Salt marshes near Marne (Schleswig-Holstein) © Robert Zijlstra/RWS

WORKSHOP REPORT
Nature conservation and coastal flood defence
How much salt marsh management do we want and need in a changing climate?

Author: Common Wadden Sea Secretariat
Published 14.03.2025

This publication should be cited as:
CWSS (2025) *Workshop Report: Nature conservation and coastal flood defence – How much salt marsh management do we want and need in a changing climate?* Common Wadden Sea Secretariat, Wilhelmshaven, Germany.

unesco World Heritage Site

WADDEN SEA WORLD HERITAGE

Common Wadden Sea Secretariat

MANABAS COAST NATURE-BASED SOLUTIONS

1. Introduction

Climate change is becoming a significant threat to World Heritage sites and the Wadden Sea is no exception. The Trilateral Wadden Sea Cooperation (TWSC) is working to address these impacts through its Climate Change Adaptation Strategy (CCAS), which aims to enhance the resilience of the Wadden Sea ecosystem. An important element for climate change adaptation is the management of salt marshes, which provide essential ecosystem services like carbon storage and coastal flood defence. Salt marsh management varies across Denmark, Germany, and the Netherlands, with a mix of passive and active strategies employed for multiple purposes: enhance biodiversity, support coastal flood defence (Nature based Solution, NbS), agriculture, etc. However, sea level rise driven by climate change poses a growing risk to these habitats.

The Interreg North Sea project MANABAS COAST aims to develop an accessible and evidence-based framework for large-scale implementation of NbS in coastal areas, addressing climate impacts while enhancing biodiversity and human well-being.

The workshop "*Nature Conservation and Coastal Flood Defence: How Much Salt Marsh Management Do We Want and Need in a Changing Climate?*", held on 10 October 2024 in Groningen, Netherlands, was organised by the Common Wadden Sea Secretariat (CWSS), the trilateral Expert Groups Climate Change Adaptation and Salt Marshes & Dunes, and partners of the MANABAS COAST project. Over 60 participants from Sweden, Denmark, Germany, Netherlands, Belgium, and France discussed salt marsh management in the context of climate adaptation.

The workshop conducted within MANABAS COAST in cooperation with (core team)

Interreg North Sea

Co-funded by the European Union

MANABAS COAST

Ministry of Environment of Denmark Coastal Authority

The Danish Municipal Wadden Sea Secretariat

SH Schleswig-Holstein Ministerium für Energiewende, Klimaschutz, Umwelt und Natur

LKN.SH Landesbetrieb für Küstenschutz, Nationalpark und Meeresschutz Schleswig-Holstein

NLWKN

Wadden Sea National Park

Rijkswaterstaat Ministry of Infrastructure and Water Management

WWF

2. Programme

The workshop started with the overarching question how much salt marsh management do we want and need in a changing climate?

Keynote

The topic was introduced by Henk de Vries, Fryske Gea, NL in his presentation "*Challenges for salt marsh management in the Wadden Sea*". Then Robert Zijlstra, Chair of the Expert Group Climate Change Adaptation, presented an *Overview on salt marsh management in the trilateral Wadden Sea*.

Pitches on Nature Conservation and Coastal Flood Defence

In two sessions, different aspects of salt marsh management were highlighted in eight pitches (presentations are publicly available under the given links):

SESSION 1. Perspectives on salt marsh conservation and management

- *Don't touch me babe - just leave me alone: Ecosystem services of unmanaged salt marshes* - Kai Jensen, University of Hamburg, DE
- *TRICMA²: Biodiversity loss, climate change and pollution & pathways sustainable management* - Chris Smit, University Groningen, NL
- *Back to the future* - Jan Willem Nieuwenhuis , Waterschap Noorderzijlvest, NL
- *Perspective of a green NGO on salt marsh conservation and management* - Jannes Fröhlich and Hans Ulrich Rösner, WWF, DE

SESSION 2: Measures and cases of salt marsh conservation and management

- *Practical successes in Lower Saxony: Actively restore different development stages of salt marshes?* - Stefanie Nolte, National Park Authority LS, DE
- *Experiences from 25 years Mainland Salt marsh Management Plans in Lower Saxony, Germany*- Angela Eden, NLWKN, DE
- *>100 years of Halligen management in Schleswig-Holstein and ECOHAL* - Luisa Rieth, LKN.SH, DE
- *A minimalistic approach to Nature based Solutions (NbS)* - Karl-Johan Pålsson and Johan Niss, County Administrative Board of Skåne, SE

Breakout groups

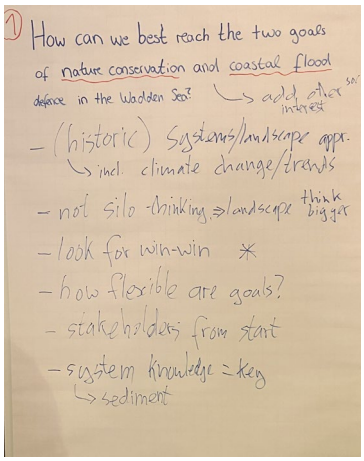
Six questions were discussed by the participants in breakout groups:

1. **How can we best reach the two goals of nature conservation and coastal flood defence?**

   Facilitator: Jurre de Vries

   Key points: develop a system perspective, understand the system (morphology, ecology), consider sediment management and make use of historical perspectives (what can we learn from the past). Involve relevant stakeholders from the beginning.

   Advice: look for win-win opportunities

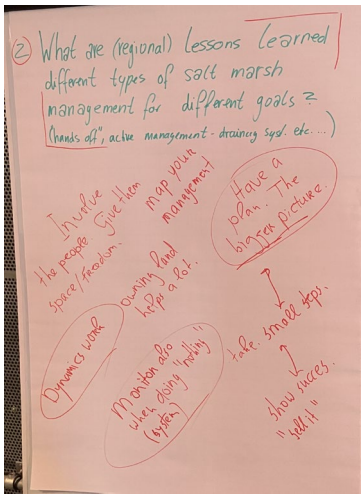


2. **What are (regional) lessons learned from different types of salt marsh management for different goals ("hands off", active management - drainage system, grazing, etc.)?**

   Facilitator: Robert Zijlstra

   Key points: System understanding, system explanation for planning and for people/stakeholders to understand (historical and future) developments. Implement monitoring, also at salt marshes where no intervention takes place. Dynamics work/Let nature do the work (e.g., accretion of sediments).

   Advice: Seeing is believing: take people to sites where an approach worked

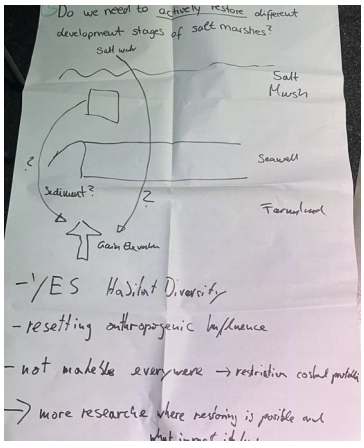


3. **Do we need to actively restore different development stages of salt marshes?**

   Facilitators: Anna Appel & Stefanie Nolte

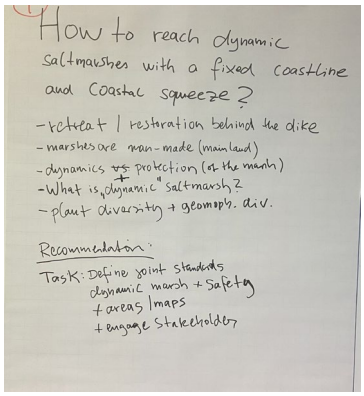
   Key points: the simple answer is yes – to bring back habitat diversity in areas that were previously anthropogenically influenced.

   Advice: More research needed on where restoring salt marshes is possible



4. How to reach dynamic salt marshes with a fixed coastline and coastal squeeze?

Facilitator: Jannes Fröhlich

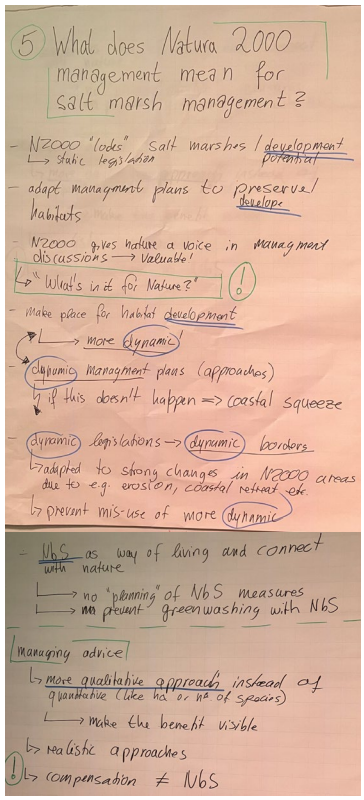


Key points: Allow natural development of salt marshes, e.g., by coastal retreat, also consider restoration of salt marshes behind the dike (while keeping the first dikeline intact).
Navigate dynamic marsh and protect marsh. Involve stakeholders from the beginning

Advice: Define joint standards (trilateral) of a dynamic salt marsh. Map the coastline and indicate areas to hold the line and areas in which coastal retreat can be allowed.

5. How are N2000 goals implemented in salt marsh management?

Facilitator: Luisa Rieth

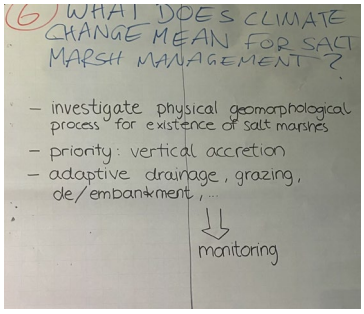


Key points: bring more dynamics in the discussion, apply more adaptive management, N2000 gives nature a voice in management discussions (to allow more dynamics, e.g., let salt marsh area "move"). Nature based Solutions principles to be integrated in Natura2000 management as way of living and interacting with the area.

Advice: focus on a qualitative approach, not quantitative
Keep goals and approaches realistic.

6. What does climate change impact salt marshes and what does it mean for salt marsh management?

Facilitator: Peter Müller



Key points: we still have knowledge gaps on understanding how climate change impacts (management of) salt marshes. Clear goals are important for management, what do we manage and for what? And should (and can) these goals be maintained if the climate changes? The group found consensus on that salt marshes should be maintained in the Wadden sea. Vertical accretion is very important.

Advice: We have to adapt grazing, drainage and embankments. Keep up and expand monitoring and learn from that.

3. Wrap up and outlook

The workshop participants outlined the importance of the bigger picture and system understanding for both spatial planning and management of salt marshes. Understanding and predicting developments are essential for communication with stakeholders.

Whilst there are open questions and research gaps, management of salt marshes (incl. no intervention as management option) needs to be considered carefully. This is challenging in a changing system and with different interests. It was noted that historical data and development can support these questions and the debate: learning from the past for the future.

In the trilateral Wadden Sea, the historical “will of man” is still very visible in salt marshes today (i.e. drainage system remains). The development towards more natural dynamics and working with nature, primarily to reach ecological goals, was embraced in the discussions of the workshop.

A very strong emphasis was set on the societal perspective. Salt marshes are characterised by a long tradition of human use and are partly human made. Involving people in salt marsh management is therefore crucial. Considerations during the discussion included the perceived loss of safety (coastal protection) with alternative solutions and the transformation of agricultural land, such as summer polders to salt marshes (i.e. salt marsh restoration). The value of pilot projects was underlined to showcase success and safety aspects. Also, it was suggested to listen to diverse voices and also aim for a diversity of people in salt marsh management.

Another aspect mentioned was a possible perceived loss of connection of coastal inhabitants to the sea and salt marshes. A high dike line might also constitute a “mental” barrier to connect to the sea.

Restoration of salt marshes were mentioned, to either erase or reduce anthropogenic influences preventing the natural development of salt marshes, e.g., by infilling of drainage systems. Also, participants brought up the restoration of previous salt marshes, e.g., behind the (summer-) dike, and to bring back transition zones from salt- to freshwater systems. The EU Nature Restoration Regulation might support such initiatives.

Overall, the notion that the Wadden Sea is a dynamic system able to cope with changes and climate change, if natural dynamics are allowed, was underlined. It was also stressed that rethinking is needed. Therefore, management should be orientated towards natural structures and dynamics.

Results of this workshop will be taken up in discussions on salt marsh management and NbS in trilateral Expert Groups, as well as in the Interreg project MANABAS COAST.

Annex 1: Final programme

TRILATERAL WORKSHOP

Nature conservation and coastal flood defence: How much salt marsh management do we want and need in a changing climate?

10 October 2024
De Puddingfabriek, Viaductstraat 3-6 9725 BG Groningen, NL

12:30 LUNCH (invited) at Puddingfabriek

Welcome & Session 1

13:30 Introduction
Julia Busch, Common Wadden Sea Secretariat

13:40 KEYNOTE: Challenges for salt marsh management in the Wadden Sea
Henk de Vries, Fryske Gea, NL

Overview on salt marsh management in the Wadden Sea
Robert Zijlstra, chair Expert Group Climate Change Adaptataion/ Rijkswaterstaat, NL

14:10 PITCHES ON NATURE CONSERVATION AND COASTAL FLOOD DEFENCE
SESSION 1. Perspectives on salt marsh conservation and management

- Don't touch me babe - just leave me alone: Ecosystem services of unmanaged salt marshes - Kai Jensen, University of Hamburg, DE
- TRICMA²: Biodiversity loss, climate change and pollution & pathways sustainable management - Chris Smit, University Groningen, NL
- Back to the future - Jan Willem Nieuwenhuis , Waterschap Noorderzijlvest, NL
- Perspective of a green NGO on salt marsh conservation and management - Jannes Fröhlich and Hans Ulrich Rösner, WWF, DE

20-minute coffee break

Session 2 & Discussion

15:20 PITCHES ON NATURE CONSERVATION AND COASTAL FLOOD DEFENCE
SESSION 2: Measures and cases of salt marsh conservation and management

- Practical successes in Lower Saxony: Actively restore different development stages of salt marshes? - Stefanie Nolte, National Park Authority LS, DE
- Experiences from 25 years Mainland Salt marsh Management Plans in Lower Saxony, Germany - Angela Eden, NLWKN, DE
- >100 years of Halligen management in Schleswig-Holstein and ECOHAL - Luisa Rieth, LKN.SH, DE
- A minimalistic approach to Nature based Solutions (NbS) - Karl-Johan Pålsson and Johan Niss, County Administrative Board of Skåne, SE

16:00 Discussion
17:15 Final remarks

Event ends no later than 17:30

18:30 DINNER (invited) in Groningen city WEEVA Gedempte Zuiderdiep 15 | 9711 HA Groningen

unesco World Heritage Site · WADDEN SEA WORLD HERITAGE · Interreg North Sea · Co-funded by the European Union · Common Wadden Sea Secretariat

MANABAS COAST

Annex 2: Participants

This list contains only participants who have signed the signature list on location, and who have agreed that their data (name, organisation, country) will be used to create a participants list that will be circulated at the workshop and in the workshop report.

Name	Institution
Adrien Privat	Conservatoire du littoral
Albert Vos	Provincie Groningen
Anette Björlin	Swedish Geotechnical Institute, SGI
Angela Eden	NLWKN
Anita Bergstedt	County Administration Västra Götaland
Anna Appel	Nationalparkverwaltung Niedersächsisches Wattenmeer
Bas Kers	Rijkswaterstaat, CIV, Delft
Charlotte Schmidt	Rijkswaterstaat
Chris Smit	University of Groningen
Clazina Kwakernaak	Het Groninger Landschap
Dagmar Heidinga	Altenburg & Wymenga
Dominika Nordh	Swedish Geotechnical Institute
Elien Sipma	University of Twente
Esmee Bannenberg	Technical University Delft
Geert van der Meulen	Rijkswaterstaat
Gwenal Hervouet	Conservatoire du littoral
Henk de Vries	It Fryske Gea
Herman Hegge	Vereniging van oevereigenaren en gebruikers
Holger Blum	NLWKN
Ilona Evers	Hoogheemraadschap Hollands Noorderkwartier
Jan Bakker	University of Groningen
Jannes Fröhlich	WWF Germany
Johan Niss	County Administrative Board of Skane, CAB Skåne
Jonne Jansen	Rijkswaterstaat
Julia Busch	CWSS
Jurre de Vries	Rijkswaterstaat
Kai Jensen	Universität Hamburg
Lea Heitbrink	Student of the Amsterdam University College
Luisa Rieth	LKN.SH
Maria Kilnäs	Lansstyrelsen Vastra Gotaland
Marinka van Puijenbroek	Wageningen Marine Research
Martin Schulze Dieckhoff	NLWKN
Matthijs Boersema	Rijkswaterstaat
Meint Hensmann	Rheider Deichacht
Meinte Engelmoer	Fryske Feriening foar Fjildbiology
Melanka Brackx	MOW Flanders
Nicole Janinhoff-Verdaat	NLWKN Hannover, Biotopschutz
Pär Persson	Länsstyrelsen Skåne
Per Danielsson	Swedish Geotechnical Institute
Peter Müller	Universität Münster
Petra Goessen	HHNK

Régie Leymarie	Conservatoire du littoral
Richa Nanne	HHNK
Robert Zijlstra	Rijkswaterstaat
Saa Henry Kabuta	Rijkswaterstaat, Min van Infrastructuur en Waterstaat
Sabine Anna Stosiek	Danish Coastal Authority
Sara Ejvegard	The County Administrative Board of Västra Götaland
Sophie Lauwaars	Rijkswaterstaat
Stefanie Nolte	NLPVW Niedersachsen
Stephanie Janssen	Deltares
Thomas Hirschhäuser	LKN.SH
Thomas Larsen	Danish Coastal Authority
Tony Durozier	Conservatoire du littoral (France)
Willem Berlin	Sielacht Rheiderland
Willem van Duin	Artemisia - salt marsh research
Yvan Jacquemin	Conservatoire du littoral