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SEA'TIES
SHARING SOLUTIONS WITH COASTAL CITIES TO TACKLE SEA LEVEL RISE

SEArisa - Enhance Climate Change Adaptation and Coastal Resilience

Atlantic Perspectives

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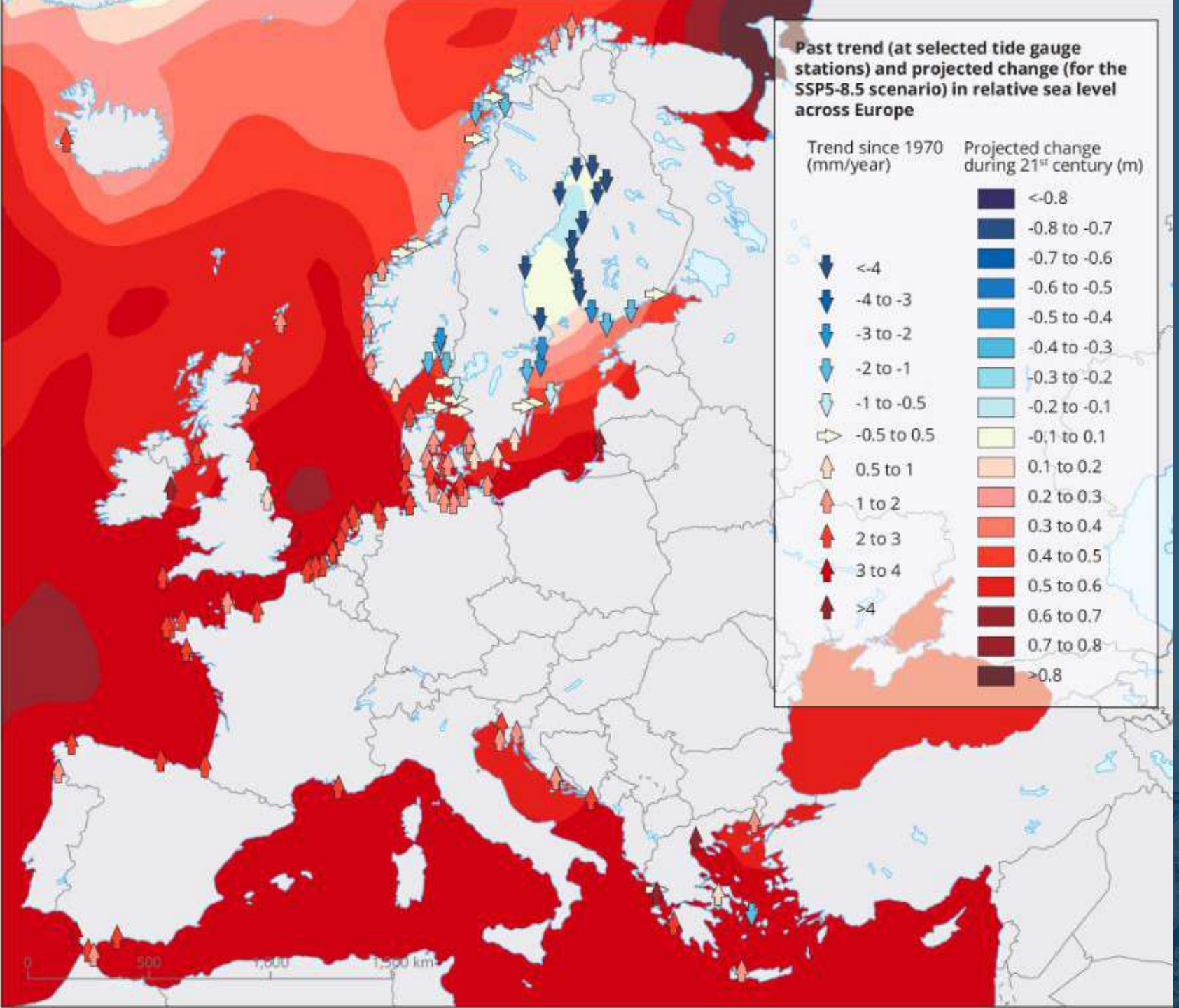
Ocean & Climate Platform

28 February 2023



- **Diversity of coastlines**

Reference Date: @ ESRI

Estuaries

Cliffs

Sand beaches

Pebble beaches

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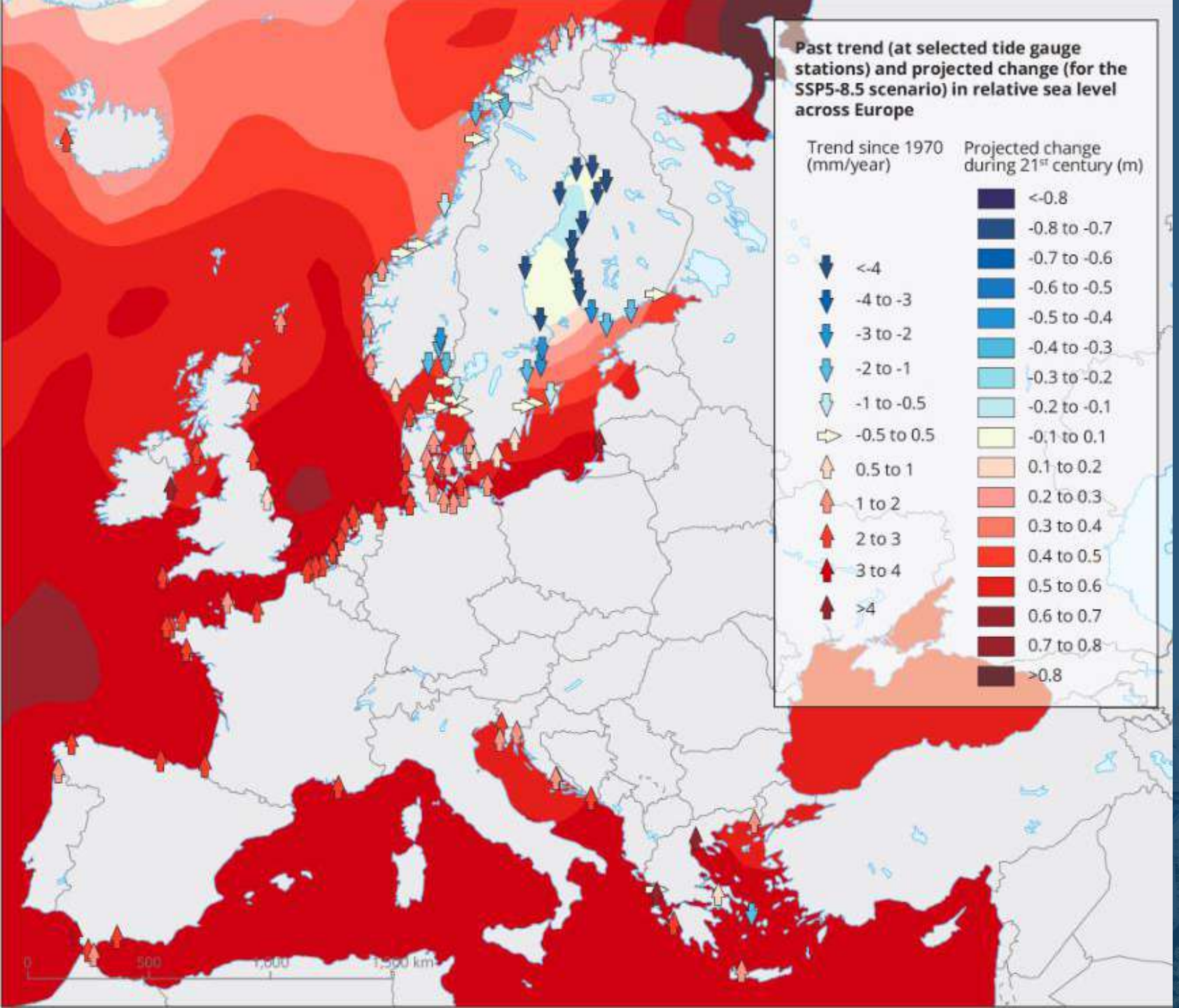
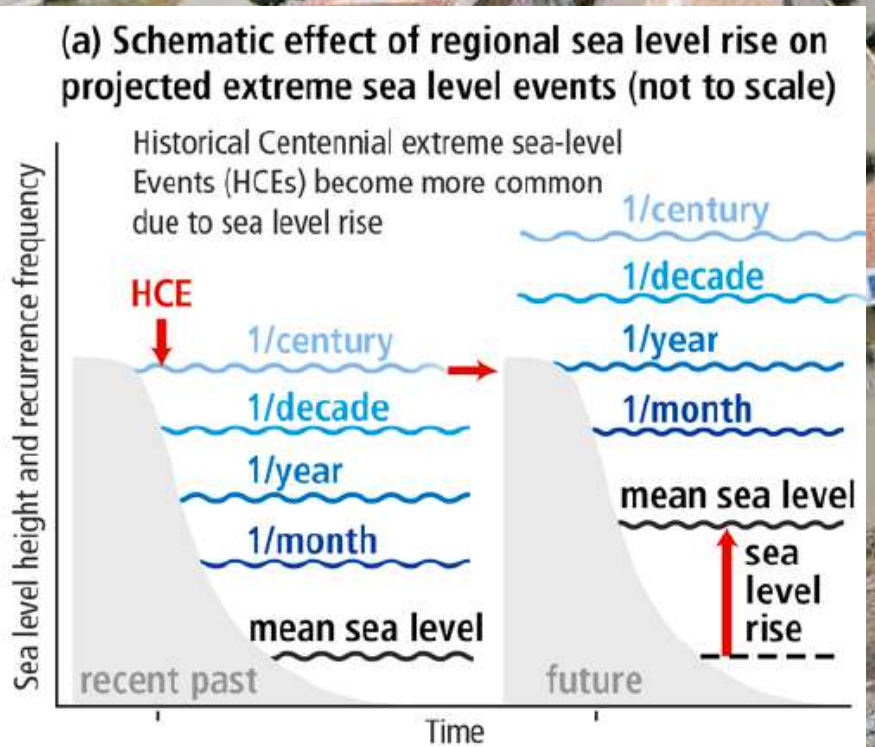


- Diversity of coastlines
- **Different manifestations of Sea Level Rise**

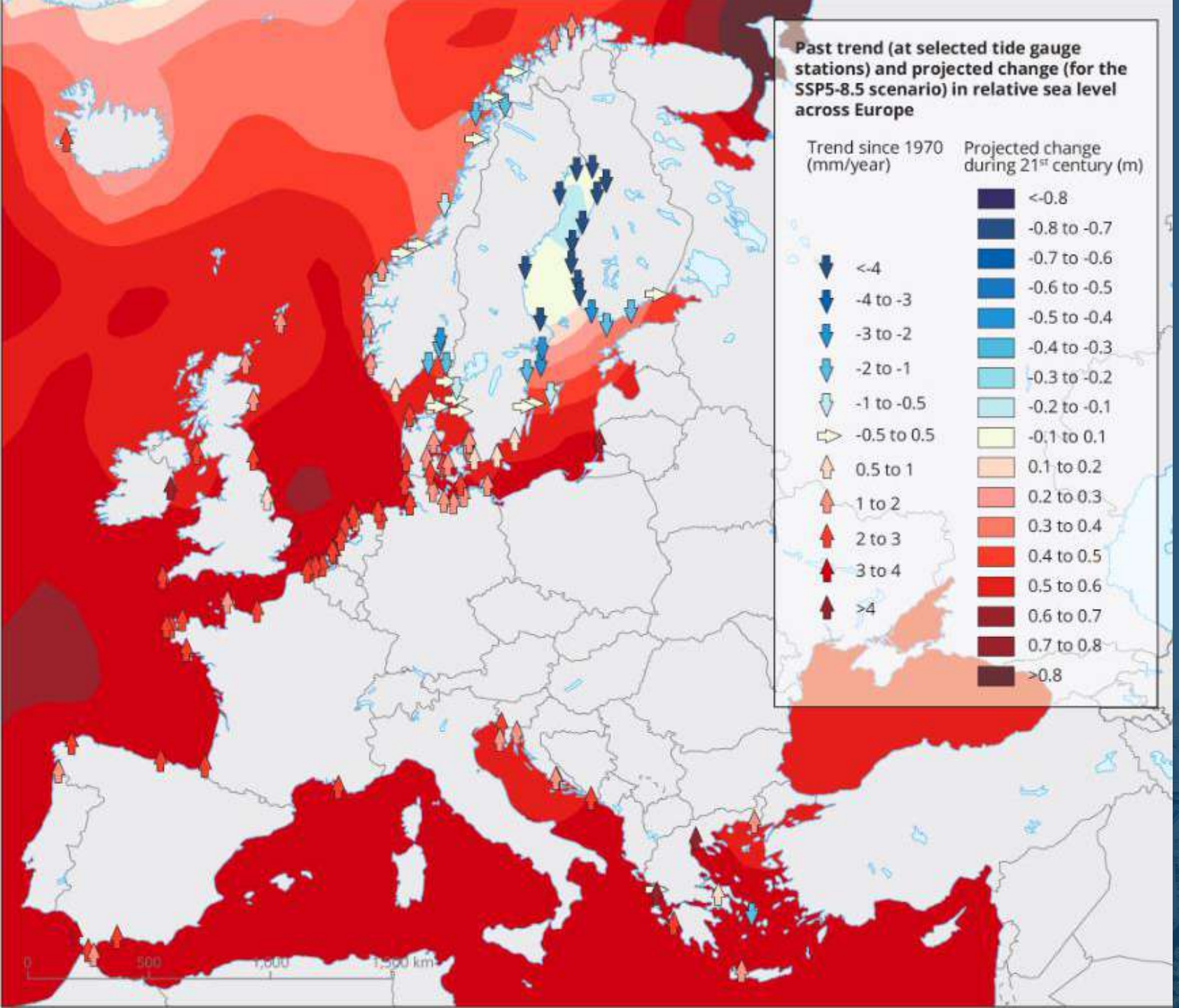
Reference Date: @ ESRI

Marine submersion (Xynthia, La Rochelle, France, 2010)



Coastal erosion (Soulac-sur-Mer, France, January 2023)

Coastal erosion (Soulac-sur-Mer, France, 20th of Feb. 2023)



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- Diversity of coastlines
- Different manifestations of Sea Level Rise
- **Huge uncertainty considering the future sea level!**

Reference Date: @ ESRI

Thwaites, Antarctica

Population in LECZ

Low Elevation Coastal Zones

Table 1
Characteristics of European countries with a coastline. LECZ is commonly defined as the contiguous and hydrologically connected zone of land along the coast and below 10 m of elevation (Lichter et al., 2011; McGranahan et al., 2007).

Country	ISO	Coast length (km) (1)	Sea(s) (1)	WB income category (2)	2020 population in LECZ (3)	Land area in LECZ (3)	Protection level (flood return period, in years) (4)	
							Min	Max
Albania	ALB	362	Mediterranean	Upper middle	292,914	1,636	22	34
Belgium	BEL	66	North	High	2,187,912	3,867	150	150
Bosnia and Herzegovina	BIH	20	Mediterranean	Upper middle	406	4		
Bulgaria	BGR	354	Black	Upper middle	86,889	309		
Croatia	HRV	5,835	Mediterranean	High	99,513	1,420	39	66
Cyprus	CYP	648	Mediterranean	High	64,337	180		
Denmark	DNK	7,314	Baltic and North	High	1,395,796	11,641	44	175
Estonia	EST	3,794	Baltic	High	169,805	4,646	39	43
Finland	FIN	1,250	Baltic	High	548,846	9,231	39	48
France (Excl. territories outside Europe)	FRA	3,427	Atlantic and Mediterranean	High	2,613,075	13,675	41	80
Germany	DEU	2,389	Baltic and North	High	3,521,266	20,688	60	300
Greece	GRC	13,676	Mediterranean	High	725,188	6,974	39	50
Iceland	ISL	4,970	Greenland and N. Atlantic	High	52,102	3,748	39	112
Ireland	IRL	1,448	N. Atlantic	High	329,117	3,009	39	63
Italy	ITA	7,600	Mediterranean	High	4,432,035	17,136	44	81
Latvia	LVA	498	Baltic	High	794,768	3,814	40	41
Lithuania	LTU	90	Baltic	High	89,328	1,026	41	41
Malta (incl. Gozo)	MLT	253	Mediterranean	High	6,903	23		
Monaco*	MCO	4	Mediterranean	High				
Montenegro	MNE	293	Mediterranean	Upper middle	9,393	107	17	17
Netherlands	NLD	451	North	High	12,223,303	23,778	300**	30.000**
Norway (incl. islands)	NOR	83,281	North and N. Atlantic	High	179,853	7,300	39	43
Poland	POL	440	Baltic	High	874,831	5,045	44	112
Portugal	PRT	1,793	N. Atlantic	High	331,169	2,200	41	313
Romania	ROU	225	Black	Upper middle	201,122	6,779		
Russia	RUS	37,653	Arctic and N. Pacific	Upper middle	3,465,958	265,049	39	165
Slovenia	SVN	47	Mediterranean	High	27,228	25	78	78
Spain	ESP	4,964	N. Atlantic and Mediterranean	High	3,595,313	6,498	40	257
Sweden	SWE	3,218	Baltic	High	831,896	12,607	39	77
Turkey	TUR	7,200	Mediterranean and Black	Upper	2,448,378	7,703	16	181
Ukraine	UKR	5,618	Black	Lower middle	858,616	10,664		
United Kingdom	GBR	12,429	North and N. Atlantic	High	5,391,670	18,294	45	74
Total		**211,610**			**47,848,930**	**469,076**		

The early beginning of a territorial transition

- **High density of population** (in growth)
- **Vulnerable coastal infrastructures** (roads, airports, power stations, sensitive industrial sites)
- **Psychological resistance** combined with a new **collective consciousness**
- **Very low level of preparation**

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An artificial coastline, mostly protected by dikes, groins and beach nourishment

- No technological limit that constrains a maximum height
- False sense of security
- Not a long-term response to coastal hazards
- Impact sediment transport
- High construction and maintenance costs

IPCC, SROCC, 2019

Onshore coastal impacts

- **10% of the world's sediment** is retained on land by **dams**
- The importance of tourism activities

Underestimation of anthropogenic impacts of the coastaline

Capitalising on the experience of flexible management

CONSERVATOIRE DU LITTORAL, Conservatoire du littoral

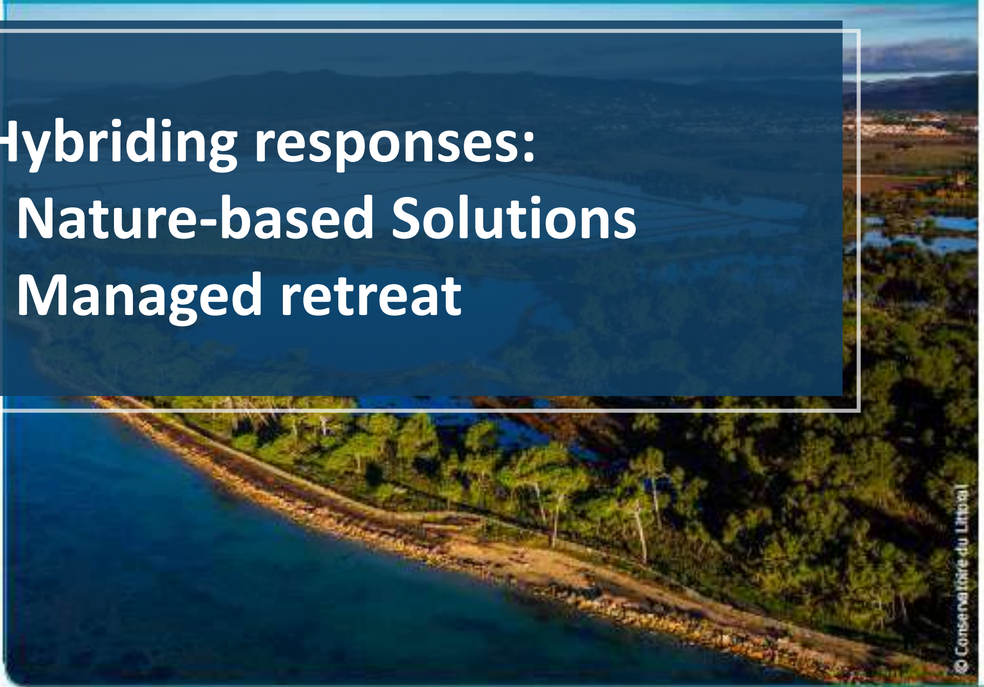
Adapto: Towards adaptive management

SUMMARY

CLASSIFICATION

Project duration: 2017-2022

Planning at a wide spatial scale, including the hinterland



Hybriding responses:
- **Nature-based Solutions**
- **Managed retreat**

OBJECTIVES

Adapto aims to:

(1) Provide a better understanding of the coastline's dynamism and the need to adapt to it

(2) Create methodological tools allowing for the initiation, support and assessment of Nature-based adaptation solutions in coastal areas

(3) Develop knowledge about and acknowledgment

Experimental approach (10 pilots sites)

ACTIVITIES

Different kind of actions are planned:

(1) Experimentation of adaptative soft management process and methods on pilot sites: scientific and technical studies and monitoring, meetings with local stakeholders for project design based on adaptation scenarios, implementation works - e.g. renaturation, relocation, restoration.

(2) Pedagogy and communication: on-site animations, educational actions for schoolchildren.

(3) Capitalisation and experience-sharing: national and international workshops, field visits in France and Europe, website and social media reporting, newsletter, publications on pilot sites.

RESULTS

Results vary from one site to the other but main achievements include: development of decision-support tools, awareness-raising among schoolchildren, improved analysis of users' social perception, elaboration of an ecological quality indicator, mapping and projections of coastal natural habitats. Additionally, as the 10

KEY TAKEAWAYS

(2) Experience-sharing at national, European and international levels drawing on the experiences and specificities of the 10 pilot sites.

(3) Awareness-raising activities besides coastal adaptation strategies.

48/Conservatoire du Littoral. (2022). Changement climatique sur le littoral - Subir ou s'adapter ?. Retrieved March 15, 2022, from https://www.conservatoire-du-littoral.fr/38-changement-climatique.htm

49/Ocean & Climate Platform. (2021). Ocean of Solutions to tackle climate change and biodiversity loss. Ocean & Climate Platform, p. 45 https://ocean-climate.org/wp-content/uploads/2021/06/Ocean-solutions-report.pdf

Planning transformational change in the City of Glasgow

SNIFFER

Climate Ready Clyde

SUMMARY

Climate Ready Clyde (CRC) is a body dedicated to tiative funded by fifteen member organisations and supported by the Scottish Government to CRC's vision is a Glasgow City Region which Members include the eight Local Authorities located across GCR, NHS Greater Glasgow and Clyde, University of Glasgow, University of Strathclyde, Strathclyde Partnership for Transport, Scottish Environmental Protection Agency, SGN, NatureScot.

CLASSIFICATION

Risks: Submersion, erosion

Typology of solutions: Research-action -based solutions, capacity- activities

Location: Glasgow, Scotland

Budget: Between EUR 1000 000–1 million

Typology of actors: Association, NGOs, CSOs

Project duration: N/A

OBJECTIVES

Climate Ready Clyde builds on strengthening collective evidence and capacity to create the conditions for a regional transformation to achieve a more resilient, prosperous and fairer Glasgow City Region.

ACTIVITIES

CRC was established on the basis that adapting to climate change is cheaper, easier and more effective when done together. In line with this, CRC draws on the collaboration of its members and other actors, reaching across silos, sectors and agendas to create collective impact. By contributing to debates and discussions, CRC's informing and shaping the direction of Glasgow guidance and resources supports easier, more substantive, and faster delivery of adaptation. Finally, it aspires leading in the global movement for climate action by showcasing Glasgow City Region's efforts to adapt on a global stage while connecting and learning from other cities to accelerate adaptation.

RESULTS

Since its launch, CRC has contributed to increasing the understanding of how changes in the climate are likely to affect the Glasgow City Region. Its productions include: a toolkit for assessing and addressing risk in the development of built environment and infrastructure projects; the Region's first Climate Risk and Opportunity Assessment; a Theory of Change which sets out a shared vision with over 100 stakeholders of what is needed to flourish in the future climate, a Literature Review Synthesis on transformational adaptation; as well as the Region's first Climate Adaptation Strategy and Action Plan.

TAKEAWAYS

CRC has identified stretching targets to help ensure the Action Plan stays true to the intention of supporting the most vulnerable, and of overcoming the financial and inclusion barriers to achieving the Strategy's intentions. By 2025, Glasgow City Region should have:

(1) Increased the resilience of over 140,000 of the region's most vulnerable people to the impact of climate change.

(2) Closed the region's adaptation finance gap of £184 m a year.

(3) Involved 125 new organisations, community groups and businesses supporting Glasgow City Region to adapt.

Planning at a long temporal scale, including uncertainty

Co-construction for appropriation of policies

Cross-sector engagement & funding (£184 million/year)

Delivering more through effective partnerships

COASTAL PARTNERS

Coastal Partners

SUMMARY

Coastal Partners was launched to deliver a combined, efficient, and comprehensive coastal management service across the coastlines of [illegible] Borough Council and Fareham Borough Council. [illegible] coastal management service is driven forward by the central notion that coastal processes and coastal risk do not respect administrative boundaries, alongside the aspiration that by working together as a group of Risk Management Authorities, more could be achieved for the coastal communities being served.

CLASSIFICATION

Risk: Submersion, erosion

Typology of solutions: Research-action project, Nature-based solutions / Ecosystem-based [illegible]ion, Managed realignment, Planning documents, Hard and soft protections, Accommodation, Capacity-building and knowledge-sharing activities, Community participation and engagement, Habitat and environment improvements

Geographical location: cities of Havant, Portsmouth, Gosport, Fareham, England

Budget: + EUR 1 million

Typology of actors: Local, regional authorities

Project duration: Since 2008

OBJECTIVES

Coastal Partners' vision is to manage coastlines, improve community resilience and enhance the natural environment. Its mission include:

(1) Providing leading edge and innovative solutions which demonstrate best practice in coastal, environmental and community support.

(2) Providing coastal defence and management services.

(3) Developing and delivering environmental and habitat services, which are complementary to [illegible]

(4) Shaping, developing, maintaining places which reduce risk, and enhancing resilience for communities.

[illegible]

ACTIVITIES

Coastal Partners functions involve managing flood and erosion risk, planning and designing new coastal defence schemes, inspecting and maintaining existing defences and working towards a flood resilient future through adaptation. In addition, the organisation has evolved its expertise into habitat and environmental matters, geomatics, funding, research and data analysis.

By working closely with local and regional stakeholders across the four Local Authorities, Coastal Partners have been pioneering a more open and joined-up approach to coastal management to facilitate place shaping and place making. Alongside this, the organisation promotes collaboration between national and local government agencies, highlighting the need for them to recognise the benefits of aligning multiple objectives and funding partners to deliver holistic outcomes for coastal communities.

RESULTS

Over the next 10 years the capital programme alone identifies nearly EUR 358 million of project delivery (across 30 projects) to better protect over 10,000 homes from coastal flooding and erosion for the next 100 years. These projects include critical environmental initiatives such as intertidal habitat creation and saltmarsh restoration[90].

KEY TAKEAWAYS

Coastal Partners' success stems from [illegible] partnership and driving values:

- [illegible], staff development and support; high professional standards.
- [illegible] and innovating sustainable services.
- Delivering high quality community satisfaction.
- Communicating with and understanding the community's needs.
- Partnering and effectively sharing resources.
- Environmentally conscious, protective and enhancing resilience.

90/ Coastal Partners. (2020). Report 2020. Retrieved March 15, 2022, from https://issuu.com/coastalpartners/docs/cp_pr_2020_singles_lr

Agregating 4 urban coastal communities, across administratives boundaries

30 projects: EUR 358 million to protect over 10,000 homes

Starts in 2008, the time of trust

Conclusions

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1 - DESIGNING A NEW COASTAL MODEL

- Develop **dynamic, hybrid and long-term** coastal climate change adaptation strategy at a **national, regional and local scale**
- Develop legal and financial tools to facilitate **managed retreat of infrastructures** and properties at risk in coastal areas
- **Preserving undeveloped areas** in the coastal zone and their services

Conclusions

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2 - DEVELOPING ALL FORMS OF KNOWLEDGE

- Develop **scientific knowledge** on the impacts of climate change and **on adaptation solutions** at a regional and local scale
- Develop the use of **participatory science** in the context of coastal area observation in order to involve civil society in the development of scientific knowledge
- Support the use of **human sciences in the approaches** for adaptation to climate change

Conclusions

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3 - INVOLVING CIVIL SOCIETY: APPROPRIATION AND SOCIAL ACCEPTABILITY

- Strengthen the **integration of wider society in the process of co-construction** of spatial planning projects related to adaptation issues and in decision-making
- Strengthen competences and awareness of the population in order to **have a sufficient degree of awareness and knowledge** of the past situation and the current state and dynamics of the coastline

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