



HELCOM for the Baltic Sea

Lotta Ruokanen, Deputy Executive Secretary
September 2026



Baltic Marine Environment Protection Commission

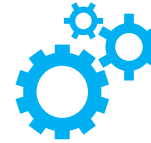
HELCOM is a regional...



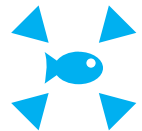
**environmental
policy maker**
*e.g. Baltic Sea
Action Plan*



**body for developing
regional
recommendations**
*e.g. HELCOM
Recommendations and
regional Guidelines*



coordinating body
*e.g. HELCOM
Response & BALEX
DELTA exercises*



**environmental
focal point** *e.g.
holistic
assessments of
the state of the
sea*

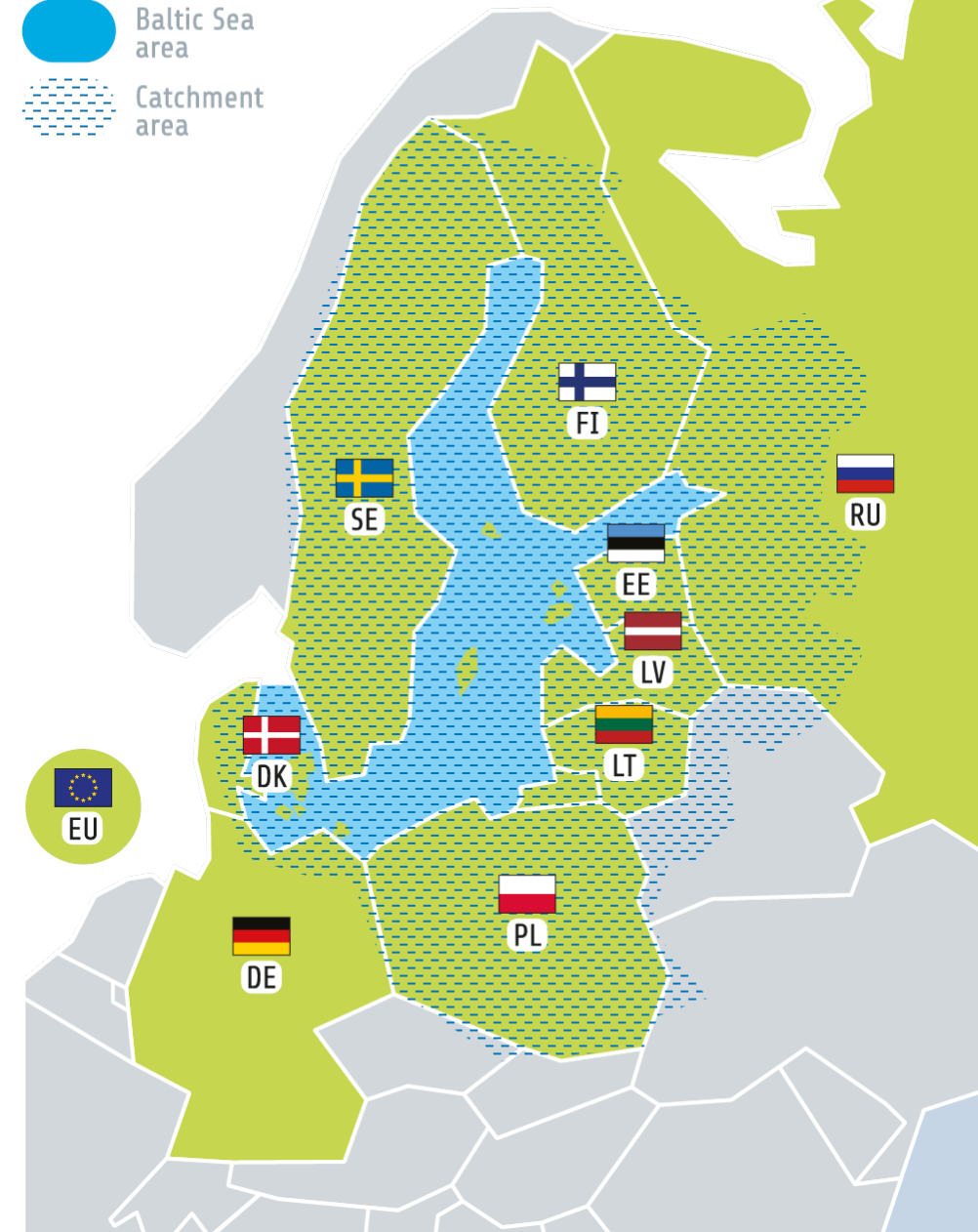
Tools include:

**Recommendations, Action
plans & strategies**

With actions and measures,
such as **Baltic Sea Action
Plan**, Regional Nutrient
Recycling Strategy and
Regional MSP Roadmap



**supervisory
body**
*e.g. nutrient
reduction
scheme with
MAI and NIC*



About HELCOM



1974: The Helsinki Convention signed by 7 Contracting Parties



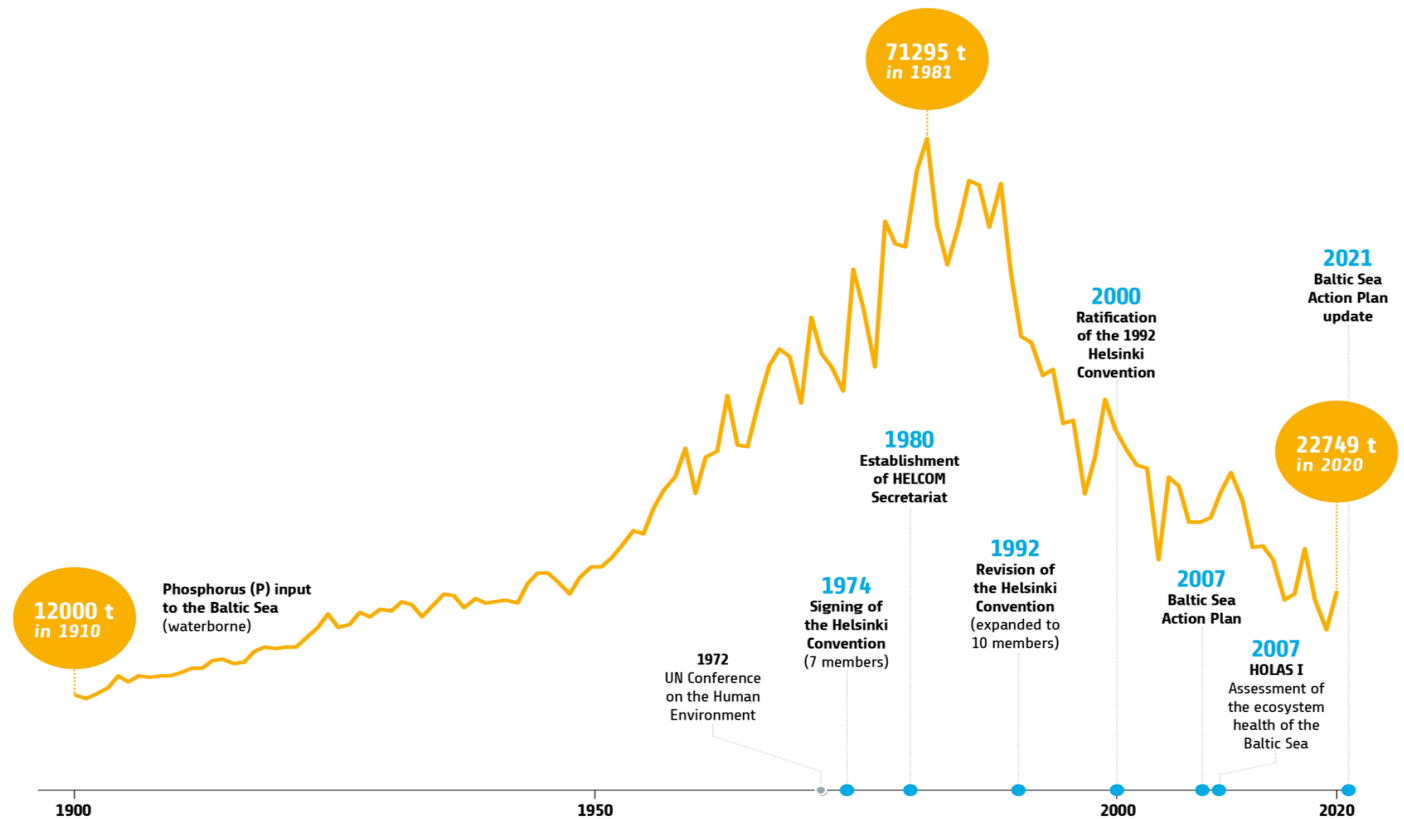
1980: HELCOM Secretariat established



1992: 10 Contracting Parties
EE, EU, DK, DE, FI, LV, LT, PL, SE, RU



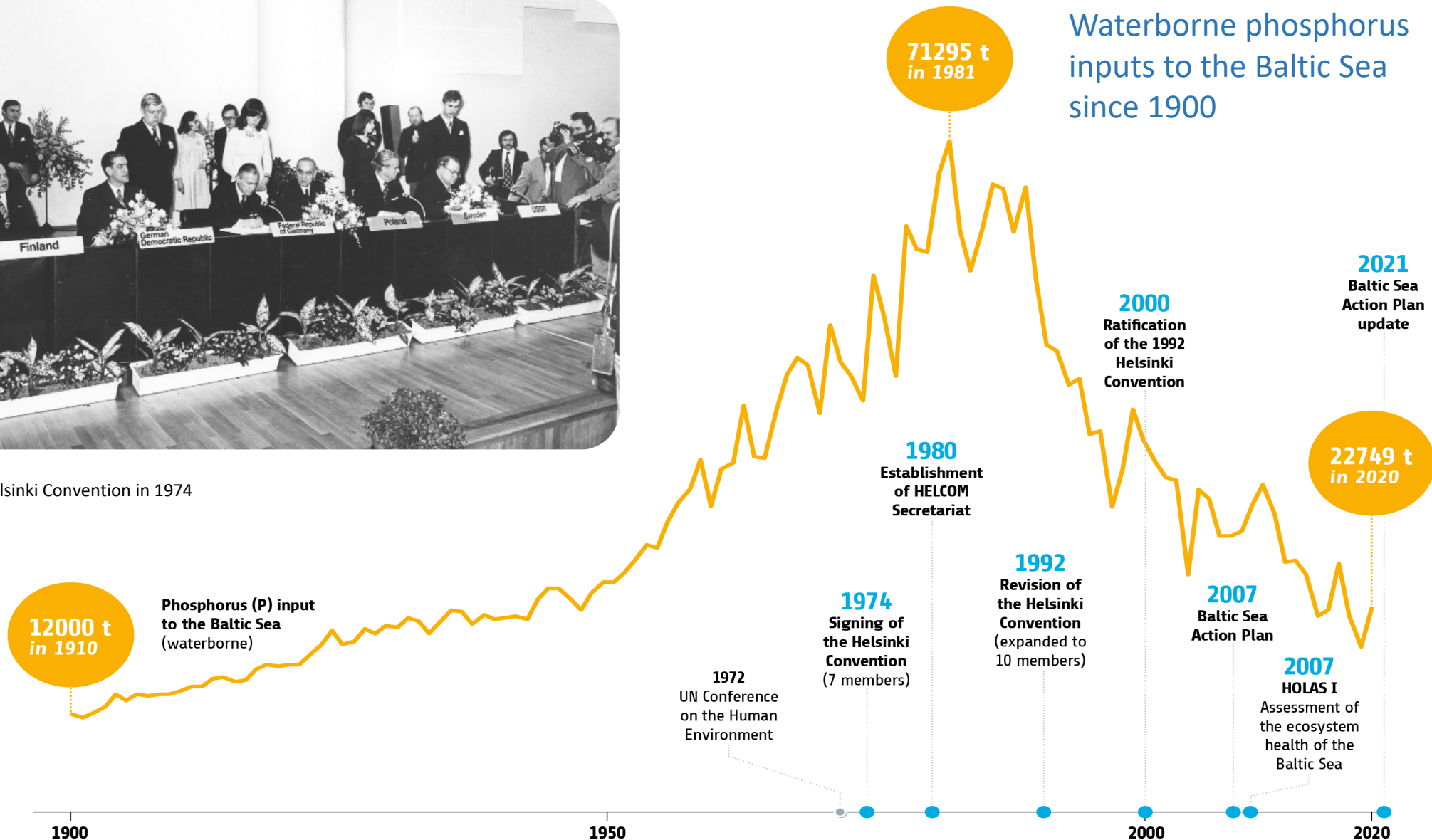
2024: HELCOM celebrates 50th anniversary



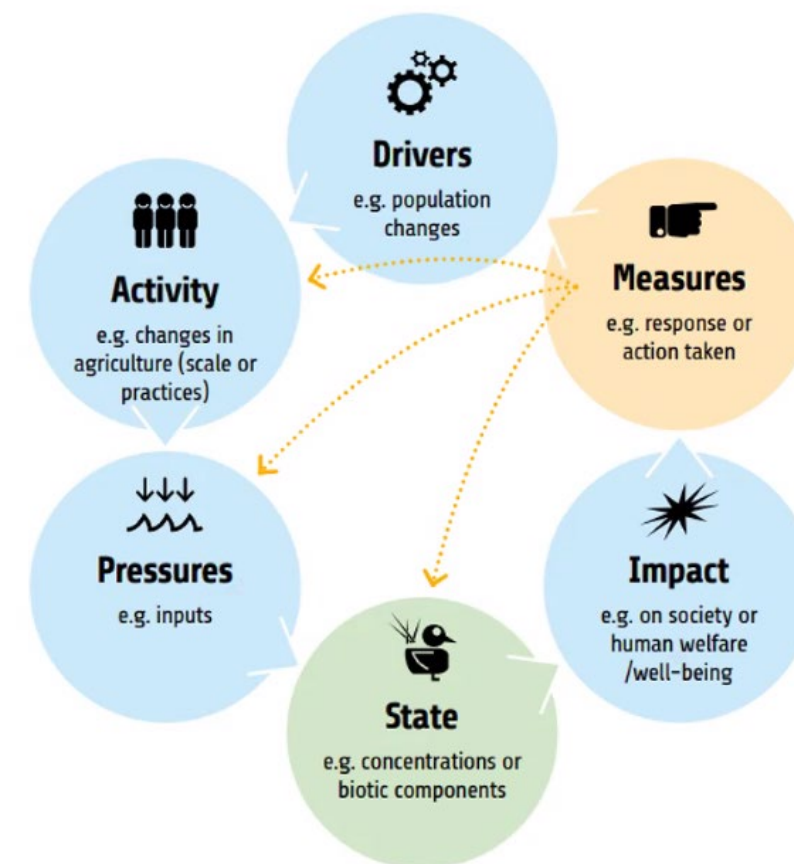
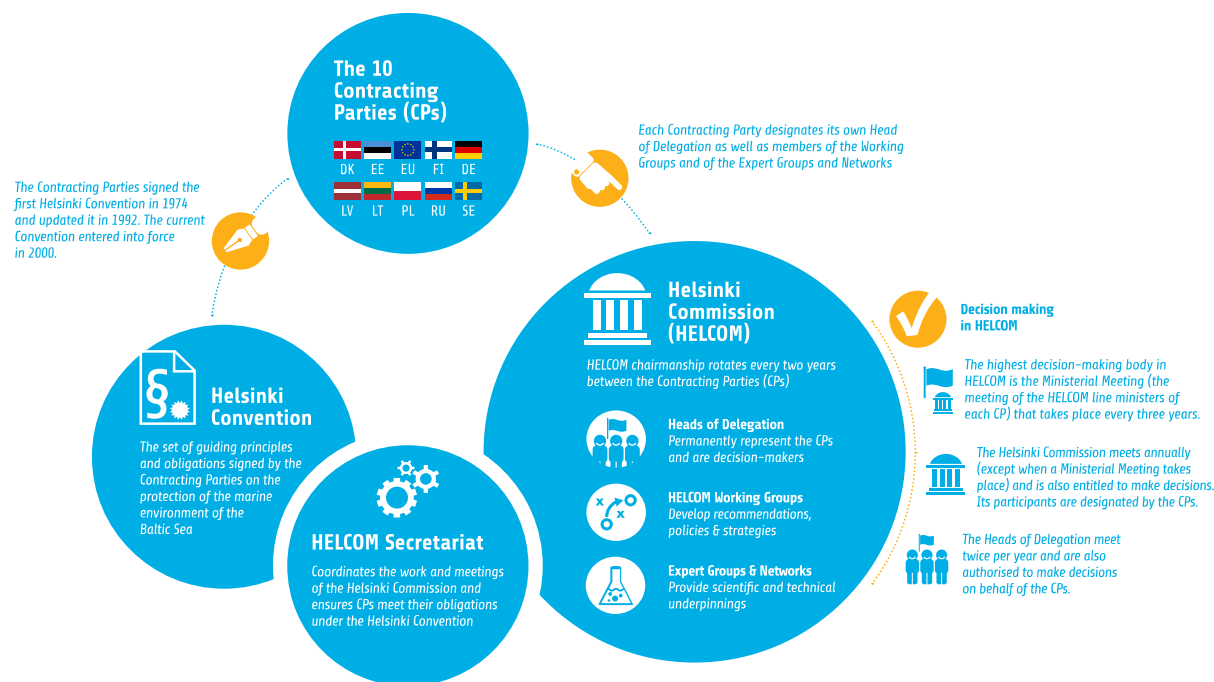
▲ Signing of the Helsinki Convention in 1974



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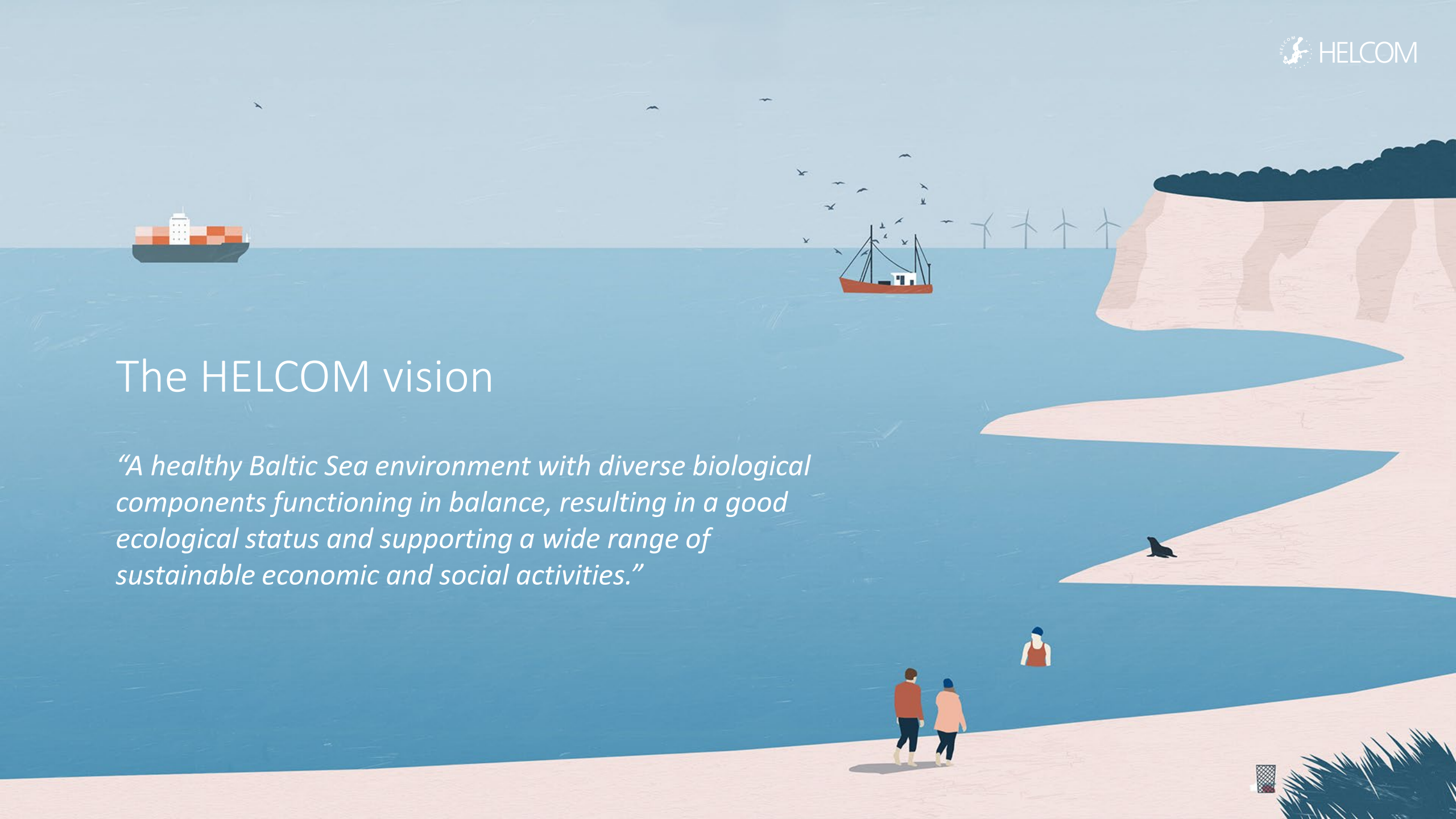
HELCOM, DAPSIM/R Framework and measures



Decision making process in HELCOM:
a bottom-up, science-based approach

The HELCOM vision

“A healthy Baltic Sea environment with diverse biological components functioning in balance, resulting in a good ecological status and supporting a wide range of sustainable economic and social activities.”



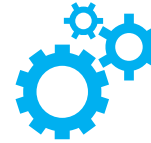
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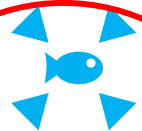
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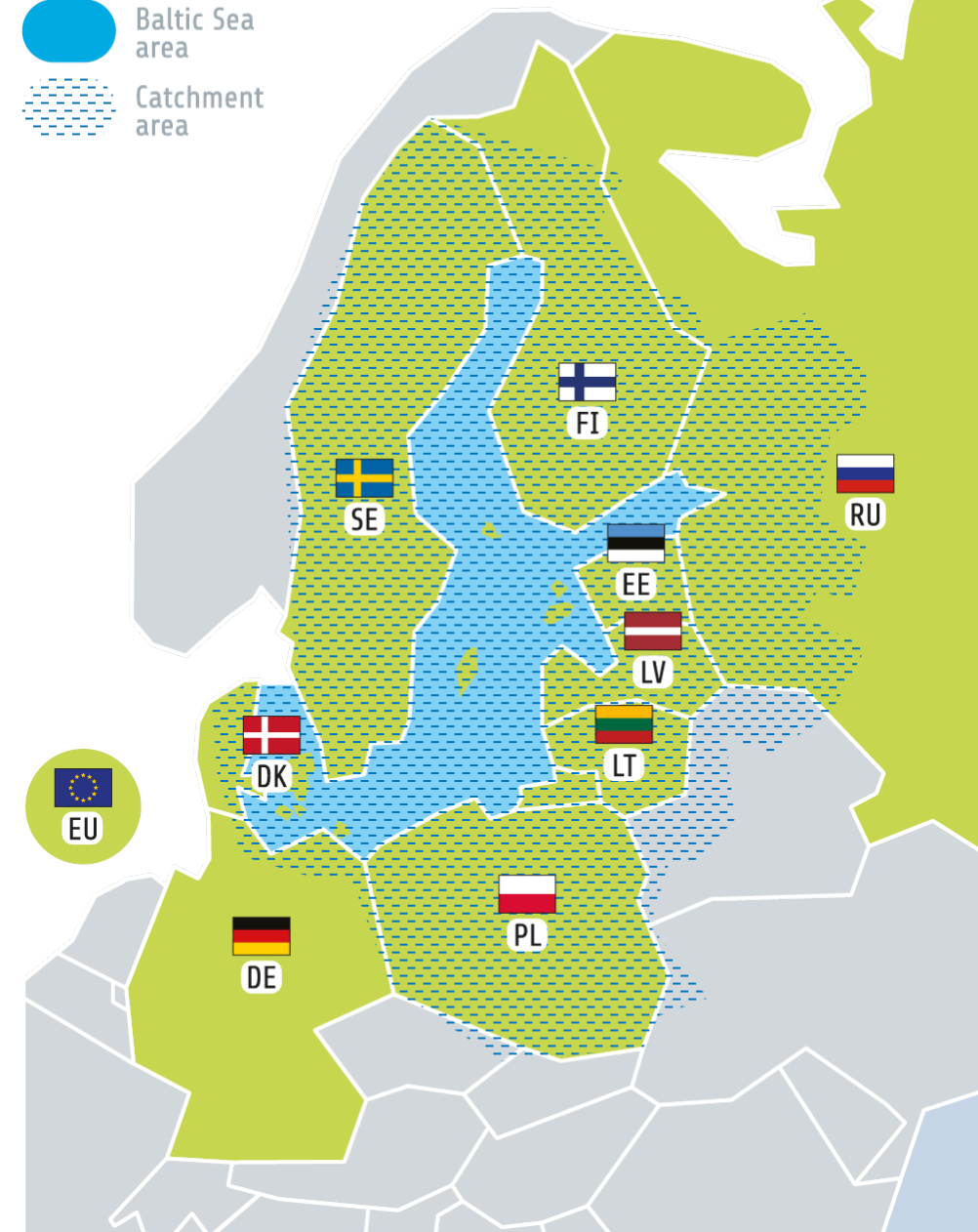


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Contain actions and
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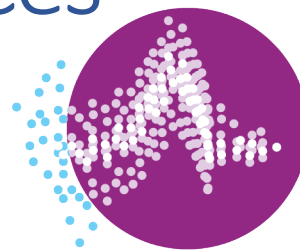
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HOLAS 3 (2026-21): Indicators of relevance – Hazardous substances

Hazardous substances

- PFOS
- HBCDD
- PBDEs
- PCB, dioxins and furans
- PAHs (and their metabolites)
- TBT (and Imposex)
- Radioactive substances
- Mercury
- Copper
- Lead
- Cadmium
- **Diclofenac***
- Oils spills
- White-tailed sea eagle
- Reproductive disorders: amphipod embryos**



Hazardous substances

Hazardous substances only integrates indicators on substance concentrations and only fully operational HELCOM 'core' indicators.

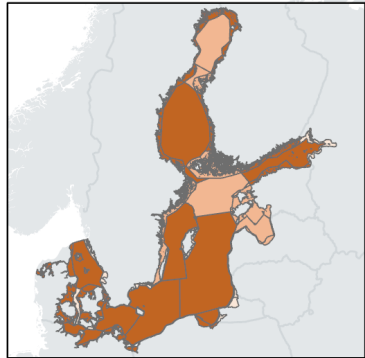
HAZ Thematic assessment (2023) also has test cases on biological effects, screening and sediment cores.

*pre-core = more development/agreement expected, **supplementary = not applied by all Contracting Parties

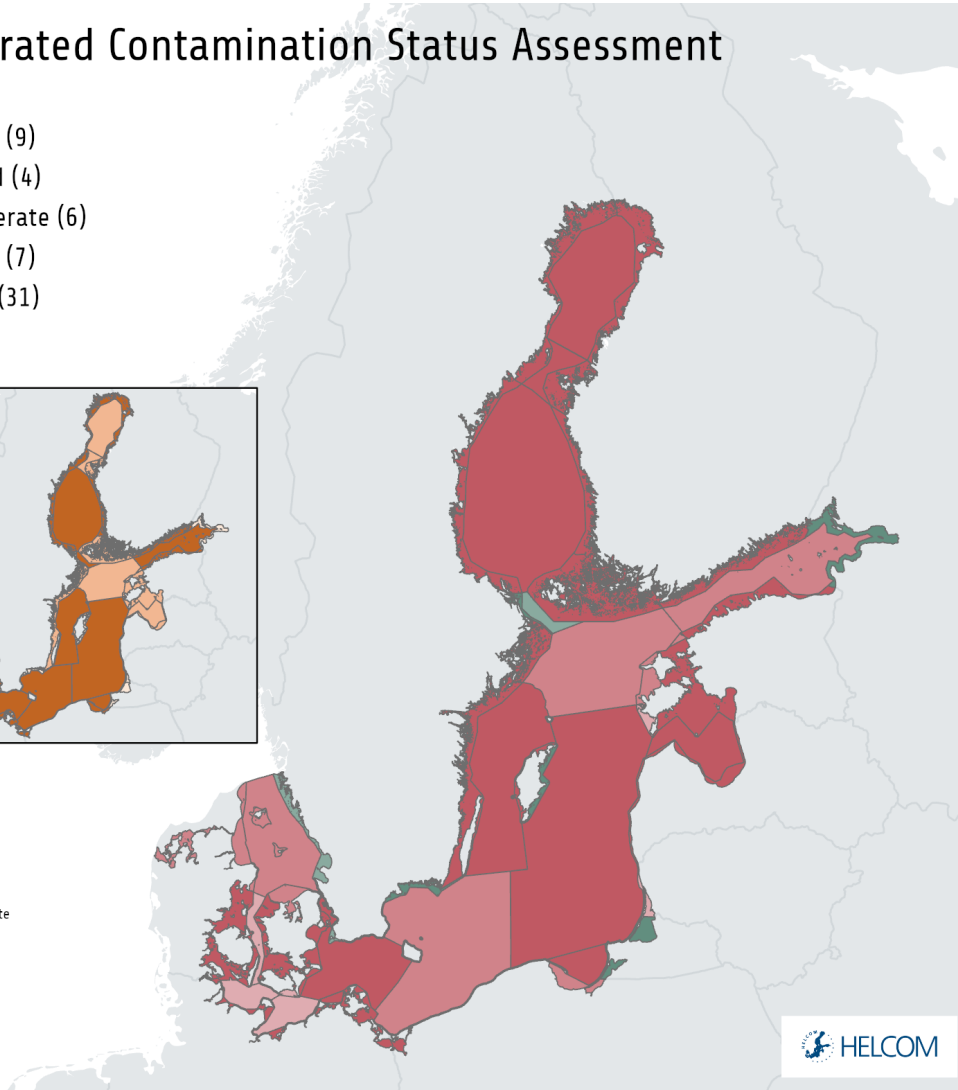
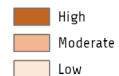
HOLAS3 assessment on hazardous substances

Integrated Contamination Status Assessment

Status



Confidence



Good status – High Confidence

- Meets all rules to achieve high confidence
- But lacks quite a few indicators
- Importantly, no evaluation of PBDEs in biota
- PBDEs in biota also not evaluated in 3 other sub-basins, where status is moderate



The Baltic Patient: HOLAS 3 – little improvement in the state of the Baltic Sea



The Baltic Sea is under increasing impacts from **climate change** and **biodiversity degradation** catalysed by eutrophication, pollution, land use and resource extraction.



Little to no improvement of the Baltic Sea environment occurred during the assessment period.



Measures to reduce pressures on the Baltic Sea **are working**, when they are implemented, and the agreements in the updated Baltic Sea Action Plan remain highly relevant.



The effects of **climate change** are expected to increase in the future, increasing the need for measures to enhance ecosystem resilience and mitigate their negative impacts.



Transformative changes are needed in all socioeconomic sectors interacting with or affecting the Baltic Sea environment. **Actions are needed** both to stop current negative trends and to protect and restore ecosystems.

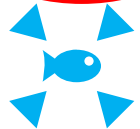


Ecosystem knowledge and **policies** for the Baltic Sea environment have developed substantially within the past six years.

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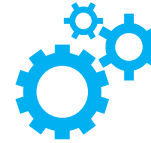
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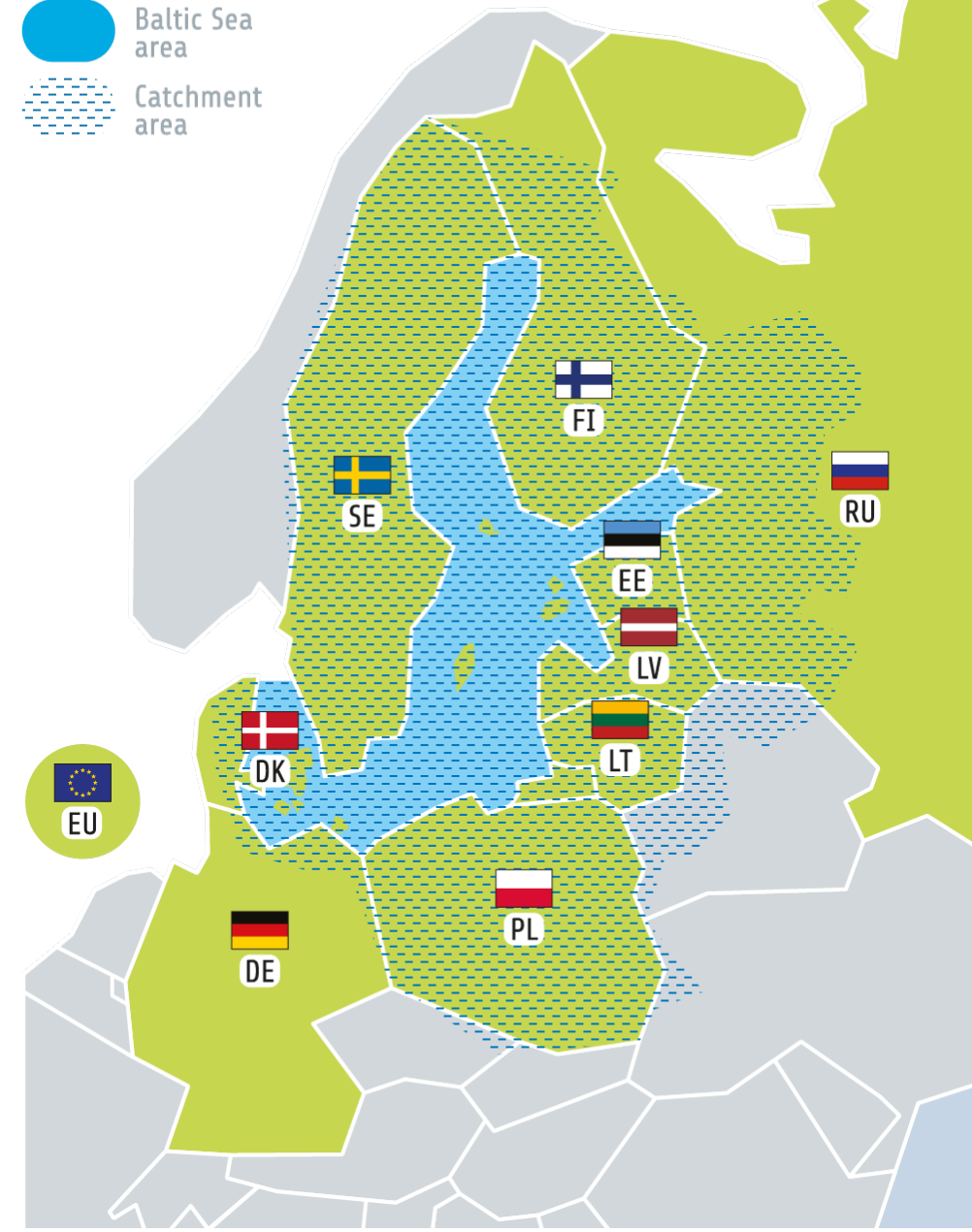


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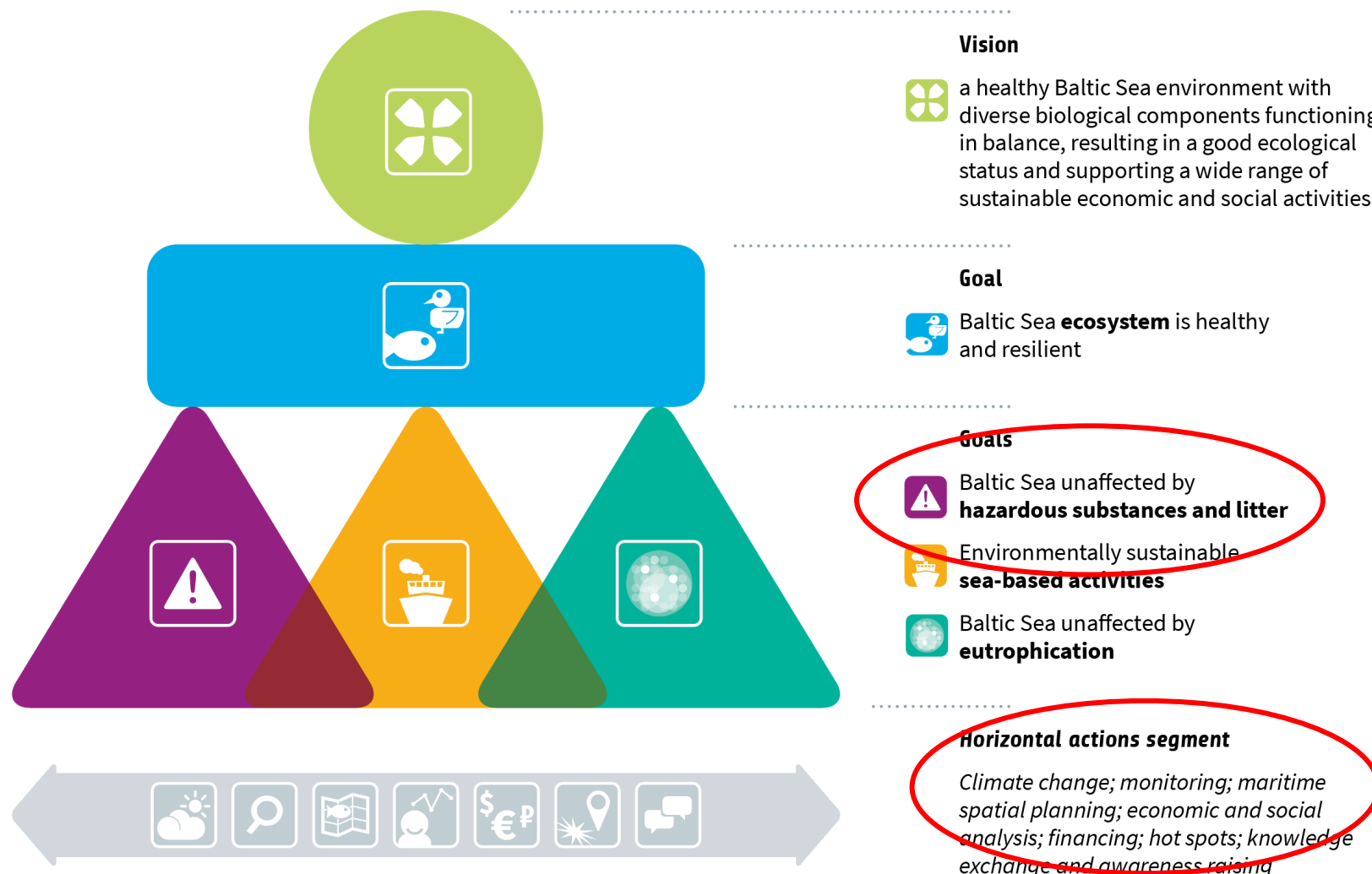


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2021 Baltic Sea Action Plan (BSAP)



Logic in the structure:

Chain of consequence, whereby human **activities** result in **pressures** on the environment, which in turn affect the **state** of biodiversity, which has been used as a basis when elaborating the updated BSAP

Related processes to 2021 BSAP



Nutrients:
Nutrient recycling and internal nutrient reserves. *Tool: [Nutrient Recycling Strategy](#)*



Marine litter: Significant reduction by 2025.
Tool: [Regional Action Plan on Marine Litter](#)



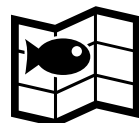
Land-sea interaction:
Source-to-sea approach development in HELCOM work. *Tool: Workshops*



Underwater noise:
Addressing effects of noise on marine animal species. *Tool: [Regional Action Plan on Underwater Noise](#)*



Climate change:
Understanding its effects for informed policies. *Tool: [Climate Change Factsheet](#)*



Maritime spatial planning:
applying ecosystem-based management. *Tool: [Regional MSP Roadmap 2021-2030](#)*



HELCOM Science Agenda:
Future science needs for a healthy Baltic Sea



The fourth HELCOM holistic assessment (**HOLAS 4**) & Pollution Load Compilations **PLC-9** (2025-2028)



Hazardous substances & litter



Hazardous substances and litter goal

“Baltic Sea unaffected by hazardous substances and litter”



Ecological objectives

Hazardous substances

- Marine life is healthy;
- Concentrations of hazardous substances are close to natural levels;
- All sea food is safe to eat;
- Minimal risk to humans and the environment from radioactivity.

Marine litter

- No harm to marine life from litter.



Management objectives

Hazardous substances

- Minimize input and impact of hazardous substances from human activities.

Marine litter

- Prevent generation of waste and its input to the sea, including microplastics;
- Significantly reduce amounts of litter on shorelines and in the sea.





To reduce inputs, further measures were agreed upon:

- 32 Actions
- Themes:
 - Hazardous substances
 - Legacy pollutants – *e.g. heavy metals, dioxins, organotins*
 - Contaminants of emerging concern – *e.g. pharmaceuticals, certain groups of PFASs*
 - Marine litter



Implementation of the 2021 BSAP

- The 199 actions have:



individual
target years



been identified as
supporting action
or measure



been linked to
relevant pressures
and activities



been assigned one or
several HELCOM bodies
responsible for taking the
work on the action
forward.



been dedicated
criteria for
achievement

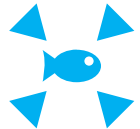
...and the level of implementation of each action has been identified as national or joint.

Reporting of implementation **by 2025** will be published in late 2026 in HELCOM Explorer: <https://maps.helcom.fi/website/HELCOMexplorer/>

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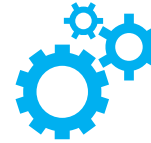
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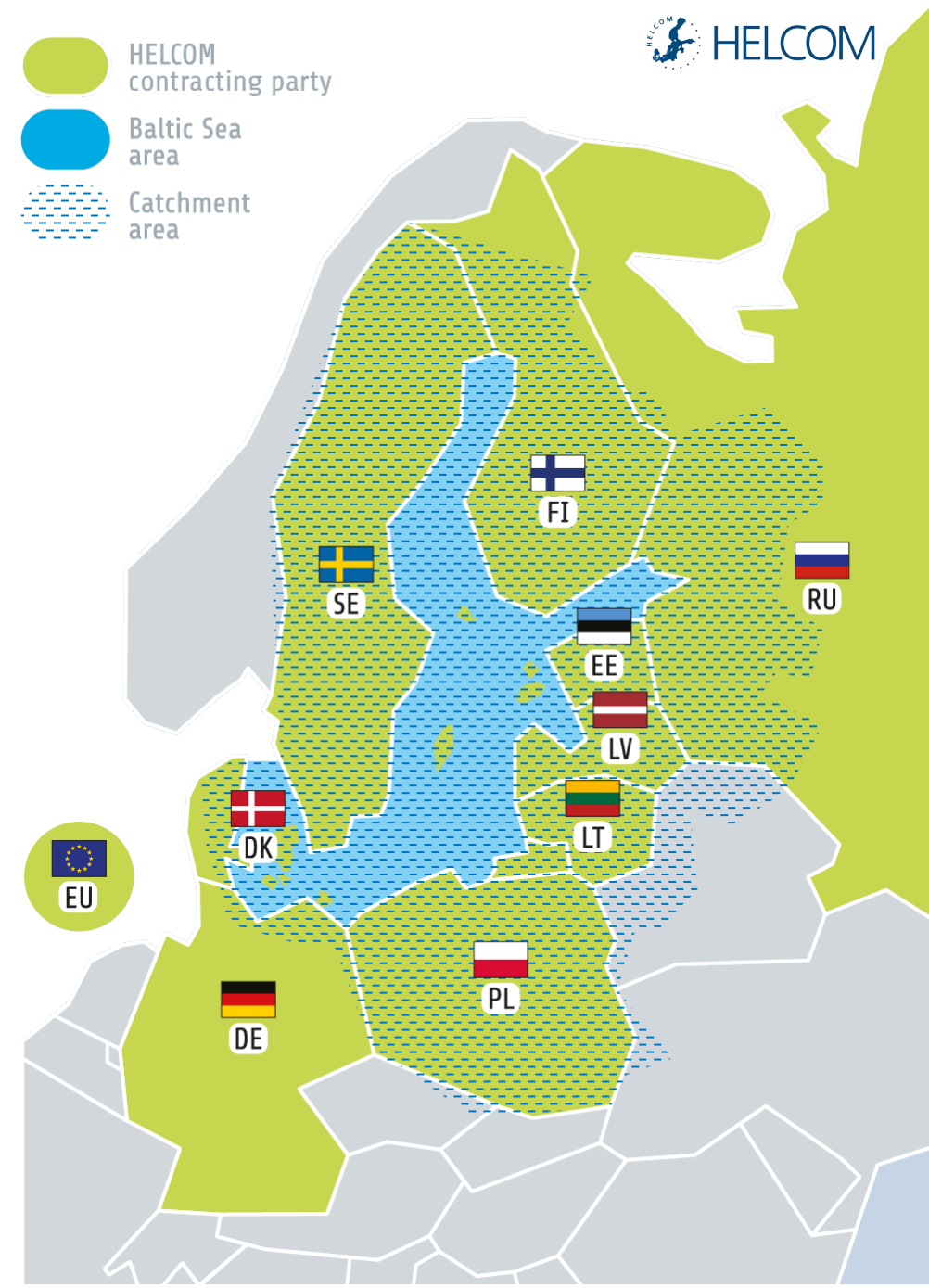
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HELCOM Recommendations

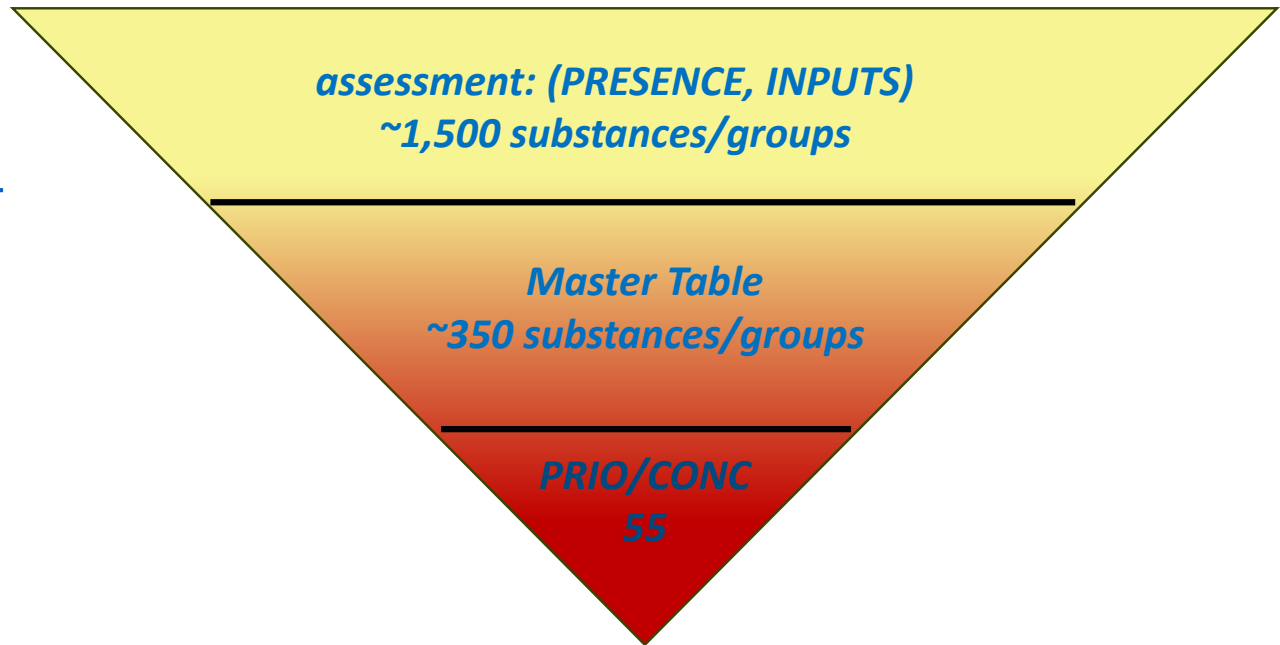
Number	Title	Status	Group	Adoption Date ^
42-43-5	Mitigating ammonia emissions from agriculture ↓	Valid	SOURCE TO SEA	20/05/2024
12-7-Rev.1	Special cooperation in case of a chemical tanker accident in the Baltic Sea ↓	Valid	RESPONSE	07/08/2022
42-43-4	Reduction of the releases of expanded and extruded polystyrene to the Baltic Sea ↓	Valid	MARITIME, SEA-BASED PRESSURES	07/08/2022
33-1-Rev.2	Unified interpretation in relation to access to and use of HELCOM AIS data ↓	Valid	MARITIME	07/08/2022
37-38-1-Rev.1	Waterborne pollution input assessment (PLC-WATER) ↓	Valid	SOURCE TO SEA	07/08/2022
37-38-2-Rev.1	Monitoring of airborne pollution input ↓	Valid	SOURCE TO SEA	07/08/2022
42-43-2	Amendments to Part II Annex III "Criteria and measures concerning the prevention of pollution from land-based sources" of the 1992 Helsinki Convention ↓	Valid	SOURCE TO SEA, Uncategorized	20/10/2021

42-43-3	Regional Action Plan on Marine Litter (RAP ML) ↓	Valid	BIODIV, FISH, MARITIME	20/10/2021
23-5-Rev.1	Reduction of discharges from urban areas by the proper management of storm water systems ↓	Valid	SOURCE TO SEA	04/06/2021
42-43-1	Regional Action Plan on Underwater Noise (RAP NOISE) ↓	Valid	BIODIV, MARITIME	04/06/2021
31E-6	Integrated wildlife response planning in the Baltic Sea area ↓	Valid	RESPONSE	18/03/2021
36-2	Management of dredged material ↓	Valid	SEA-BASED PRESSURES	04/03/2020
41-1	Deep-sea pilotage to enhance safety of navigation and protection of the marine environment in the Baltic Sea region ↓	Valid	MARITIME	04/03/2020
17-2	Protection of harbour porpoise in the	Valid	BIODIV	04/03/2020



The regional work for hazardous substances is progressing since 2021...

- [HELCOM's strategic approach for managing hazardous substances](#) adopted (March 2025)
 - Prioritization framework, how to address possible sources and pathways
- [HELCOM Recommendation 42-43/6 List of priority substances, sources of release and uncertainties to address](#) adopted (March 2025)
- [Regional Action Plan on Hazardous Substances](#) (adopted in July 2026)
 - Including measures addressing land-based sources and activities such as agriculture (pesticides) or medical use (pharmaceuticals) and
 - sea-based sources such as maritime traffic, platforms or energy production



New website on the HELCOM priority substances and substances of concern



- **33 priority substances:** substances and groups of substances that pose the highest anticipated risk to the Baltic Sea, either currently or in the near future, strategic focus of HELCOM work
- **22 substances of concern:** higher uncertainty regarding the actual risk they pose
- <https://helcom.fi/baltic-sea-trends/hazardous-substances/helcom-list-of-priority-substances-and-substances-of-concern/>



HELCOM list of priority substances



Alkylphenols and their ethoxylates
Bisphenols
PBDEs (Polybrominated diphenyl ethers)
PFAS (Per- and polyfluoroalkyl substances)
Phthalates

Octinoxate

Dioxins (dioxin-like PCBs, dioxins and furans)
Hexachlorobenzene
PAHs (Polycyclic Aromatic Hydrocarbons)

Carbamazepine
Clarithromycin
Diclofenac
Gabapentin

Organotins

Diuron
Irgarol (Cybutryne)

17b-estradiol
17α-ethinylestradiol
Estrone

Chlorpyrifos
Cypermethrin
DDT and its degradation products
Heptachlor and its degradation products
Lindane (gamma-Hexachlorocyclohexane)
Nicosulfuron

Arsenic and its compounds
Cadmium and its compounds
Chromium and its compounds
Copper and its compounds
Lead and its compounds
Mercury and its compounds
Nickel and its compounds
Zinc and its compounds

More details: Fact sheets!



PFAS (Per- and polyfluoroalkyl substances)

General sectors: *Industry and commercial products*

ICAG numbers: e.g. 335-47-1, 1763-23-1, 355-48-4, 375-46-1, 375-73-6, 307-34-4, 375-22-4, 2706-60-3, 2706-61-4, 335-76-3, 307-55-1, 2059-84-8, 375-45-9, 7329-84-8, 375-40-6, 335-77-3, 376-06-7, 67805-19-5, 16517-11-4, 62037-80-3, 958445-44-8, 647-43-7, 678-39-7, 1190931-41-8, EC numbers: e.g. 206-297-9, 217-179-8, 206-587-1, 206-801-3, 206-793-1, 206-136-6, 206-786-3, 220-300-7, 220-301-2, 206-450-3, 206-203-2, 219-165-4, 206-798-9, 276-785-2, 206-800-4, 206-491-9, 206-802-4, 267-638-1, 240-542-3, 700-342-3, 211-477-1, 211-648-0, 682-239-6 / Entry number in HELCOM list of priority substances: 21)

DRIVERS **ACTIVITIES** **PRESSURES** **STATE** **IMPACTS**

Why a HELCOM priority?

Main evidence

S Concentrations of PFOS exceed the applied threshold value in **37** of the 39 examined areas (assessment units) of the Baltic Sea. The threshold is exceeded in both coastal and off-shore areas (**13/13** assessed off-shore areas). In these 37 areas, **100%** of the assessable samples in **biota** (and/or water, for which the thresholds are exceeded more rarely) exceed the threshold value. This is based on regular monitoring data gathered by HELCOM Contracting Parties and reported to the HELCOM COMBINE database for the period 2016-2021, as part of the more limited, PFOS indicator⁴.

By further considering how much above or below the threshold each concentration is, and how often the substance is detected, PFAS scores **9.3/10** (confidence range: **9.3 – 9.3**) in the scale established when assessing the criticality/significance of current levels in the Baltic Sea pose, where 5 indicates concern and 10 extreme risk, and the range reflects the level of reliability and representativeness of concentrations and the thresholds.

The threshold values for PFOS, for biota and water, were acquired from the EC proposed Directive amending WFD and EQSD⁵ (not yet in effect as of February 2025).

Concentrations of PFNA, PFDA, PFUnDA, PFTyDA, PFDoDA, PFDS, FOSA, and other PFAS substances also frequently exceed their respective threshold values in biota, while TFA, 6:2 FTS, PFOA, PFHxS and N-EtFOSA (and other PFAS) are in addition to previous often detected in water at high concentrations. This is based on monitoring data for the period 2015-2023 as reported by Contracting Parties (CPs) as response to a data call organized by HELCOM for PFAS.

It is noted that **high trophic magnification** has been reported, for PFAS⁶.

I Current levels in the Baltic Sea indicate potential negative impacts on pelagic biota, top predators such as mammals and birds and humans via consumption of seafood.

Supporting evidence

I PFAS are considered of **especially concerning mode of toxicity**: for example some of them are toxic for reproduction and/or endocrine disruptors⁴.

Overall assessment

When assessing current levels in the Baltic Sea, current inputs, and the severity of the relevant toxicity mechanism, PFOS alone scores **94-94/100** in the scale established for assessing the overall risk for impacts/threat for the Baltic Sea, where 50 indicates concern, 100 extreme risk, and the width of the span outlines the uncertainty in the assessment. Besides PFOS, thousands of other Per- and polyfluoroalkyl substances have been shown to have hazardous properties and to exhibit concerning environmental fate/occurrence profiles²¹. This substance group entry reflects any chemical containing at least one saturated CF₂ or CF₃ moiety²².

Facts relevant for management considerations

Causal chain and pathways

A Although PFOS is restricted under Annex B of the Stockholm Convention, there are specific exemptions, such as in metal plating, fire-fighting foams for liquid fuel vapour suppression and liquid fuel fires, and insect baits. It is not registered for EU REACH³, thus likely on EU market in low tonnage as it has been notified by about 30 companies without specific use information⁴. There are expected releases e.g. from legacy firefighting foams and life of products containing it.

Release estimates for the broader PFAS (non-polymeric) group: textile, upholstery, leather, apparel and carpets (80%), food contact materials and packaging (7%), electronics and semiconductors (7%)². Certain cookware and paints may as well contain PFAS.

P Based on available estimations, PFOS appear to enter the Baltic Sea at the following amounts: **rivers** (0.2 t/y, WATERBASE⁷), atmospheric deposition (0.06 t/y), direct emissions from land-based activities (0.02 t/y, Undeman et al. 2022¹⁹). **WWTPs** is roughly estimated to contribute with 0.07 t/y. There is available information also about estimated inputs of further individual PFAS.

Relevant policies (existing or planned measures)

M (on A/P) • Some sub-groups of PFAS are listed under **Stockholm Convention** on POPs (signed by all HELCOM Contracting Parties) – Annexes A (elimination) / B (restriction) – accordingly **EU POPs Regulation** – including respective **national Action Plans**.

• **Some PFAS are listed as REACH SVHC** (basis: toxicity for reproduction / PBT / endocrine disruption, depending on the case). In 2023, authorities from Denmark, Germany, the Netherlands, Norway and Sweden submitted a **REACH restriction proposal**²¹.

• PFOS is listed as a priority hazardous substance under the **EU WFD** (instead, PFAS is listed as priority hazardous substance under its update proposal) – including respective national **Programmes of Measures for this**.

• PFOS is a more limited **HELCOM Indicator**.

• There are provisions in EU Best Available Reference Documents for these substances

References:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.

[Note: Listing of detailed references will be provided in an upcoming update of the fact sheet – for a listing of the most common references among the different substances see the section at the end of the consolidated document which includes all the fact sheets]

<https://helcom.fi/baltic-sea-trends/hazardous-substances/helcom-list-of-priority-substances-and-substances-of-concern/>

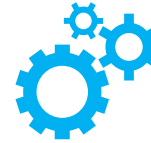
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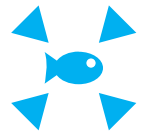
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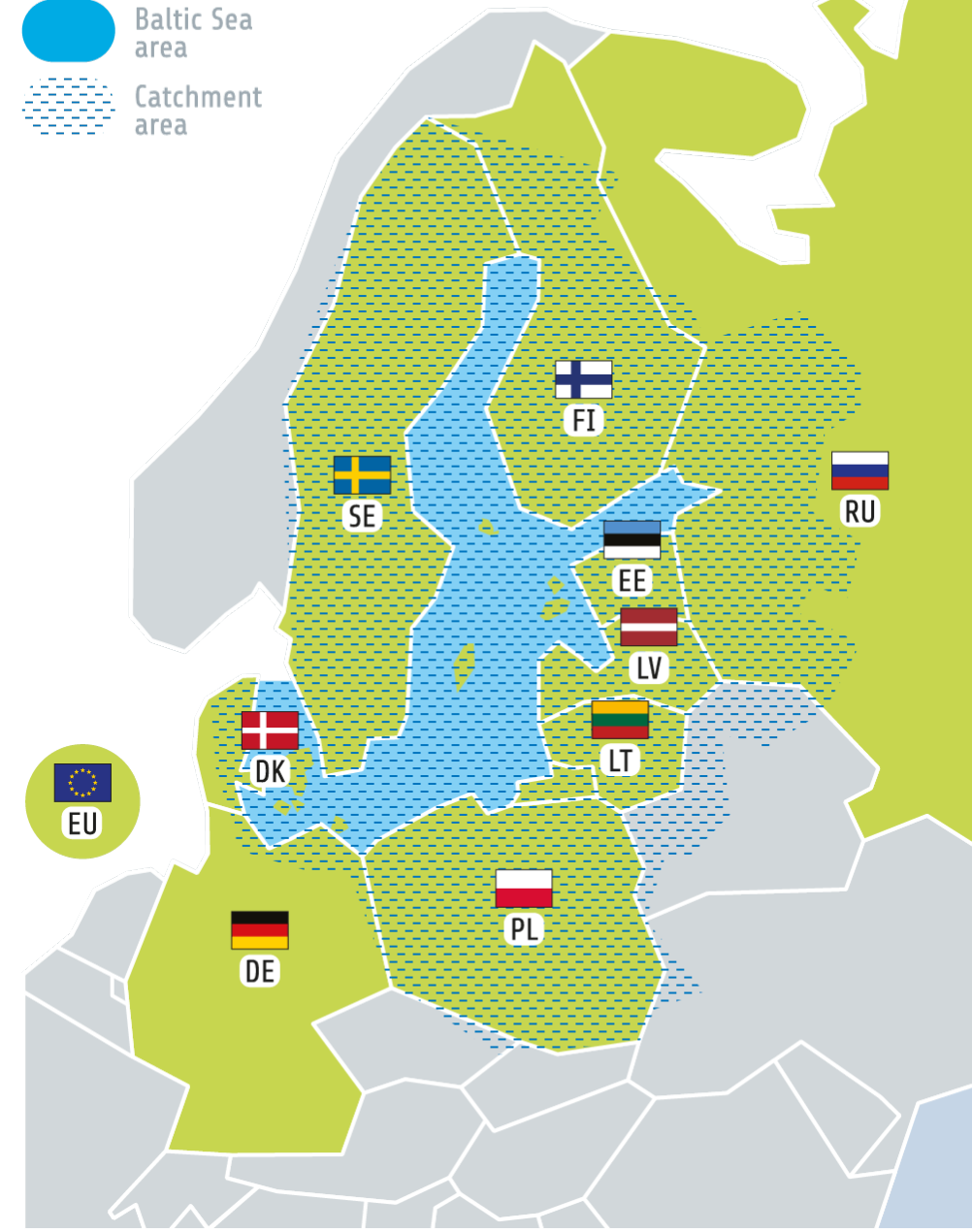
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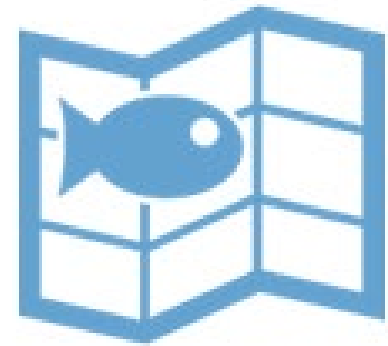
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Maritime spatial planning



Triple planetary crisis and the Baltic Sea region



Climate change

- **Globally:** UNFCCC
- **EU:** climate neutrality, climate justice
- **In the Baltic Sea region:** HELCOM with BalticEarth, in 2021 BSAP addressed in all 4 segments & horizontal topics



Pollution

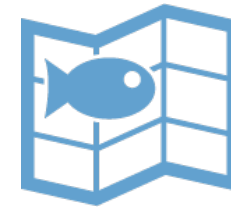
- Globally: UNEP with e.g. Basel, Rotterdam and Stockholm Conventions
- EU: clean industries, circular economy, zero pollution
- In the Baltic Sea region: HELCOM 2021 BSAP / eutrophication (36 actions) and hazardous substances & litter (32 actions) segments



Biodiversity loss

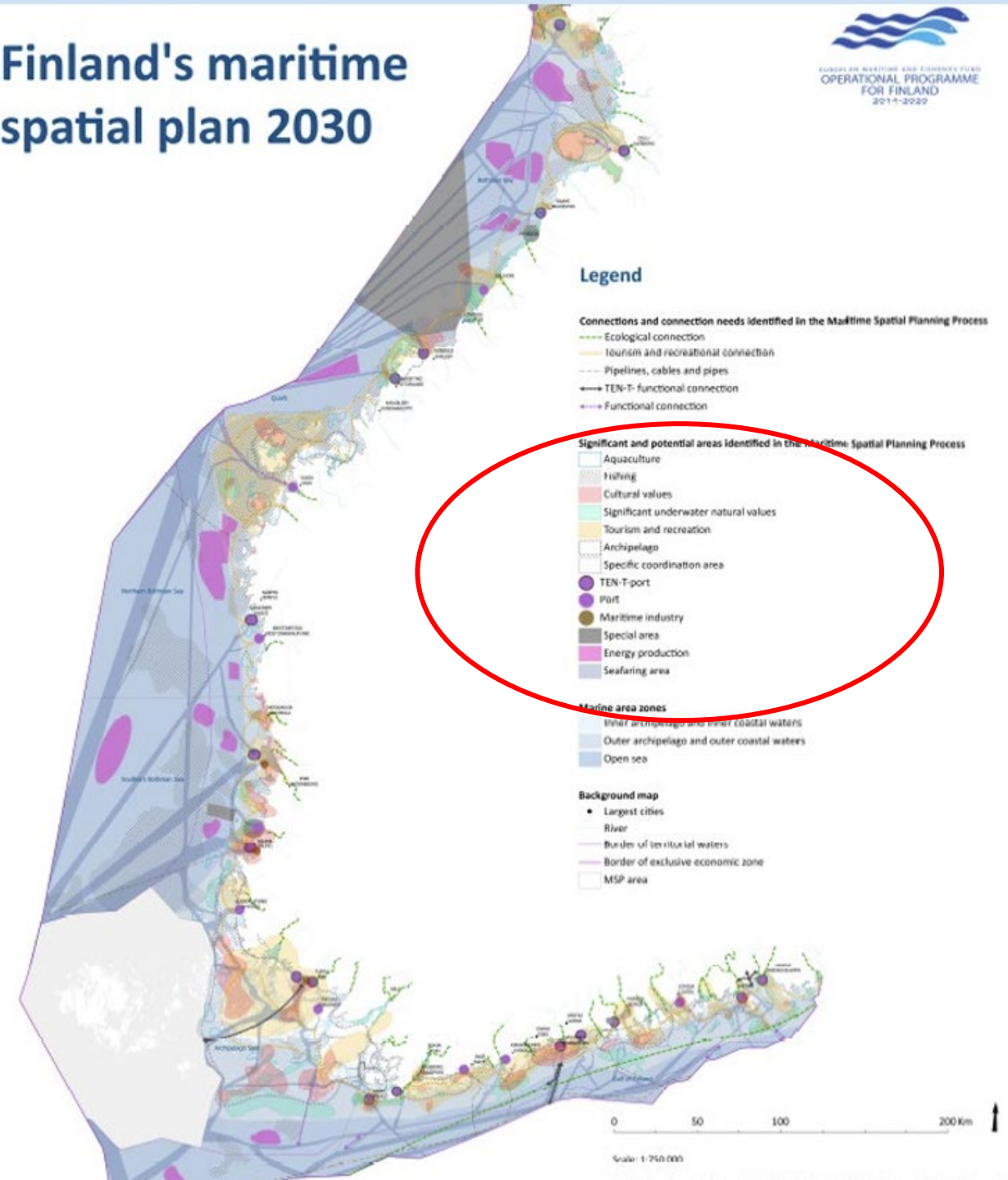
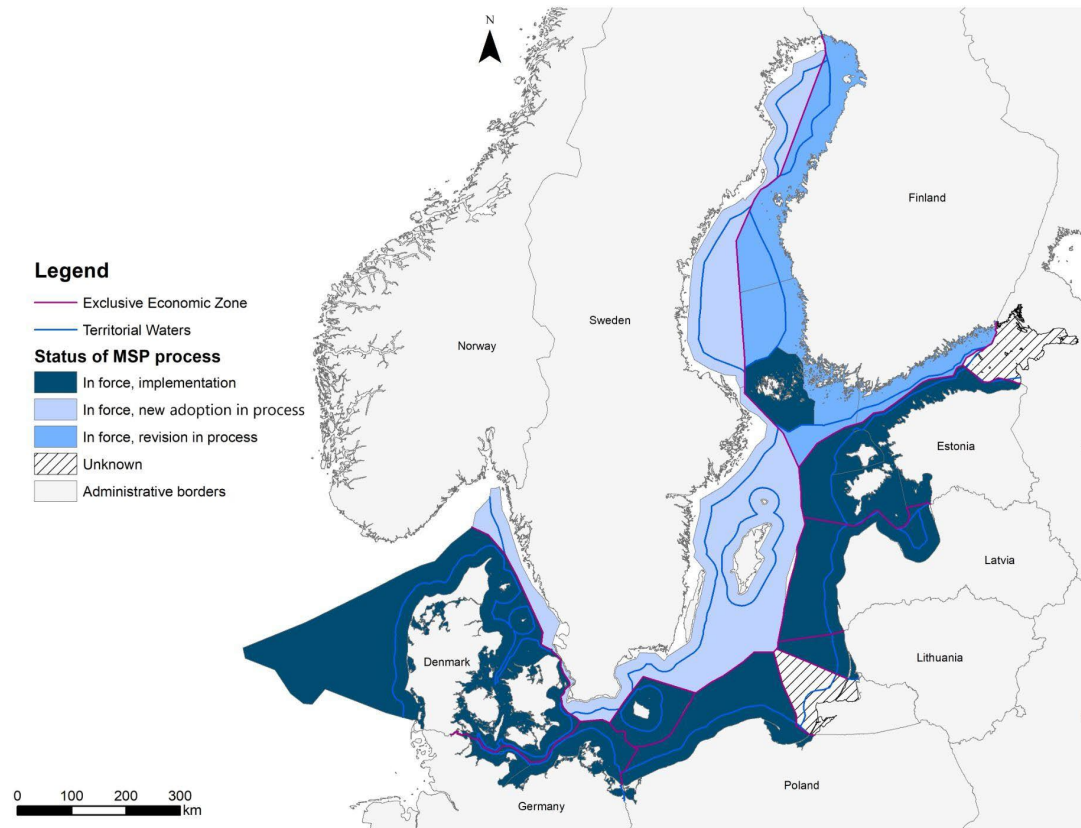
- Globally: UN CBD
- EU: BD strategy 2030, Nature restoration Law
- In the Baltic Sea region: 2021 BSAP goal and biodiversity segment (35 actions)

Need for
Maritime Spatial
Planning (MSP)



Maritime spatial planning

Finland's maritime spatial plan 2030



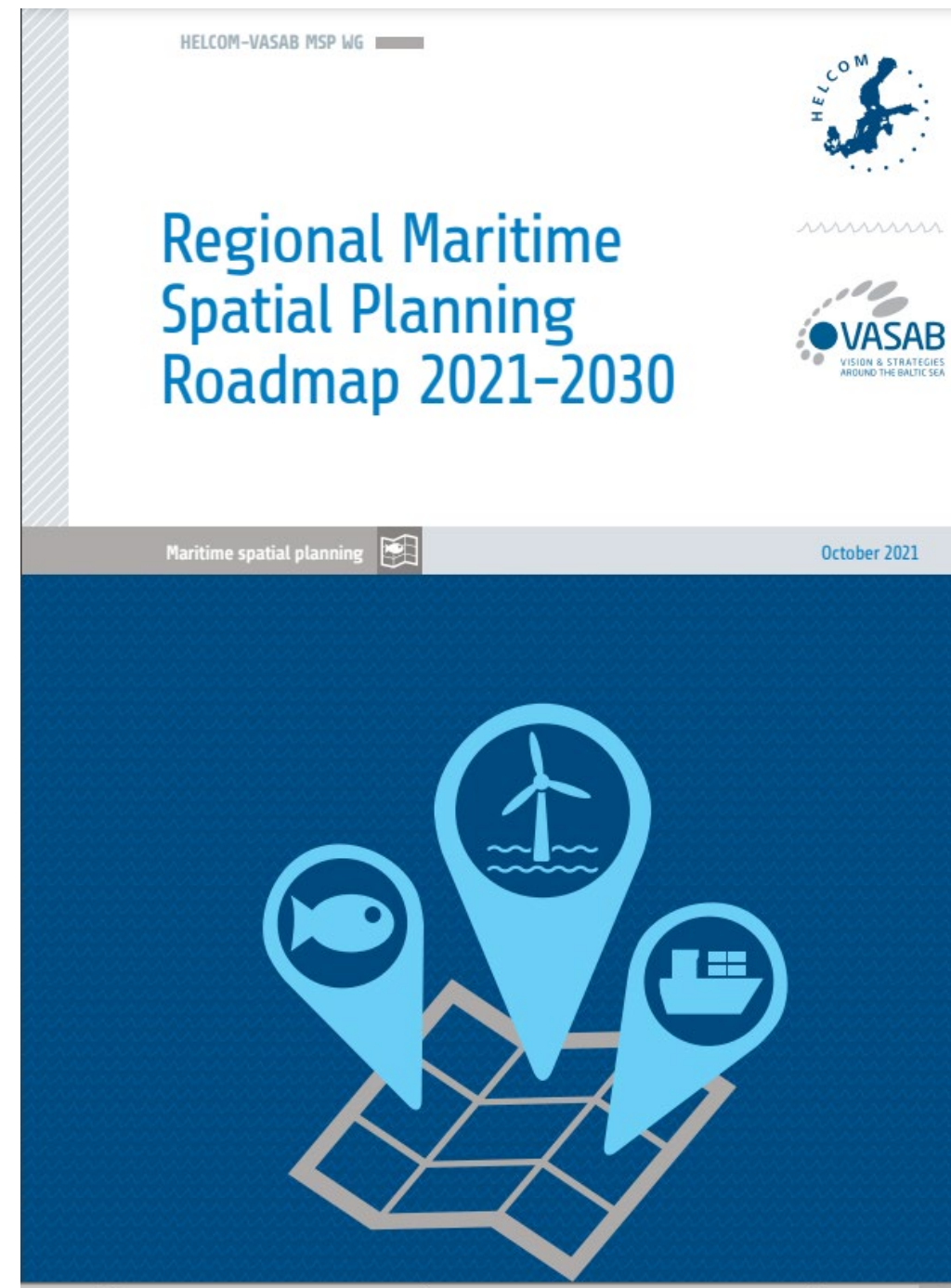
Regional MSP Roadmap steering the state of the art MSP

Objectives

1. Preparing the next MSP cycle
2. Improving regional coherence
3. Contributing to progress towards good environmental status
4. Sustainable blue economy
5. Mitigation, adaptation and resilience towards climate change

The revised MSP Roadmap focuses on the shift from drawing up of the maritime spatial plans to **implementation, monitoring, evaluation** and follow-up with subsequent eventual **reviewing** of the plans, with the focus on implementing **ecosystem-based approach** – with 27 actions to achieve the objectives.

<https://helcom.fi/wp-content/uploads/2021/10/Regional-Maritime-Spatial-Planning-Roadmap-2021-2030.pdf>



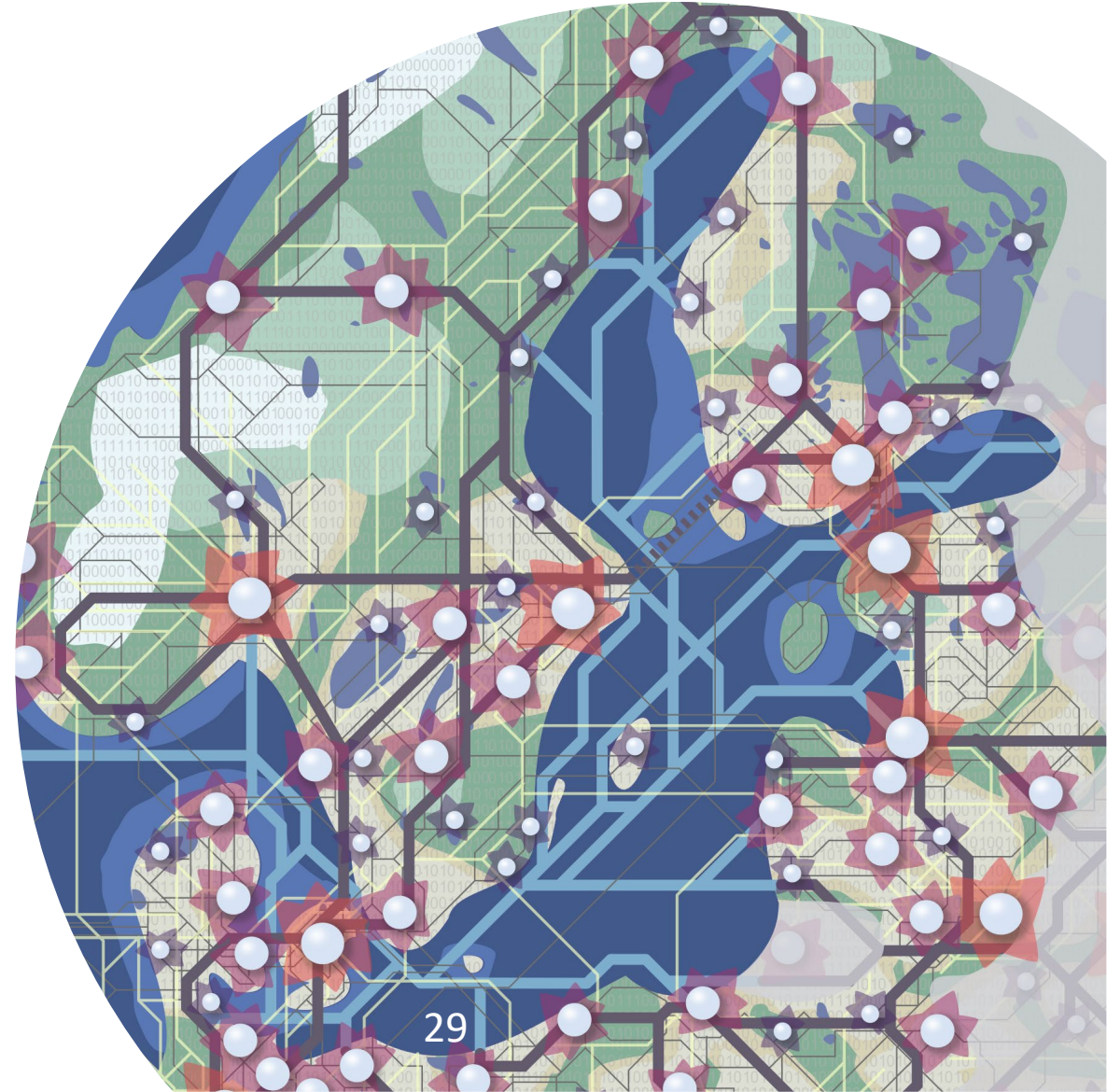
Joint HELCOM-VASAB Maritime Spatial Planning Working Group

- The co-chaired joint Group was launched in 2010 to ensure cooperation among the Baltic Sea Region countries for **coherent regional Maritime Spatial Planning (MSP) processes** in the Baltic Sea
 - Forum for regional, trans-boundary and cross-sectoral dialogue – enabling a common approach and facilitating coherence across the borders
 - [BASEMAPS](#) map service to access Baltic Sea Maritime Spatial Planning (MSP) relevant data from the original source where it is stored
- Joint coordination of the EUSBSR Policy Area Spatial Planning (PA SP) – Steering Group



VASAB is...

- Intergovernmental and multilateral
- Focusing on **regional spatial planning and development**
- On land and at sea
- Aims to balanced and accessible **territorial coherence**
- Brings the expertise and political weigh of spatial planning, cross-sectoral synergies and stakeholder involvement with various scales to complement the regional environmental policy work that HELCOM does



Regional HELCOM policy work – takeaway points

- Key to success in regional policy and management: intergovernmental political will and long-term commitment
 - Jointly agreed **monitoring** methods and practices, joint **reporting** and **data** management – continuous improvement cycles
 - Sound and robust **scientific** basis and modelling
 - Clear and transparent joint **tracking** of progress of the joint targets
- **Efficient implementation** of the already adopted Recommendations and guidelines are the key to succeed in reaching the HELCOM vision





HELCOM
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