

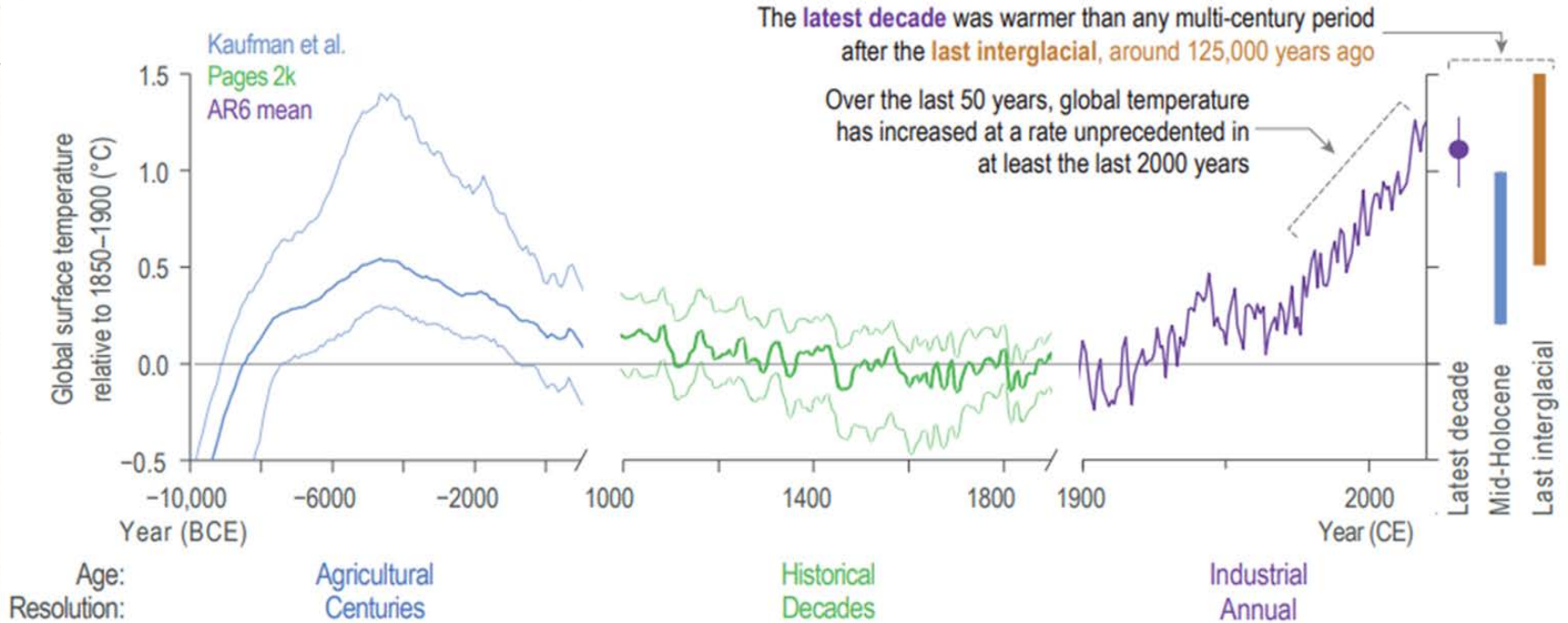
# GEOINGENIERÍA

*“¿Solución contra el cambio climático?”*

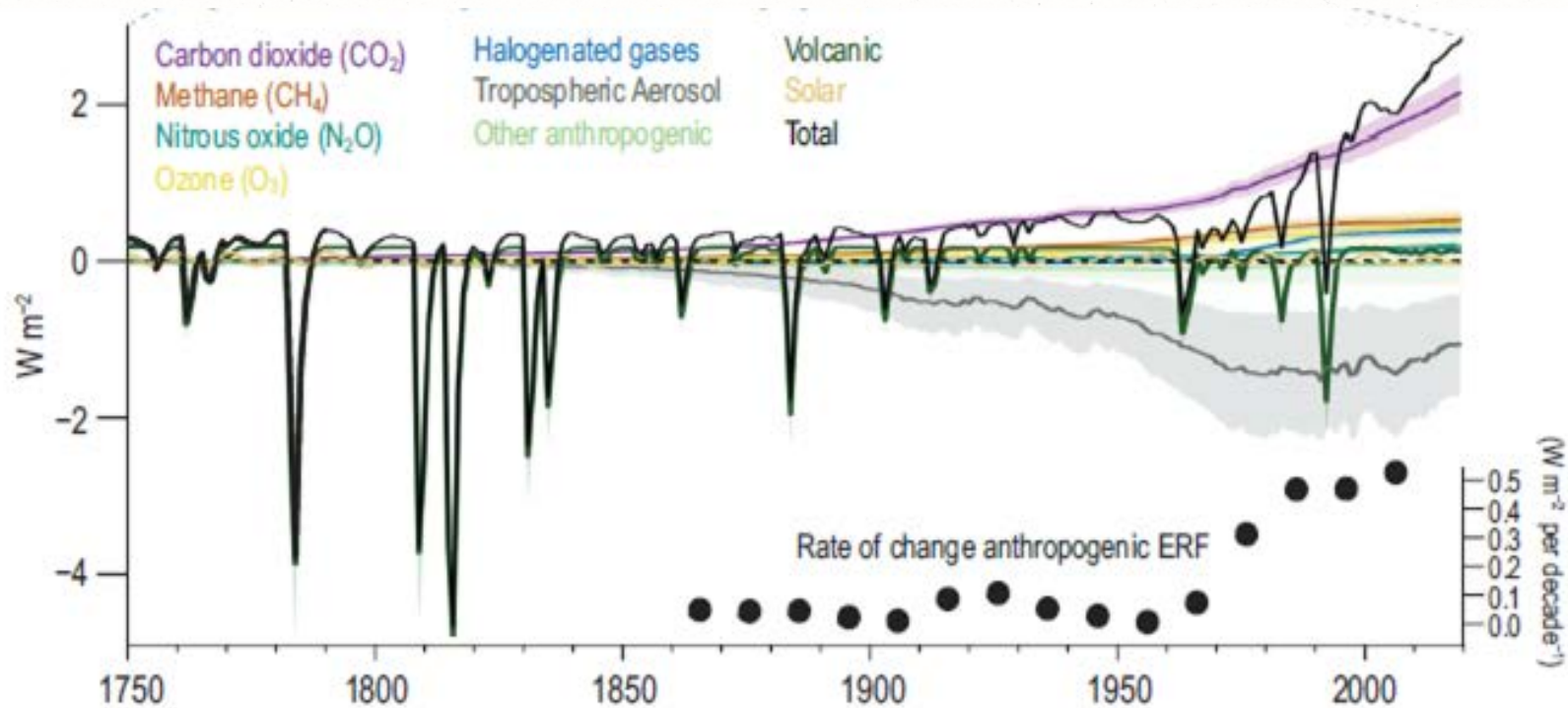


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Begoña Noriega y Olga González

# Cambio Climático



# Cambios en el forzamiento radiativo



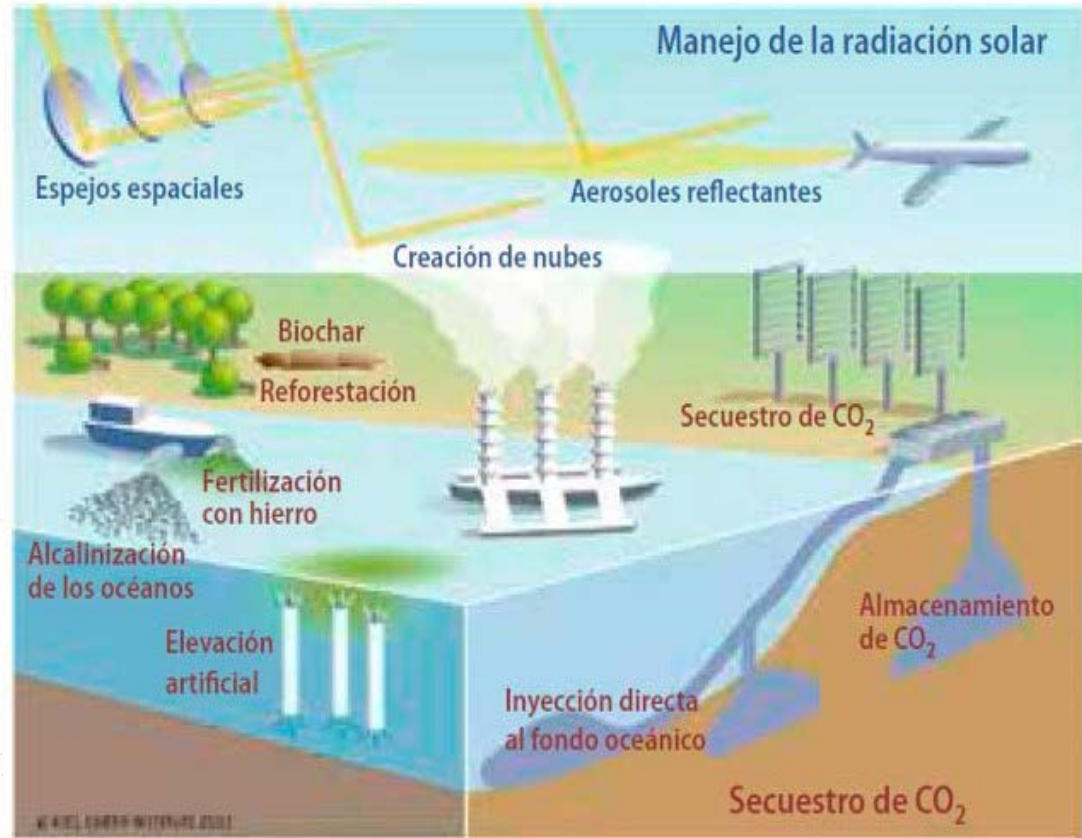
# Técnicas de Geoingeniería

## Técnicas de gestión de radiación

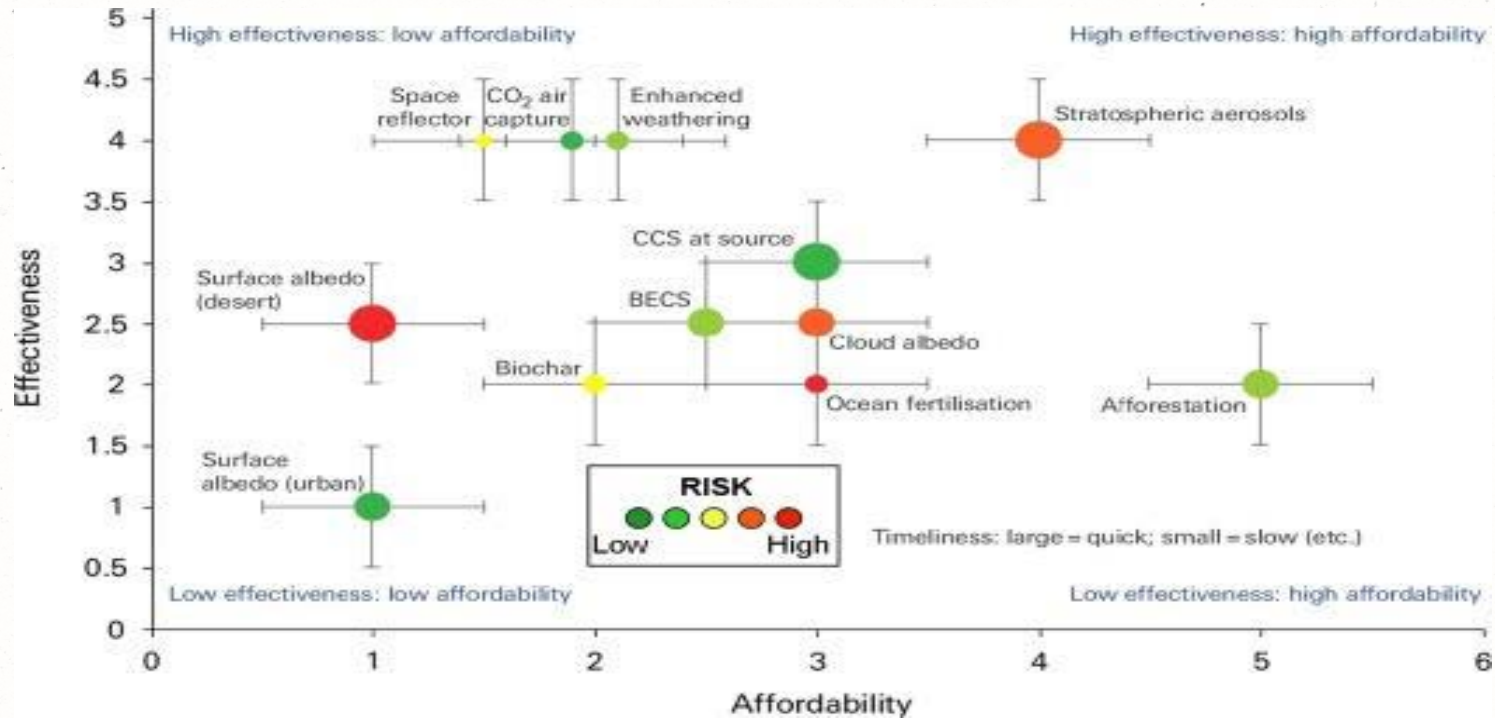
- Aerosoles
- Espejos espaciales
- Modificación del albedo
- Rocío Marino

## Técnicas retirada de carbono

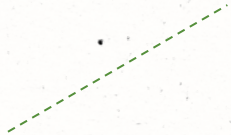
- Captura en Tierra  
Reforestación
- Captura en Océanos  
Inyección  
Alcalinización  
Fertilización



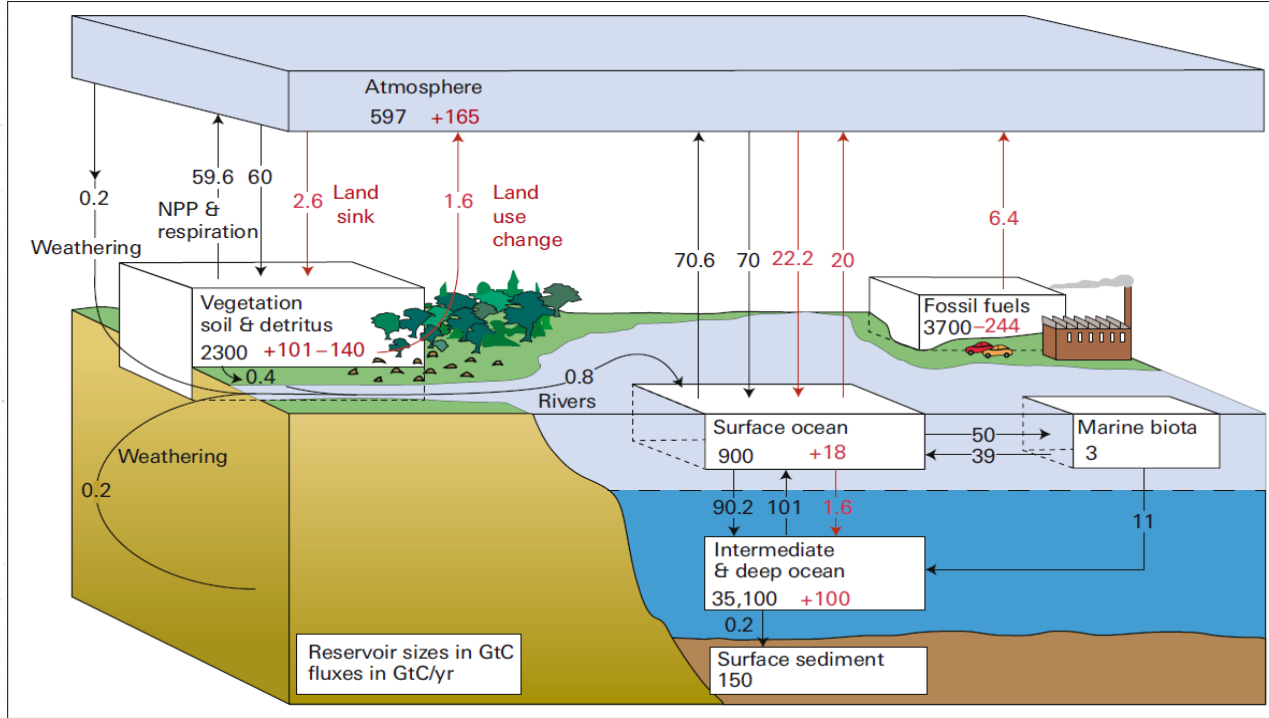
## Comparación entre diferentes propuestas



# CARBON DIOXIDE REMOVAL



# CDR en Océanos



70 % superficie

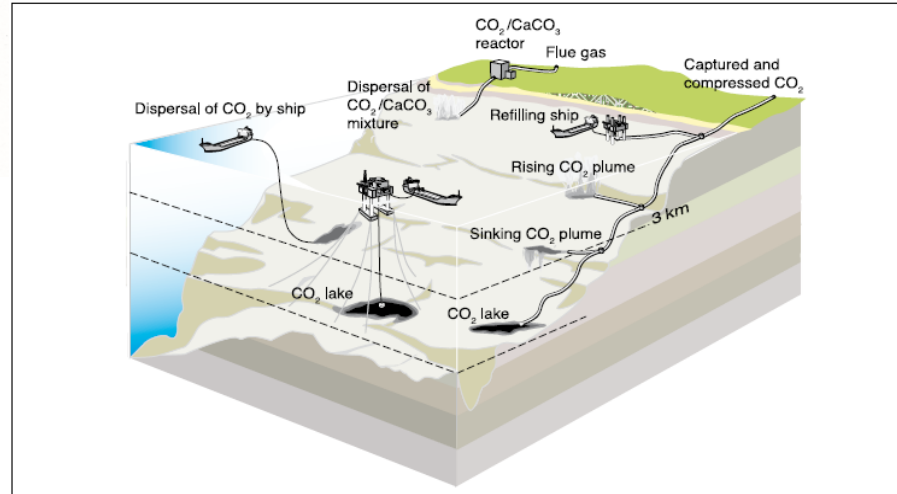
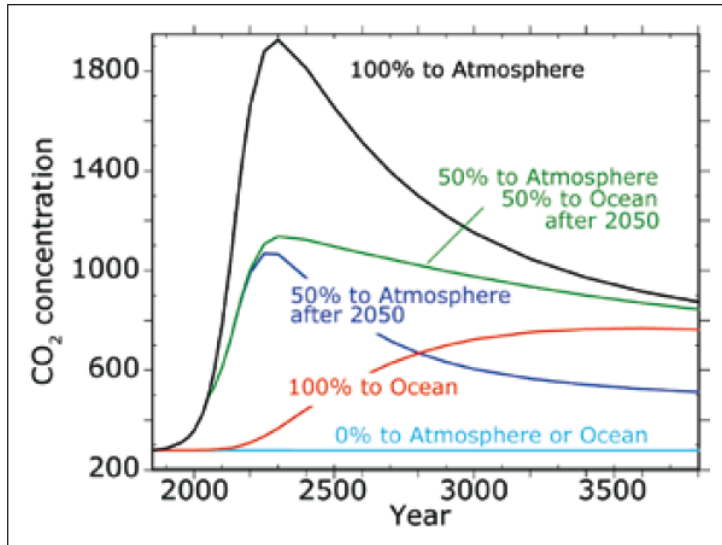
50 veces más CO<sub>2</sub> que la atmósfera

La superficie del océano ya ha sufrido un cambio de -0,1 en el pH

# Inyección directa

## Ventajas:

Reduciría los efectos del cambio climático a corto plazo.



## Inconvenientes:

Conlleva infraestructura costosa.

Podía aumentar el problema de acidificación.

# Alcalinización

Disolución de  $\text{CaCO}_3$  (polvo de caliza)

## Ventajas:

Absorción de  $\text{CO}_2$

Aumento de pH

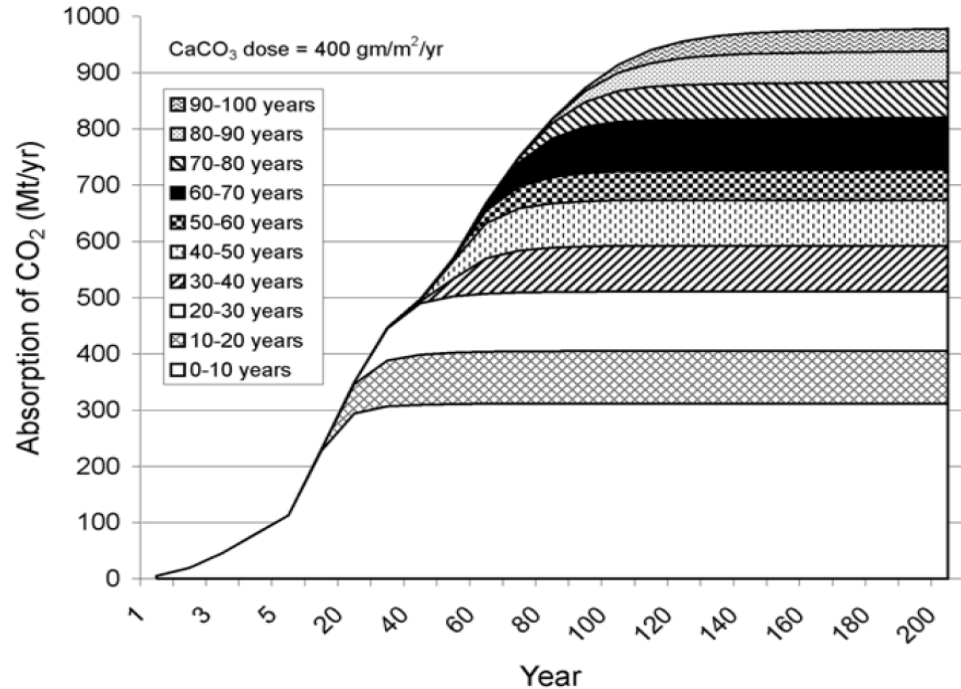
Aumento sobresaturación calcita

Cambio en el albedo

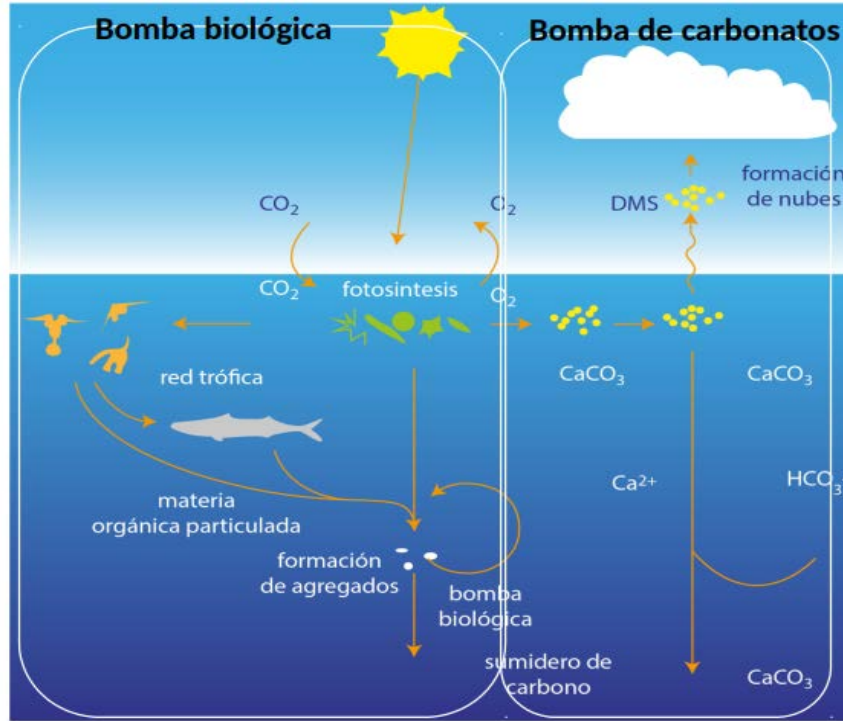
## Inconvenientes:

Minería y transporte de la caliza

Efectos en ecosistemas



# Fertilización



Fertilización con Fe, N y P

## Ventajas:

Fortalecimiento de la bomba biológica

## Inconvenientes:

Difícil estimación de la efectividad (se espera baja)

Respuesta lenta del sistema

Efectos en ecosistema (robo de nutrientes bajo superficie, oxígeno- 'zonas muertas')

# Conclusiones

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