

What's **Blue Carbon**
Got to Do with It?

How Blue Carbon
Supports the Sustainable
Development Goals.

Lucy Gwen Gillis



What is Blue Carbon?

What is Blue Carbon?

Blue carbon is the **carbon stored in coastal and marine ecosystems**



Coastal and Marine Ecosystems



Coastal and Marine Ecosystems



Global Carbon = 83 %

Coastal Ecosystems

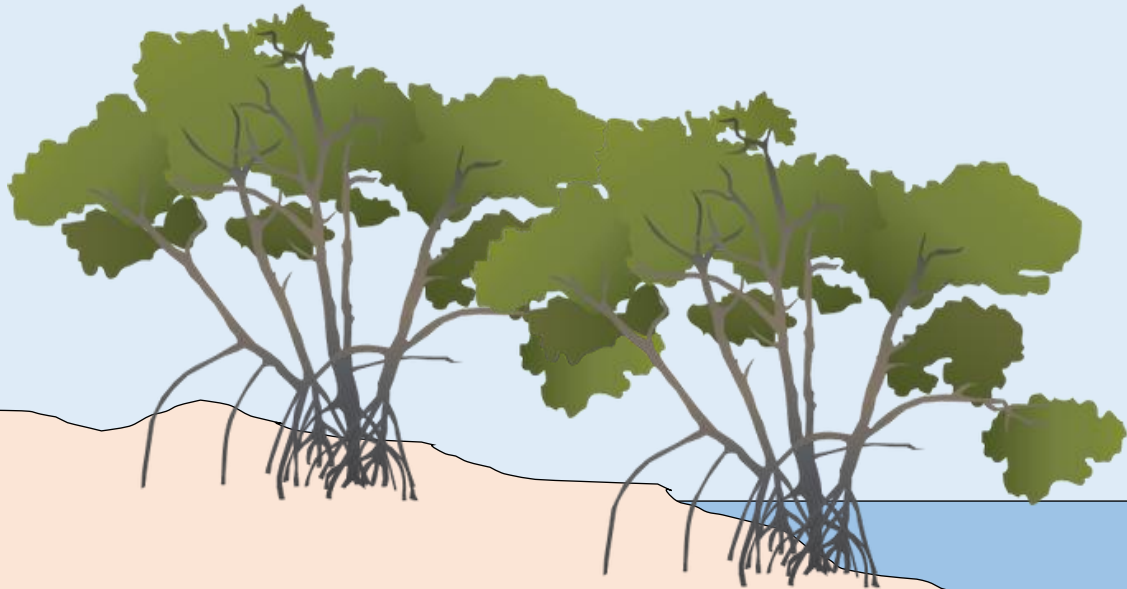


Coastal Ecosystems

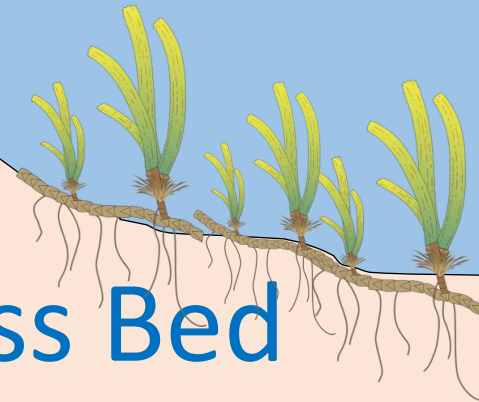


Carbon = 50 %

Blue Carbon

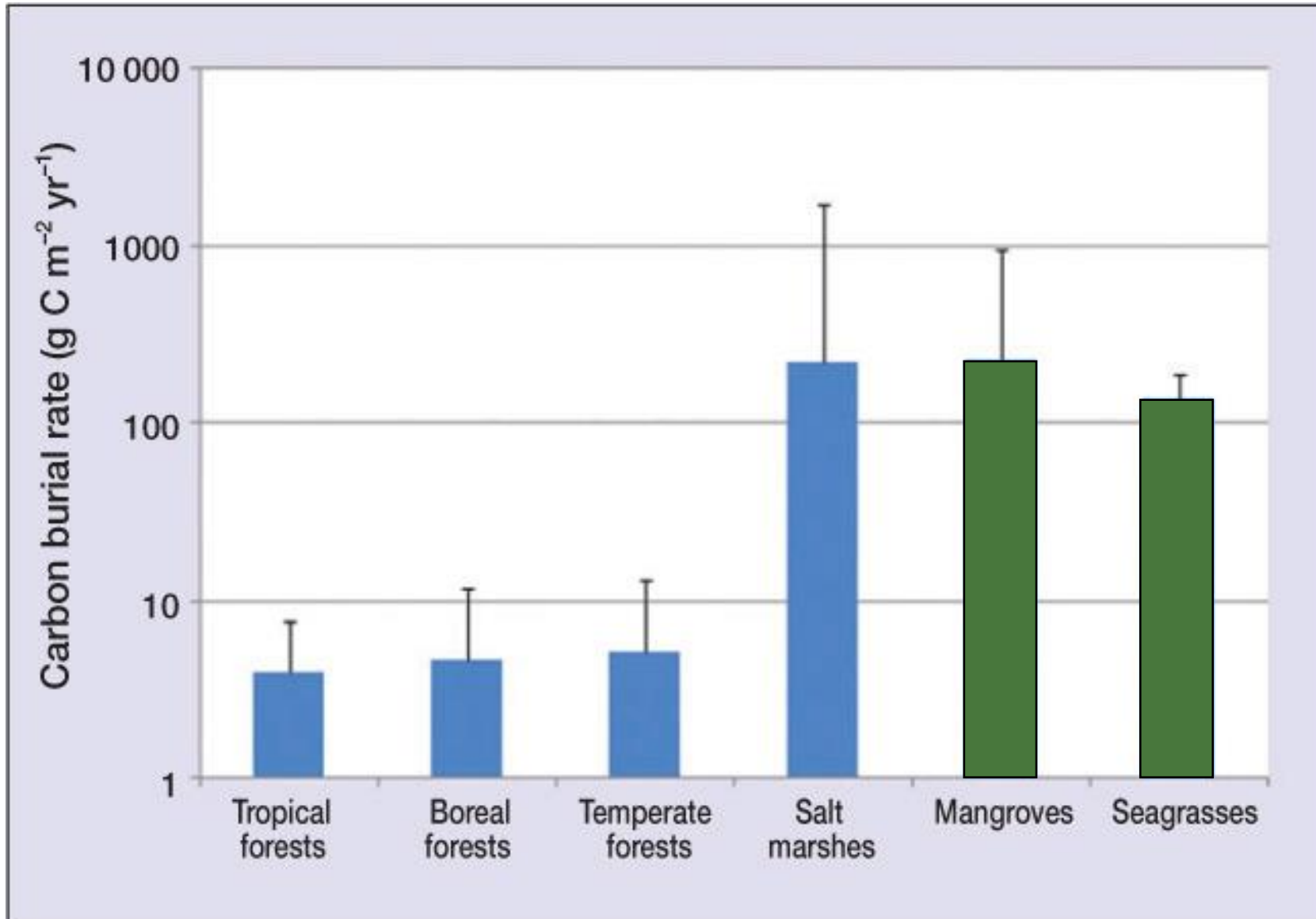


Mangrove forest



Seagrass Bed

Coastal Ecosystems



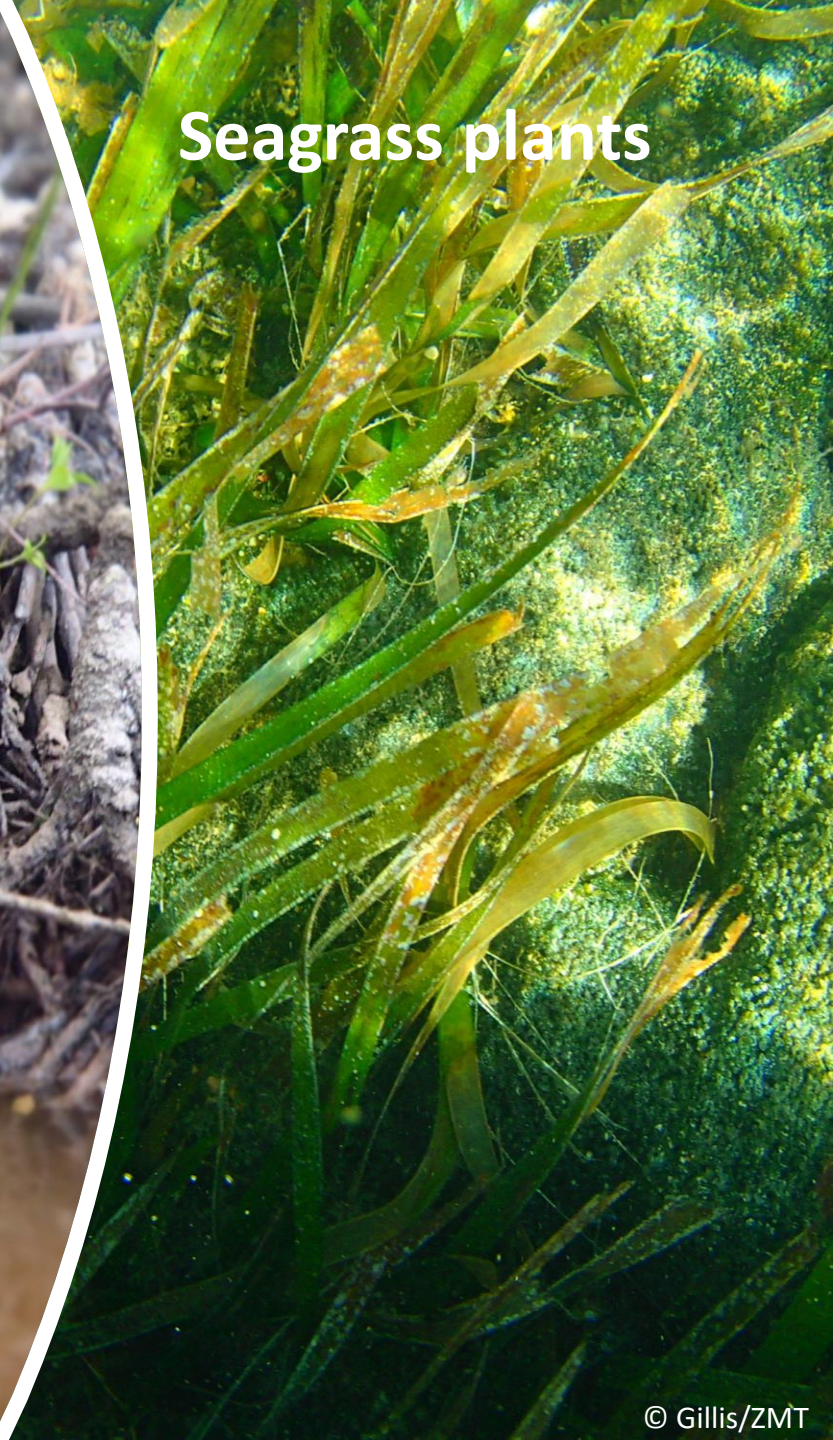
Ecosystem Engineers



Mangrove trees



Seagrass plants

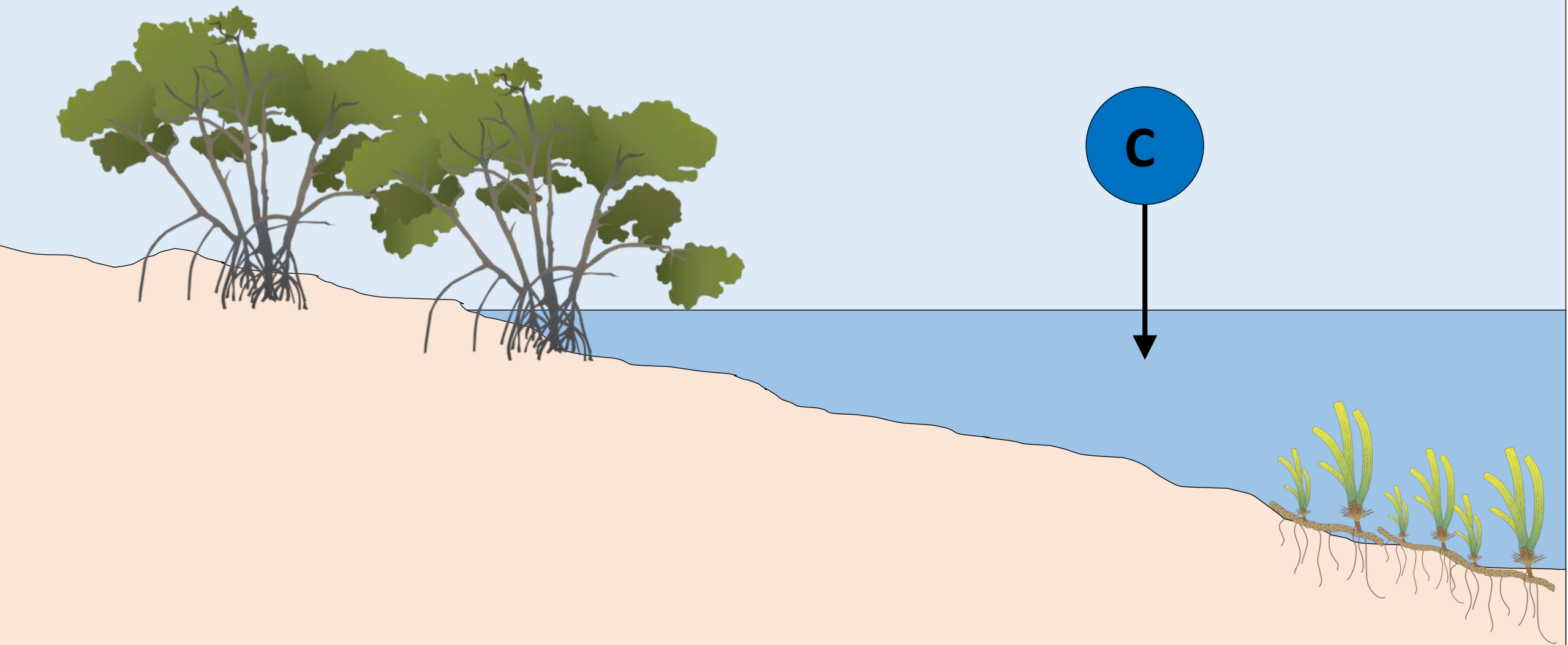


Mangrove trees

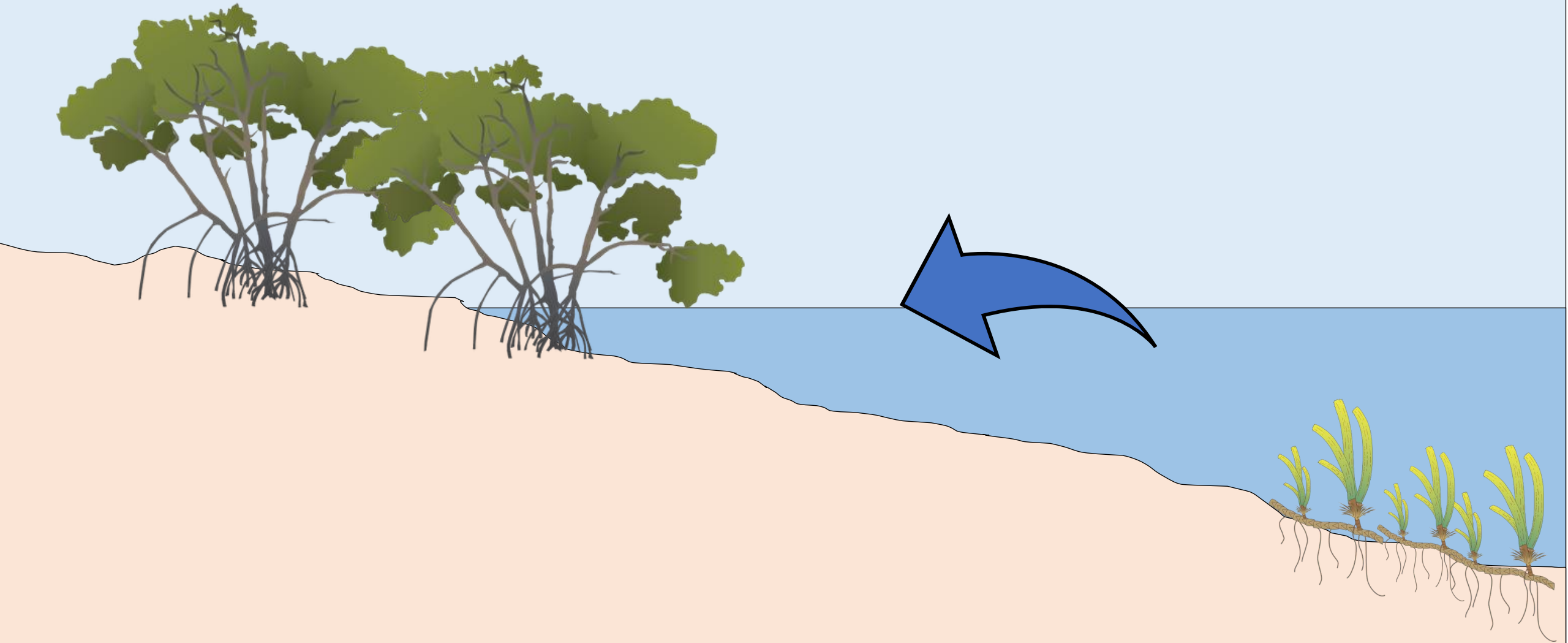
Seagrass plants

- High Productivity
- Accumulate matter
- Anoxic sediment
- Reduce Erosion

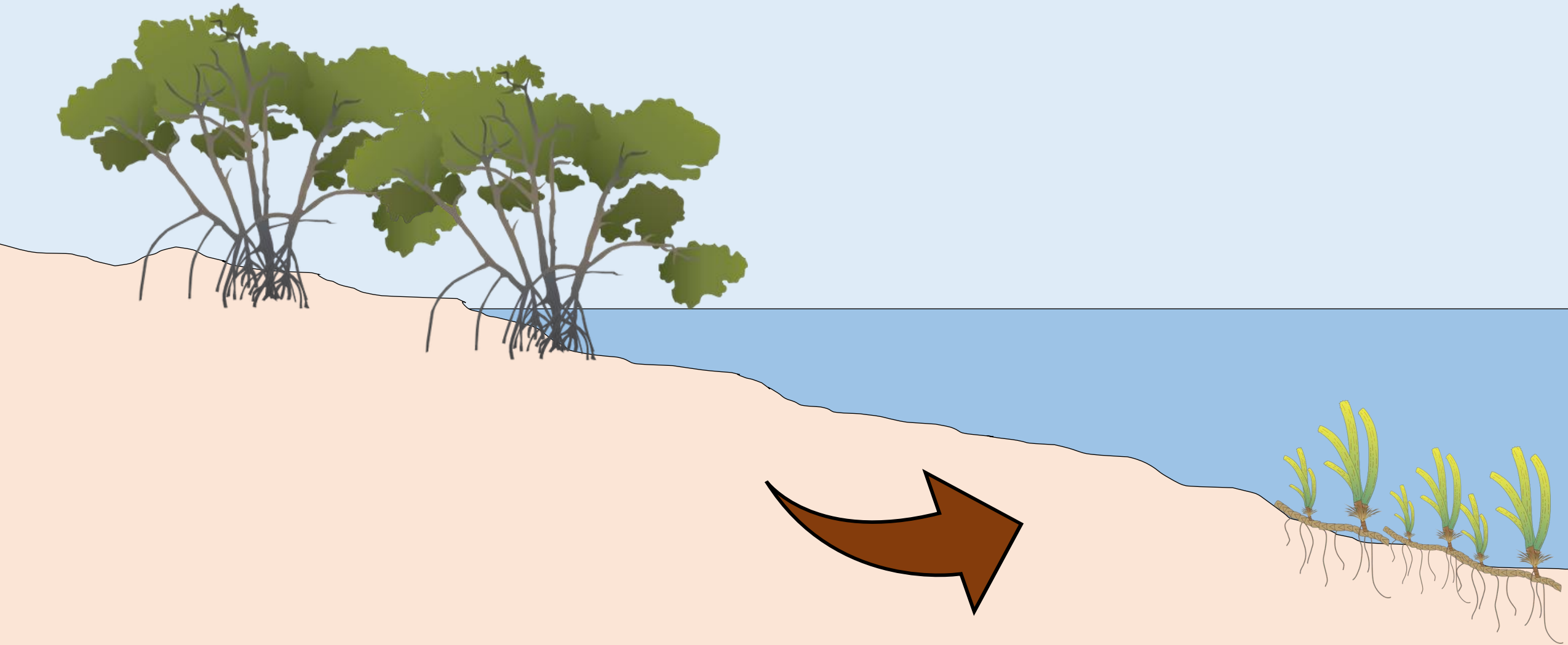
Drivers?



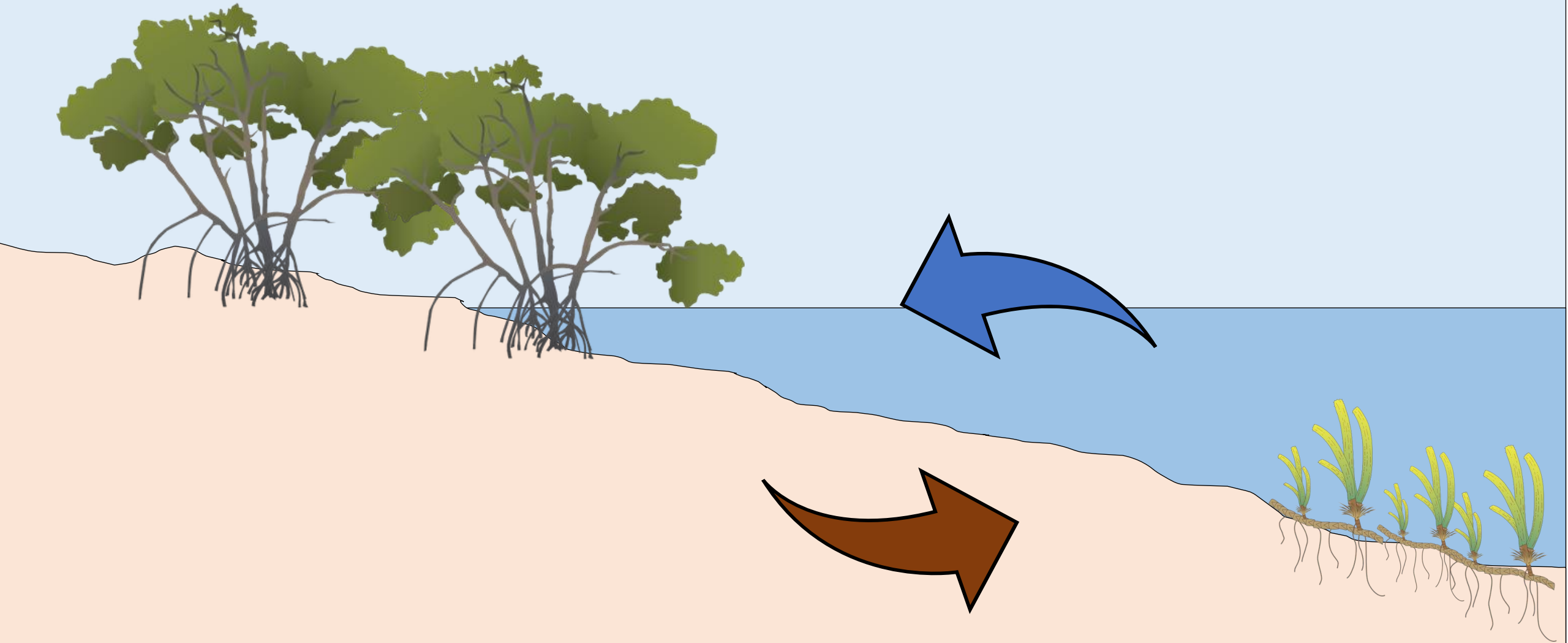
Connective Exchanges



Connective Exchanges



Connective Exchanges



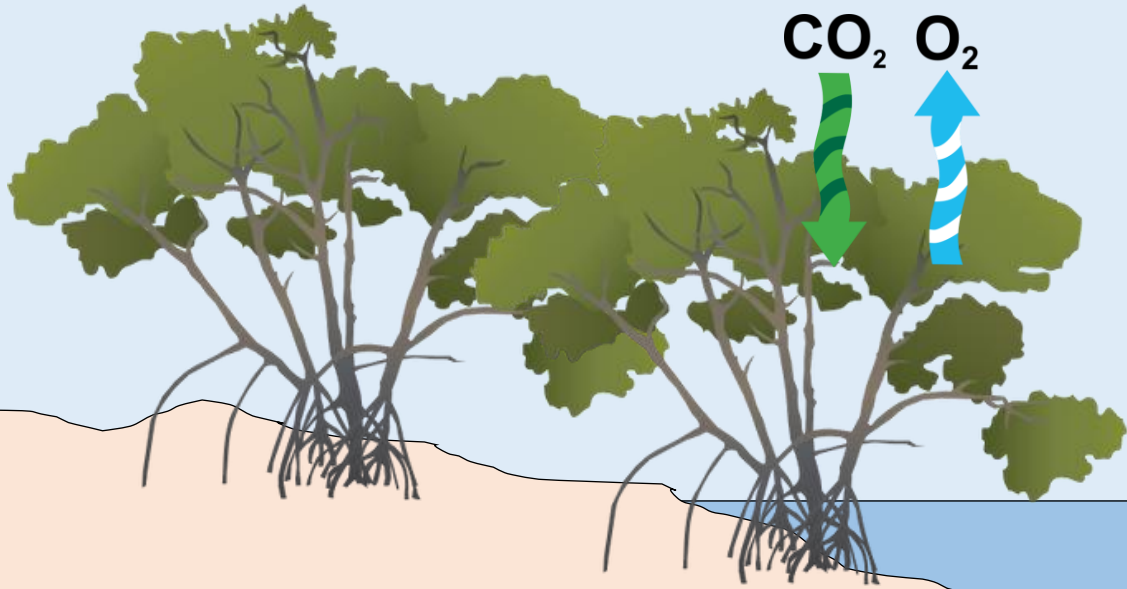
Functional Traits



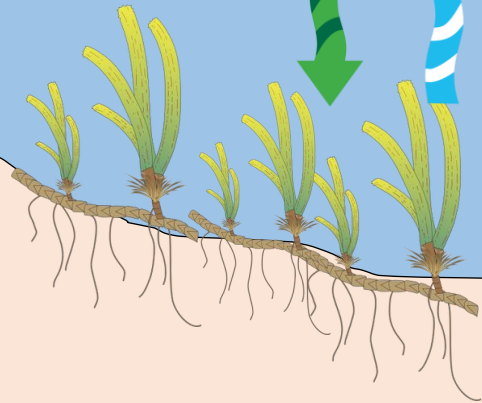
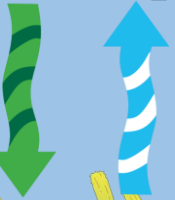


Physiological

CO_2 O_2



CO_2 O_2

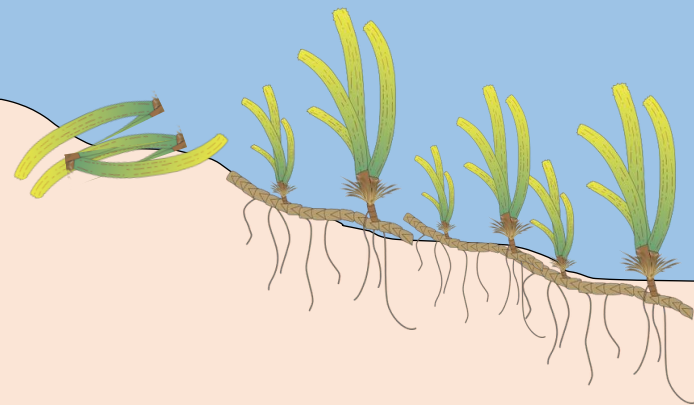




Physiological



Growth/Development





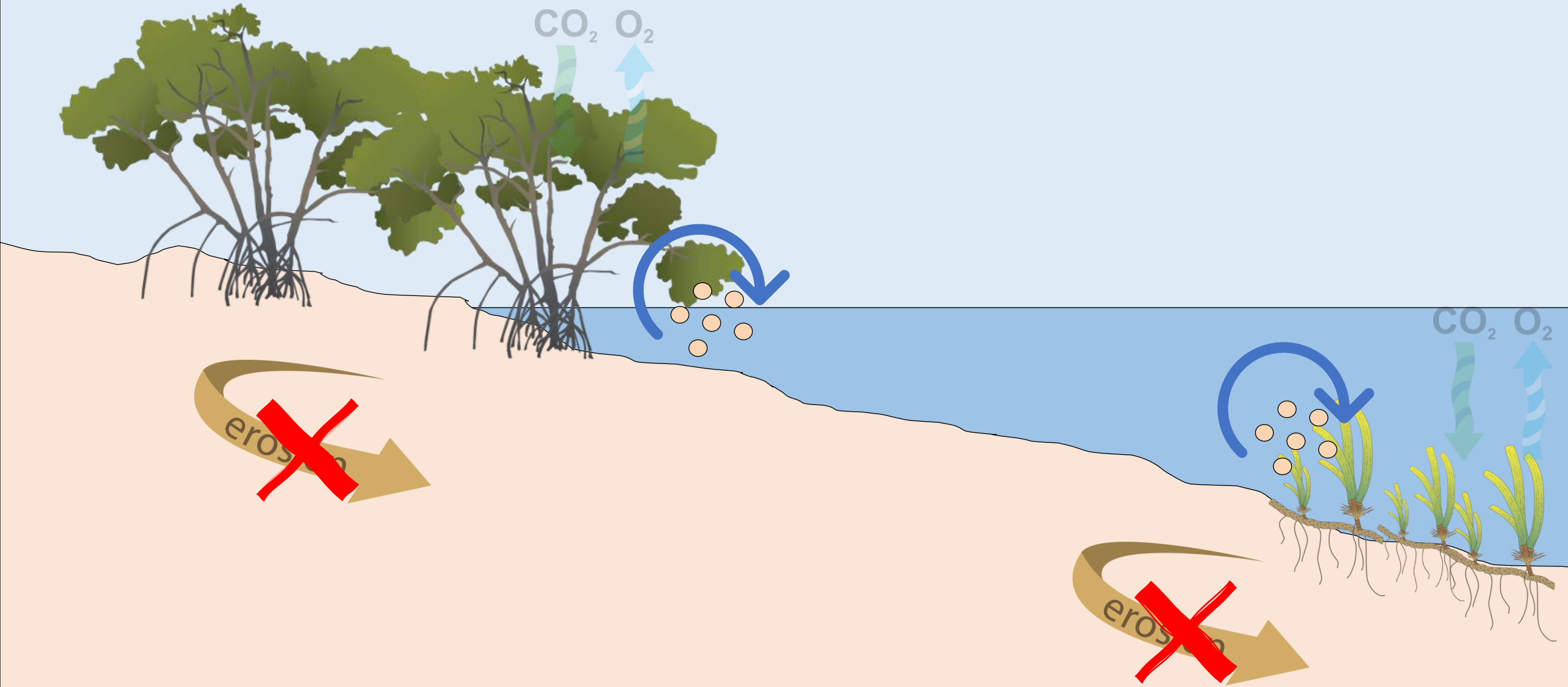
Physiological



Growth/Development



Morphological





Physiological



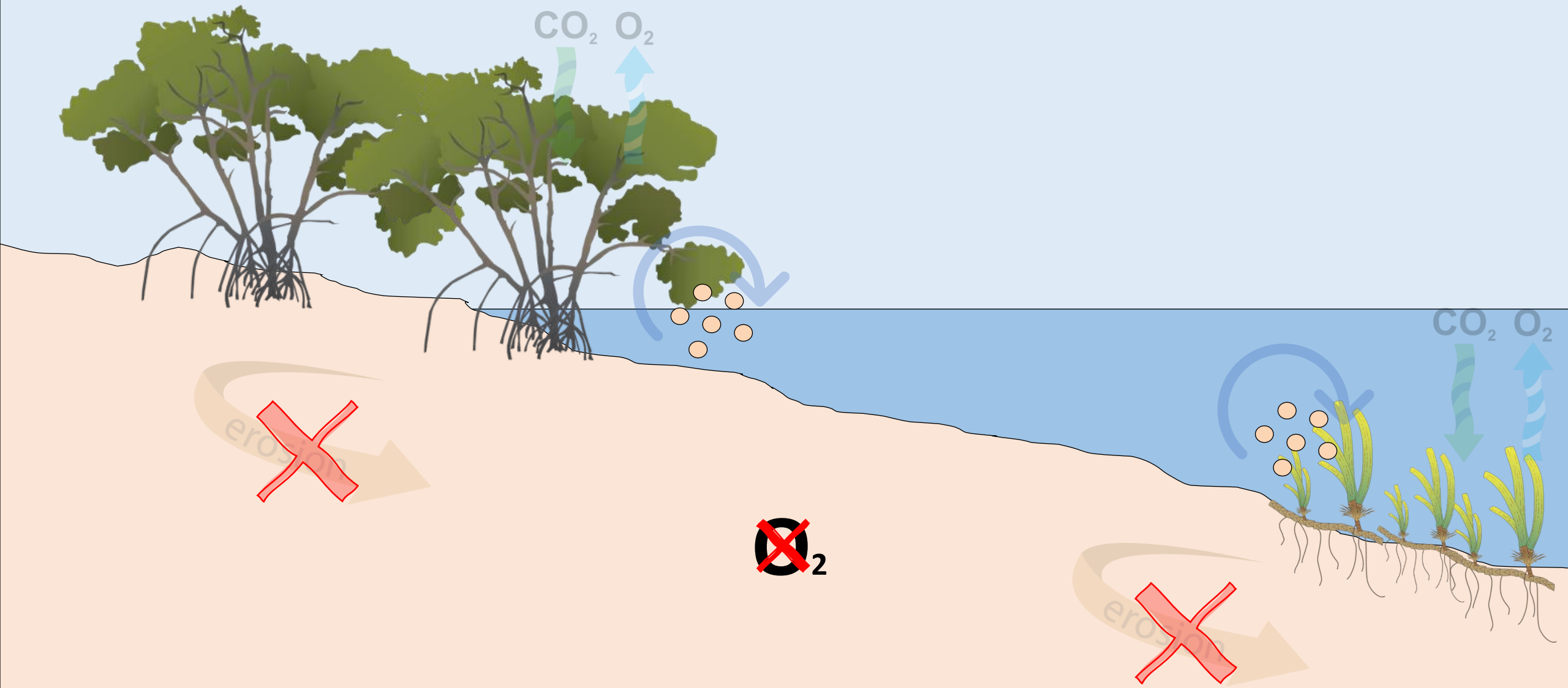
Growth/Development



Morphological



Biochemical





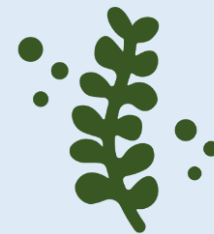
Physiological



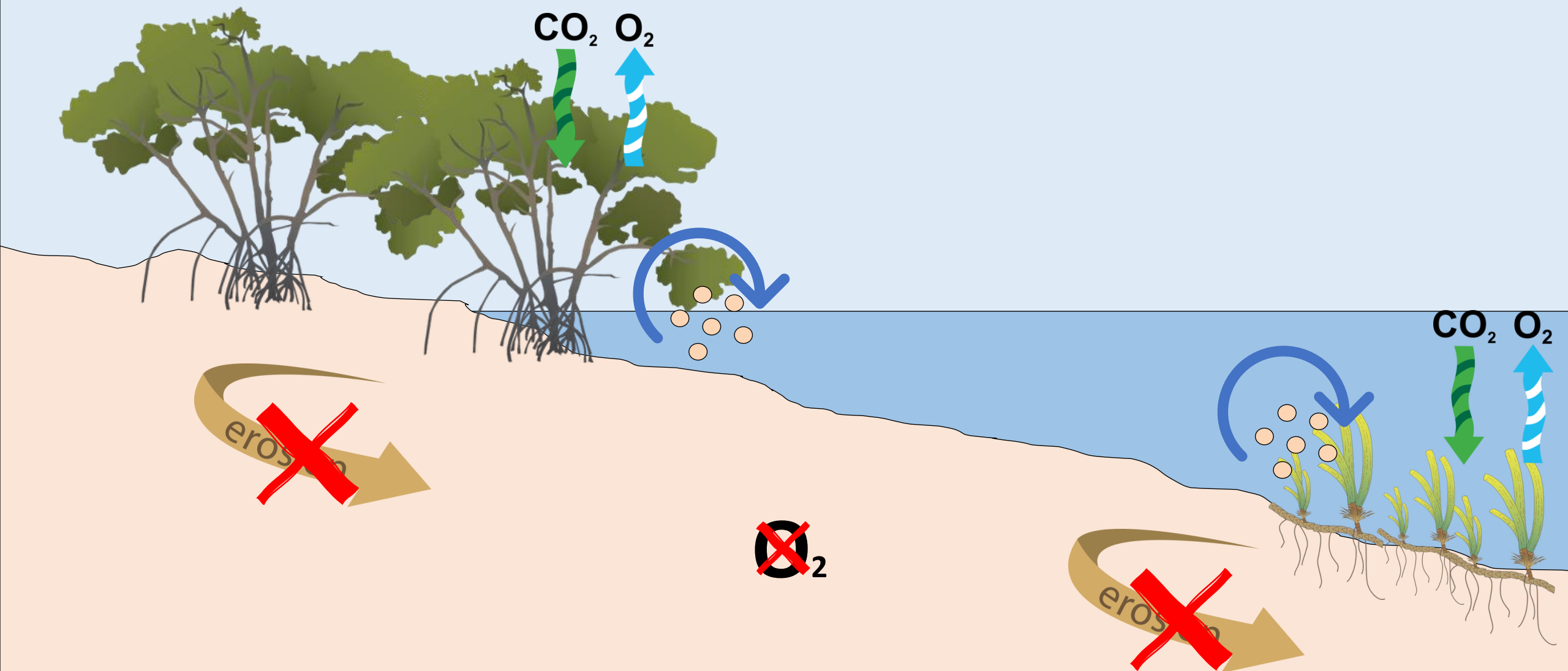
Growth/Development



Morphological



Biochemical



Blue Carbon and SDG's

Blue Carbon and SDG's

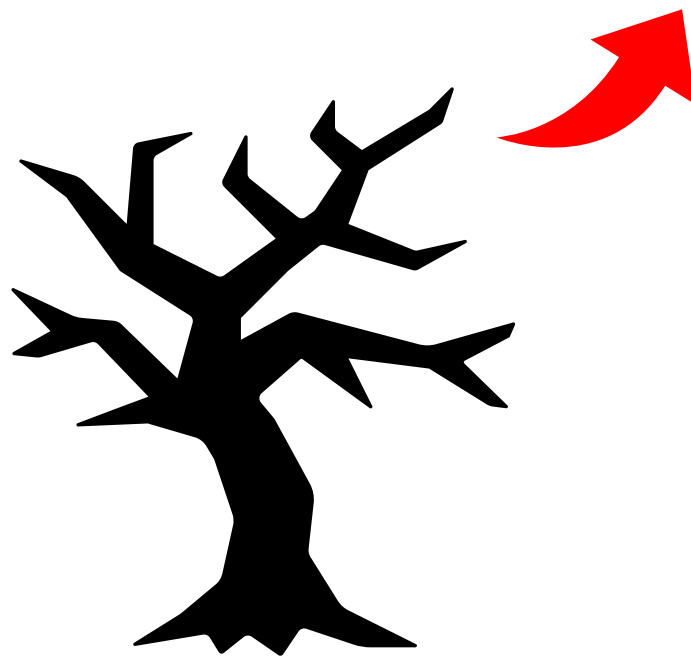
13 CLIMATE
ACTION



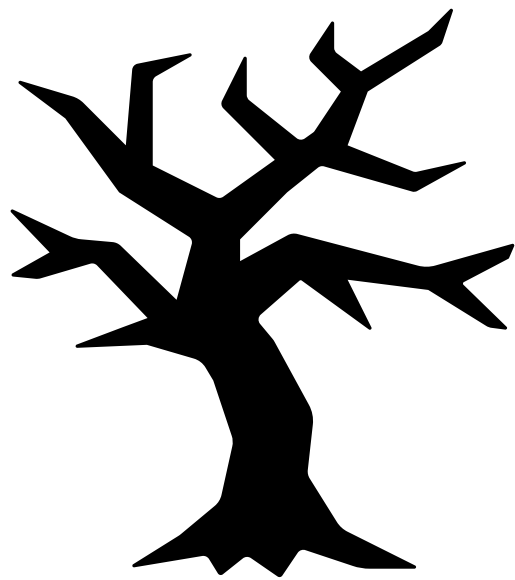
13 CLIMATE ACTION



0.45 Pg CO₂ yr⁻¹

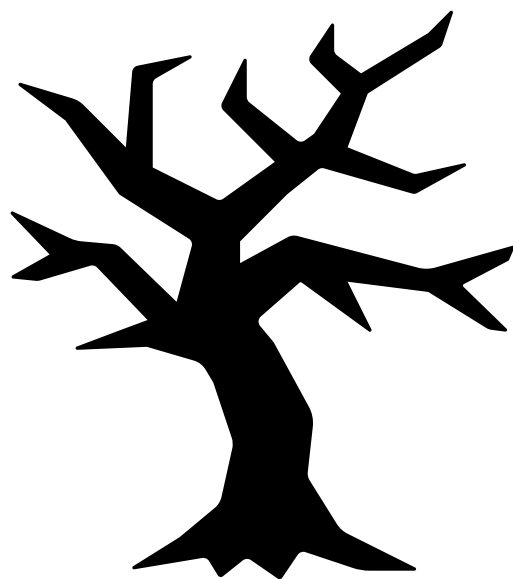


13 CLIMATE ACTION

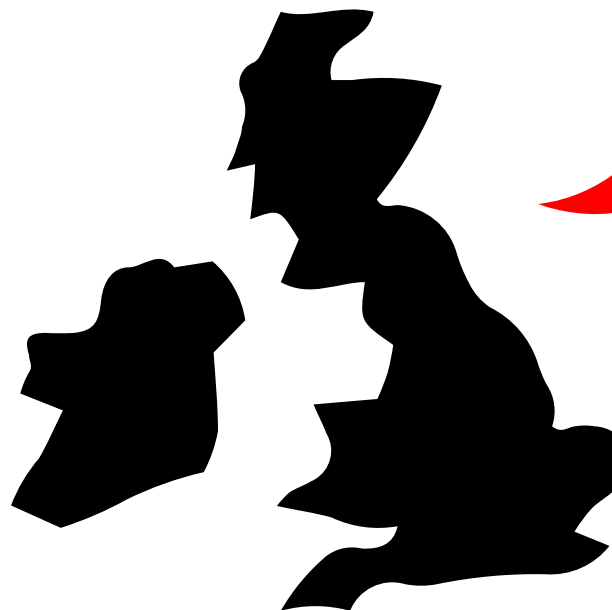


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13 CLIMATE ACTION



=



0.45 Pg CO₂ yr⁻¹





ca. 35 % ↓

Mangrove forest

ca. 30 % ↓

Seagrass bed

ca. 28 % ↓

Salt marsh

©Diuvs de Jesus

Gillis et al. 2017. Frontiers

13 CLIMATE ACTION



Coastal Ecosystems critical part of **climate change mitigation**

But...

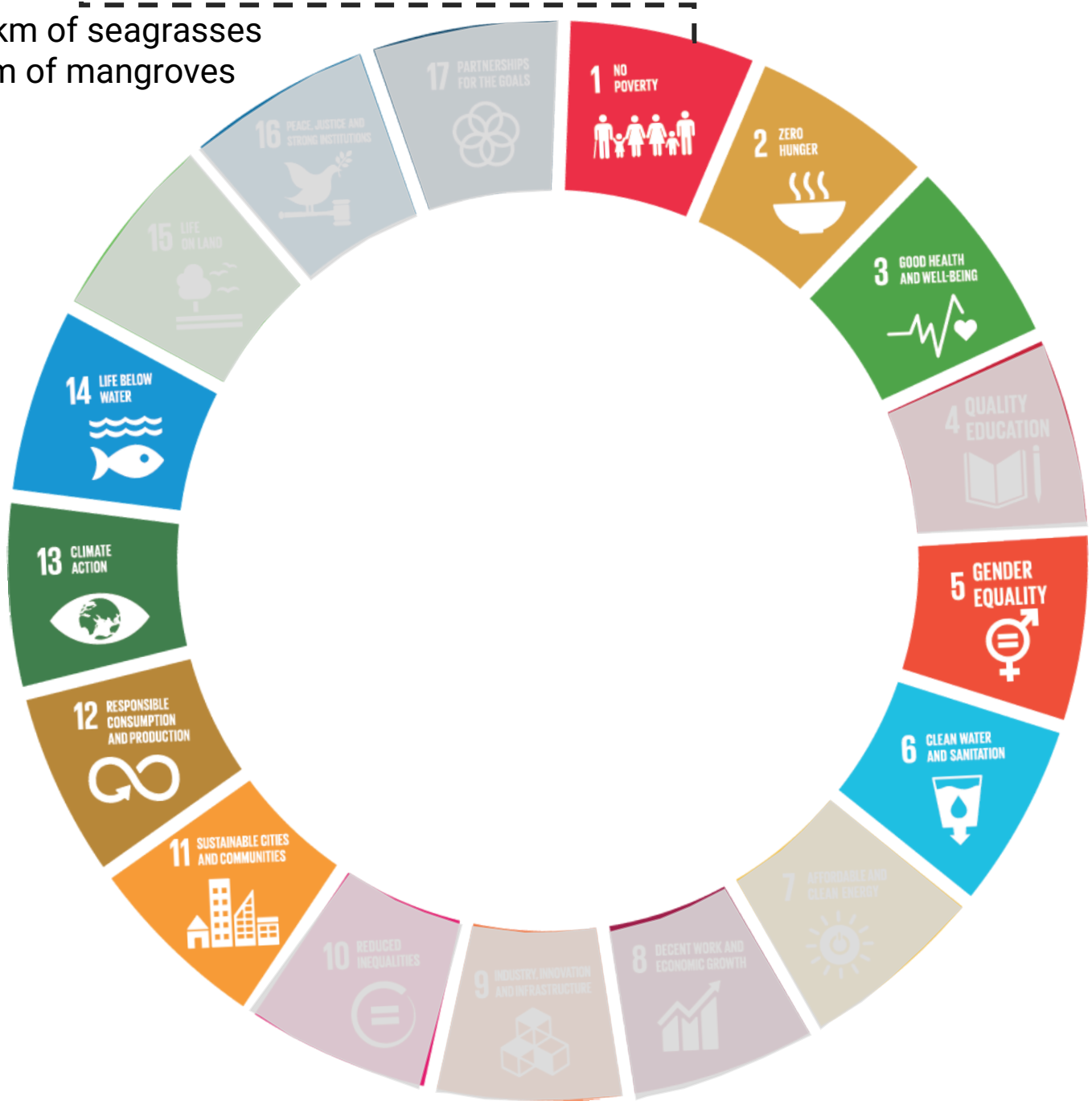
by preserving ecosystems because of blue carbon...
knock on impacts for other SDG's







1 billion people within 100 km of seagrasses
100 million live within 10 km of mangroves



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100 million live within 10 km of mangroves



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Ecosystem Services
Mangroves **€1.4 billion/yr**
Seagrasses **€190 million/yr**_{Med.}

1 billion people within 100 km of seagrasses
100 million live within 10 km of mangroves

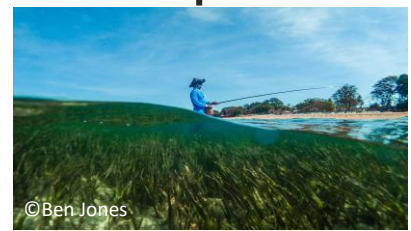


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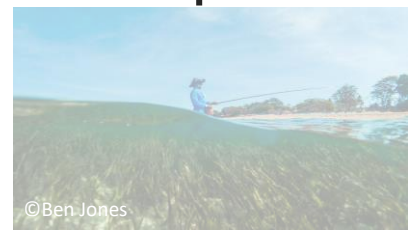


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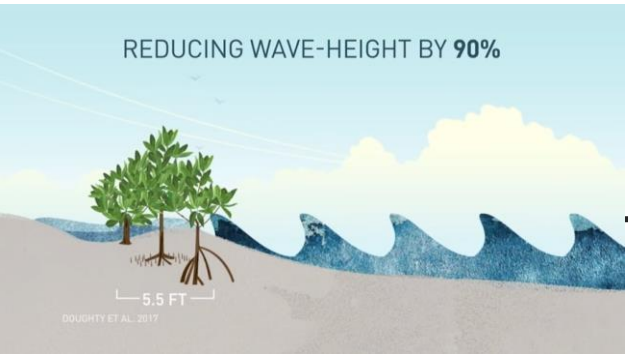
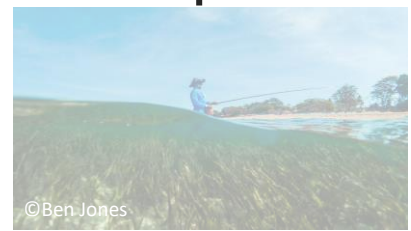
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US\$ 112 million clean water (French Colonies)

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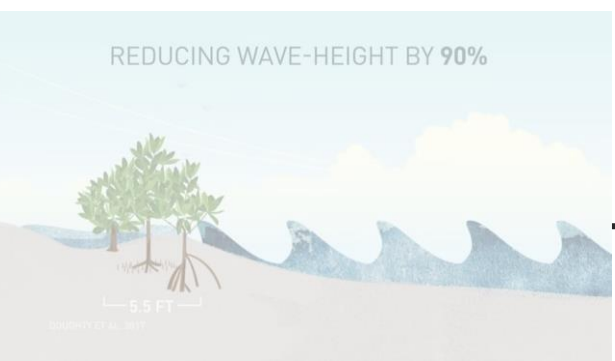
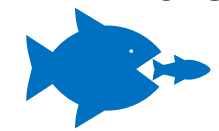
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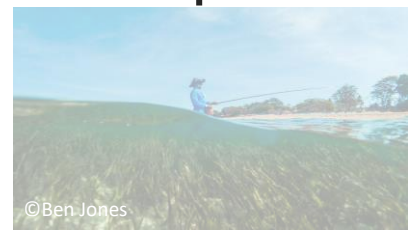
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Seagrass are nursery habitat to **1/5** of the world's largest fisheries



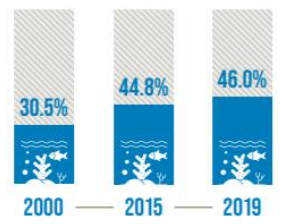
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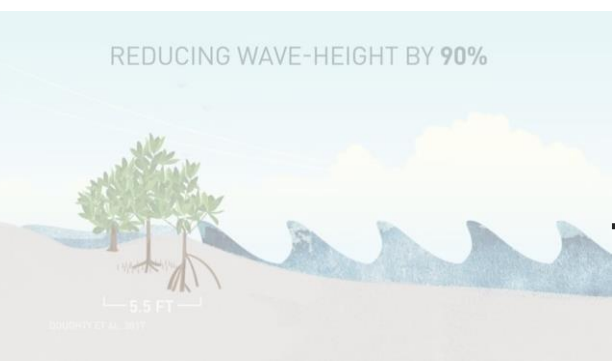
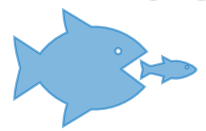
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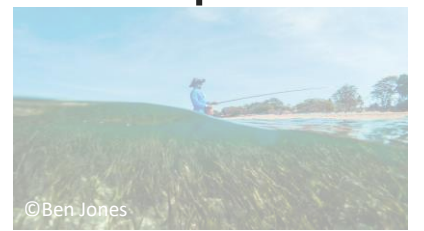
GLOBAL MARINE KEY
BIODIVERSITY AREAS
COVERED BY PROTECTED
AREAS INCREASED



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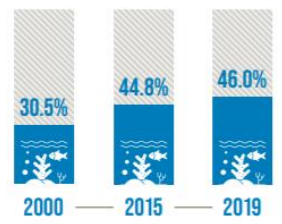
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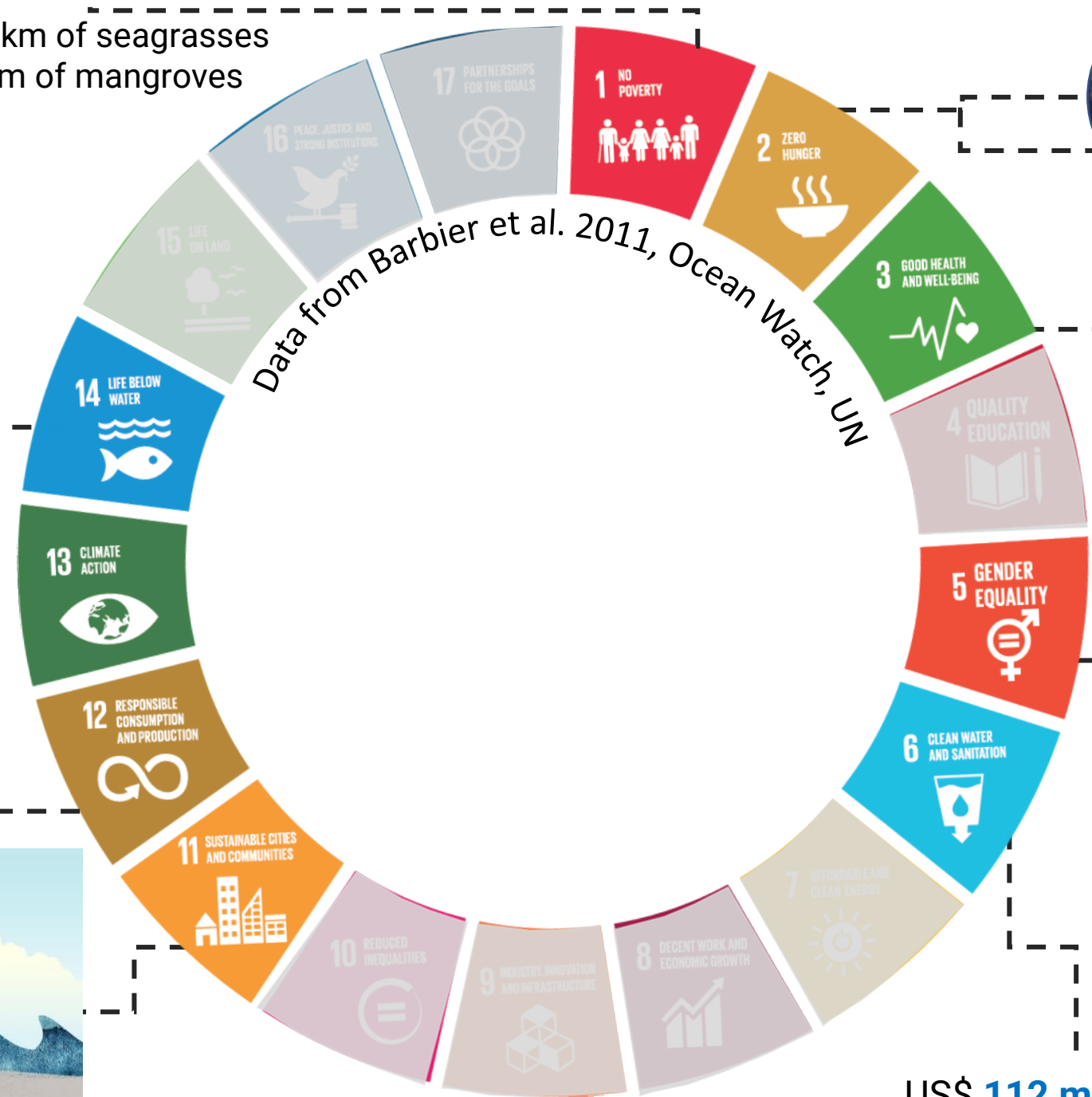
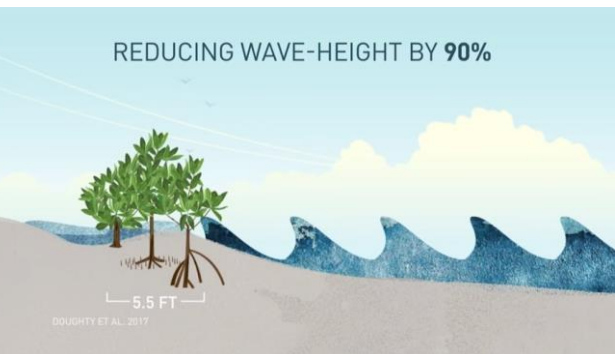
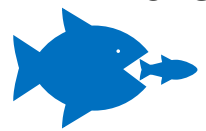
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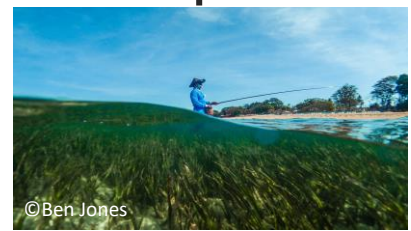
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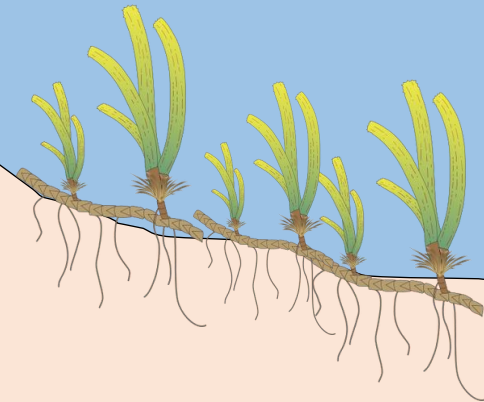
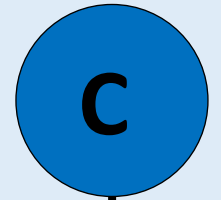


US\$ 112 million clean water (French Colonies)



A **third** of people
are supported on
4% of the total
coastal area

Blue Carbon + SDG's



Thank you

Lucy Gwen Gillis

