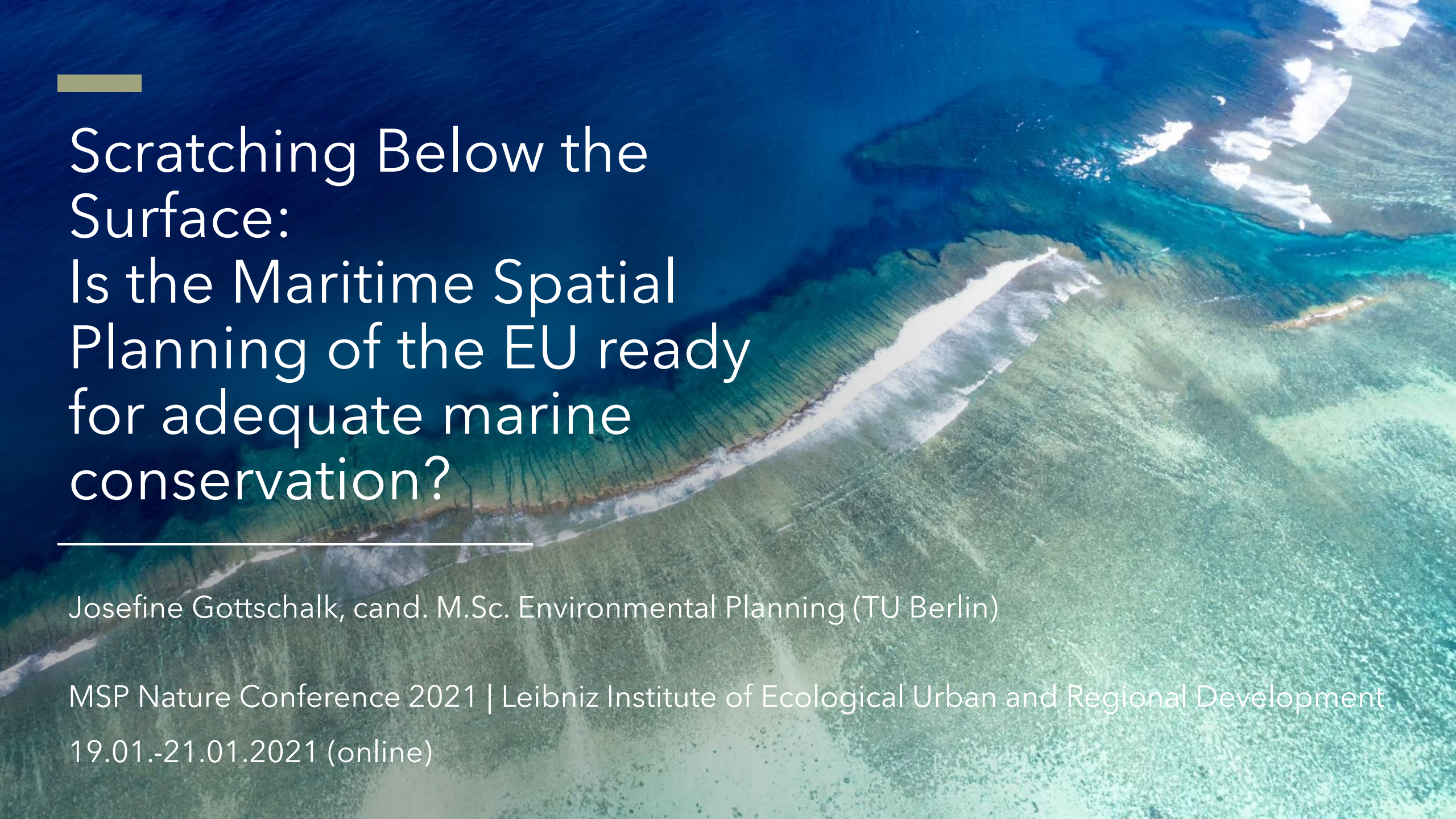

Scratching Below the Surface: Is the Maritime Spatial Planning of the EU ready for adequate marine conservation?

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Currently, it is seen to be suitable and adequate to measure the oceans in terms of area. But the seas are not a flat, two-dimensional area!

SUSTAINABLE DEVELOPMENT GOALS

14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

By the end of 2016, **10.8 %** of the surface of Europe's seas had been designated as MPAs

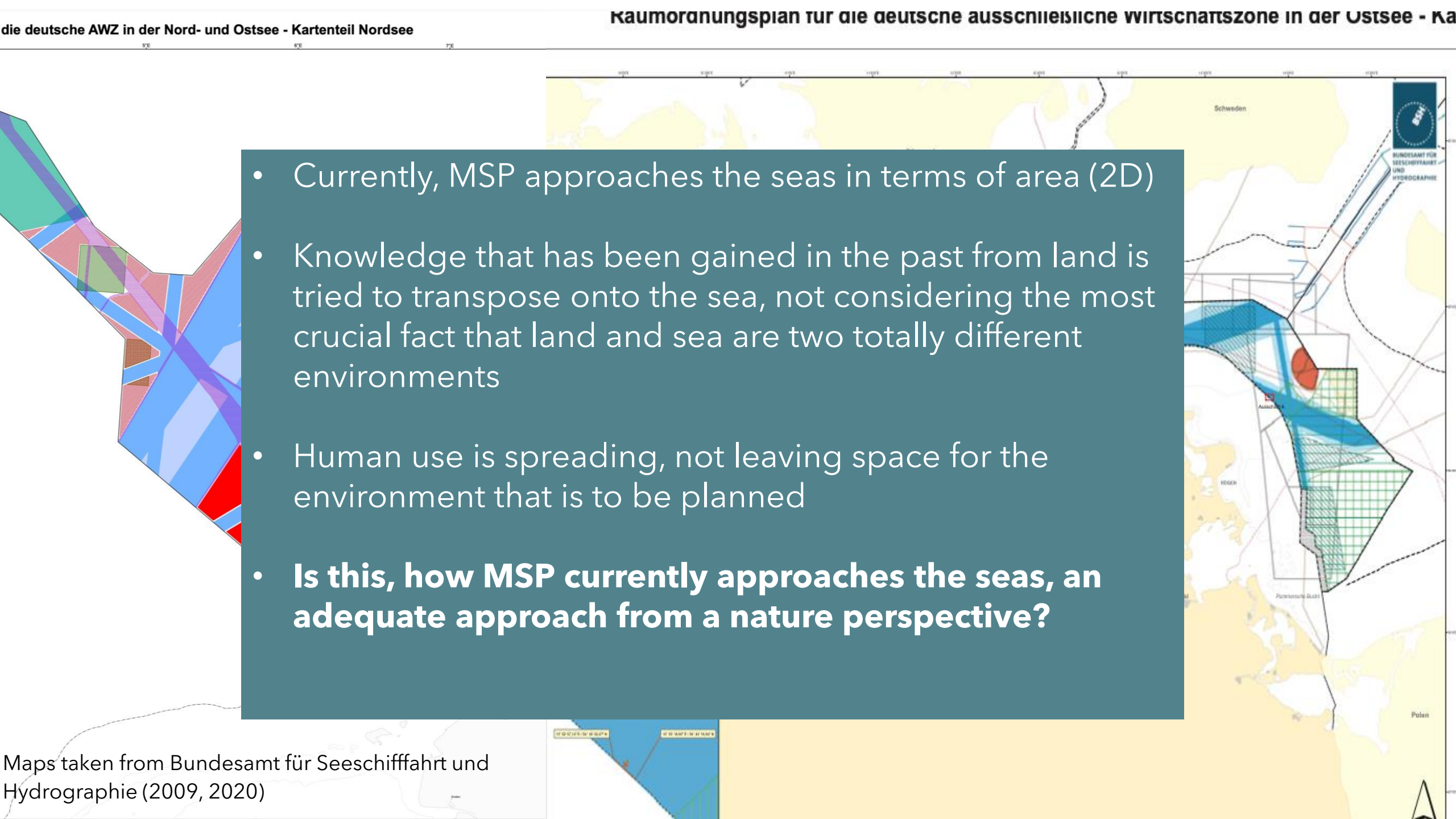
Aichi Target 11

Protected areas increased and improved

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

The 4D Ocean – A dynamic environment

- „71% of the Earth is covered by water.“ (area)
- 95% of the Earth’s space is water (volume)
- The ocean is not merely a surface, but a VOLUME representing 99% (1,370 million km3) of the habitable space on the planet
- Thus, the water column is the most abundant habitat on Earth, but not yet protected



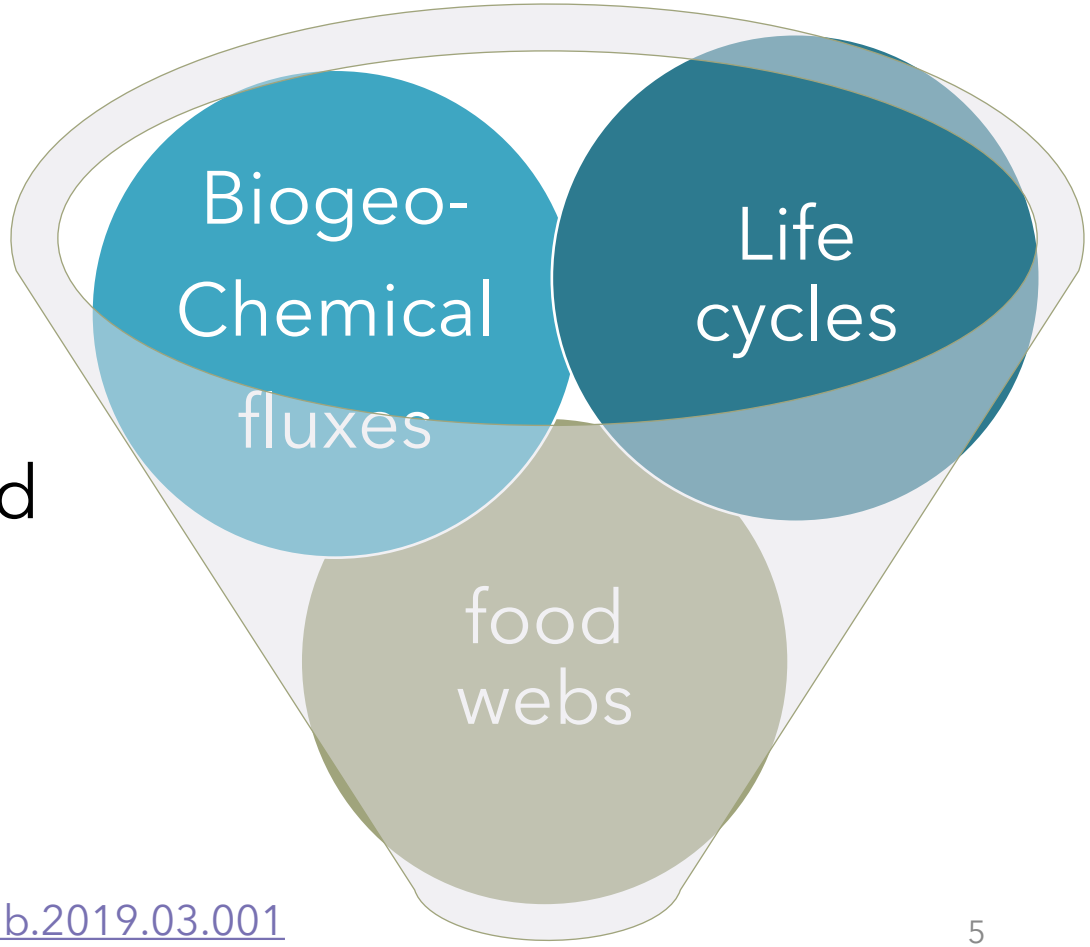
- Currently, MSP approaches the seas in terms of area (2D)
- Knowledge that has been gained in the past from land is tried to transpose onto the sea, not considering the most crucial fact that land and sea are two totally different environments
- Human use is spreading, not leaving space for the environment that is to be planned
- **Is this, how MSP currently approaches the seas, an adequate approach from a nature perspective?**

Maps taken from Bundesamt für Seeschifffahrt und Hydrographie (2009, 2020)

The Cells of Ecosystem Functioning (CEF)

= adequate approach to marine protection

- 3 key components constituting ecosystem functioning
- "Cells" are highly productive spaces in water column
- Some spaces are highly connected to others: Connectivity
- Holistic concept contributing to EBA, GES and Natura2000



Concept by Prof. Ferdinando Boero: https://doi.org/10.1016/bs.amb.2019.03.001

Case-related qualitative document analysis

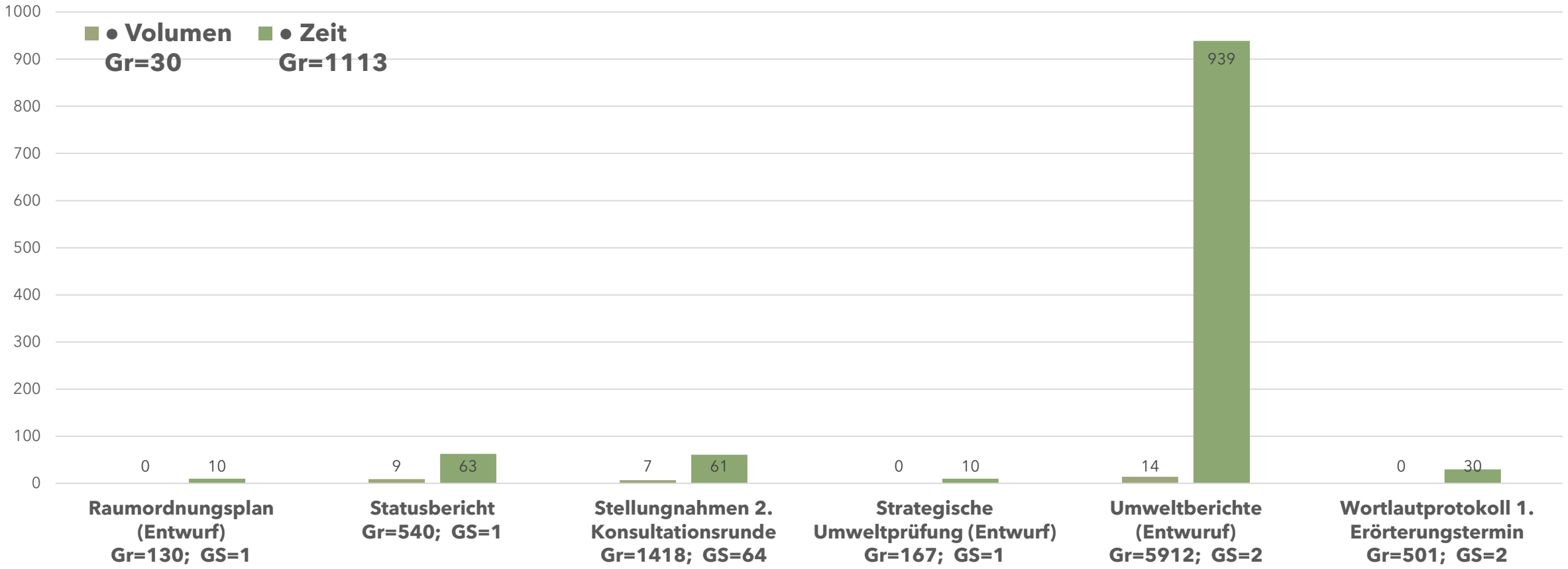
- Codes, deducted from CEF concept

Code	autocoding search words	code group
Abundanz	Abundanz|Populationsdichte|Dichte	food webs
Artenwechsel	Artenwechsel	life cycles
Artenzusammensetzung	Artenzusammensetzung	life cycles
Bakterie	Bakterie	food webs
benthische Lebensgemeinschaft	benthische Lebensgemeinschaft|sessil|vagil|bodenbewohnende Organismen	life cycles
Benthischer Ruhezustand	Bentische Ruhephase|Benthischer Ruhezustand	life cycles
Benthos	Meeresgrund|Meeresboden|Benthos|benthonisch|benthal|Bodenzone	life cycles
Bentisch-pelagische Wechselwirkung	Bentisch-pelagische Wechselwirkung	connectivity
Dichte	Dichte|thermohalin|Salinität|Meerwasserdichte|Salzgehalt	biogeochemical fluxes

- Document analysis with Atlas.ti
- Documents of German EEZ MSP
  - Draft of the MSP plan
  - Stakeholder participation
  - SEA
  - Draft of environmental reports
  - Protocol of public hearing
  - Status report

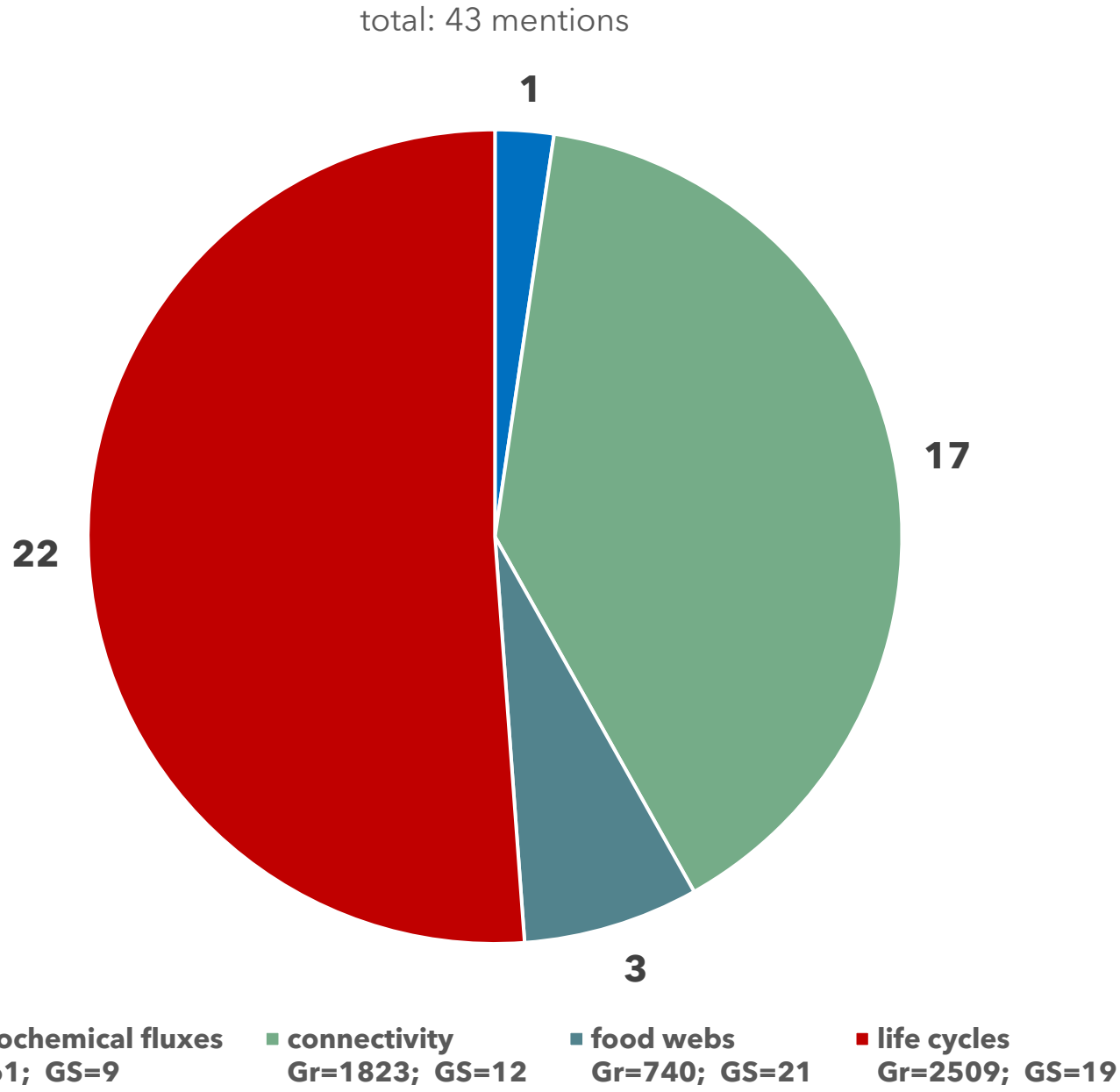
Findings (excerpt)

	Raumordnungsplan (Entwurf) Gr=129; GS=1	Statusbericht Gr=521; GS=1	Stellungnahmen 2. Konsultationsrunde Gr=1405; GS=64	Strategische Umweltprüfung (Entwurf) Gr=167; GS=1	Umweltberichte (Entwuruf) Gr=5491; GS=2	Wortlautprotokoll 1. Erörterungstermin Gr=486; GS=2	Summen
● Abundanz Gr=155	1	1	1	1	1	0	5
● Artenwechsel Gr=0	0	0	0	0	0	0	0
● Artenzusammensetzung Gr=42	0	1	1	1	1	0	4
○ Auster Gr=20	0	1	1	0	1	1	4
● Bakterie Gr=13	0	0	0	0	1	0	1
● benthische Lebensgemeinschaft Gr=17	0	1	1	1	1	0	4
● Benthischer Ruhezustand Gr=0	0	0	0	0	0	0	0
● Benthos Gr=787	1	1	1	1	1	1	6
● Bentisch-pelagische Wechselwirkung Gr=0	0	0	0	0	0	0	0
● Dichte Gr=67	0	0	1	0	1	0	2
● Diversität Gr=130	1	1	1	1	1	1	6

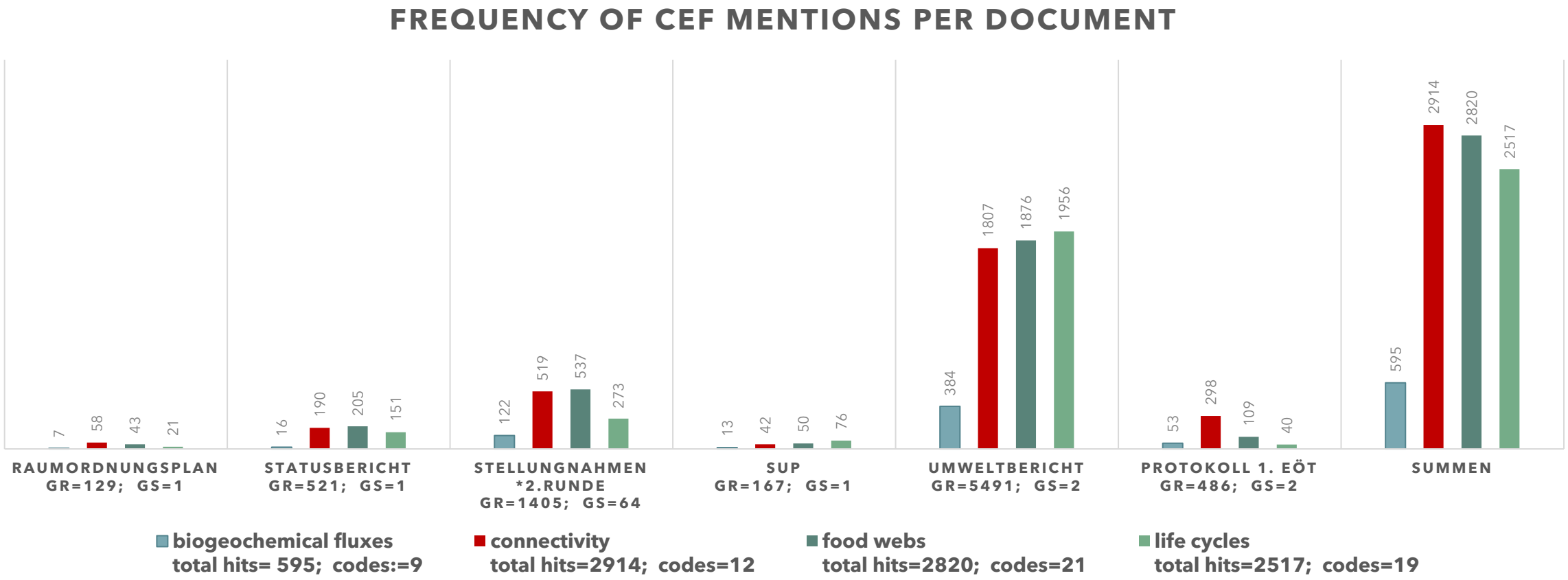


Example: Frequency of mentions on third and fourth dimension in all documents

Distribution of CEF mentions in MSP plan (text draft)



MSP plan in relation to the other documents



Thank you for your attention!

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