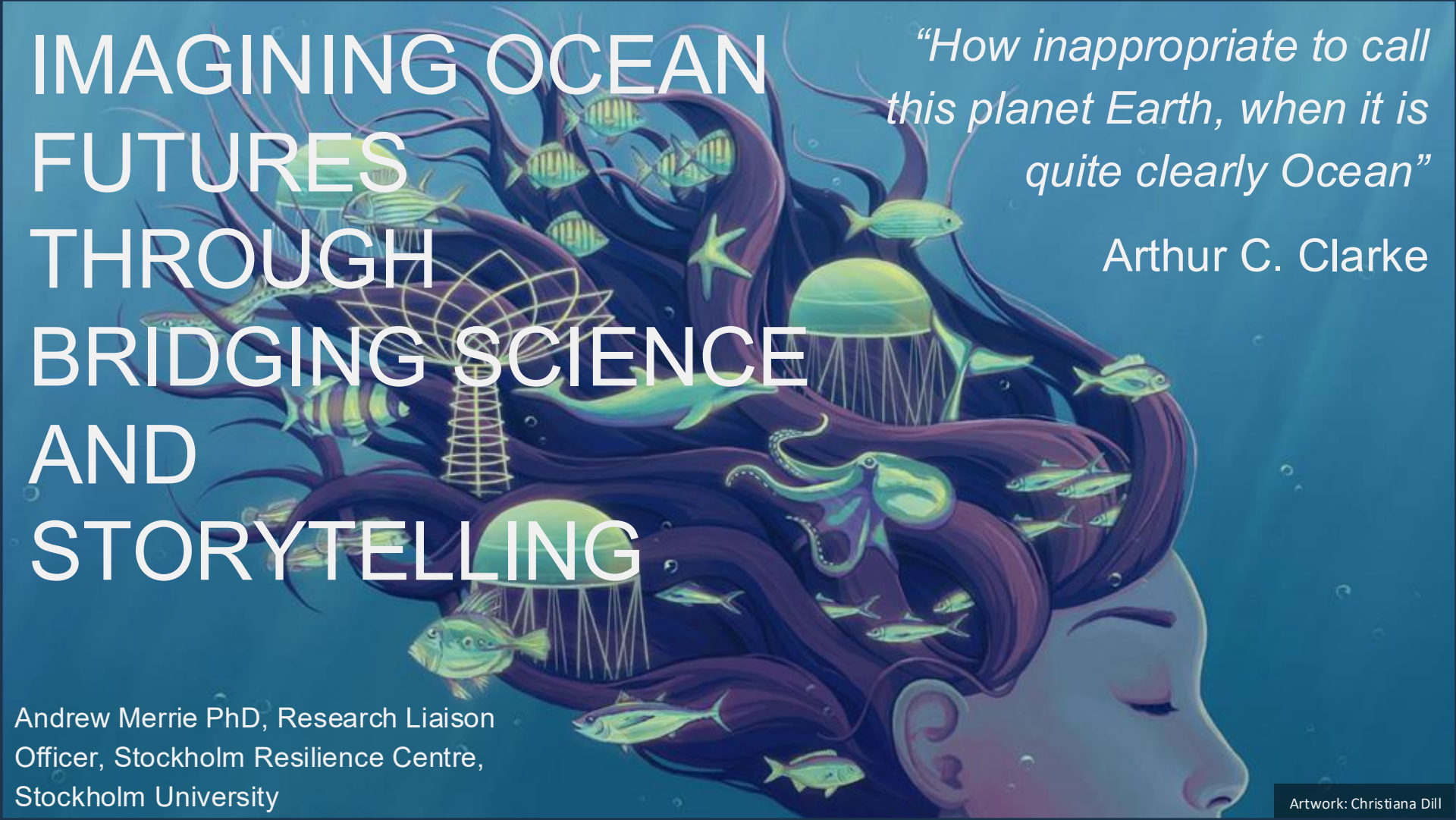




IMAGINING OCEAN FUTURES THROUGH BRIDGING SCIENCE AND STORYTELLING

*“How inappropriate to call
this planet Earth, when it is
quite clearly Ocean”*

Arthur C. Clarke

Andrew Merrie PhD, Research Liaison
Officer, Stockholm Resilience Centre,
Stockholm University

Artwork: Christiana Dill

WELCOME TO THE ANTHROPOCENE

Relating or denoting the current geological epoch, viewed as the period during which human activity has become the dominant influence on climate and the environment

"Humans have changed the way the world works. Now we have to change the way we think about it, too"

- *The Economist*



WELCOME TO THE
ANTHROPOCENE
OCEAN

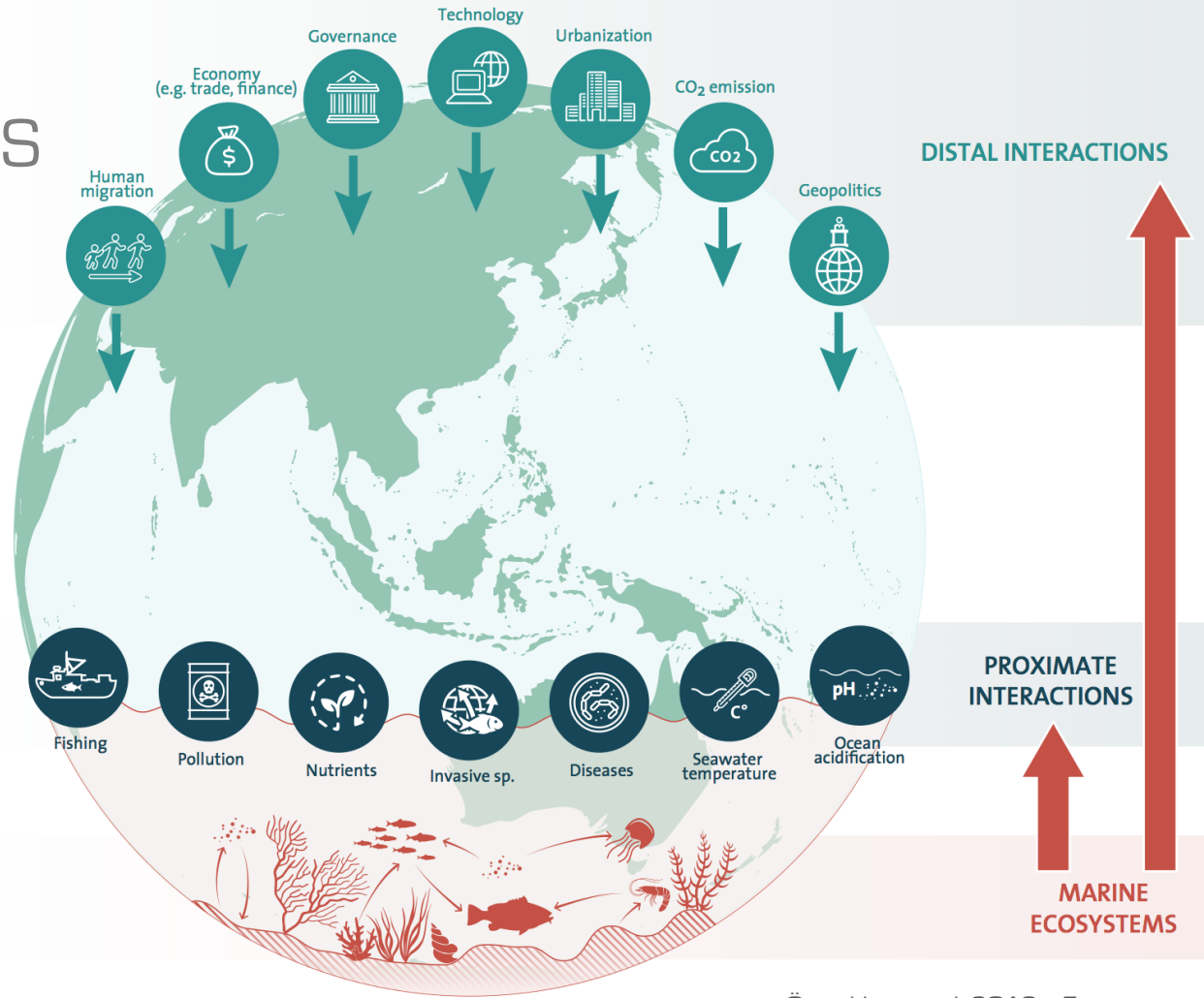


... TO CORPORATIONS

OVERARCHING GOAL

Describing and analyzing what the Anthropocene means for the ocean, what it entails for how we study marine systems and, essentially, what can be done to improve sustainability.

FROM CORALS ...



RADICAL OCEAN FUTURES - IMAGINING AND ANTICIPATING THE FUTURE OF OUR OCEAN USING SCIENCE + STORYTELLING

"Stories are powerful things: they create our reality as much as they explain it. The futures we envision, be they positive or futures of collapse, make us much more likely to respond to events in the world in a way that helps create that future."

- Alexander Evans, The Myth Gap



Image: Jazmen Richardson

Opportunistic exploitation: an overlooked pathway to extinction

National Marine Science Centre, Southern Cross University, PO Box 4221, CoPA Harbour, NSW 2460, Australia

As a result, we describe an alternative pathway toward opportunistic exploitation of marine fishes. In the first step, opportunistic exploitation is defined as the removal of a species that is not a targeted species. In this mode, highly valued species that are targeted first by fishing, hunting, and logging become rare, but their populations can decline further through opportunistic exploitation while more common but less desirable species are targeted. Effectively, expanding exploitation to more species substitutes the eventual extinction of valuable species at sea for less desirable species. Managers need to recognize conditions that may lead to opportunistic exploitation.

THE EUROPEAN
PHYSICAL SOCIETY

Journal of Internal Medicine 2015; 258: 1–12

Authors: Jørgen Kjaer^{1,2,3,4} and Nilsen Børst^{1,2,3,4}

From: ¹Research PO Box 01208, 1403 Potsdam, Germany; ²City, Berlin, Germany; ³University of Potsdam, Potsdam, Germany; ⁴Stargard, Stargard, Poland

Accepted: 15 May 2015 / **Published online:** 20 June 2015

...likely to have competing impacts on the rainfall-run in the Amazon, Amazon watershed. A future AMOC decline may also counteract direct effects. Tipping of the AMOC from the strong to the weak mode may be on the Amazon rainfall.

[illegible]

© Springer

coastal areas, technological advances over the past decades have rendered even the most remote parts of the ocean accessible.¹ Commercial interest in the ocean has also increased as land-based sources become fully exploited or exhausted, because of continued population growth and increasing per capita consumption in many parts of the world.² As a result, costly

search for novel bioactive compounds to address antimicrobial resistance is increasingly focused on remote deep-sea microor-

resources, intense-spatial variability, and a new combination of land and marine resources. The second land-based and marine-based management approach is the *ecosystem approach*, which recognizes the role of global ecosystems and managing the land and marine resources as a single system. Land and policy makers have looked at impacts on individual industries, but a focus on ecosystem health is possible only through a wider array of stakeholders and management actions. The ecosystem approach is also key to anticipate and prevent the cascading effects of land use changes. A review of seven cases is found in [Table 1](#); see also the summary below under three fundamental needs for humanity, land, marine, and space ([Figure 5](#)).

Ocean for Food

Land and marine are important sources of food for coastal communities through the provision of fish, shellfish, mollusks, marine reptiles, seabirds, and seaweed for humans. Over the past 50 years, the world's marine fisheries have declined

Since the 1960s, seafood has been the world's fastest-growing food industry, and fish has become one of the most

linked with sustainable use is increasingly finding its way into national and international policy documents.¹² Yet this is unfolding in a complex and uncertain governance landscape.¹³ And concerns have been raised over competing interpretations of what the blue economy entails, and who it is supposed to benefit.¹⁴

TO
THIS



THE ESSENCE

SCIENCE + IMAGINATION + SCI-FI
WORLDBUILDING + EMOTION + ART

=

NEW IMAGINARIES + ENGAGEMENT +
AGENCY FOR ACTION

Radical Ocean Futures

A Science Fiction Prototyping approach to imagining our future oceans

Why? Because our oceans matter and we need new narratives to
#SaveOurOcean and guide efforts to transform towards more sustainable
ocean governance

The Project

The Narratives



Futures

Volume 95, January 2018, Pages 22-32



Original research article

Radical ocean futures-scenario development using science fiction prototyping

Andrew Merrie ^a ✉, Patrick Keys ^b, Marc Metian ^{a, 1}, Henrik Österblom ^a

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<https://doi.org/10.1016/j.futures.2017.09.005>

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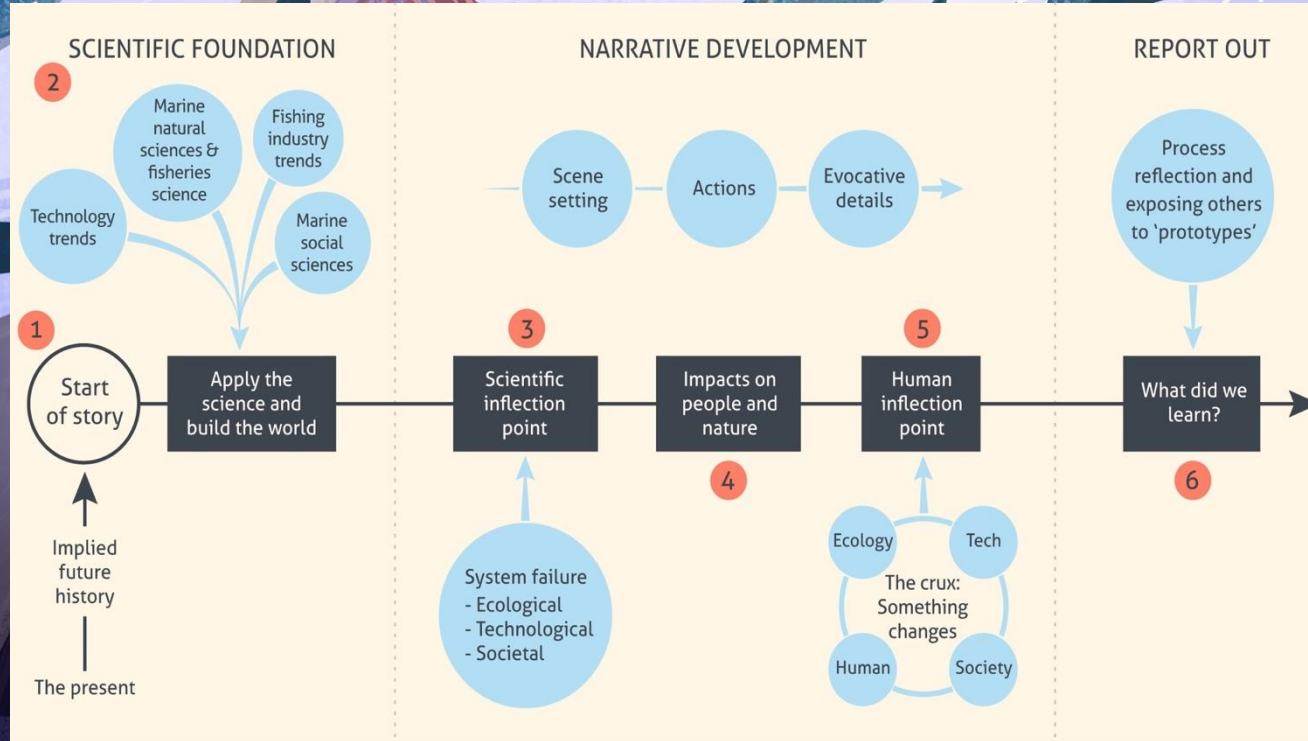
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THEORY OF CHANGE

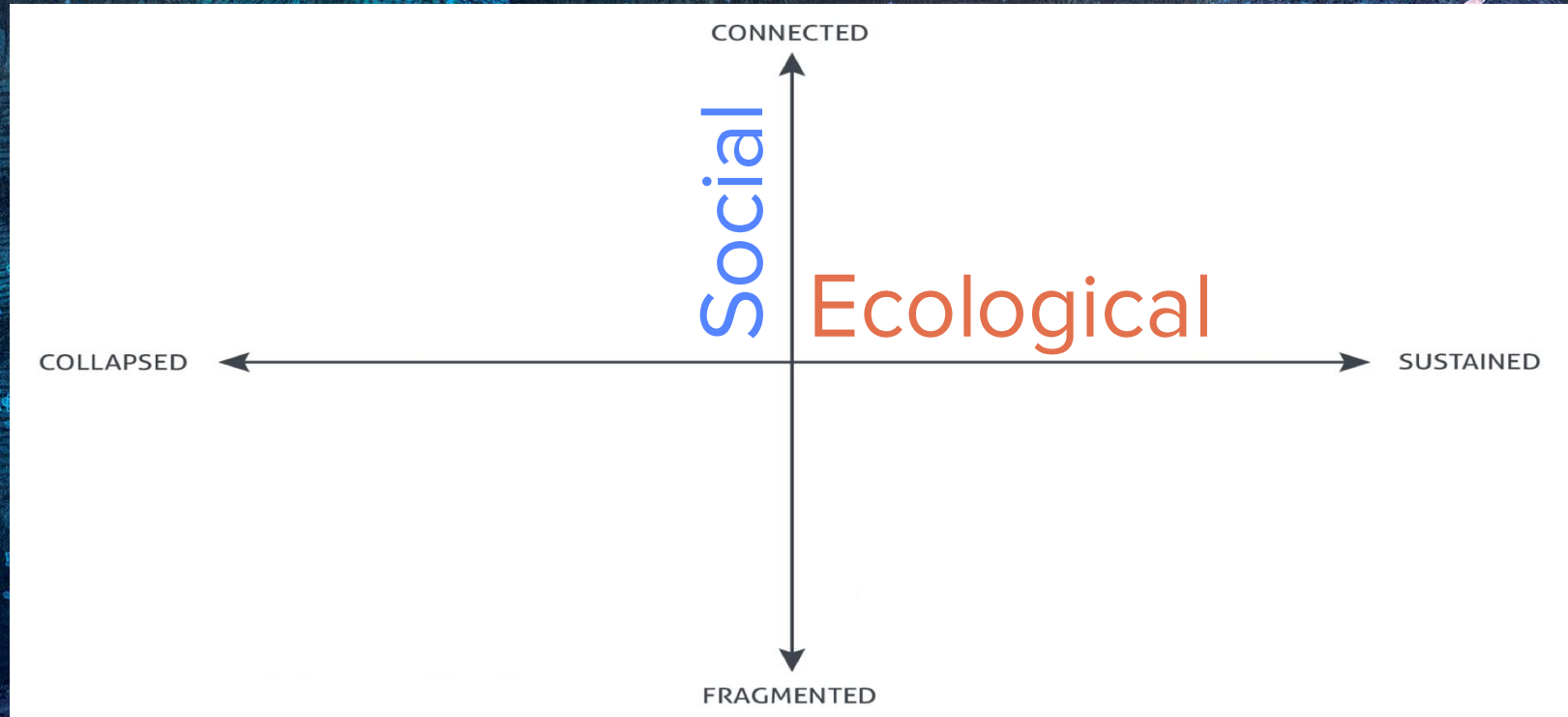
WE CANNOT BUILD TOWARDS A
FUTURE WE WE CANNOT IMAGINE

WHAT IS SCIENCE FICTION PROTOTYPING?

“Science fiction prototyping (SFP) refers to the idea of using science fiction to describe and explore the implications of futuristic technologies and the social structures enabled by them.”



HOW WE CONSTRUCT THE SCENARIOS



SCENARIO FORM AND FORMAT

Back from the Brink

FISH Inc

Rime of the Last Fisherman

Rising Tide

SCENARIO FORM AND FORMAT

Back from the Brink

TED Talk

FISH Inc

Obituary

Rime of the Last Fisherman

Ship's log

Rising Tide

Magazine article

SCENARIO FORM AND FORMAT

Back from the Brink

TED Talk

Professor

FISH Inc

Obituary

Environmentalist

Rime of the Last Fisherman

Ship's log

Fisherman

Rising Tide

Magazine article

Journalist

PROJECT IMPACT

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TO SAVE THE OCEANS, THESE GUYS ARE TURNING TO SCI-FI

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★ Ocean Science AMA

Science AMS Series: We're Andrew Merrie and Simon Stålenhag for the Radical Ocean Futures #ArtScience project, ask us anything!

Submitted on 05 Jun 2017

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Envisioning Futures

On the next the **Worlds We Want**
February 28th, 6pm on CJLO 1690 AM



Sci-fi Prototyping Illuminates Future Scenarios that Science Can't Map.

Designit Follow
Apr 4 · 9 min read

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EDITORIAL · 07 MARCH 2018

Learn to tell science stories

Ocean researchers are among those inspired by science fiction to tell diverse tales of the future.

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WHICH ARE THE NEXT WALLS TO FALL?



FOLLOW-ON PROJECTS

EXPLORING THE FUTURE OF FISHERIES CONFLICT THROUGH NARRATIVE SCENARIOS



IMAGINING SUSTAINABLE FUTURES FOR THE HIGH SEAS BY COMBINING THE POWER OF COMPUTATION AND NARRATIVE



SPOTIFY ORIGINAL CLIMATE FICTION AUDIODRAMA - TWENTYSEVENTYTWO



OCEAN FUTURISMS 2025 – UN OCEAN CONFERENCE – SCIENCE FICTION SHORT FILMS - VIGNETTES FROM A FUTURE OCEAN COMMISSIONED BY TBA21 WORKING WITH EDUARDO CASTILLO-VINUESA & INFERSTUDIO



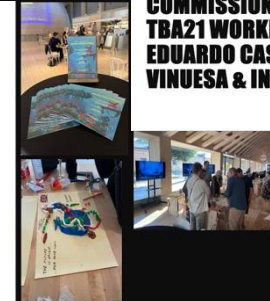
THE LIVING INFINITE - IPBES NATURE FUTURES FRAMEWORK & THE HIGH SEAS



MARE AUTONOMIA POST GROWTH IMAGINARIES FOR AREAS OF THE OCEAN BEYOND NATIONAL JURISDICTION



IMMERSIVE AUDIO-VISUAL DOME EXPERIENCE AND PARTICIPATORY SCIENCE FICTION PROTOTYPING – SWEDISH TECHNOLOGY MUSEUM



Impact: WIRED, Nature, PNAS, UN General Assembly at first UN ocean conference, London Science Museum, Helsinki Design Museum, Swedish Museum of Technology, Nordic Embassies in Berlin, IPBES Nature Futures, Music Festivals, UNOC 3 and more...

FOLLOW ON PROJECT HIGHLIGHT – OCEAN FUTURISMS



PART OF THE OCEANOFUTURES.MOS PROJECT

M . A . N . A

A FILM BY INTERFUTURO WITH RADICAL OCEAN FUTURES AND TBAI-ACADEMY



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T
B
A

SCI-FI PROTOTYPE BREAKDOWN - MANA

Key themes:

- Governance & Sovereignty
- Institutions
- Climate change adaptation
- Geoengineering
- Migratory and Transboundary Fish Stocks
- Just Transition

FROM Small Island Developing States TO Large Ocean States



Chan, N. 2018. "Large ocean states": sovereignty, small islands, and marine protected areas in global oceans governance. *Global Governance: A Review of Multilateralism and International Organizations*, 24(4), 537-555.

FROM A loud human dominated ocean TO A selectively quiet multispecies ocean



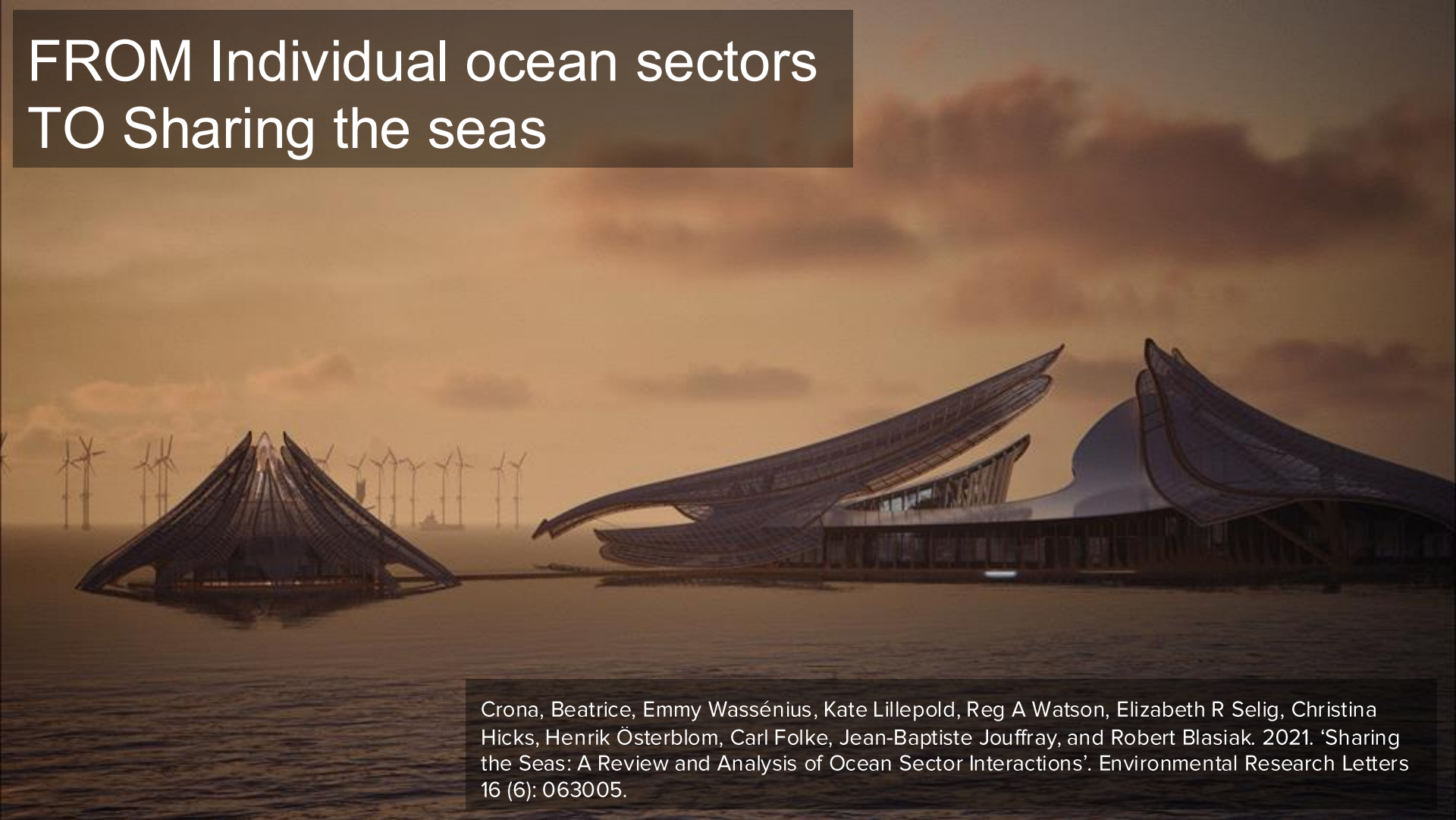
Duarte, C.M., Chapuis, L., Collin, S.P., Costa, D.P., Devassy, R.P., Eguiluz, V.M., Erbe, C., Gordon, T.A., Halpern, B.S., Harding, H.R. and Havlik, M.N., 2021. The soundscape of the Anthropocene ocean. *Science*, 371(6529), p.eaba4658.

FROM Static ocean management TO Real time, adaptive, dynamic management

An underwater photograph showing a diver in the center, illuminated by a bright light source, possibly a submersible or a powerful flashlight. The diver is surrounded by dark, silty water. On either side of the diver are large, dark, and textured coral reef structures. The overall scene is dimly lit, with the primary light source creating a strong contrast and illuminating the water and the diver's equipment.

Maxwell, S.M., Hazen, E.L., Lewison, R.L., Dunn, D.C., Bailey, H., Bograd, S.J., Briscoe, D.K., Fossette, S., Hobday, A.J., Bennett, M. and Benson, S., 2015. Dynamic ocean management: Defining and conceptualizing real-time management of the ocean. *Marine Policy*, 58, pp.42-50.

FROM Individual ocean sectors TO Sharing the seas



Crona, Beatrice, Emmy Wassénus, Kate Lillepold, Reg A Watson, Elizabeth R Selig, Christina Hicks, Henrik Österblom, Carl Folke, Jean-Baptiste Jouffray, and Robert Blasiak. 2021. 'Sharing the Seas: A Review and Analysis of Ocean Sector Interactions'. *Environmental Research Letters* 16 (6): 063005.

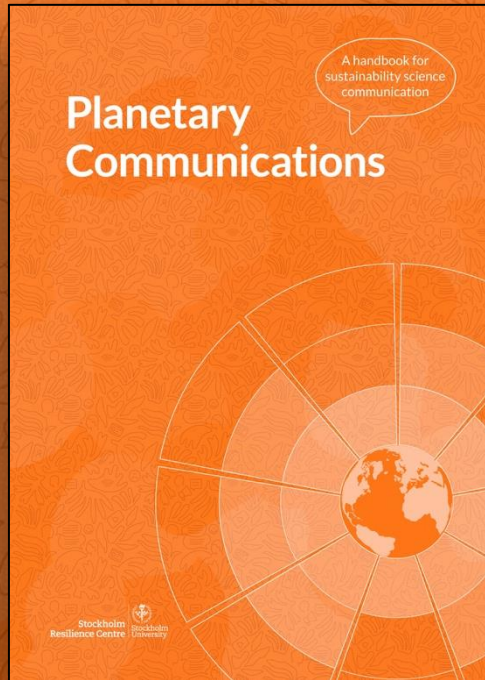
FROM Technologies as saviours and silver bullets TO Integrated technologies serving a just transition



Blasiak, R., & Claudet, J. 2024. Governance of the High Seas. Annual Review of Environment and Resources, 49.



KEY TAKEAWAYS



Stay in touch,
share your best
examples with us!



THANK YOU - TACK – visit: radicaloceanfutures.earth



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Andrew Merrie PhD

Science and Futures Lead
Planethon

Research Liaison Officer
Stockholm Resilience Centre

Stockholm
Resilience Centre



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