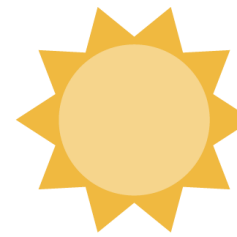# Toward socially responsible governance of marine climate interventions

Sarah Lawless, Emily Ogier, Georgina Gurney, Robert Streit, Philippa Cohen, Rebecca Gruby, Sisir Pradhan, Tiffany Morrison
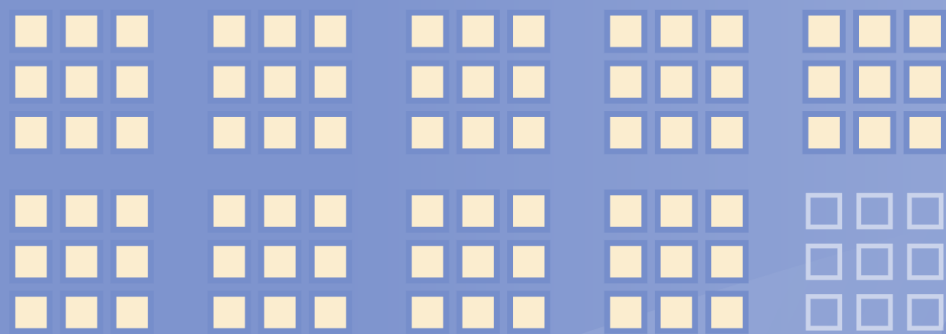
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Oceans are getting warmer.

More than 90% of the Earth's excess heat is stored in the oceans.

The surface layers of the oceans warm more quickly than the deeper layers.

The warming of oceans is the result of human-induced climate change.

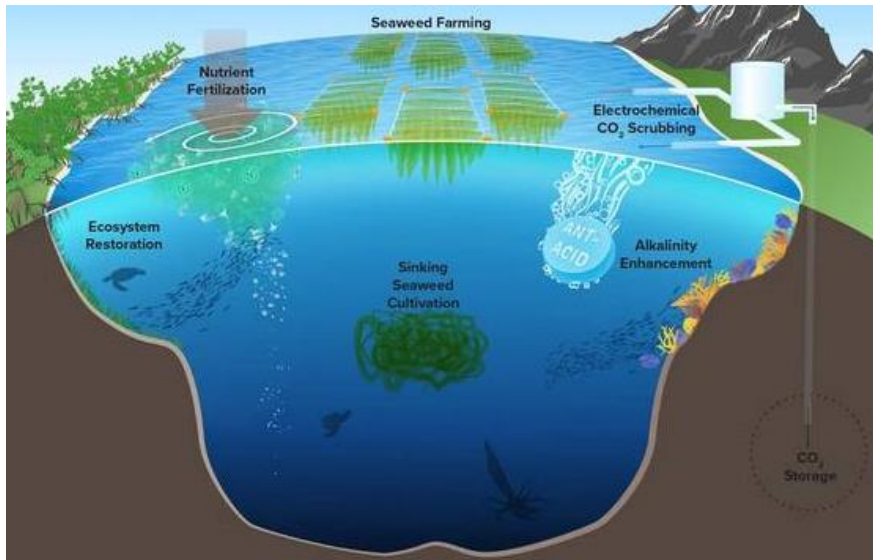Marine heatwaves have doubled in frequency in the past 30 years.

Rapid development of novel marine climate interventions

Growing and outplanting corals *© Coral Restoration Foundation*

Restoring kelp forests *© The Nature Conservancy*

Marine carbon dioxide removal
© Woods Hole Oceanographic Institution

Cloud seeding *© Southern Cross University*

Urgency and "ungoverned" nature of interventions

Navigating Potential Hype and Opportunity in Governing Marine Carbon Removal

Miranda Boettcher[1,2]*, Kerryn Brent[3], Holly Jean Buck[4], Sean Low[1,2,5], Duncan McLaren[6] and Nadine Mengis[7]

De facto governance: how authoritative assessments construct climate engineering as an object of governance

Aarti Gupta & Ina Möller

nature climate change

Perspective   https://doi.org/10.1038/s41558-022-0154

Radical interventions for climate-impacted systems

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Tiffany H. Morrison[1,2], W. Neil Adger[3], Arun Agrawal[4], Katrina Brown[3], Matthew J. Hornsey[5], Terry P. Hughes[1], Meha Jain[4], Maria Carmen Lemos[4], Lucy Holmes McHugh[1], Saffron O'Neill[3] & Derek Van Berkel[4]

Social benefits and risks of interventions at local scales is unclear

The 50 countries with the highest relative reliance on marine resources for nutrition and livelihoods

Reliance summed

0,410   1,621
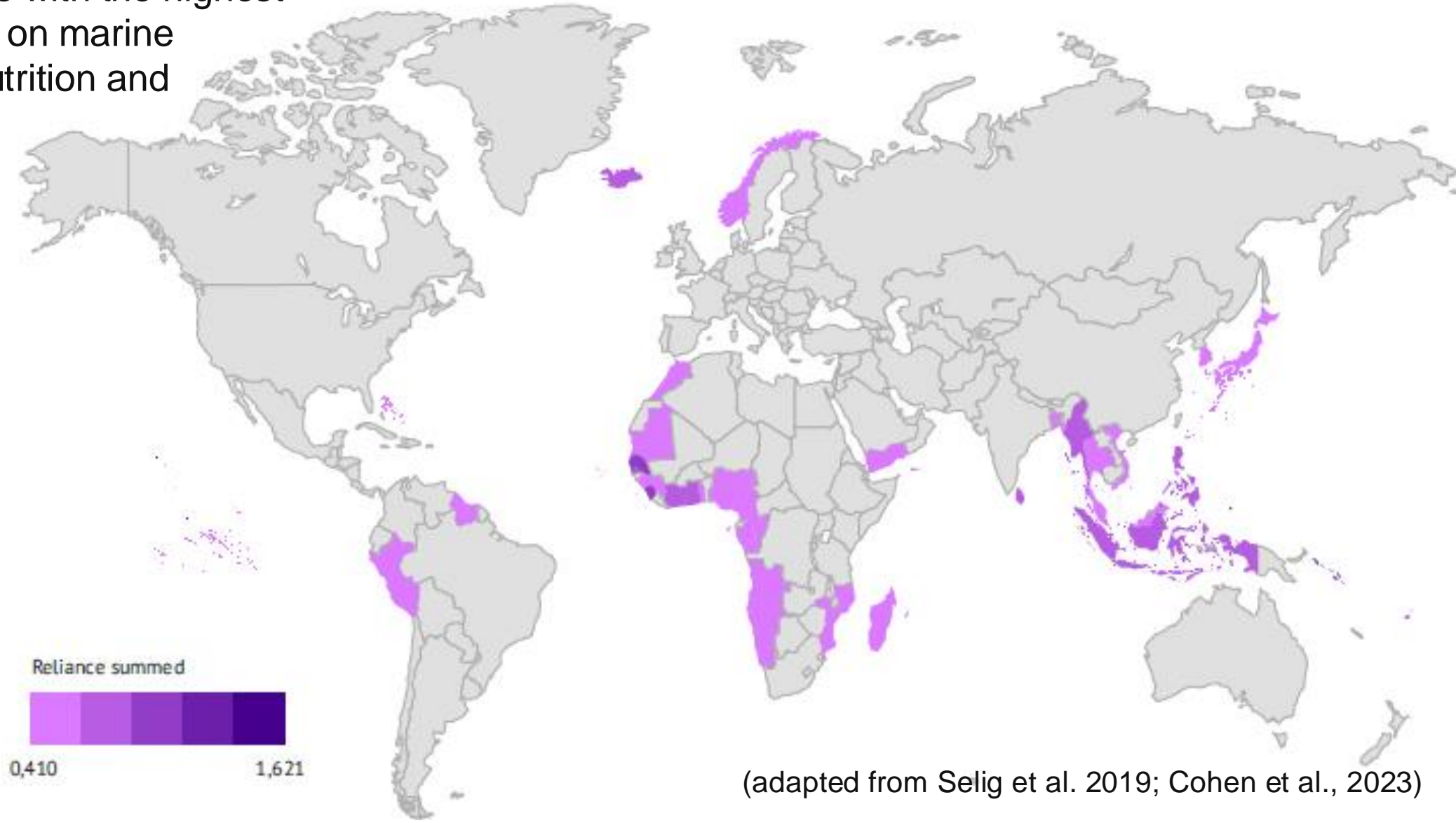
(adapted from Selig et al. 2019; Cohen et al., 2023)

How are social risks and benefits of new marine climate interventions considered and accounted for?

Methodology

- Global survey scientists and practitioners (n=243)
- Key-informant interviews with best-practice leaders (n=7)
- Policy analysis of influential intervention regulations and guidance (n=10)

Analysis: socially responsible innovation framework

Anticipation: How are potential social risks, harms and benefits accounted for?

The level of foresight given to both the intended and potentially unintended distal and proximate social impacts.

Inclusion: How accessible and inclusive is public and stakeholder engagement?

Accessibility and inclusiveness of public and stakeholder deliberation on the visions, purposes, questions, and dilemmas of interventions.

Dimensions of socially responsible governance

Responsiveness: What social accountability mechanisms exist?

The presence and effectiveness of regulatory and institutional governance mechanisms to guide, account for, and manage social implications.

Reflexivity: How is responsibility and competency to account for social impacts allocated?

The institutional assignment of responsibility (moral labour) and competencies to interrogate the social and ethical dimensions and implications of interventions.

Lawless et al., *in review*

Marine climate interventions reported by survey respondents

Lawless et al., *in review*
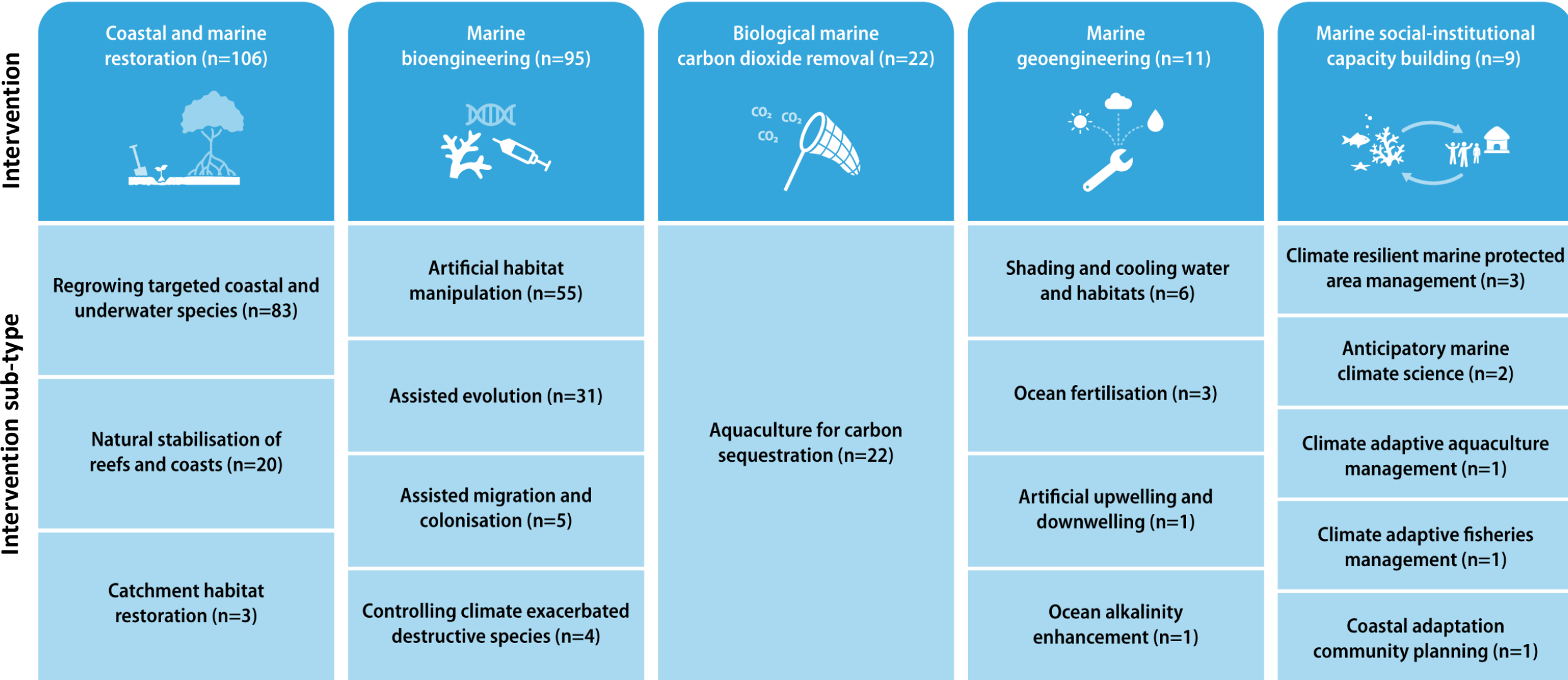
Limited practices, models, and methodologies to account for potential social benefits and harms

- Feasibility assessments predominately relied on biophysical data (63.3%)

- Economic data served as the only social data source for 48.7% of interventions

- Social risk assessments were absent in majority of cases

"Social, cultural, and economic feasibility do not seem to be on the radar currently" (assisted evolution of marine species)

Inclusive public engagement was constrained by narrow and formalized deliberation opportunities

- Inclusive deliberation only occurred for 14.5% of interventions

- Most public deliberation opportunities were though formal channels (61.3%), and sought 'social license to operate'

"Communities are usually consulted or informed well after plans have already moved ahead or received investment" (natural stabilisation of reefs and coasts)

Lawless et al., *in review*

Organisational competency and accountability for social impacts remains low

- Only one best-practice leader was actively building their internal social and ethical expertise. In other cases expertise was either outsourced or not present.

- We found evidence of social responsibility being transferred onto external parties or abrogated.

I work with national jurisdictions and hope they do it [benefit distribution] equitably and responsibly... My job is to prove the ecology dimensions , it's then up to local structures to ensure [benefit] sharing." (key-informant)

Lawless et al., *in review*

Responsiveness

Social accountability mechanisms are rarely formally mandated

- Regulatory mechanisms (federal/state policies, permitting systems), are not serving as adequate social safeguards. Social considerations shallow or absent.

- Impetus upon leaders to voluntarily account for social risk e.g., Indigenous and community engagement protocols and internal ethics procedures

"We have ethics process that are not required and not imposed [by regulators], but we have chosen to adopt. So internally we also have a lot of oversight layers." (key-informant)

Lawless et al., *in review*

How to prompt more socially responsible governance?

Anticipation — Anticipatory measures need to account for fundamental justice considerations

Inclusion — Need inclusive public engagement that values diverse worldviews and knowledge sources

Reflexivity — Build organisational social and ethical competencies, and effective allocation of labour for socially responsible practice

Responsiveness — Increased connection with policies, legal frameworks, interventions / organisation that centre human rights

Morrison et al., *in review*; Lawless et al., *in review;* Ogier et al., *forthcoming*; Layton et al., *forthcoming*

Thank you

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