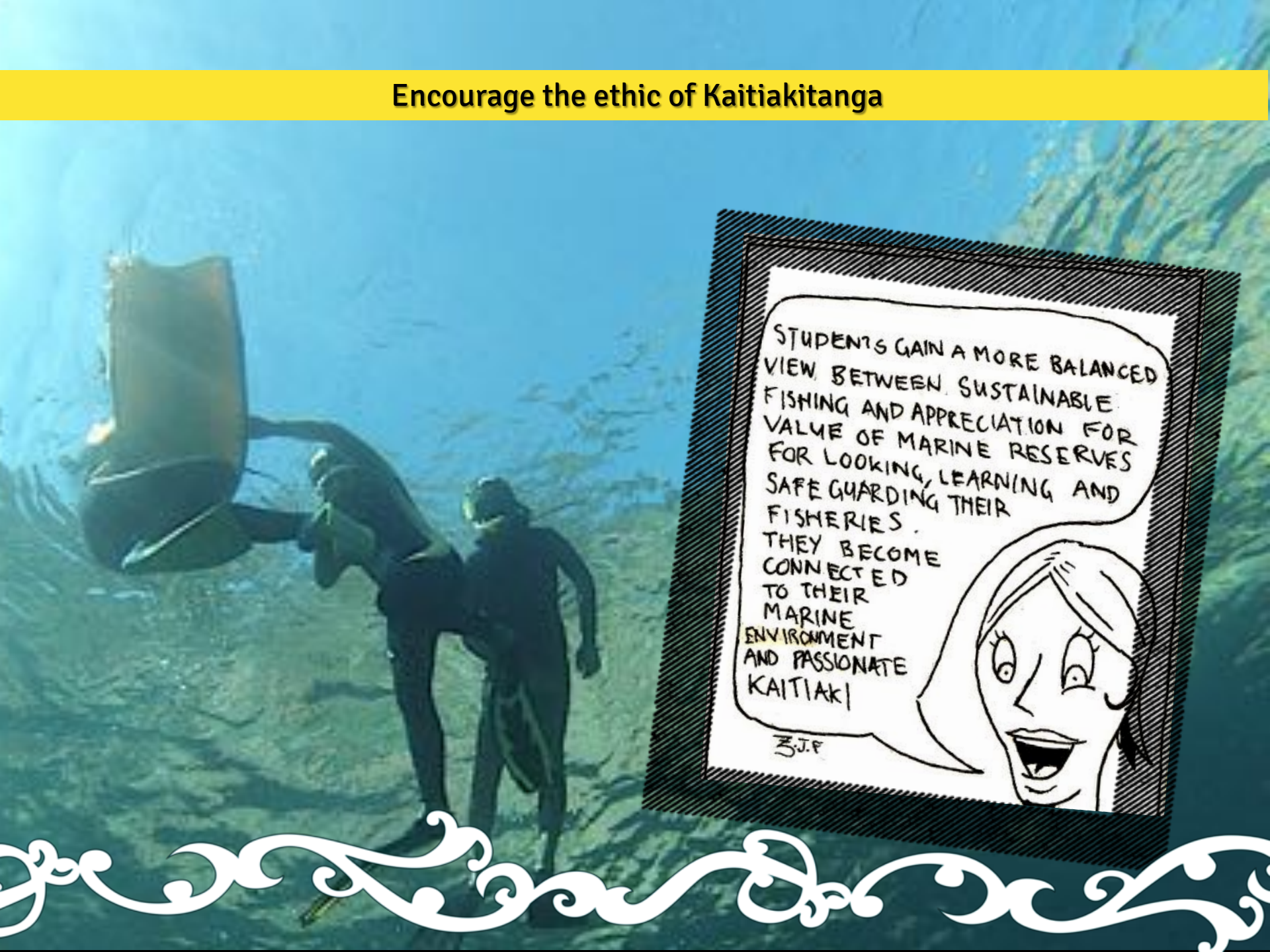
## EMR Goal

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





## Encourage the ethic of Kaitiakitanga



How do we achieve this?





# 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  
Reotahi - Sunday 10th Feb  
Waikaraka - Sat 23rd Feb K S  
Reotahi - Sun 24th Feb  
Reotahi - Sun 12th Mar  
Waikaraka - Sun 24th Mar K S  
Poor Knights - Sun 19th May K S ★

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  
Tawharamui - 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.mtset](http://www.facebook.com/emr.mtset) or [www.emr.org.nz](http://www.emr.org.nz)  
or contact [auckland@emr.org.nz](mailto:auckland@emr.org.nz)





# Fully Funded School Programmes



An underwater photograph showing two divers in a clear blue sea. One diver is on the left, wearing a blue wetsuit and holding a large, flat, light-colored object. The other diver is on the right, wearing a blue wetsuit and holding a large, white, boat-shaped object. A large, orange and white striped fish is swimming in the lower left. The background shows a coral reef with various colorful corals and smaller fish.

**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



# Trophic Cascades



Photo by Paul Caiger

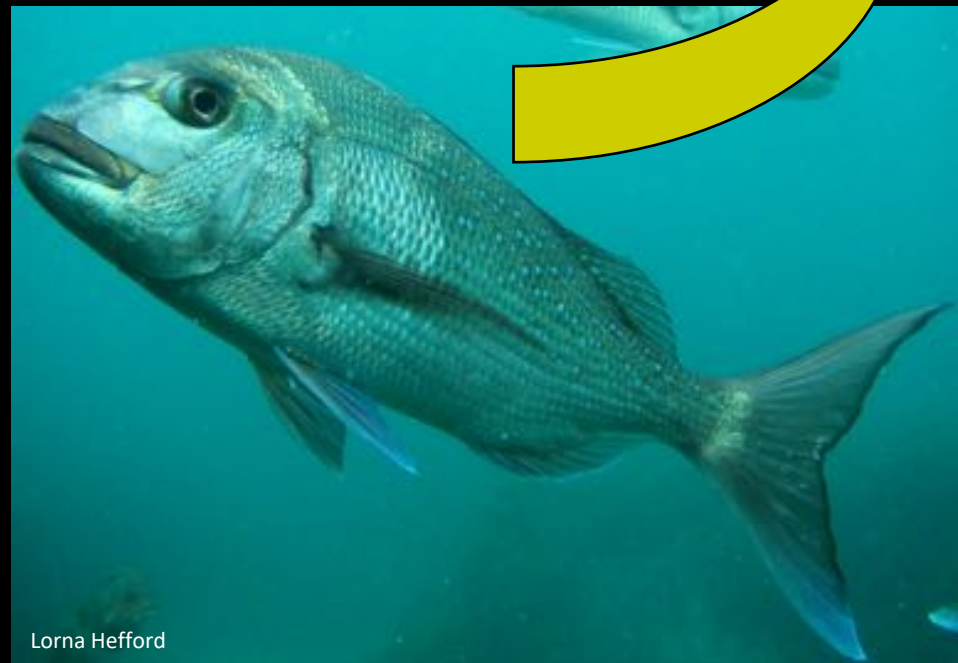




Photo by Jamie Quirk



EMR - Samara Nicholas



Lorna Hefford





## Major threats to marine environment

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



*Paul Caiger ©*

# 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

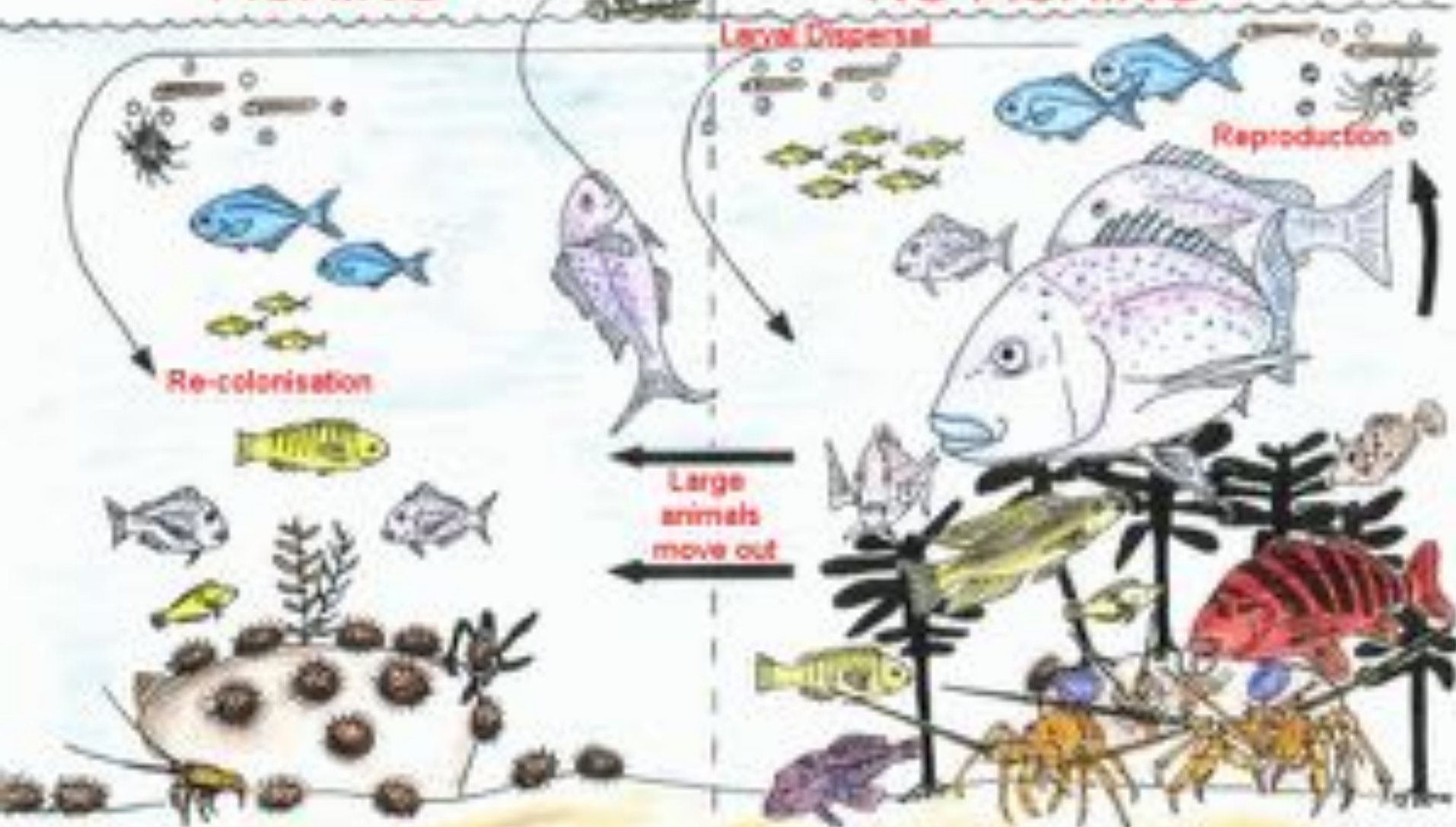
**YOU CAN:**

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



## FISHING

## NO FISHING



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

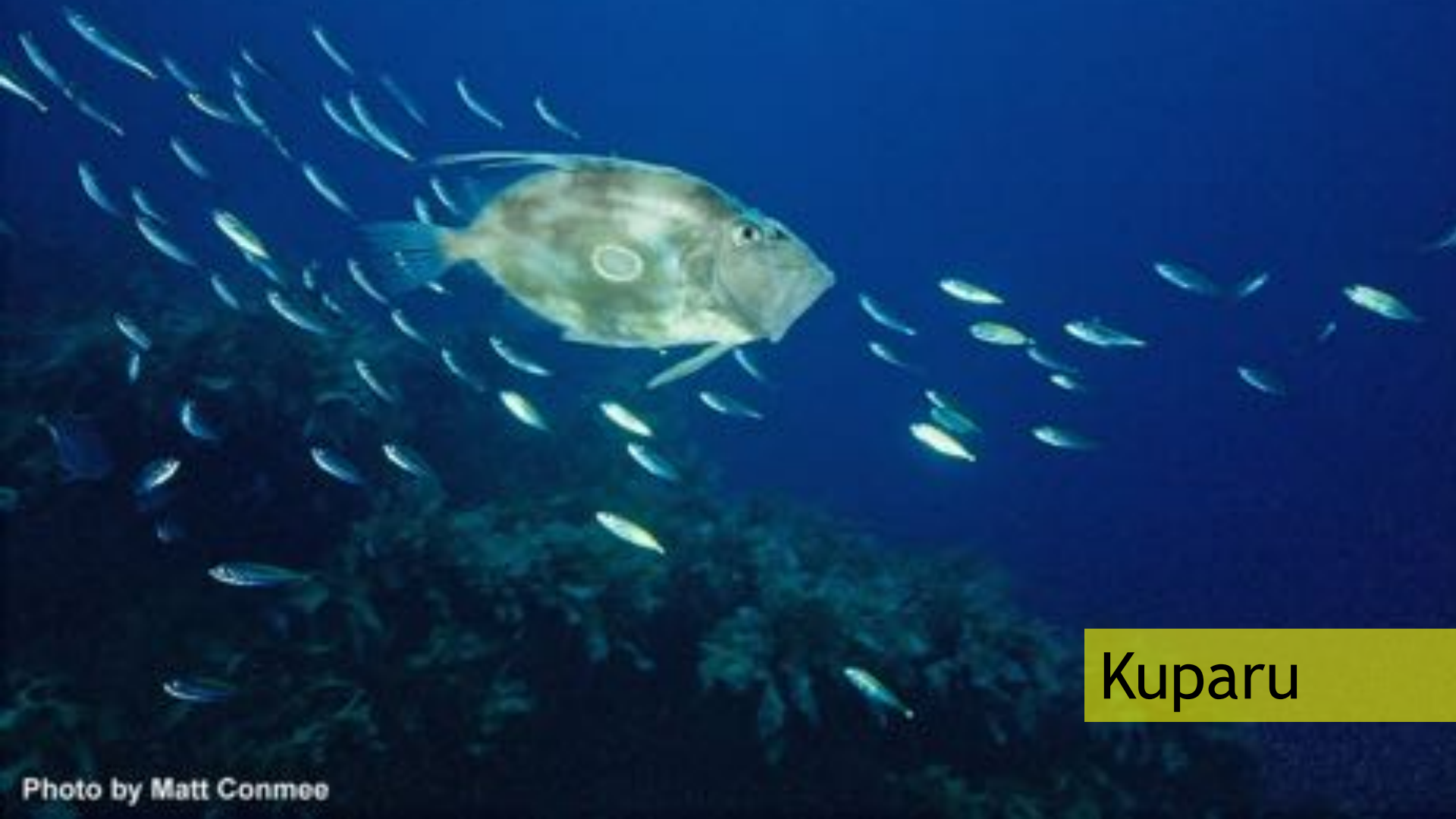


# Leather Jacket



Kokiri

# John Dory



Kuparu



# Eagle Ray



Whio

Photo by Lorna Hefford

# Stingray



Whio

*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 a white belly is swimming towards the right. The divers are positioned in the background, some looking towards the camera. The water is clear and blue, with some green seaweed visible at the bottom.

# Snapper

# Tamure

Photo by Daryl Torckler



Spotty



Pakirikiri

*Paul Caiger ©*

# Can you spot the spotty?



Photo by Samara Nicholas



# Variable Triplefin



Photo by Lorna Hefford







# Puffer Fish



*Paul Cager*

An underwater photograph showing two paua (New Zealand abalone) shells resting on a dark, rocky seabed. The shells are covered in green and brown algae. The background is slightly out of focus, showing more rocks and some seaweed.

Paua

**DO YOU KNOW YOUR LOCAL LIMITS?**



# SNORKEL EQUIPMENT & SAFETY



# EQUIPMENT

the essentials





# EQUIPMENT



# Hand Signals

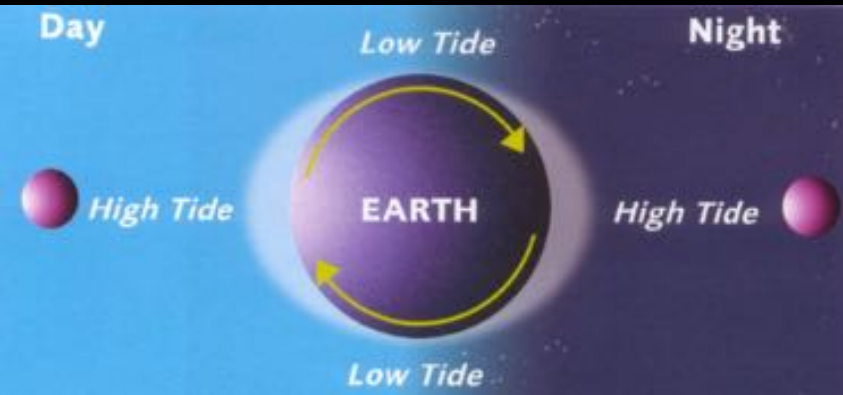




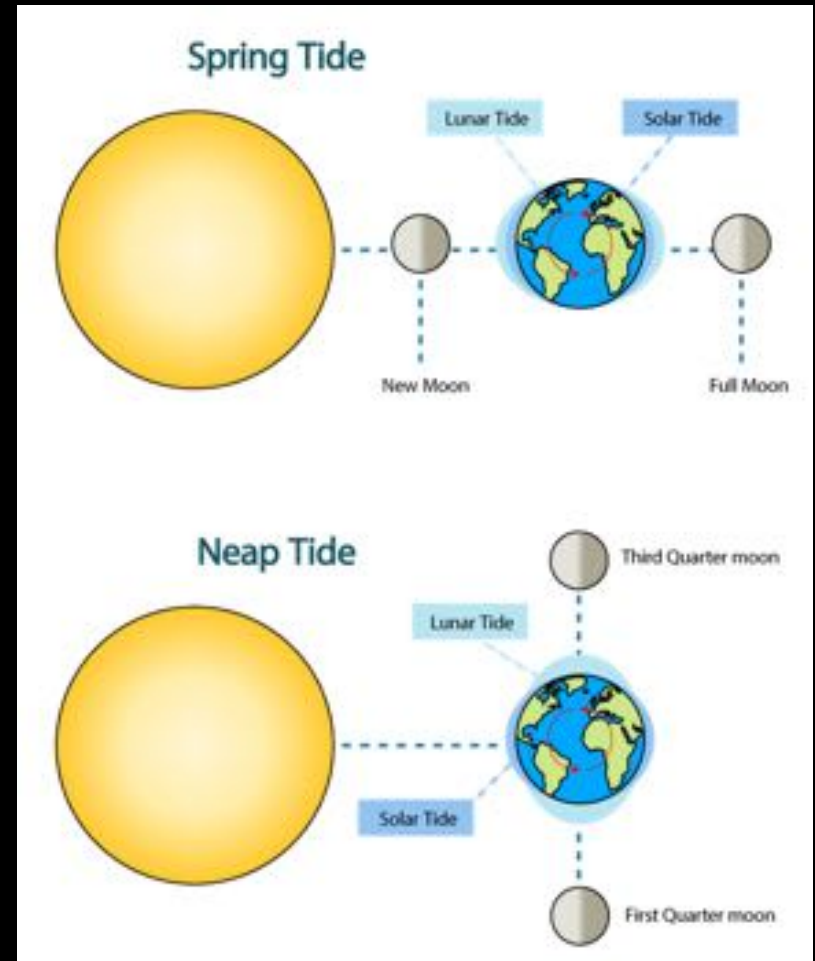
# OPEN WATER ENVIRONMENT



# TIDES



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





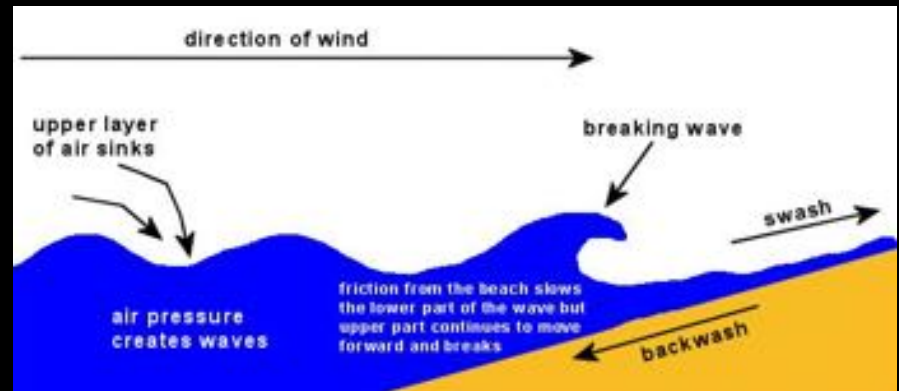
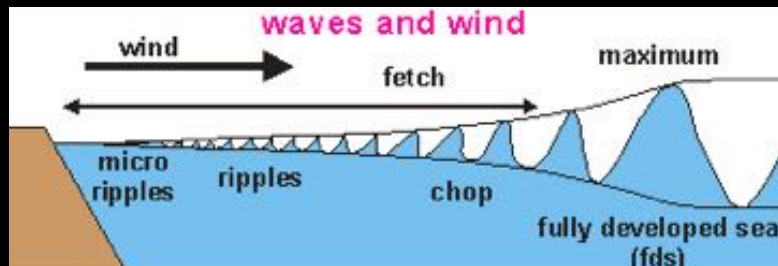
# CURRENT



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



# WAVES/SURGE

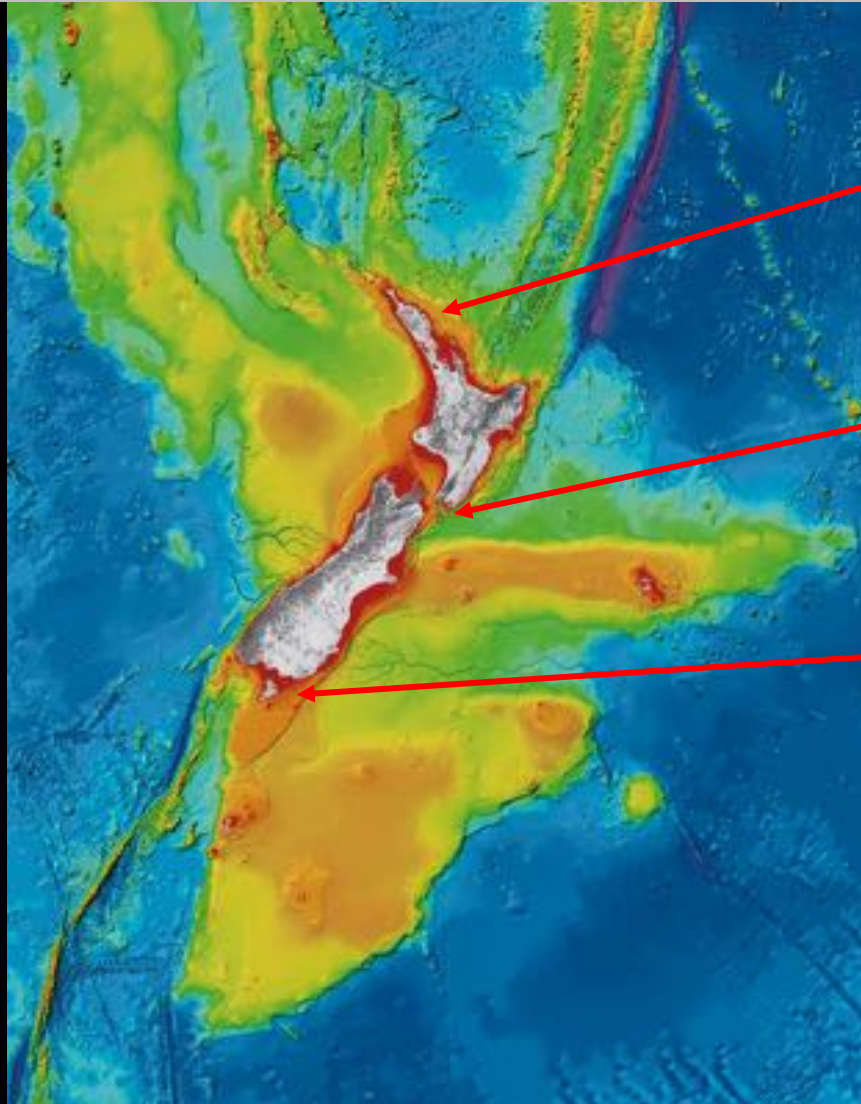


Waves and surge can prove dangerous to snorkellers



# 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



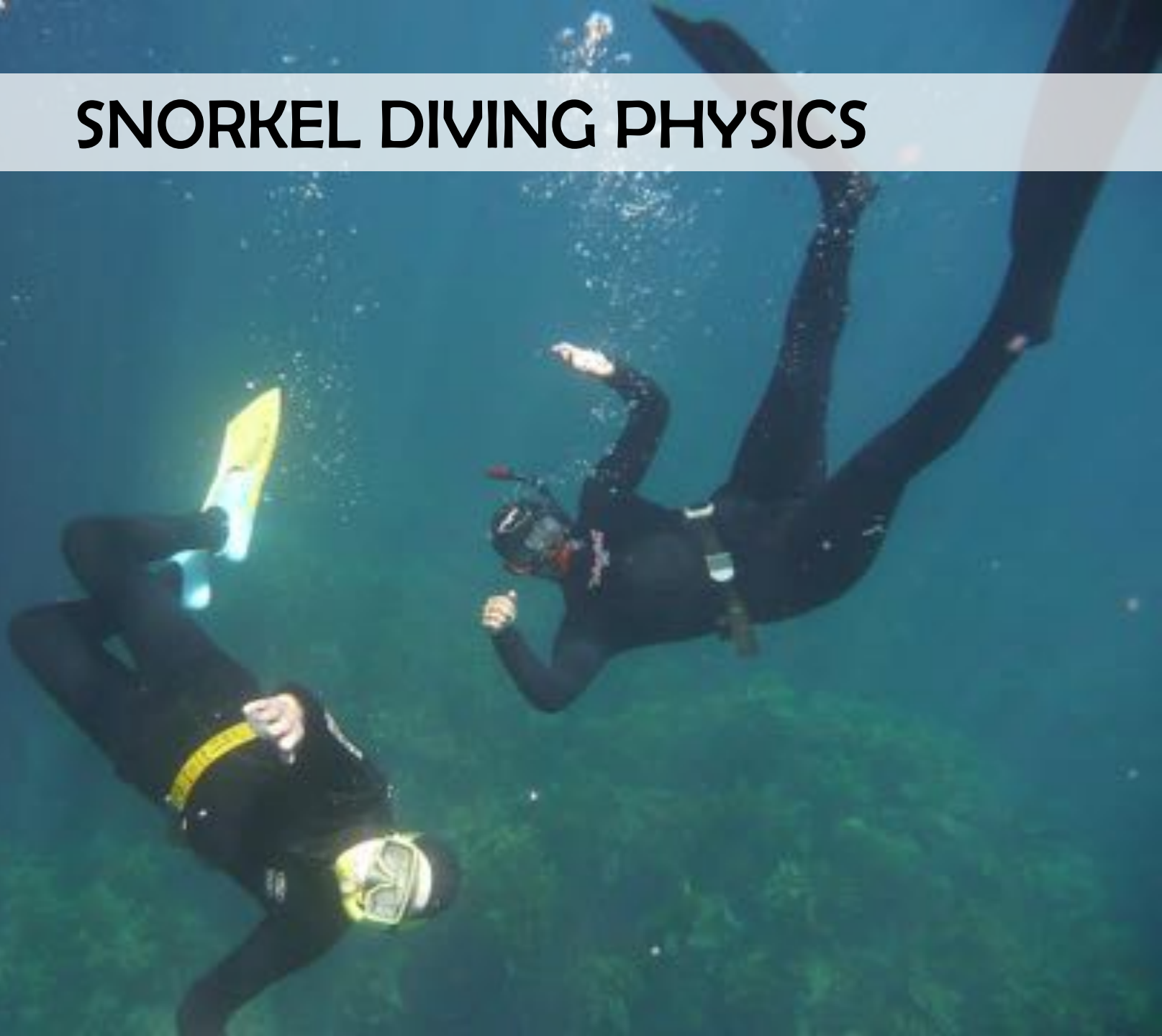
1= Wave  
Height/direction

2= Wind  
intensity/direction

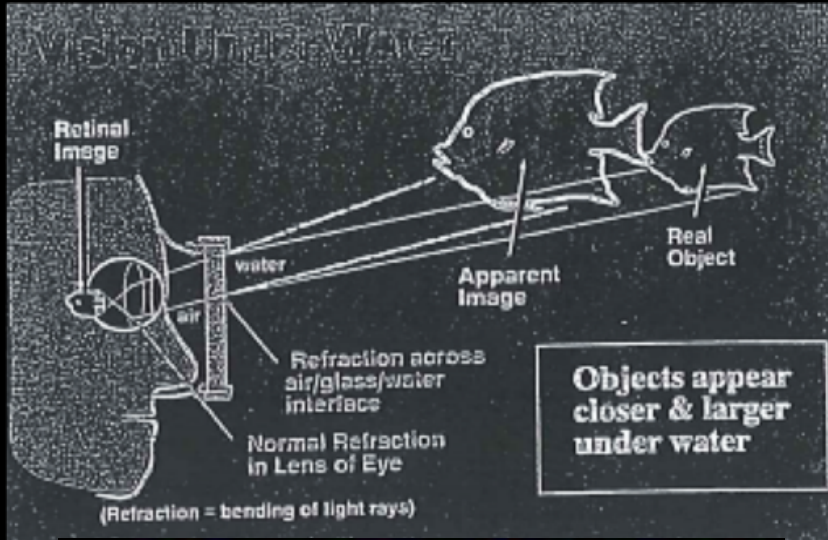
3= Tide



# SNORKEL DIVING PHYSICS

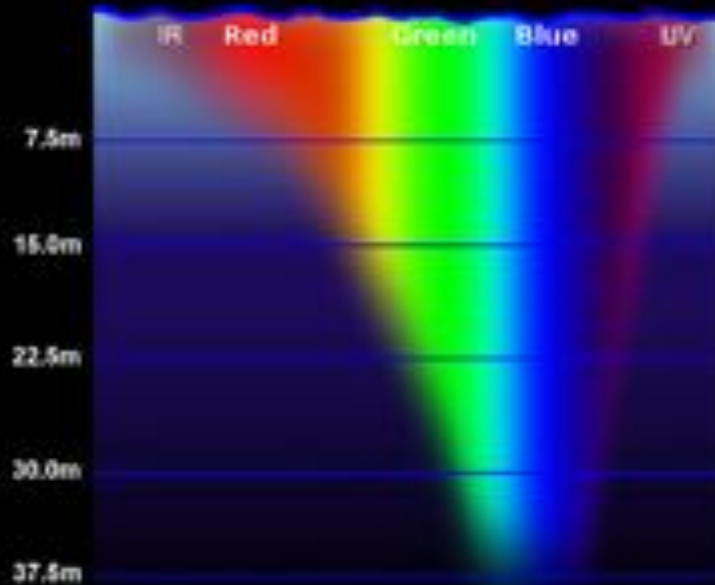


# UNDERWATER MAGNIFICATION/VISION



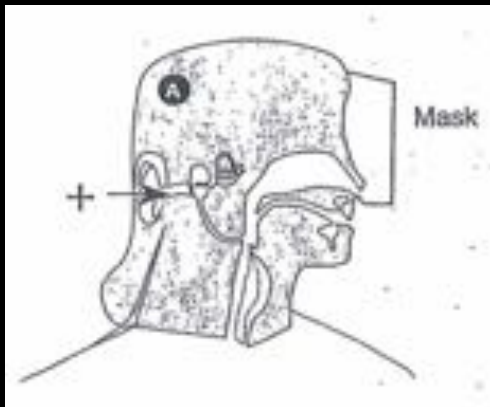
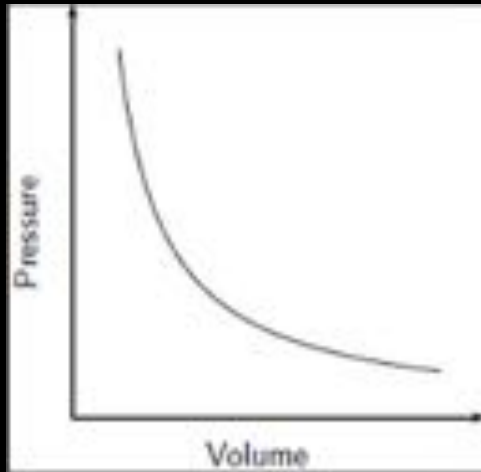
Objects appear larger and closer underwater due to the bending of light through the air and glass of the mask

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

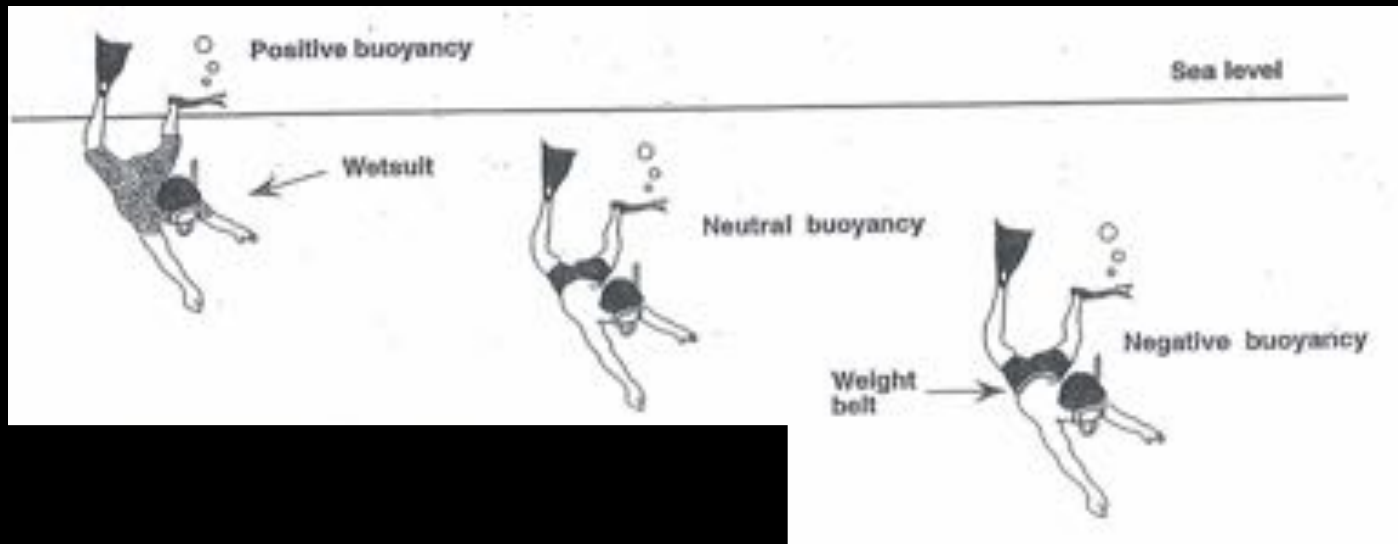
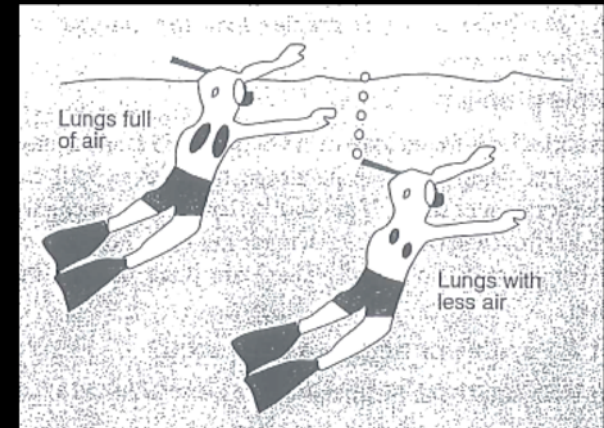


**Boyles Law:** As the pressure increases the volume decreases  
If you take a plastic bottle full of air down 10m the bottle will be half empty

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

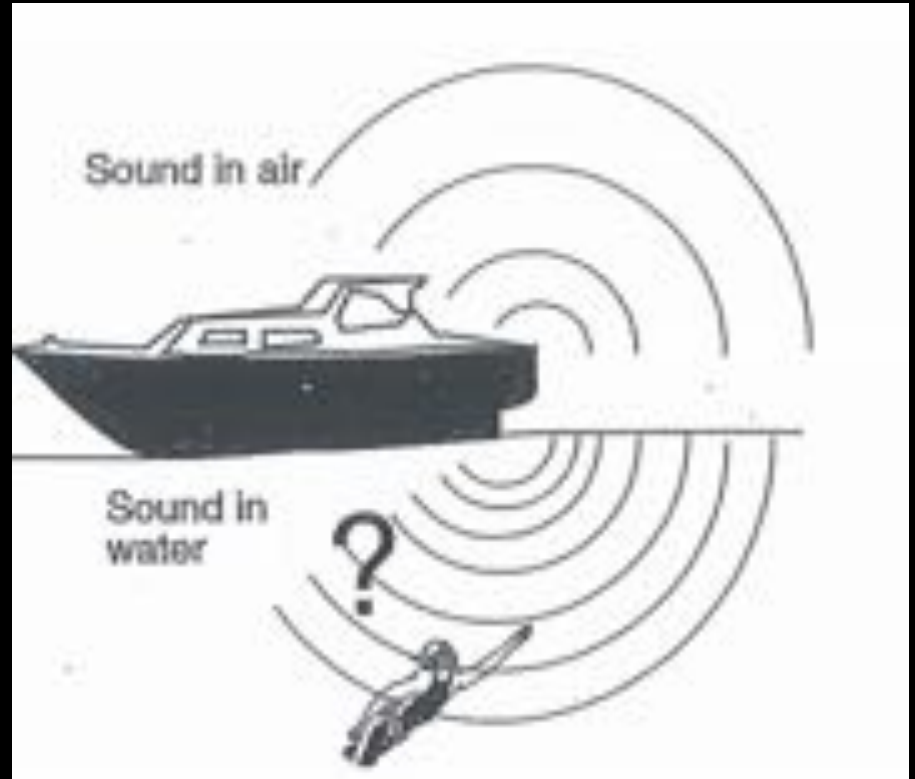
Positively buoyant things float  
Negatively buoyant things sink  
When we add air spaces (either in our lungs or within a neoprene wetsuit) a snorkeller will become more buoyant and float



# 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

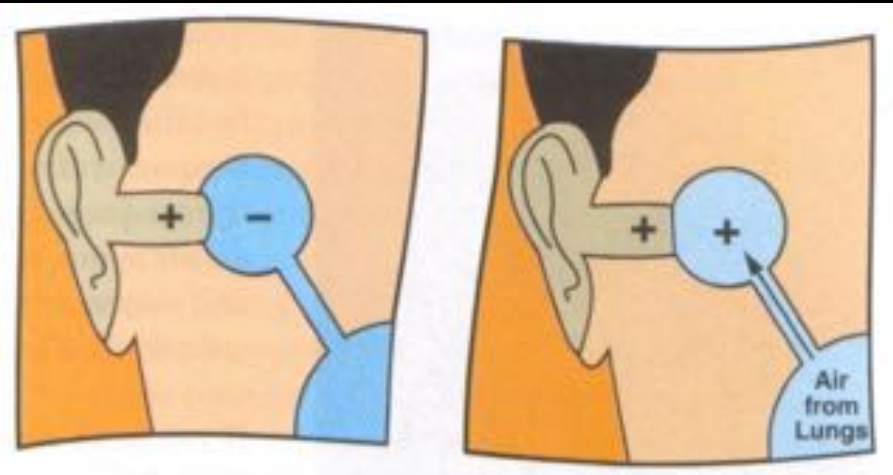




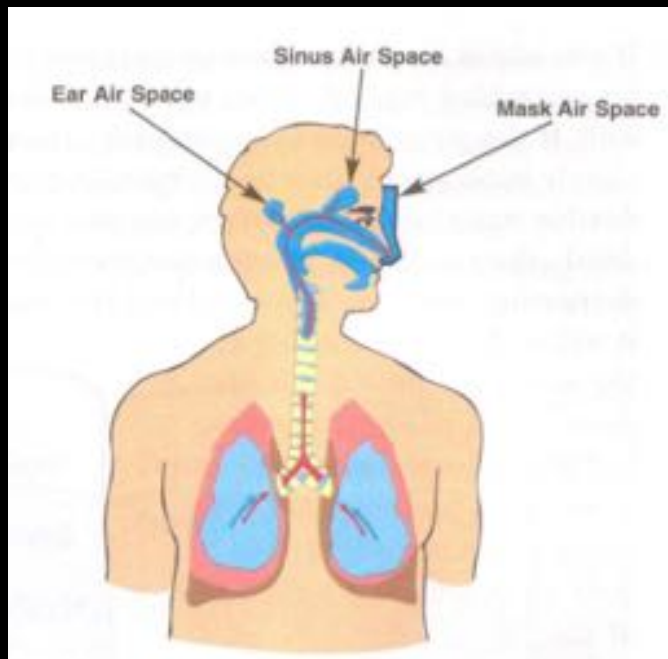
# PHYSIOLOGY & HAZARDS



# 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



Samara Nicholas

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



Tash Murden

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