MARINE CDR - THE COMING DECADE IS CRUCIAL

- DEVISE A MULTI-STRANDED TIMELINE – SCIENCE, TECH, LAW, SOCIAL LICENCE
- LEARN FROM THE EXISTING KNOWLEDGE BASE
- UTILISE THE POWER OF LARGE-SCALE PROXIES FOR CDR
- CONCURRENT CAPACITY BUILDING

Philip Boyd
Australia

Co-chair
UN GESAMP
WG41

Marine climate interventions

PROGRESSING CDR SCIENCE & TECH ALONE IS NOT ENOUGH

Protesters urge caution over St Ives climate trial amid chemical plans for bay

Campaigners worry about scheme's impact on marine ecosystem but Planetary Technologies says concerns misplaced

APRIL 23

Hundreds of people gather to voice their concerns over a proposed carbon dioxide removal scheme in the bay of St Ives. Photograph: Jonny Weeks/The Guardian

"We don't know what the outcome will be if they dump these chemicals into the sea. I'm sure there are more natural ways of solving the climate crisis."

TIME FOR CAPACITY-BUILDING – ACROSS NATURAL AND SOCIAL SCIENCES - IS SHORT Y

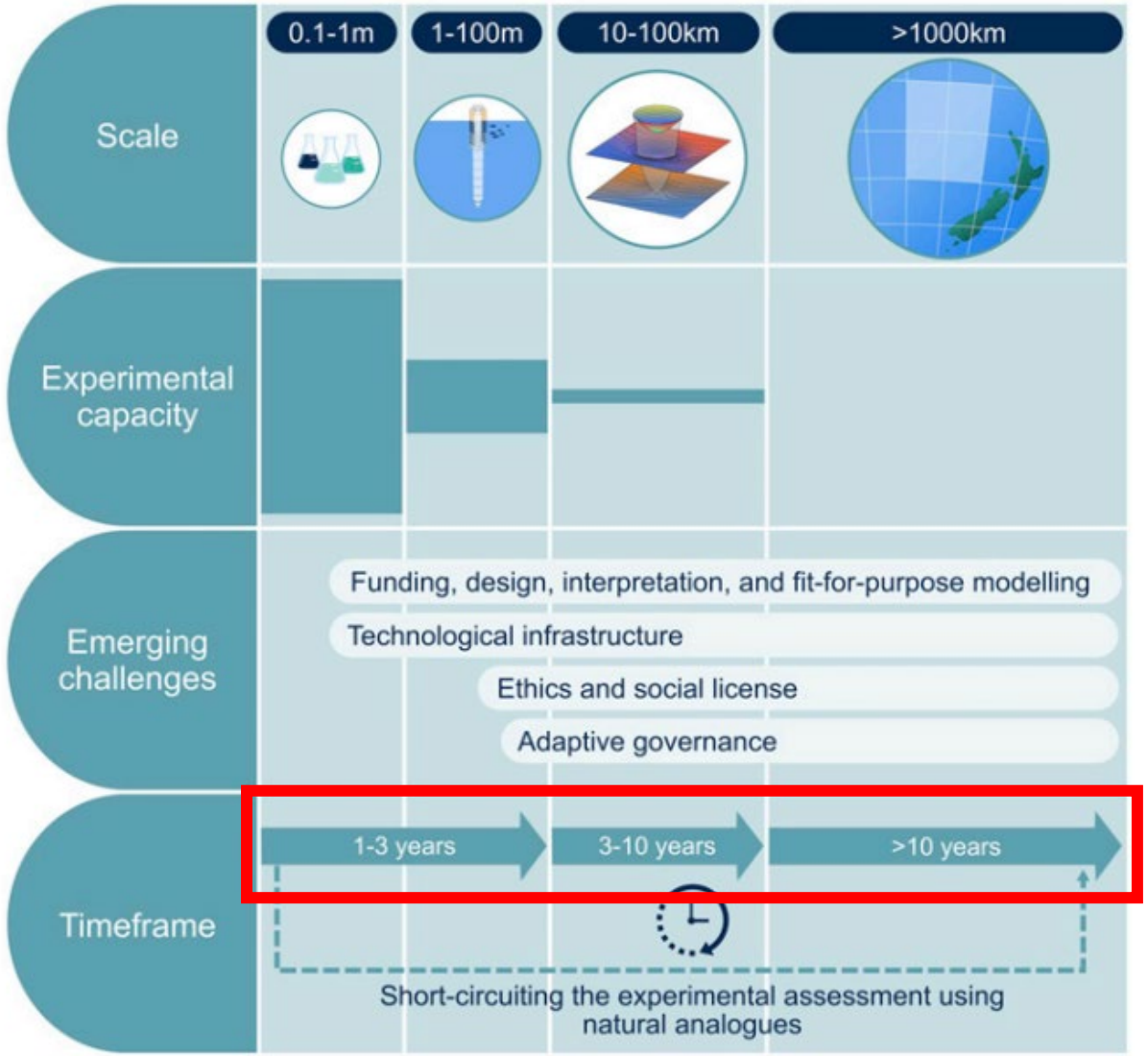

Fig. 1. Temporal and spatial scales of the experimental mCDR

Bach & Boyd 2021

Mauna Loa CO_2

May 2023

	NOAA-GML	SCRIPPS UCSD
May 2023	424.00 ppm	423.78 ppm
May 2022	420.99 ppm	420.77 ppm
May 2021	419.13 ppm	418.95 ppm
Last Update:	June 5, 2023	June 4, 2023
View Data:	NOAA	Scripps

Mauna Loa Observatory (MLO) | Atmospheric CO_2 monthly mean concentrations | ppm = parts per million

HOWEVER, THERE IS MUCH TO BE LEARNT FROM THE EXISTING LITERATURE

Vol. 364: 213–218, 2008
doi: 10.3354/meps07541

MARINE ECOLOGY PROGRESS SERIES
Mar Ecol Prog Ser

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THEME SECTION

OPEN ACCESS

Implications of large-scale iron fertilization of the oceans

Idea: Howard Browman, Philip W. Boyd
Coordination: Philip W. Boyd

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WE NEED KNOWLEDGE BROKERS – TO HELP DESIGN INFORMATIVE CDR PILOT STUDIES

2004

letters to nature

Photosynthetic architecture differs in coastal and oceanic diatoms

Robert F. Strzepek[1]* & Paul J. Harrison[2]*

PHYTOPLANKTON EVOLVED LOW IRON STRATEGIES TO COLONISE THE OPEN OCEAN

ONLY 2 OF >15,000 SEAWEED SPECIES LIVE OFFSHORE!!

ARTICLE

https://doi.org/10.1038/s42003-023-04962-4 OPEN

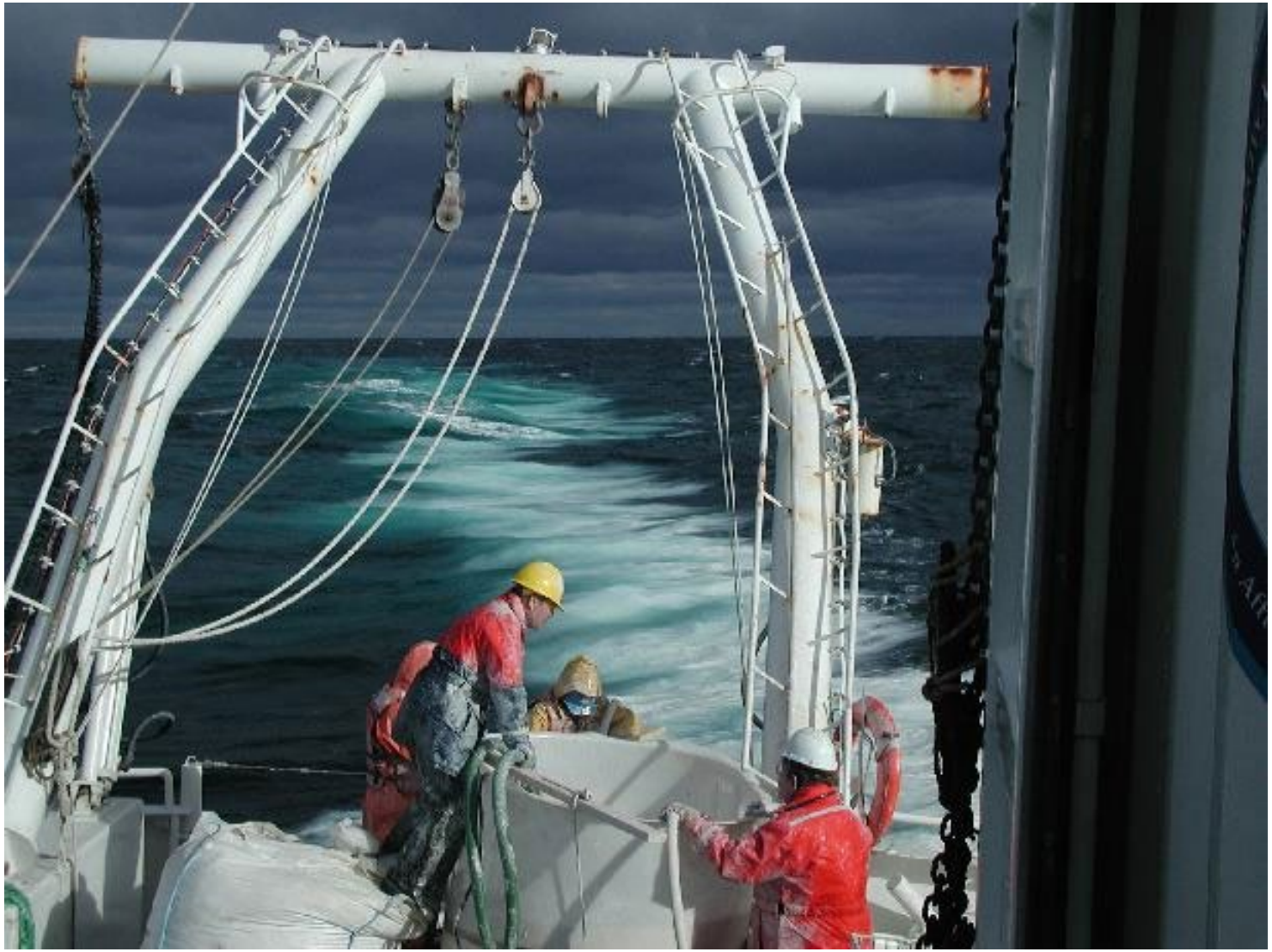
Check for updates

2023

Iron limitation of kelp growth may prevent ocean afforestation

Ellie R. Paine[1✉], Philip W. Boyd[1], Robert F. Strzepek[2], Michael Ellwood[3], Elizabeth A. Brewer[4], Guillermo Diaz-Pulido[5], Matthias Schmid[1,6,7] & Catriona L. Hurd[1]

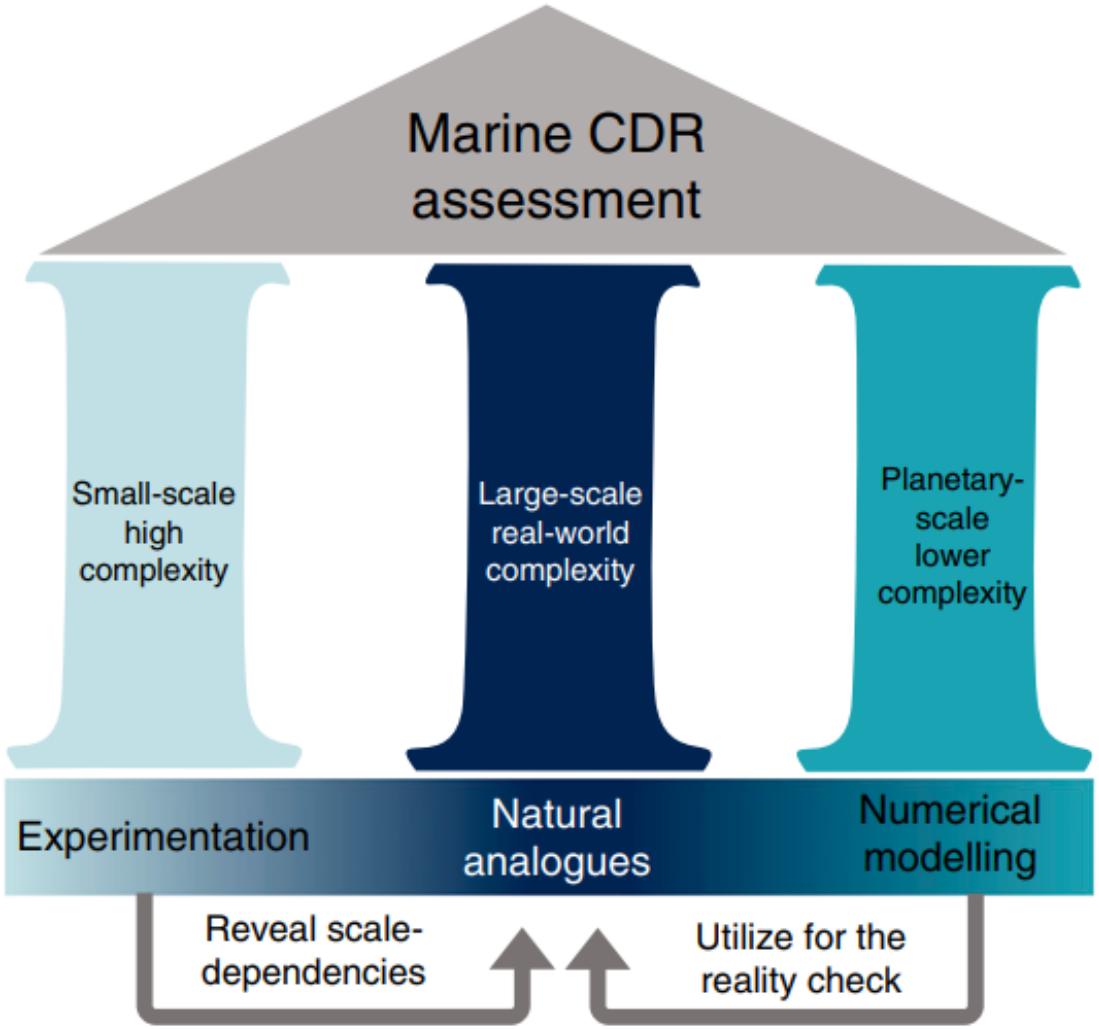
CHALKEX GULF OF MAINE 2001 – LARGE SCALE RELEASE OF ALKALINE MATERIALS



Seeking natural analogs to fast-forward the assessment of marine CO_2 removal

https://doi.org/10.1073/pnas.2106147118

Lennart T. Bach[a,1] and Philip W. Boyd[a]



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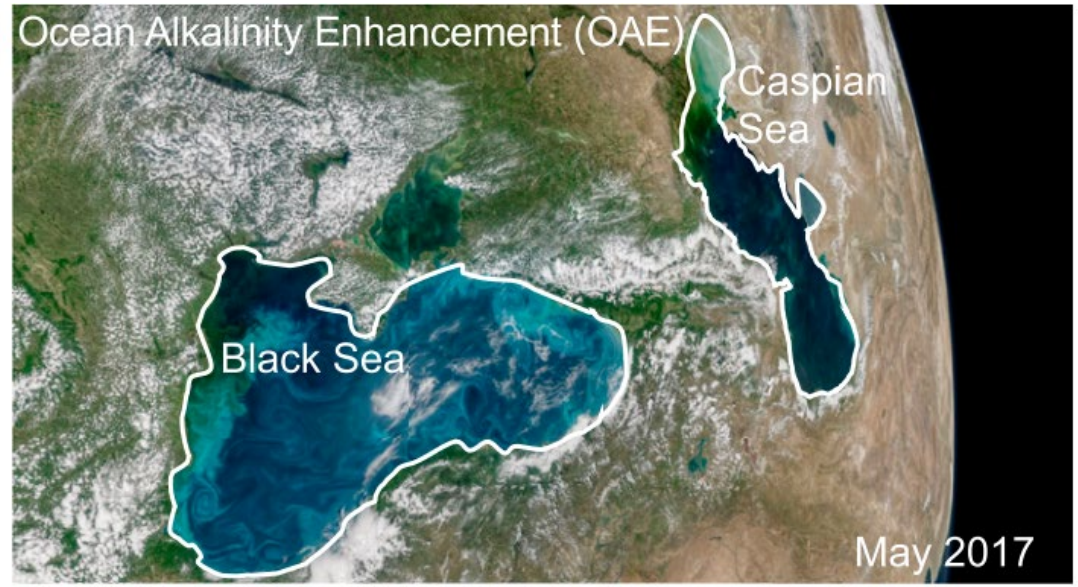

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