

A photograph of a small, clear stream flowing over moss-covered rocks in a dense forest. The water is blurred, suggesting a long exposure. The surrounding vegetation includes various green ferns and mosses. The text is overlaid on the image.

# Ko Wai Mātou *We Are Water*

*Ocean Spirit*  
Te Wairua O Te Moananui

## Beyond Water as Resource



# Ko Wai Mātou

Te taha wairua

*‘The spiritual plane’*

*‘The dimension of two waters’*

A conception that likens spirituality to water.

Te taha wairua is widely used to refer to the ‘real world’, which lies both behind and within the world of normal experience.

“...there is a fundamental dimension to all life, and it takes the form of water.”



# Ko Wai Mātou

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Te Wairua O Te Moananui

“Water is the ground of all Being,  
All is born of water and upheld by water too!”

– *Johann Wolfgang von Goethe*

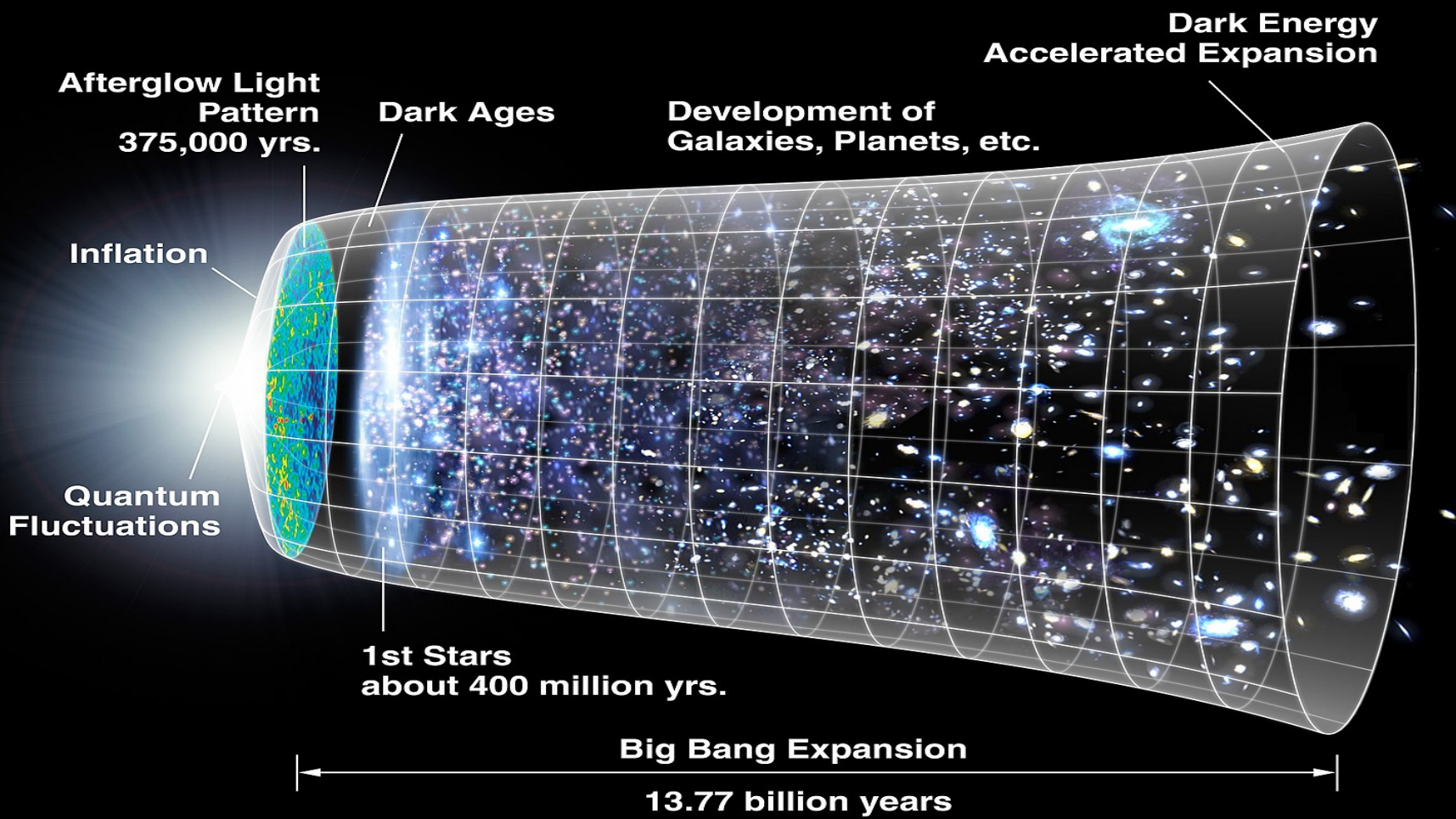
“In the Biosphere, water cannot be separated from life and  
life cannot be separated from water. Life is animated  
water”

– *Vladimir Vernadsky*

“Were water actually what hydrologists deem it to be – a  
chemically inert substance – then a long time ago there  
would already have been no water and no life on this  
Earth.”

– *Victor Schauberger*







# Ko Wai Mātou

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Te Wairua O Te Moananui

## The Whakapapa of Wai

Wainuiātea – the great expanse of water, the gathering of all waters – who was the first partner of Ranginui, the Sky Father.

Freshwater first appears as a consequence of the parting of Ranginui from Papatūānuku, the Earth Mother. Their grief and yearning for each other presents as the teardrops (rain) of Ranginui and the sighs (mist) of Papatūānuku.

**Wai has the function of imbuing mauri and mana**

From Wai Māori: a Māori perspective on the freshwater debate by Tina Ngata, in “Mountains to Sea: Solving New Zealand’s Fresh water Crisis.”



# ***Papatuanuku***

***Our big, beautiful, blue Mother***

1.4 billion cubic kilometers (km<sup>3</sup>)

1 km<sup>3</sup> = 400,000 Olympic size swimming pools

The Ocean accounts for 97% of the Planet's water

Covers 70% of the Planet's surface

Accounts for approx. 99% of the living space

***Papatuanuku is a water Being!***



# Ko wai tēnei

*'When I speak to wai I speak to myself'*

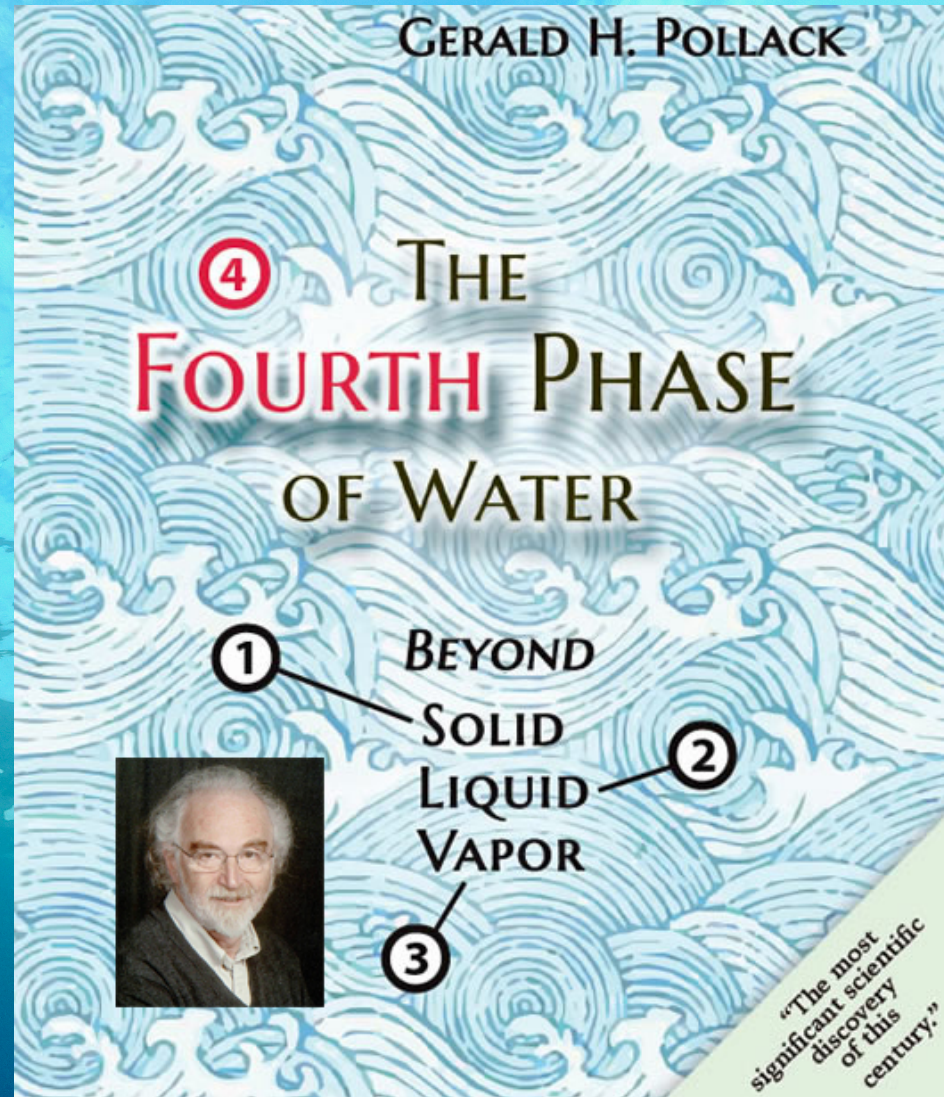
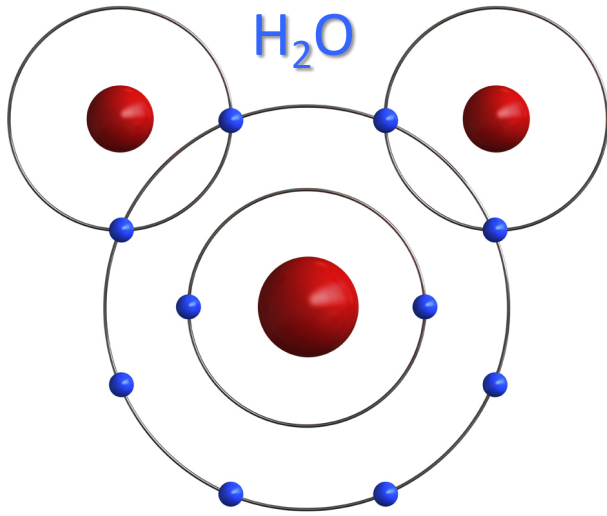
*- Tina Ngata*

*Ocean Spirit*  
Te Wairua O Te Moananui

We are approximately 70% water by weight, but  
99% of the molecules in every cell of our  
bodies are water molecules

***We are water Beings!***







# Water and the

# Principals of Thermodynamics

1<sup>st</sup> Law: The conservation of energy

Energy can neither be created nor destroyed. It can only change forms. In any process, the total energy of the universe remains the same.

2<sup>nd</sup> Law: The Law of Entropy

The entropy of any isolated system always increases. Isolated systems evolve towards thermal equilibrium—the state of maximum entropy of the system. More simply put: the entropy of the universe (the ultimate isolated system) only increases and never decreases.

Hydrogen was the first element to form after the big bang

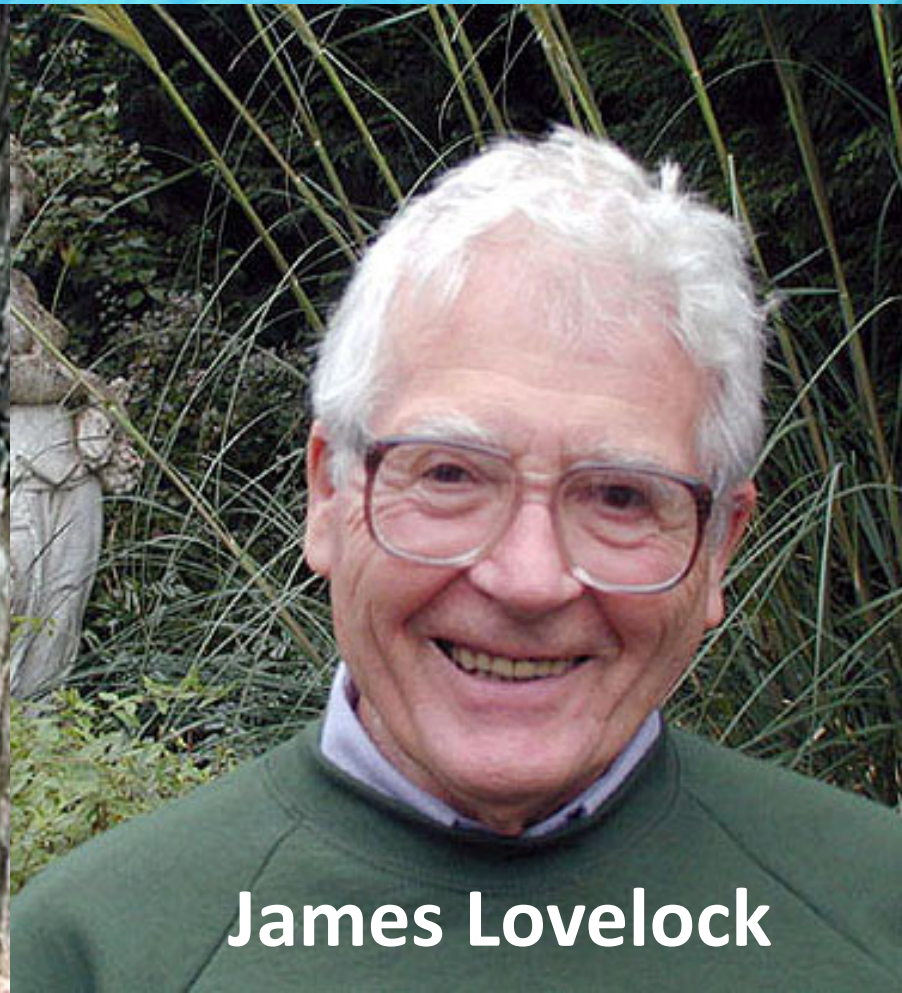
Water was one of the first molecules to form  
in the service of energy conservation



# Gaia Theory



Lynn Margulis



James Lovelock



# Gaia

‘Gaia is more than just the sum of life in feedback with the atmosphere, water and Earth’s crust (the biosphere), but is rather the emergence of a self-regulating superorganism that comes into existence through the process of evolution.’

Life and its environment are so closely coupled that evolution concerns Gaia, not the organisms or the environment taken separately.’ – James Lovelock



# Gaia and the Principals of Thermodynamics

Gaia is an open system: New energy is constantly added via the Sun's radiation, which continues to increase.

Life evolves into ever more complexity to maintain a balance between energy use and energy conservation (Negentropy).

The result is a dynamic balance: Homeorrhesis

Water is the fundamental "lubricant" that keeps the whole system flowing

The evolution of life can be viewed as the inevitable outcome of water's thermodynamic dance with energy.

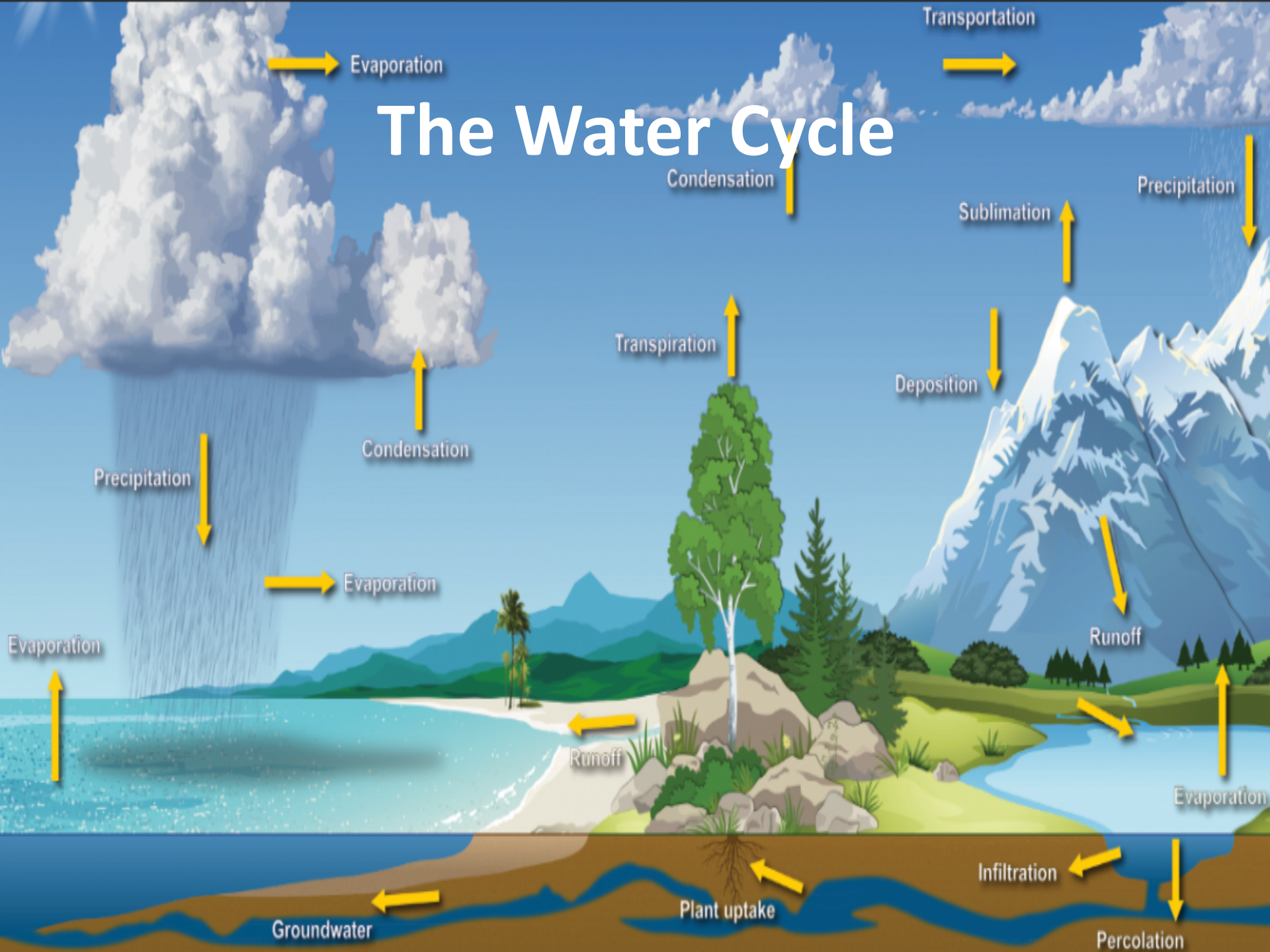


**Climate – the moist sigh of  
our mother's breath as she basks  
in the warmth of the sun**

**Climate Breakdown – the inevitable  
consequence when our mother's  
balance is disturbed**



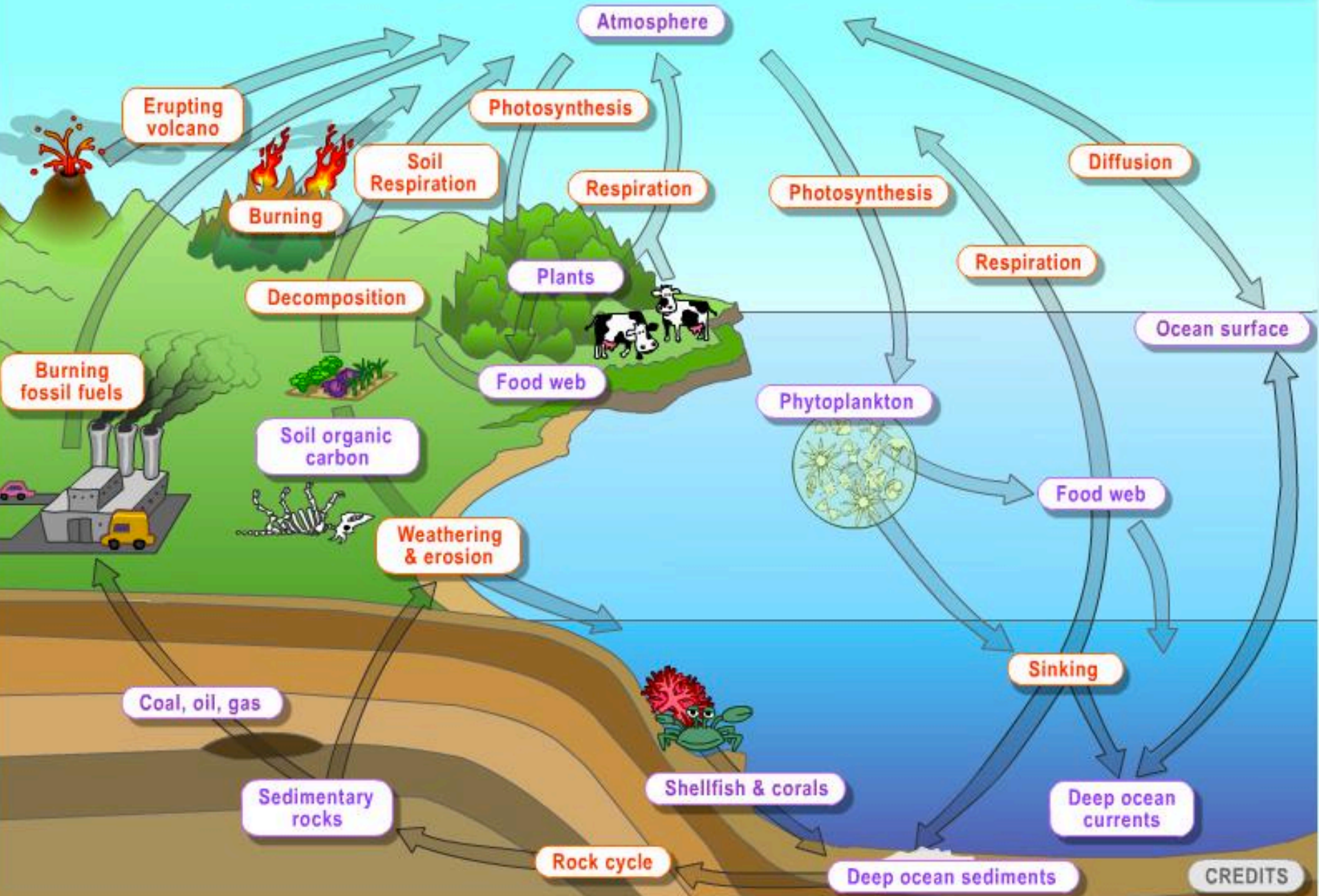
# The Water Cycle





# THE CARBON CYCLE

**KEY**  
Orange box = Process  
Purple box = Reservoir



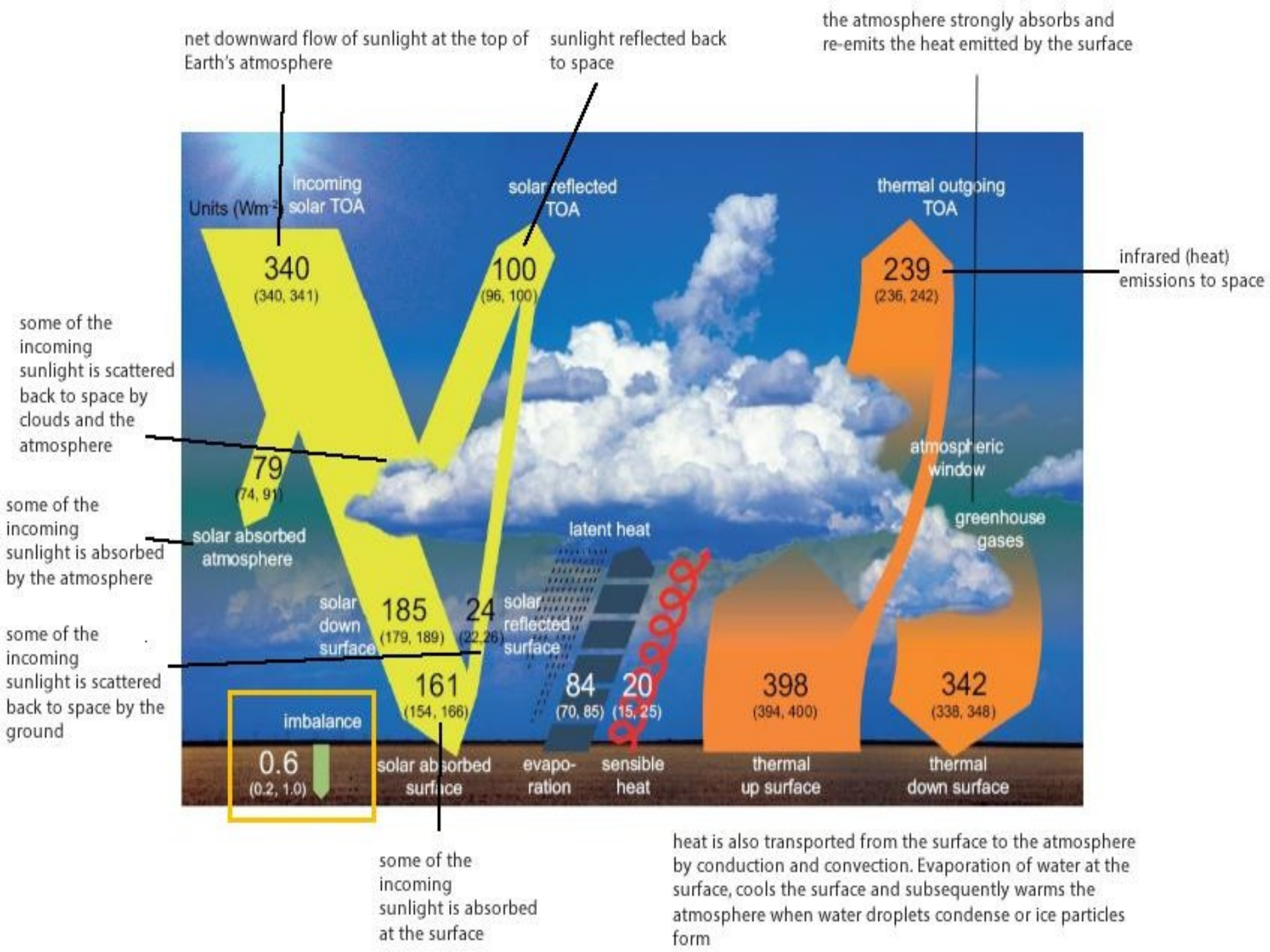


# The Life Cycle

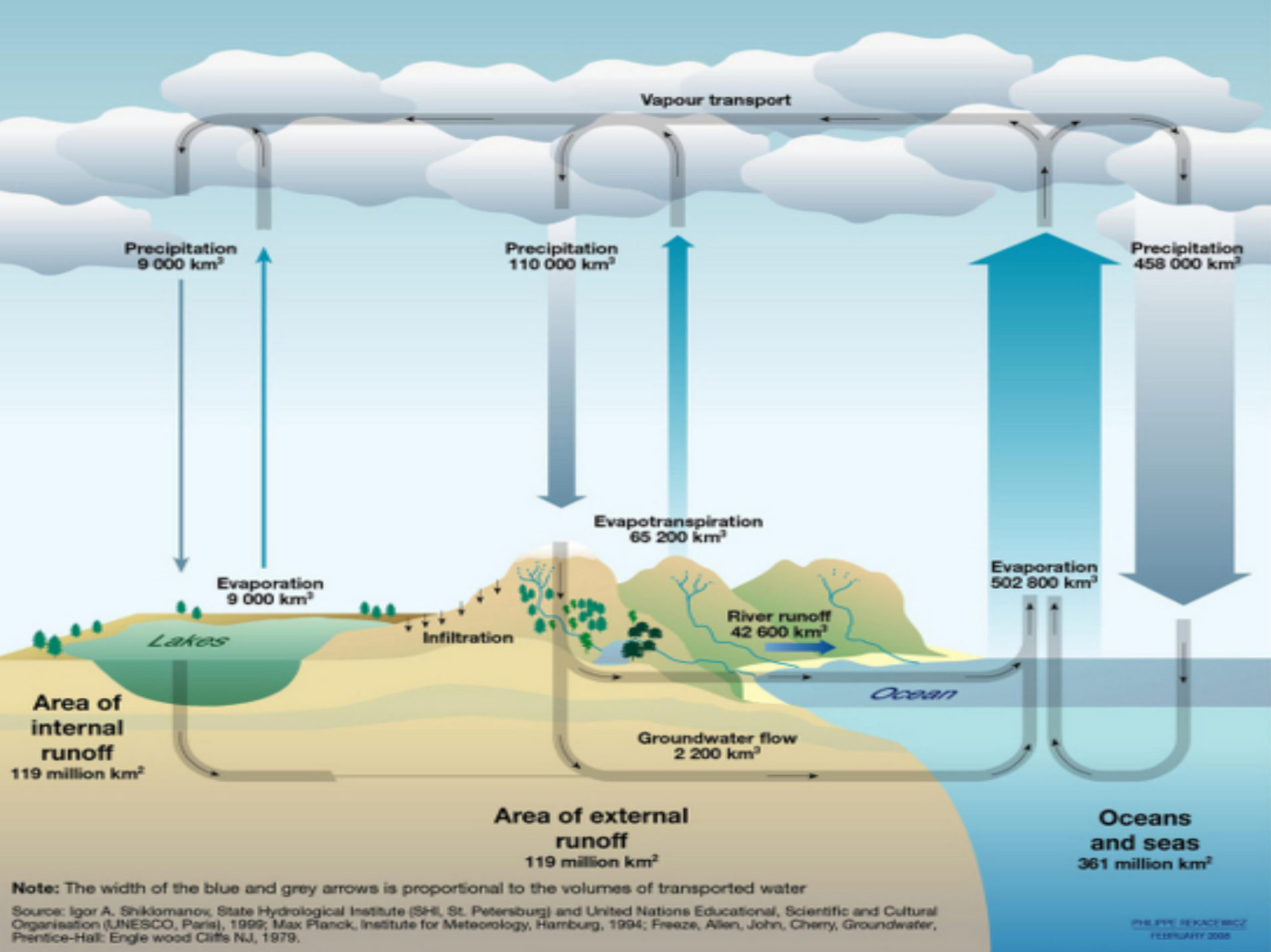
*Ocean Spirit*  
Te Wairua O Te Moananui















# Respiration

## The Ocean's Breath

*Ocean Spirit*

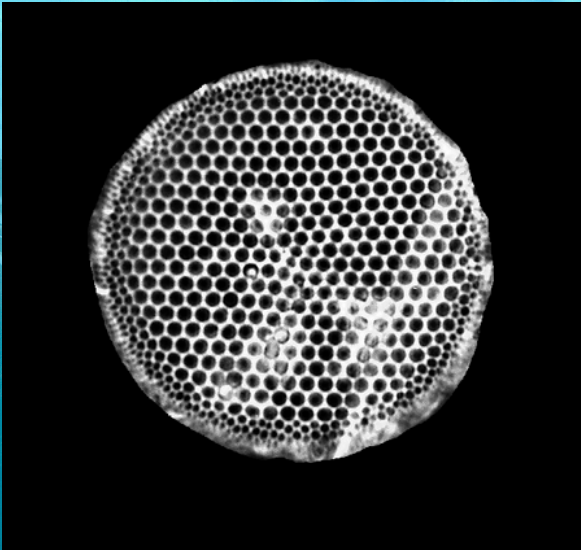
Te Wairua O Te Moananui

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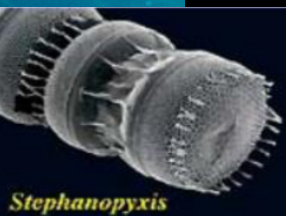
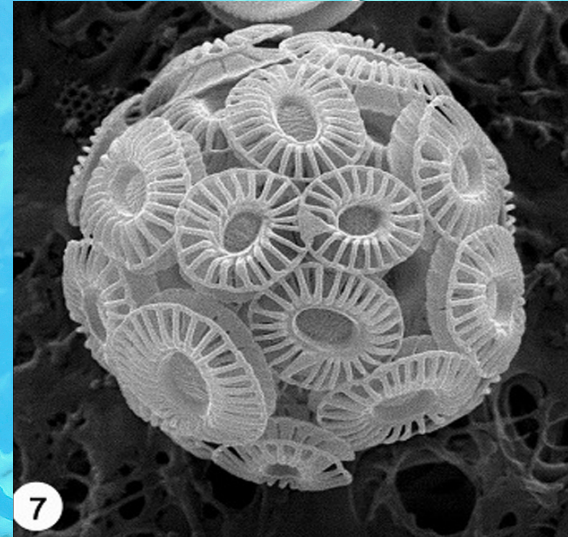
[www.esa.int/spaceinimages/Images/2012/01/A\\_southern\\_summer\\_bloom](http://www.esa.int/spaceinimages/Images/2012/01/A_southern_summer_bloom)



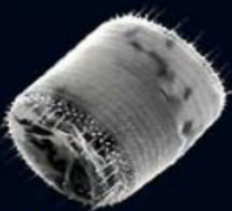
## Diatoms



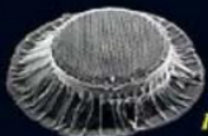
## Coccolithophores



*Stephanopyxis*



*Lauderia*



*Planktoniella*



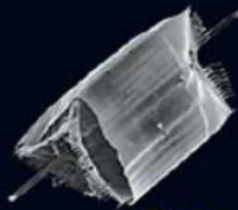
*Lampliscus*



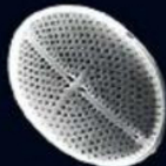
*Camphylodiscus*



*Biddlphia*

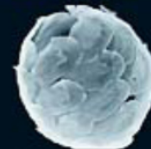


*Ditylum*



*Mastogloia*

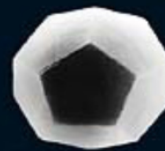
## 円石藻のいろいろ



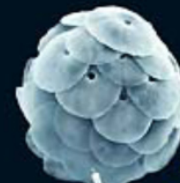
*Helicosphaera*



*Calcidiscus*



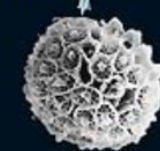
*Braardosphaera*



*Oolithus*



*Rhabdosphaera*



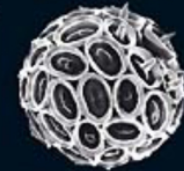
*Cayptrolithina*



*Emiliana*



*Umbellosphaera*



*Coronosphaera*



*Algirosphaera*

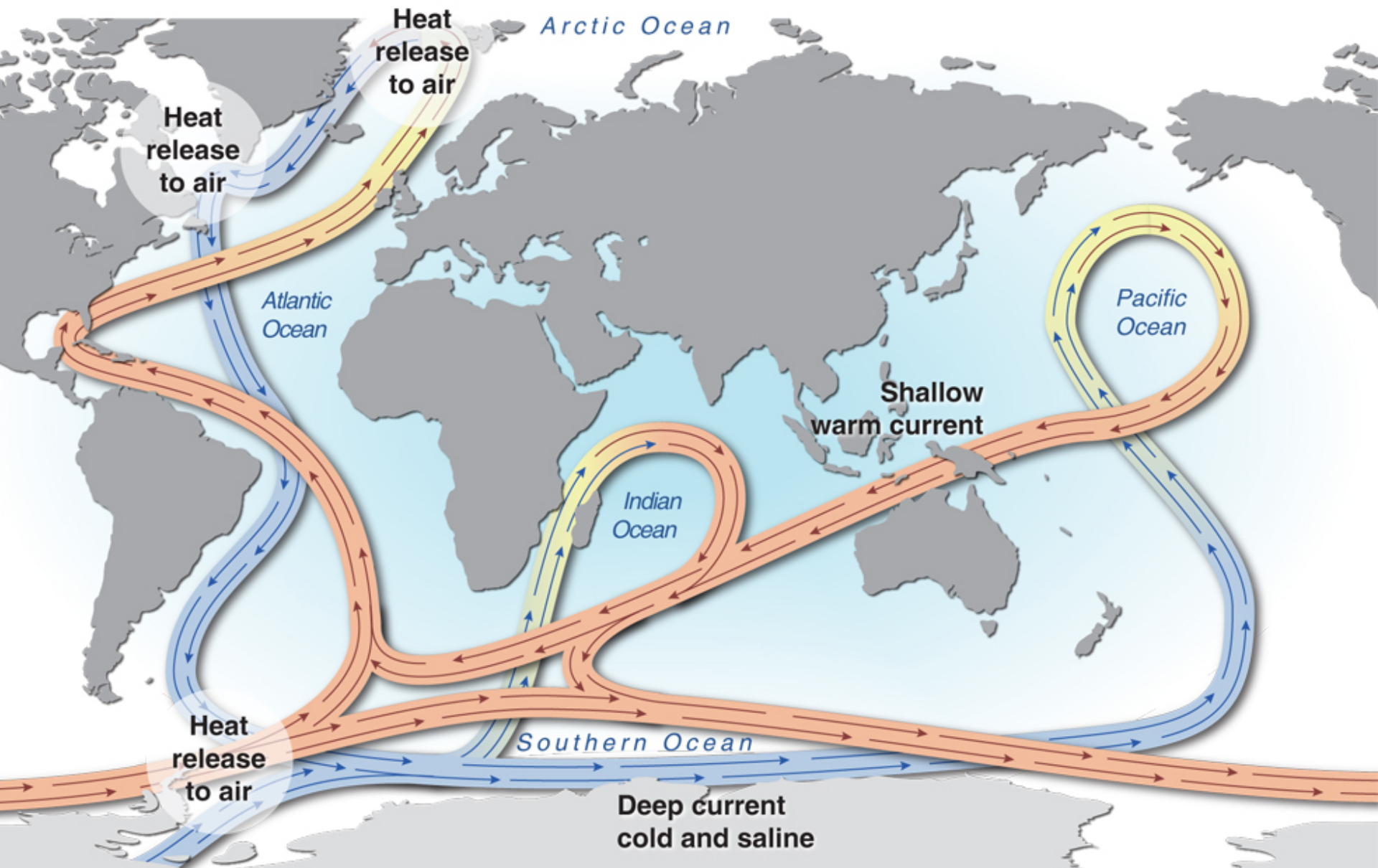


*Gephyrocapsa*



# Circulation

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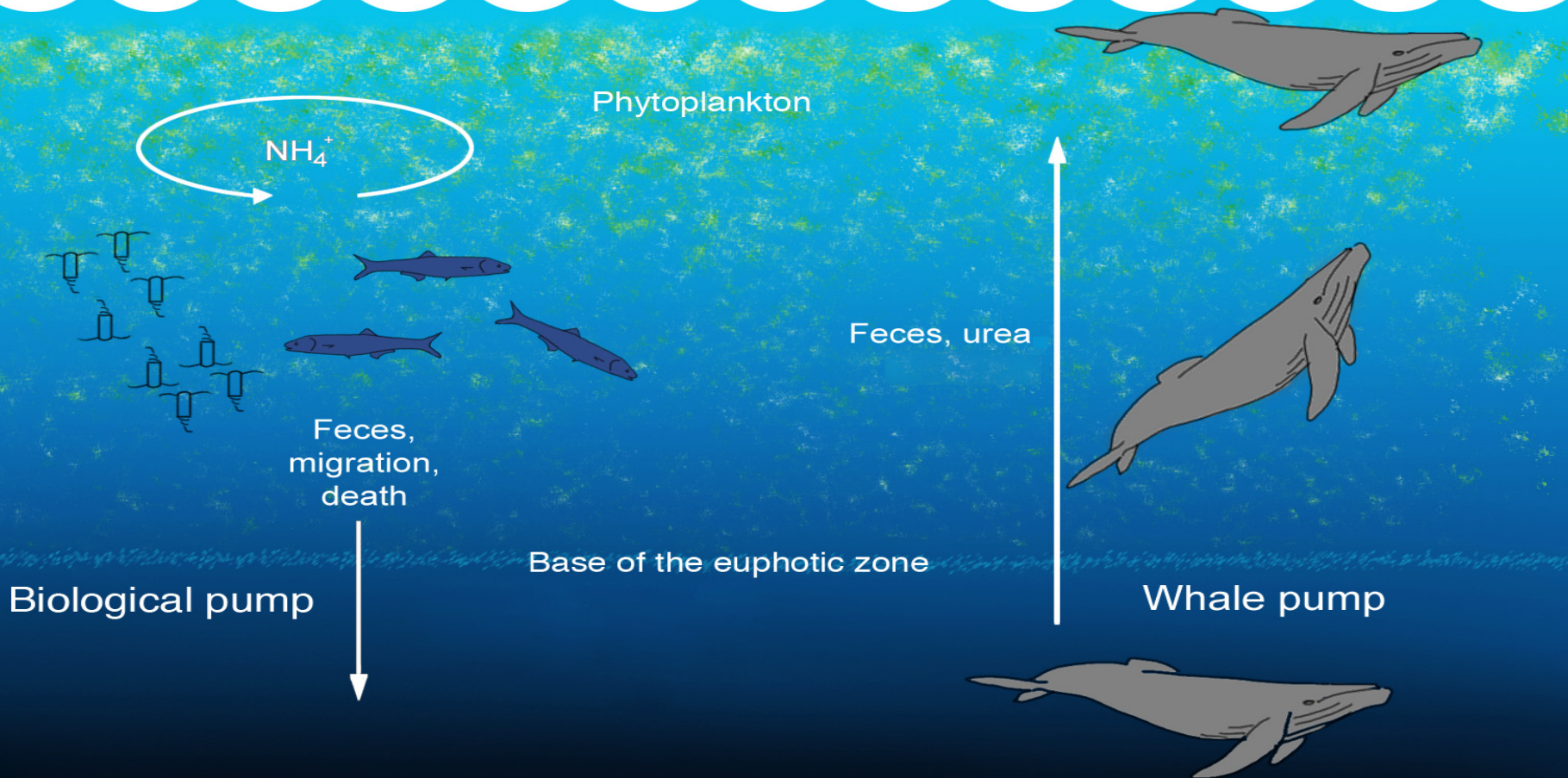


# Metabolism

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Zooplankton, Fish

Marine Mammals





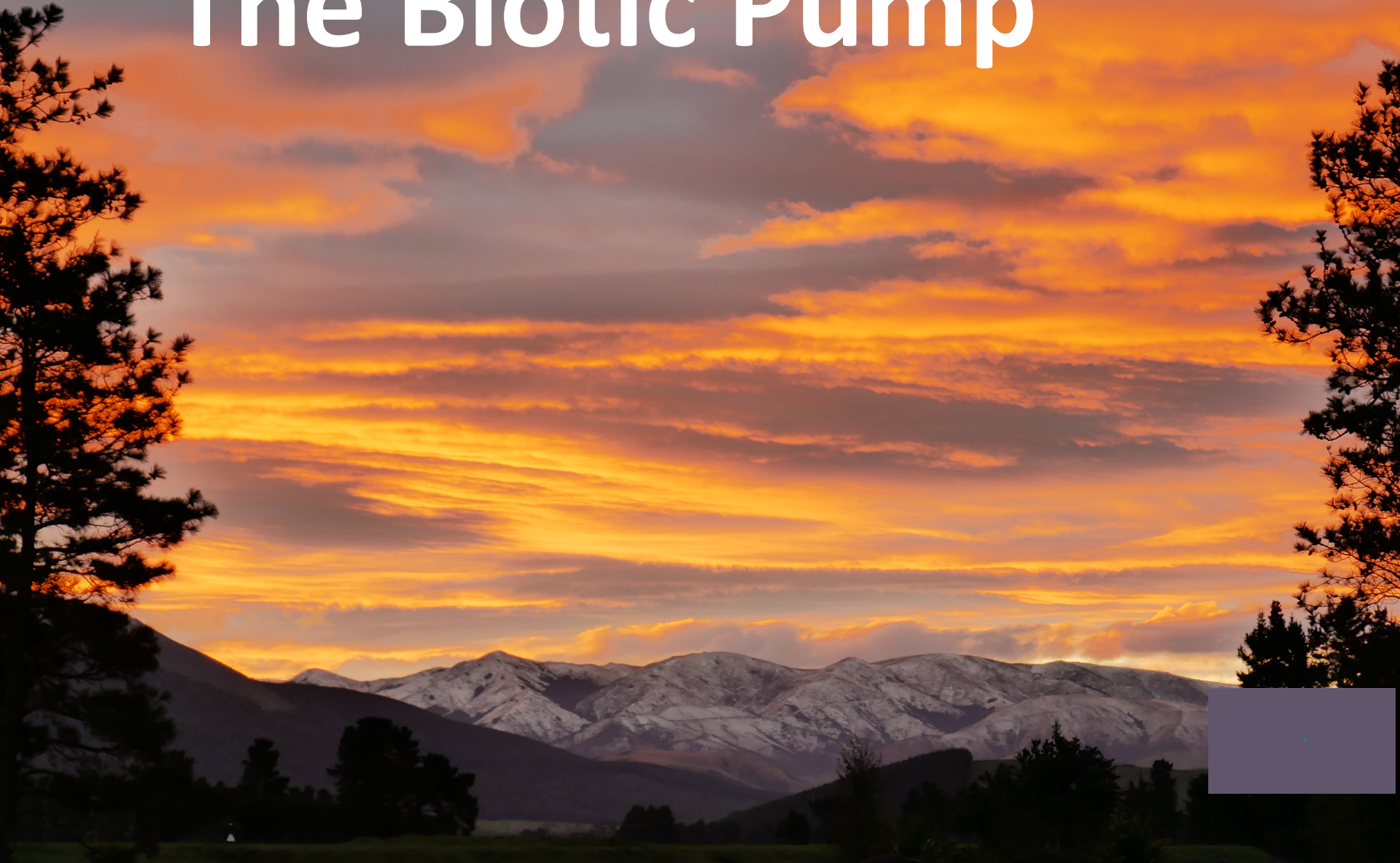
# Pumping Iron

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Te Wairua O Te Moananui





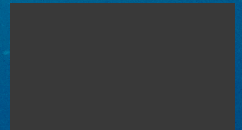
# The Biotic Pump





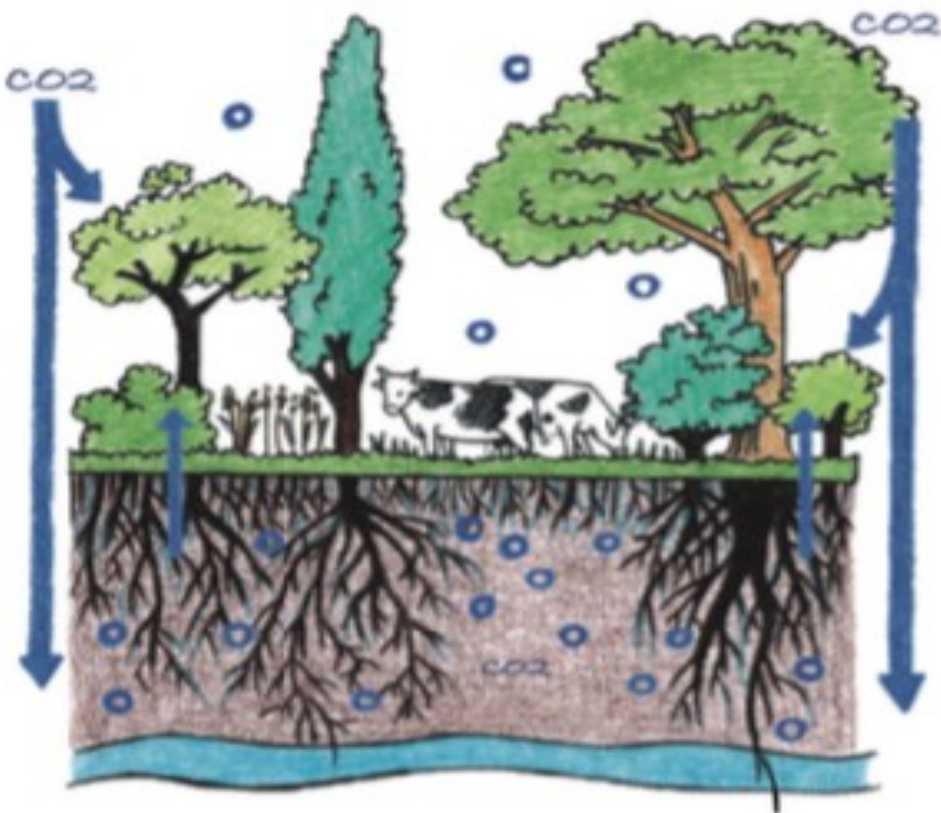
Can we Contribute to the  
Direct Cooling of the Planet?

Healing the Water Cycle  
and reducing CO<sub>2</sub> levels  
through Regenerative practices





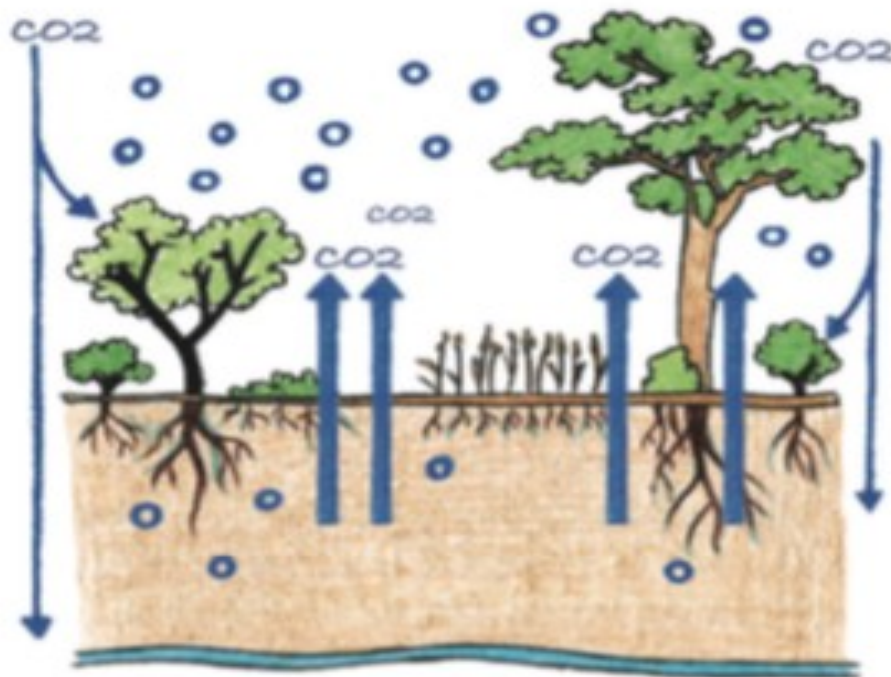
## HOLISTIC LAND MANAGEMENT & OTHER TECHNIQUES OF REGENERATIVE AGRICULTURE



### Healthy soil as carbon sink

- More ground cover
- More roots
- More carbon stored in soil
- More water retention in top soil
- Recovering groundwater levels
- Less erosion
- More bioproductivity
- More diversity
- Less carbon in the atmosphere

## CONVENTIONAL LAND MANAGEMENT & INDUSTRIAL AGRICULTURE



### Depleted soil as carbon source

- Less ground cover
- Fewer roots
- Less carbon stored in soil
- Less water retention in top soil
- Depleting groundwater
- More erosion
- Less bioproductivity
- Less diversity
- More carbon in the atmosphere



# REGENERATIVE AGRICULTURE SHIFTS THE PARADIGM



Compete with Nature

Disturb Soil

Monoculture

Reductionist



Partner with Nature



Protect Soil



Diversity



Holistic



# Whakaora ngā whenua whāma

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A project exploring the interface between  
mātauranga Māori and regenerative agriculture.

“What’s changed is that research reflects Māori people sharing skills,  
telling stories, contributing to knowing, and imagining future possibilities  
with others in Aotearoa/New Zealand,  
the International Indigenous Peoples, and the world.”

– Dr Mere Kepa

image credit: Nina Matenga



# Wai repo Moemoeā

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Re-establishing a natural coastal wetland  
and incorporating regenerative agriculture  
to create a wetland food forest.





# Honouring Hinemoana

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Te Wairua O Te Moananui

## Respecting the Kaitiakitanga of Tangaroa

“Mena kei te hauora te moana ka pera ano te hauora o te iwi”

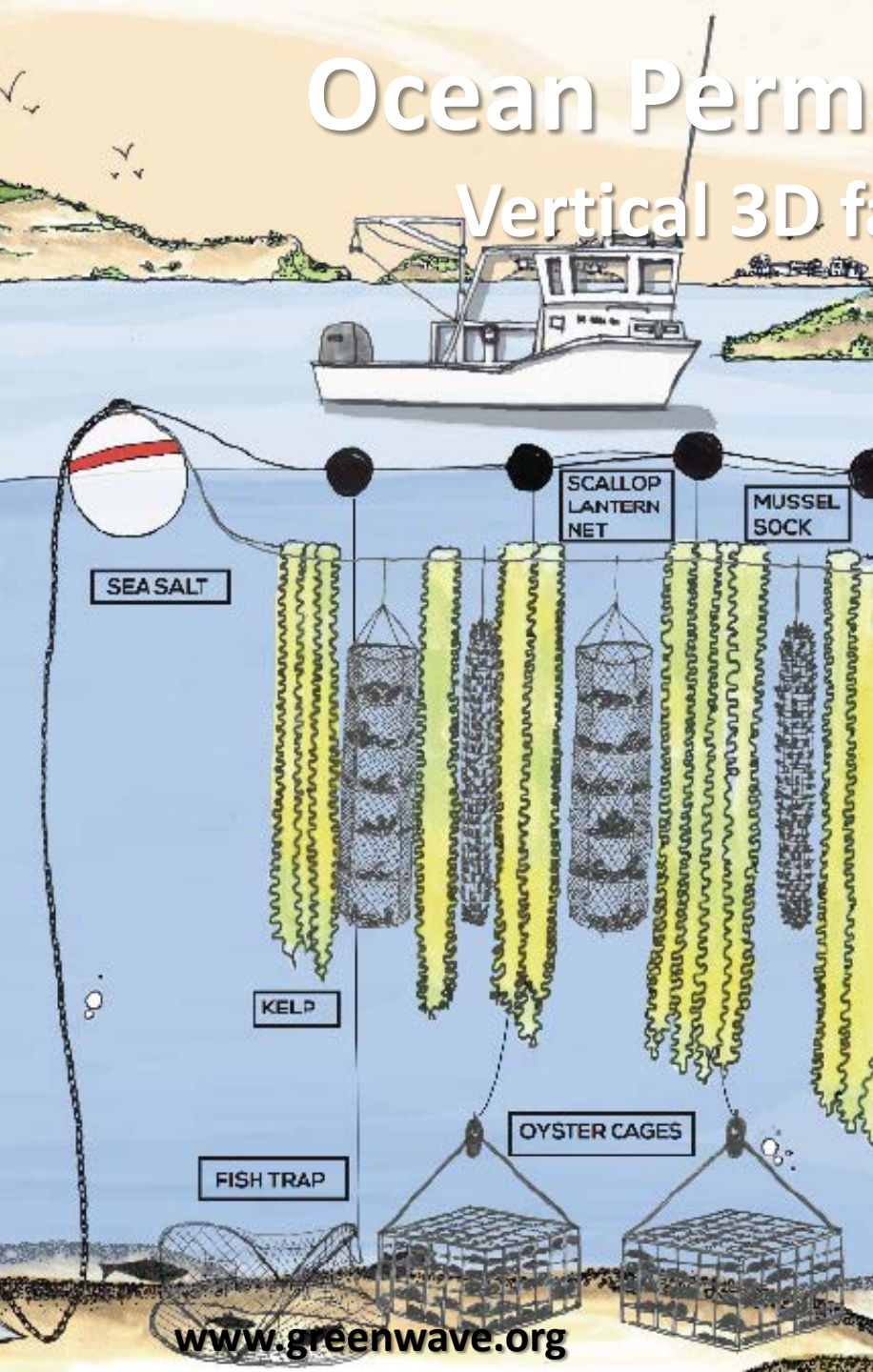
*If the ocean is healthy so too will the people be healthy*



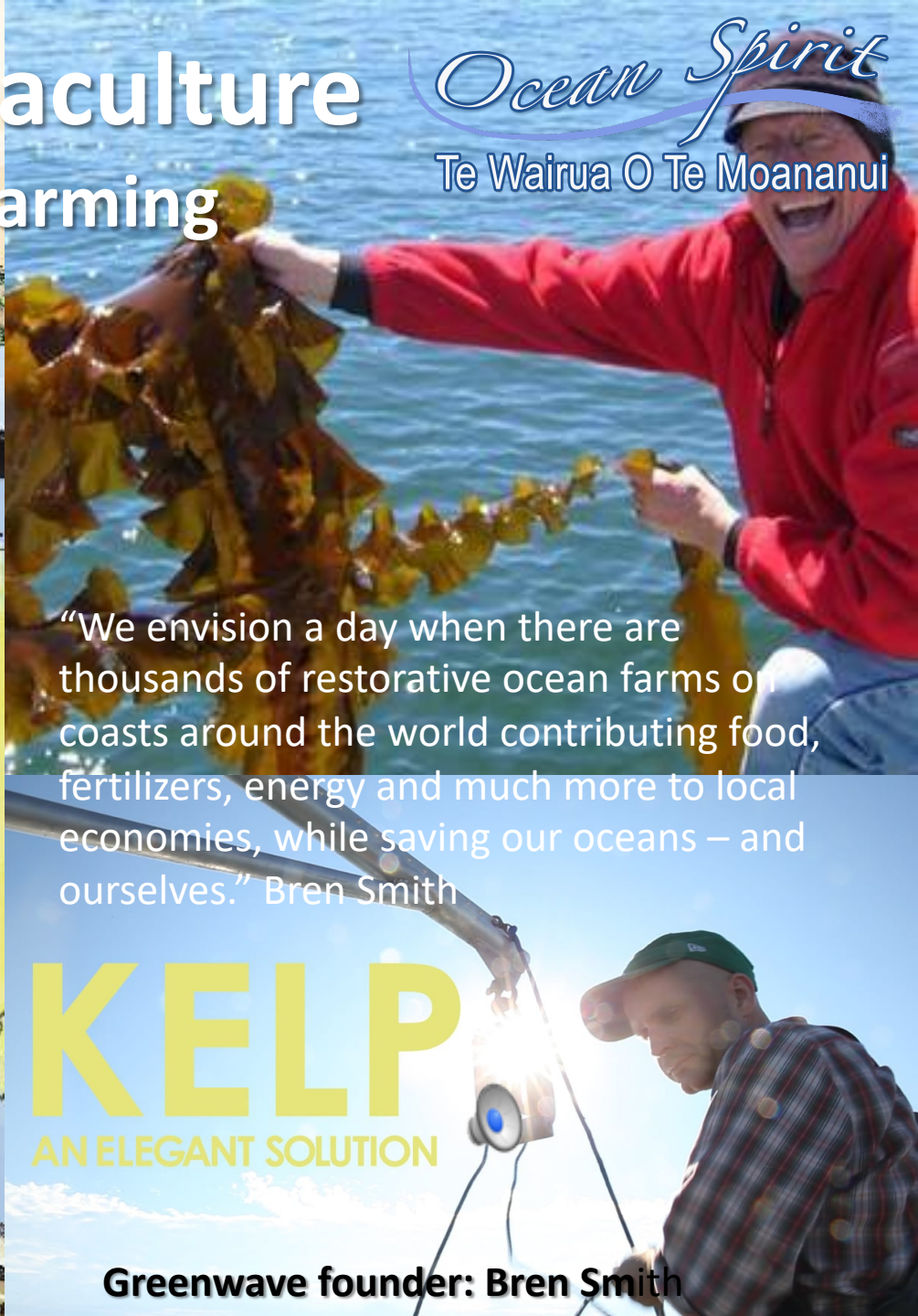
# Ocean Permaculture

## Vertical 3D farming

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[www.greenwave.org](http://www.greenwave.org)



"We envision a day when there are thousands of restorative ocean farms on coasts around the world contributing food, fertilizers, energy and much more to local economies, while saving our oceans – and ourselves." Bren Smith

# KELP

AN ELEGANT SOLUTION

Greenwave founder: Bren Smith







# Re-membering Ourselves

## *Ko Wai Mātou*

*Ocean Spirit*  
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**Ko wai tēnei**

*‘When I speak to wai I speak to myself’*

*- Tina Ngata*



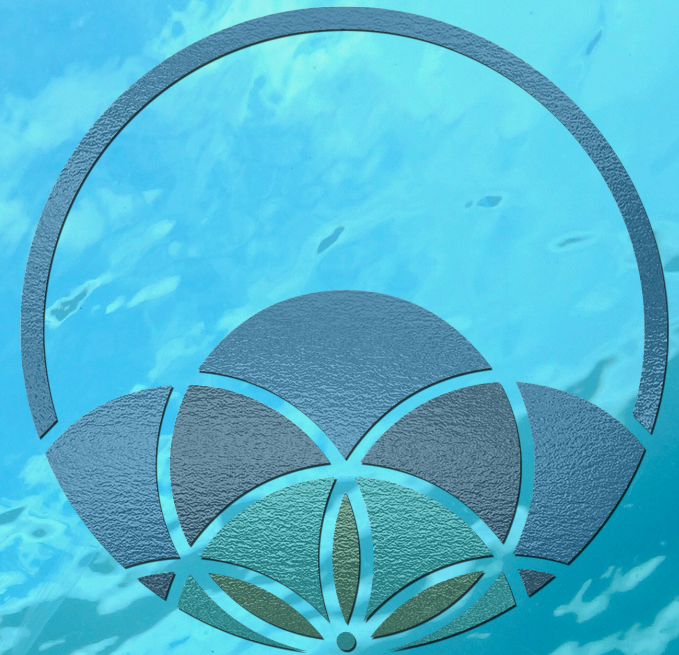
*Ocean Spirit*  
Te Wairua O Te Moananui

# WORLD WATER YEAR 2021



Together We Rise for WATER!  
Together We Rise for All of Life!

[www.codes.earth/waterlaw](http://www.codes.earth/waterlaw)



# WORLD WATER LAW

[www.codes.earth](http://www.codes.earth)



## Proposal for a World Water Law

We, citizens of Earth, call for and commit to working together to ensure that a binding international law is put in place for the immediate and universal protection of all Water, as the first vital step towards global cooperation for effective, worldwide social and ecological healing.

The World Water Law requires

- the uncompromising protection and restoration of all natural water sources, watersheds, aquifers, rivers, lakes, wetlands, estuaries and oceans
- the rewilding of ecosystems, necessary for the restoration of the planetary water-cycle
- the guaranteed, free access of all humans and animals to natural, uncontaminated Water

The *World Water Law* holds all governments, corporations, communities, and individuals, fully accountable for their impact on all waters everywhere.

This one Law serves as a unifying foundation for all governments and citizens to work together with community-led wisdom and stewardship councils in ways that effectively serve the health and vitality of the whole.

*This global initiative honors the many Water Guardians around the world who have dedicated their lives to the protection and reverence of Water on behalf of all of Life.*