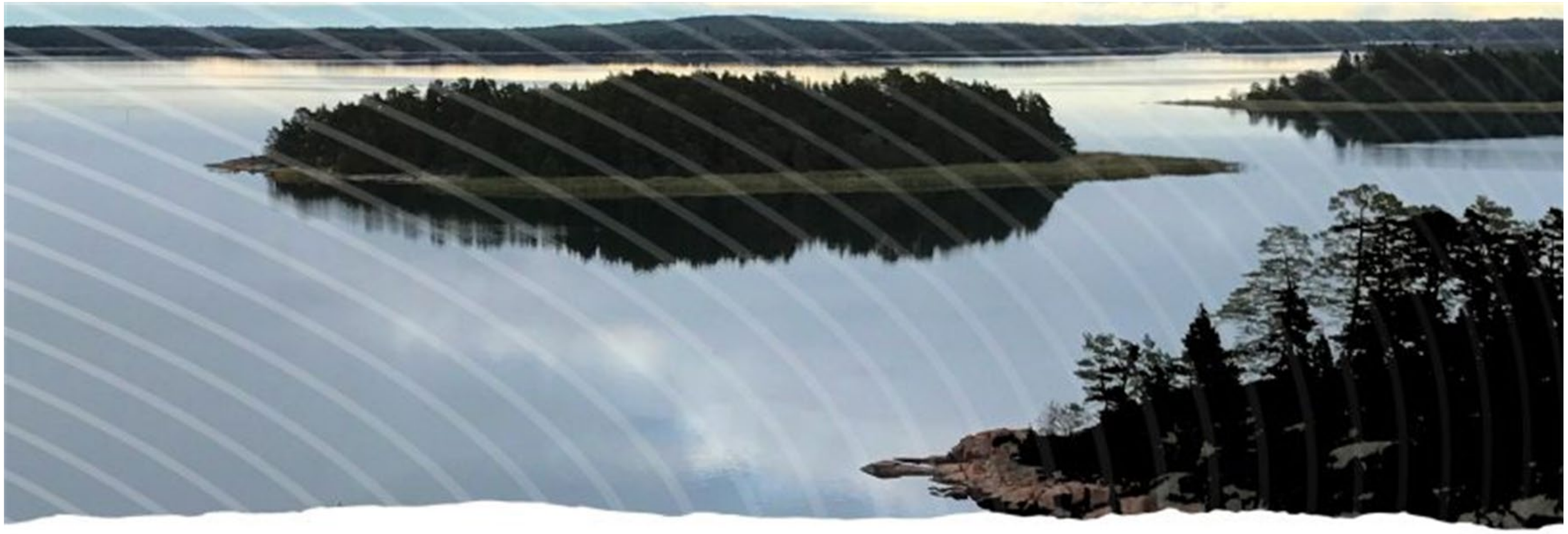


MARITIME SPATIAL PLANNING

Maritime Spatial Planning in Finland
Maritime Spatial Plan 2030 for Finland

Mari Pohja-Mykrä
Coordinator of the Finnish Maritime Spatial Planning Cooperation

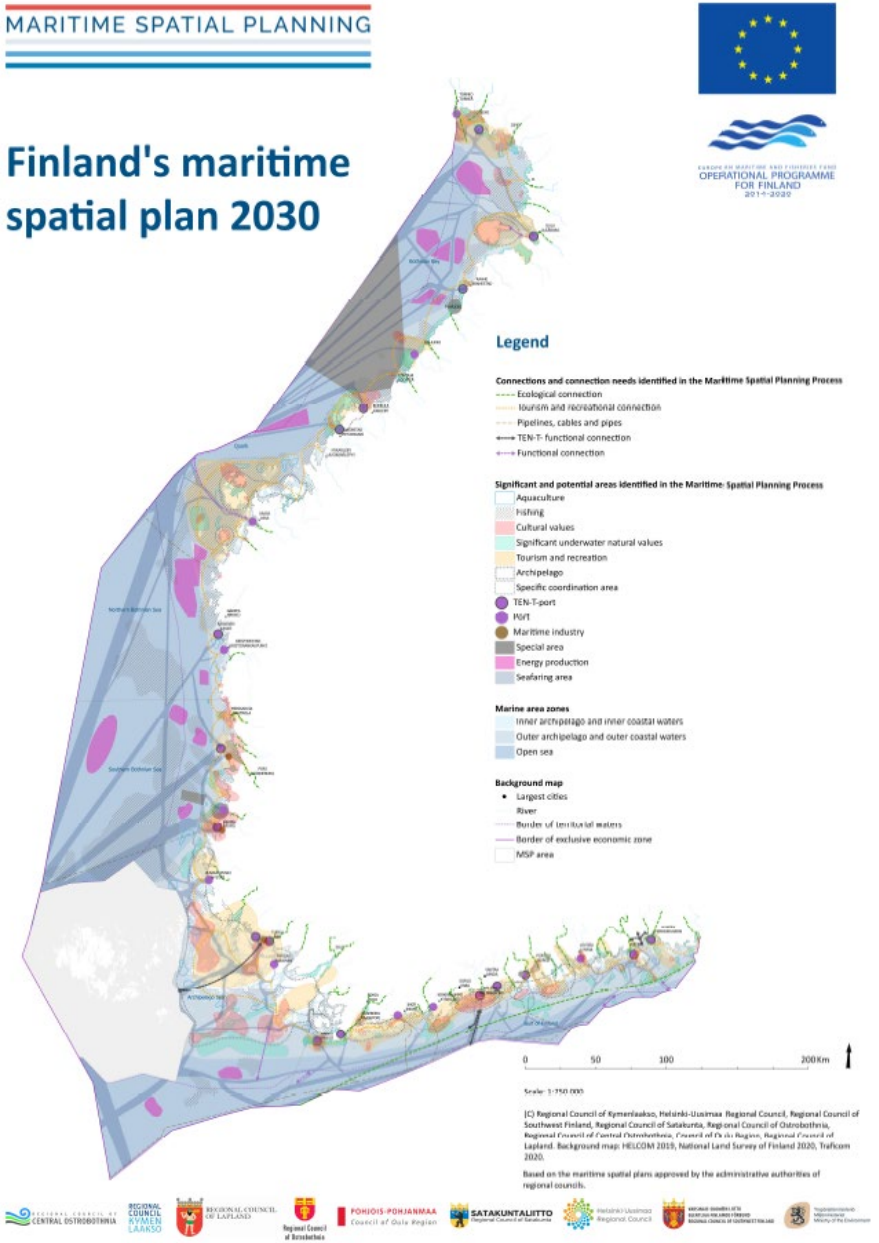
MARITIME SPATIAL PLANNING - MSP

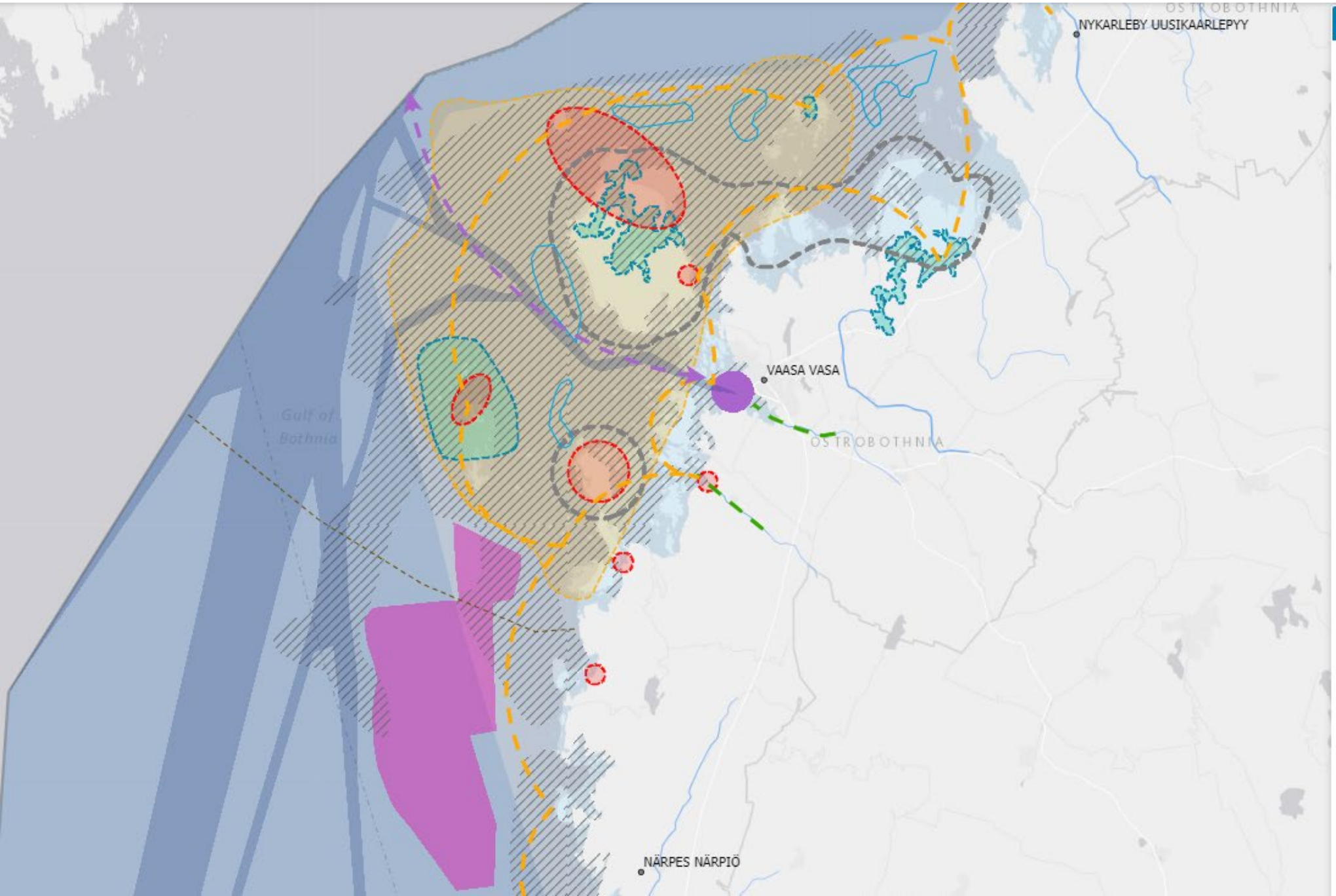
Why, What and How?

→Finnish Maritime Spatial Planning Process as an example

MARITIME SPATIAL PLAN 2030 FOR FINLAND

All digital – www.merialuesuunnitelma.fi (FI, SV, EN)





Legend

Connections and connection needs identified in the Maritime Spatial Planning Process

- Ecological connection
- Tourism and recreational connection
- Pipelines cables and pipes
- TEN-T- functional connection
- Functional connection

Significant and potential areas identified in the Maritime Spatial Planning Process

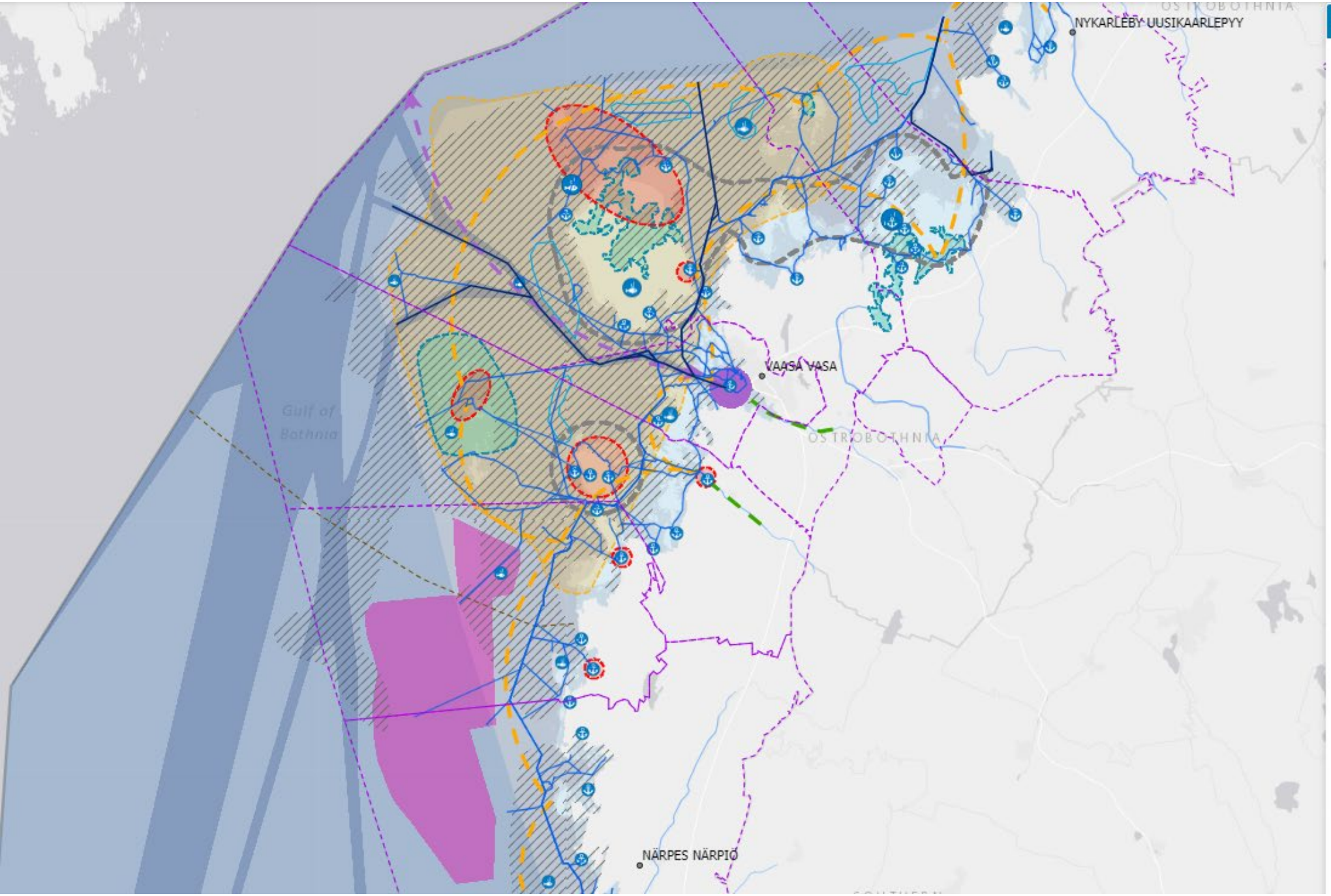
- Aquaculture
- Fishing
- Cultural values
- Significant underwater natural values
- Tourism and recreation
- Archipelago
- Specific coordination area
- TEN-T-port
- Port
- Special area
- Seafaring areas
- Energy production
- Maritime industry

Maritime spatial planning borders

- MSP area

Marine area zones

- Inner archipelago and inner coastal waters
- Outer archipelago and outer coastal waters
- Open sea



Background data

Karttatasot

- [x] Municipality borders
- [ ] Highlighted marine area zones
- [x] Navigation lines of merchant shipping (1st and 2nd class)
- [x] Navigation lines of boating (3rd to 6th class)
- [x] Fishing ports
- [x] Fish farms
- [x] Fyke net fishing points
- [ ] Restricted areas of Finnish Defence Forces (protection zones)
- [ ] Restricted areas of the Finnish Defence Forces (R-zones)
- [ ] Restricted areas of the Finnish Defence Forces (D-zones)
- [ ] Offshore wind power projects
- [ ] Wind power markings in regional plans
- [ ] Offshore wind power areas in regional plans
- [ ] Lighthouses
- [ ] Wrecks
- [ ] Protected sites of Antiquities record
- [ ] World Heritage Sites (UNESCO)
- [ ] Protected buildings of built heritage register (RKY)
- [ ] National landscapes (marine)
- [ ] Ecologically significant marine underwater areas (EMMA) 2019
- [ ] Important Bird and Biodiversity Areas (IBA)

MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

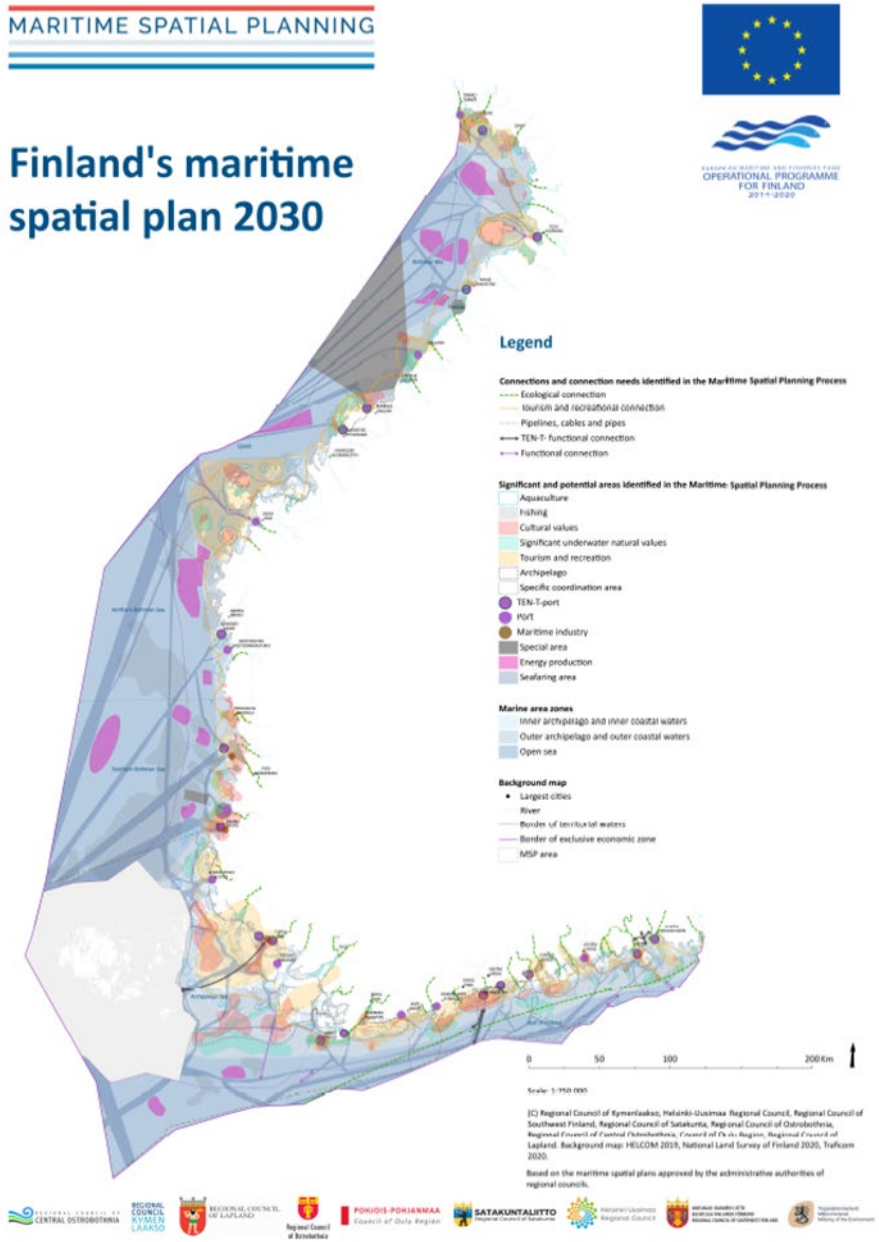
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning

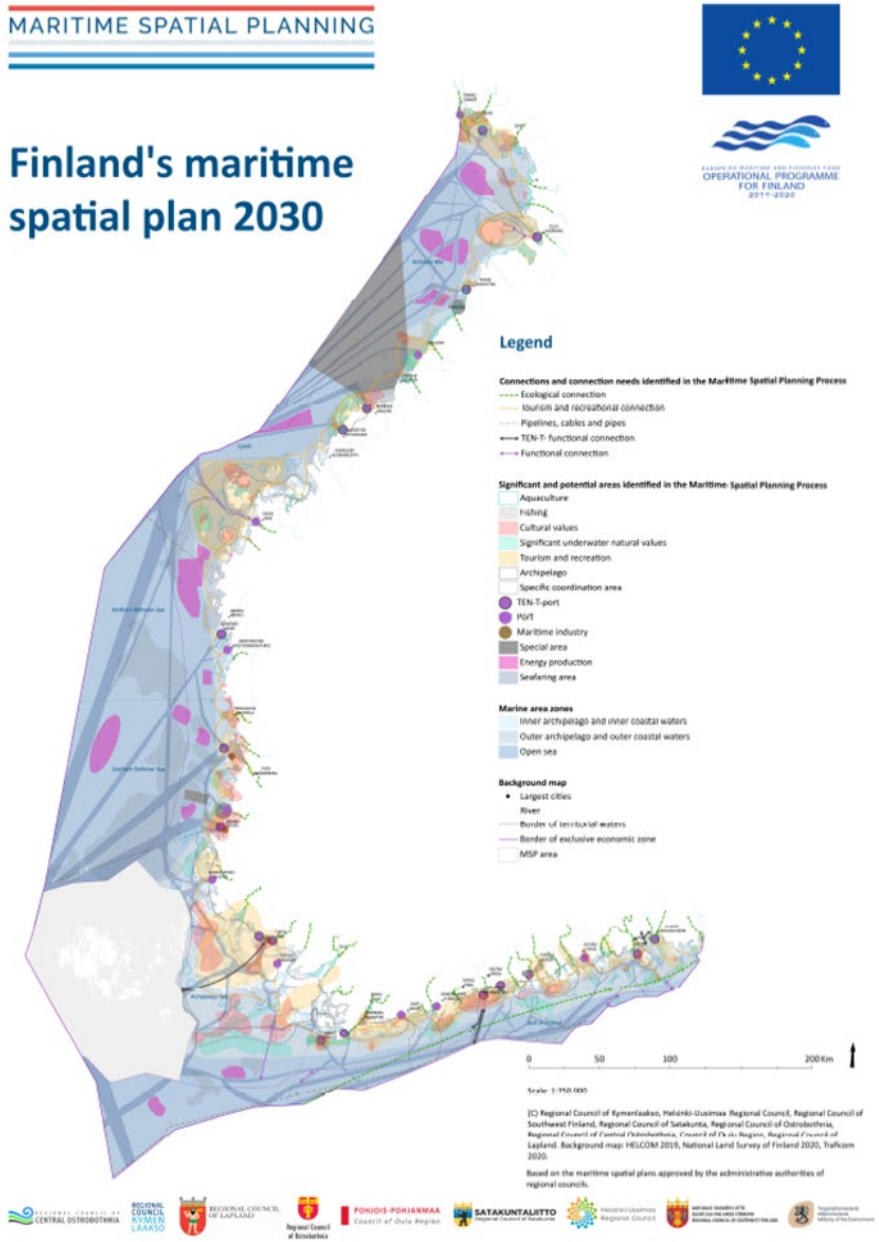


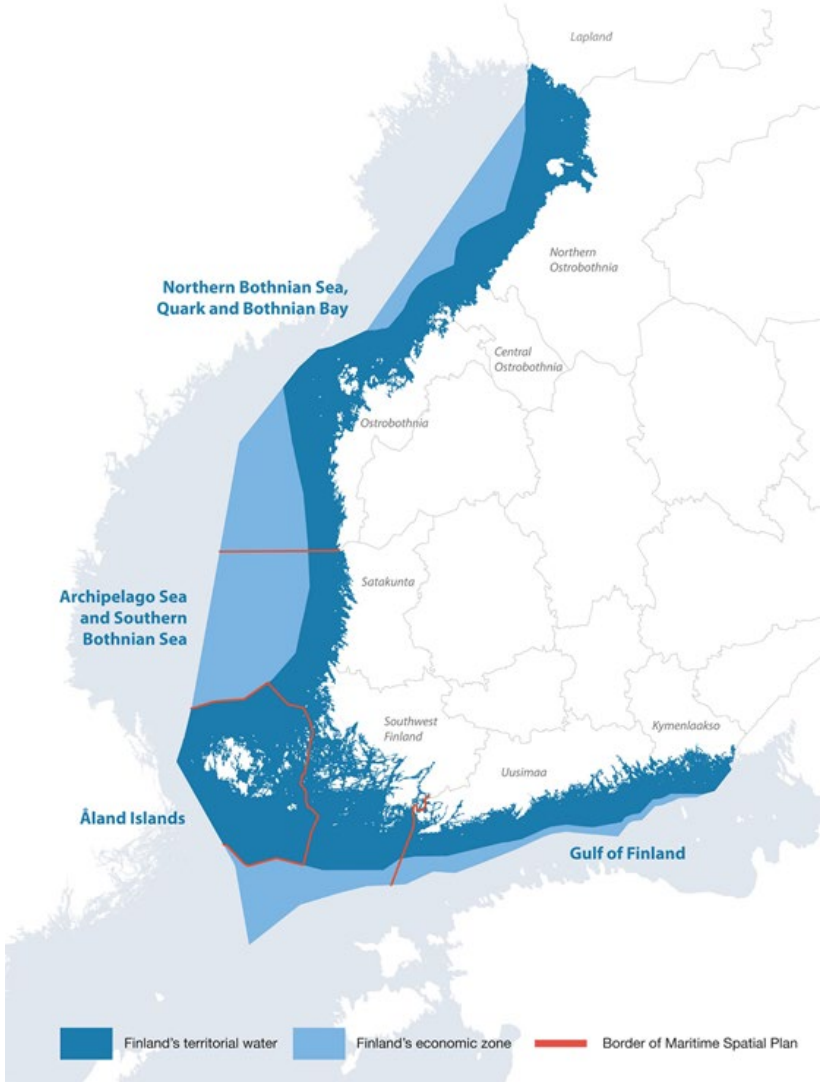
Photo Regional Council of Kymenlaakso

MARITIME SPATIAL PLANNING

(MSP DIRECTIVE 2014/89/EU; LAND USE AND BUILDING ACT 67a)

- The purpose of MSP is to promote
  - sustainble blue economy
  - sustainable use of natural resources, and
  - good status of the marine environment.
- The needs of the different maritime sectors are examined in order to coordinate them and find synergies.
- Attention is paid to national defence needs.
- Ecosystem-Based Approach (EBA), Land-Sea Interactions (LSI), and characteristics of the marine areas are central elements in MSP

www.merialuesuunnittelu.fi/en




Energy
Environment
Biotechnology
Seabed mining
Maritime traffic
Fisheries &
Aquaculture
Recreation
Coastal tourism
Ship building &
Ship repair
Security
Cultural heri ge

AUTHORITY AND ORGANIZATIONAL STRUCTURE OF THE FINNISH MARITIME SPATIAL PLANNING

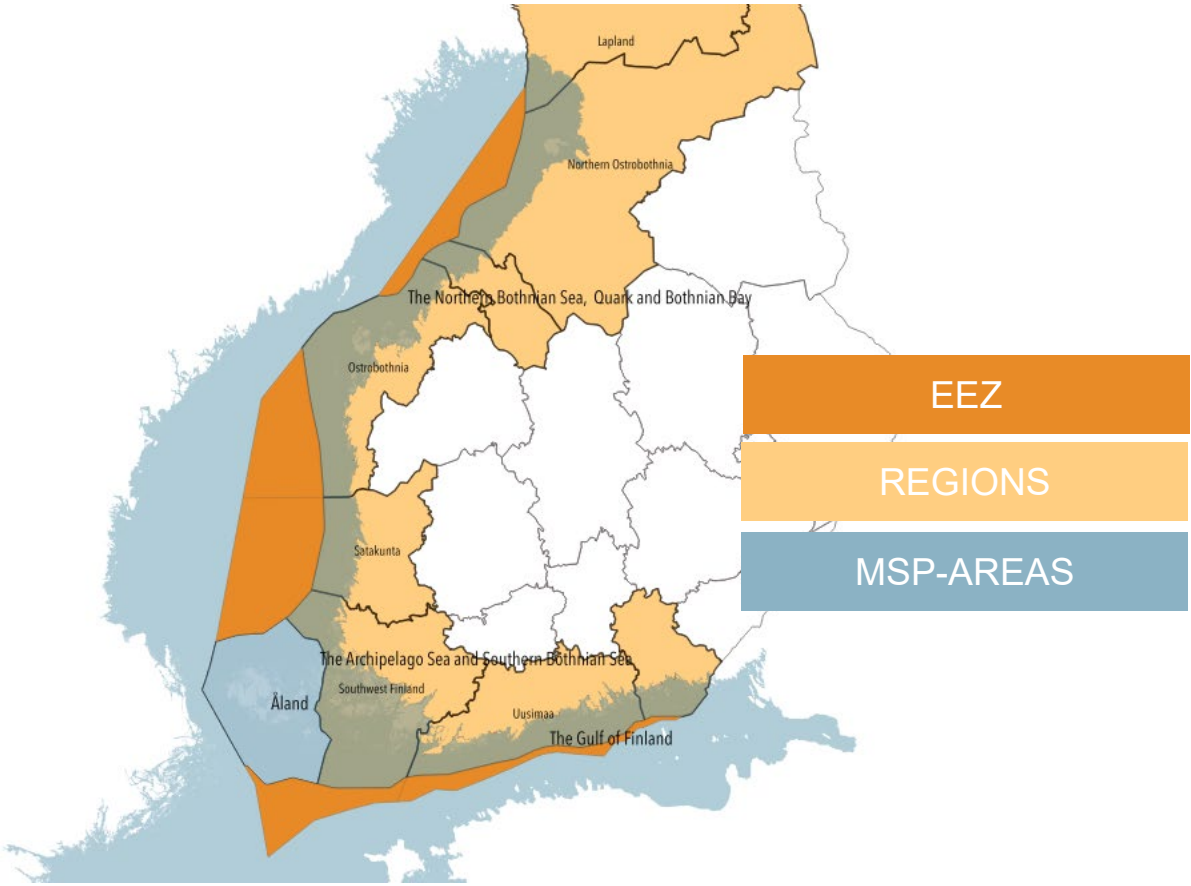
The **Maritime Spatial Plan 2030** consists of three maritime spatial plans in three planning areas.

In collaboration with eight coastal regional councils.

The three maritime spatial plans were approved separately by the assemblies of each coastal regional councils by December 2020.

Most of the MSP-area (territorial waters) is covered by binding regional and municipal land use plans.

- maritime themes not in a very active role



The maritime spatial plan is a strategic development document, formed together with stakeholder groups, of the sustainable growth and use of a marine area and of supporting the good status of the marine environment.

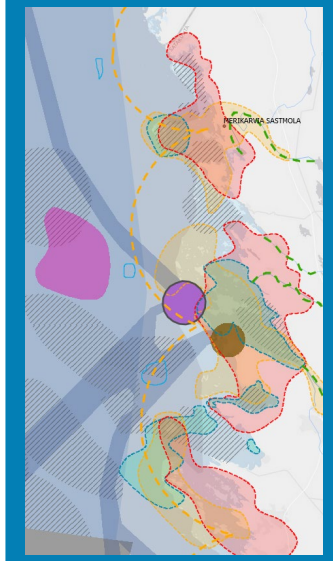
The plan has indirect steering impacts; as a tool for spatial planning it supports regional land use planning and regional development by producing information about the opportunities and framework conditions of maritime industries and the marine environment. However, the plan is not legally binding and does not form part of the land use planning system or land use plan hierarchy.

The impact of the plan arises by virtue of the planning process, in other words through the common understanding reached by the stakeholder groups, as well as through the commitment to the plan and the psychological ownership experienced regarding it.

The impact of the maritime spatial plan also arises from its link with national, regional and sectoral policy guidelines and strategies, and regional programmes and their realisation, and from supporting the goals of regional land use planning, regional development projects and natural resource plans and other maritime management plans.

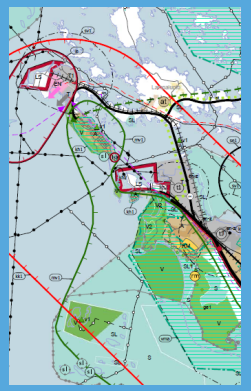
MARITIME SPATIAL PLAN, territorial waters and EEZ, Responsible authority Regional Councils

Strategic



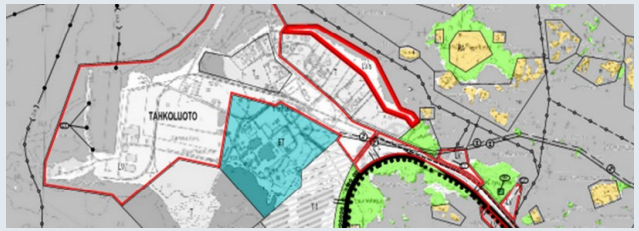
REGIONAL LAND USE PLAN, covers territorial waters, responsible authority Regional Councils

Legally guiding



LOCAL MASTER PLAN, covers territorial waters, responsible authority Municipalities

Legally guiding

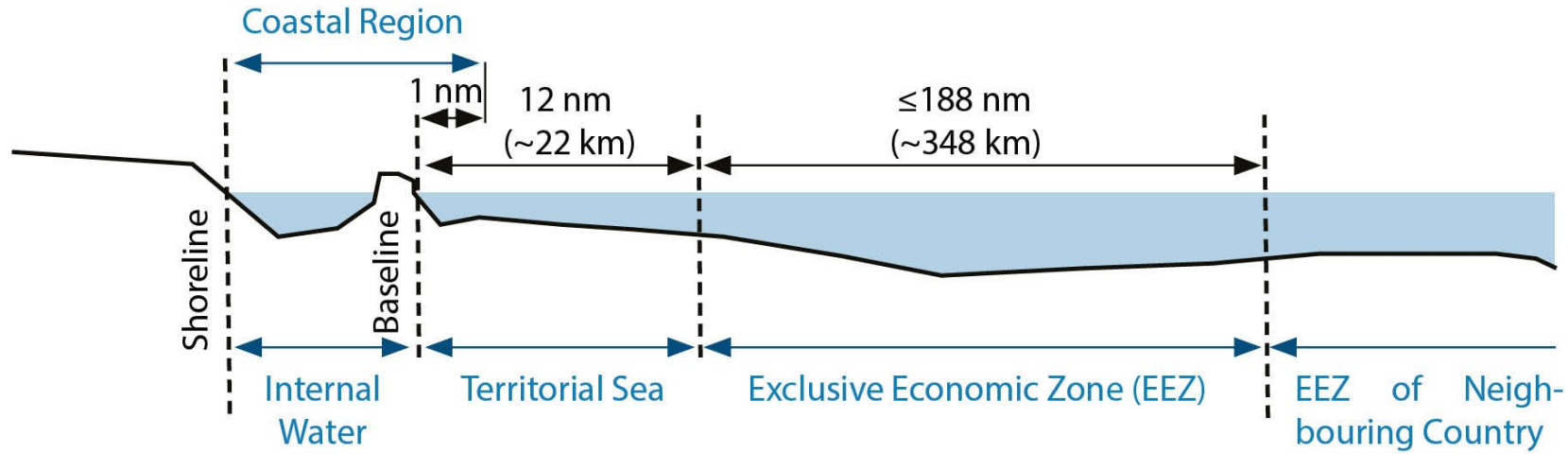


Maritime Spatial Plan

Marine Strategy

River Basin Management Plan

National Land Use Guidelines and
Regional and Municipal Planning

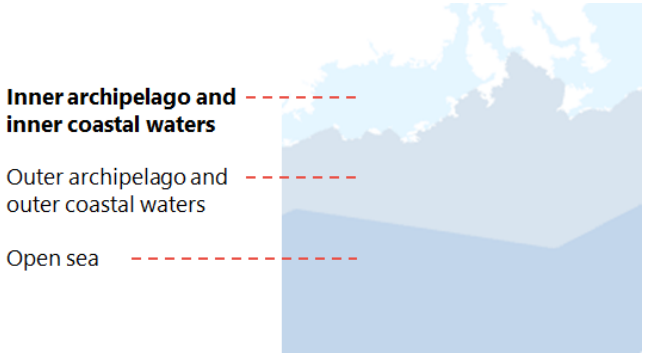


MSP IN RELATION TO MARINE STRATEGY FRAMEWORK DIRECTIVE (MSFD)

MSFD is the environmental pillar of the EU's Integrated Maritime Policy.

MSP is a planning component of EU's Integrated Maritime Policy. MSP is closely linked to MSFD.

- The environmental goals of Finland's national Marine Strategy are taken into account in MSP.
- MSP promotes the sustainable use of the sea and supports the achievement of good marine environmental status.
- When applying the ecosystem approach, maritime spatial planning is based on goals related to the status of the marine environment.
- Characteristics of the marine areas are taken into account.
- Attainment of environmental objectives is supported at all levels of planning.

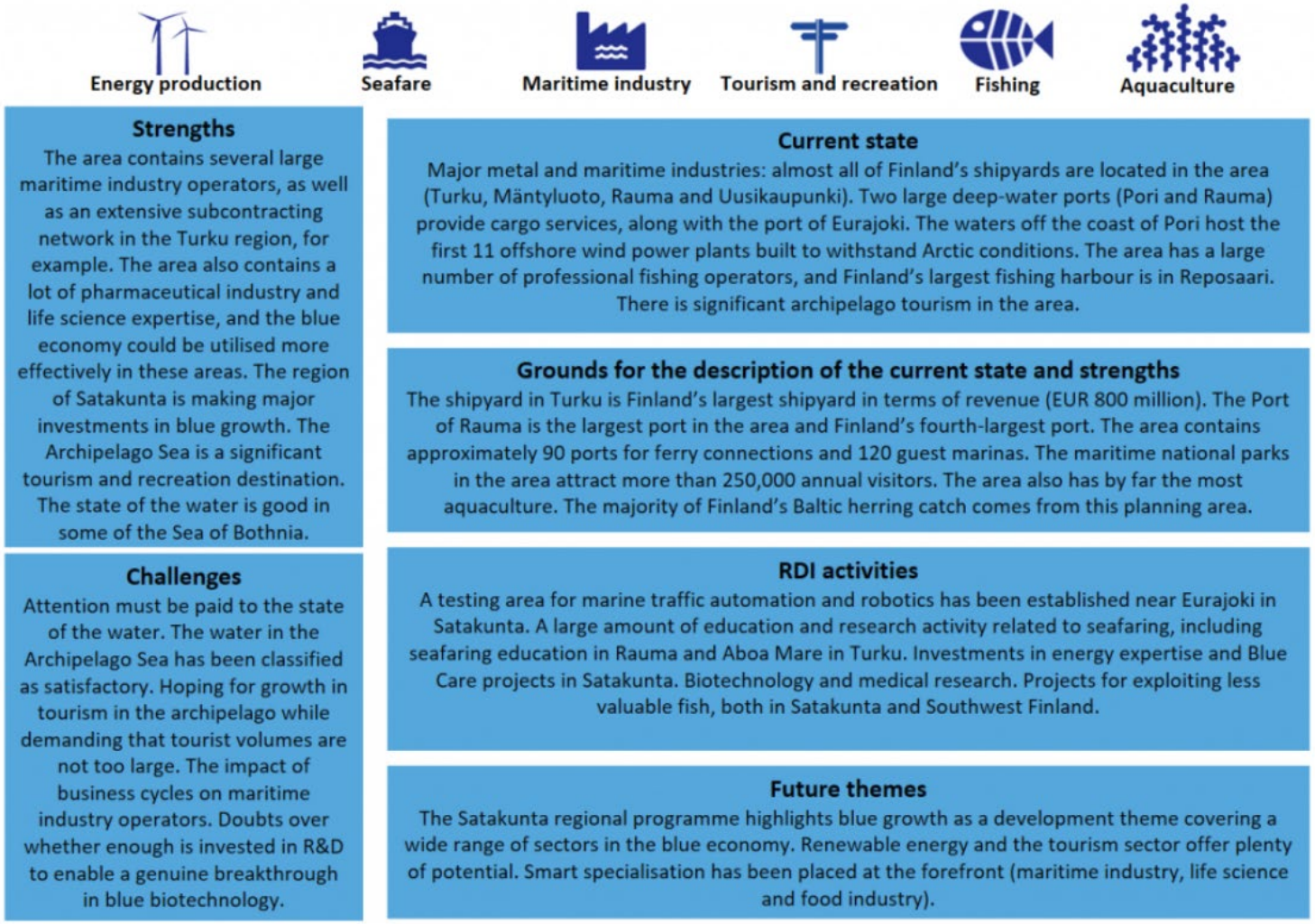


Marine area zones are planned taking into account, e.g., the protection and promotion of the good status of the marine environment, the special features of the marine environment and land-sea interactions.

The zone division is based on the classification of coastal waters covering the entire coast of Finland.

POLICY FRAMEWORK - Sustainable Blue Growth

report: Situational picture of blue economy, 2018 (in Finnish)



Archipelago sea and Southern Bothnian Sea

European Green Deal (2019)

- Biodiversity protection
- Carbon neutrality
- Sustainable sea food production
- Climate Change adaptation
- Zero pollution
- Circular economy

MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

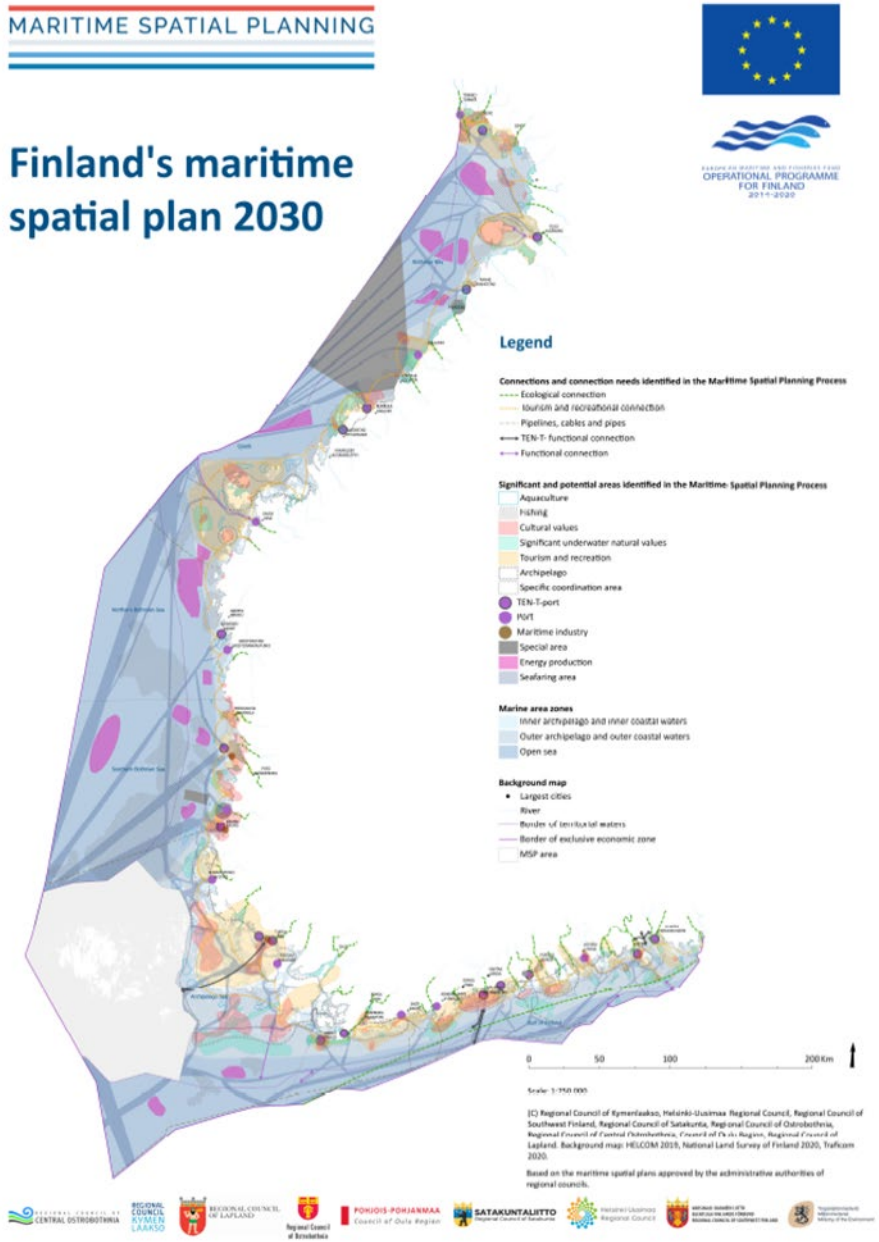
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



MSP COOPERATION STRUCTURE

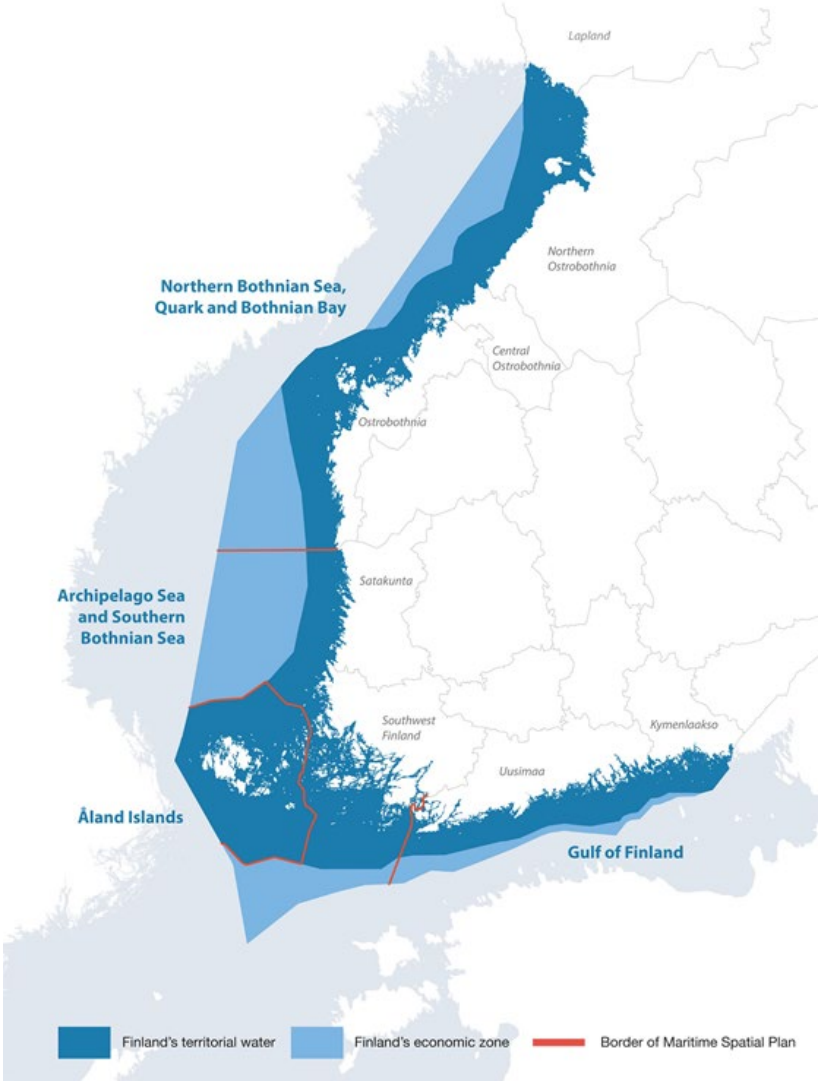
Eight coastal regional councils together with civil servants from the Ministry of the Environment form the **MSP Coordination Group**.

Lots of small internal expertise groups such as Planning Group, GIS Group, Communication Group, and steering groups covering multiple MSP projects.

The Coordinator of the MSP Cooperation keeps all the threads in her hands. Together with the Planner of the MSP Cooperation.

Together with civil servants from the ministries and agencies, regional and national maritime stakeholders, and experts.

16 maritime spatial planners
5 GIS-experts
9 professional PR-persons
Consultants
Researchers, MSP related projects
National-level MSP cooperation group – ministries, agencies
MSP Cooperation Network open to anyone with 960 participants
Planner of the MSP Cooperation
Coordinator of the MSP Cooperation



MSP COOPERATION PROCESS

I. Stakeholder (salience) analysis

- Who have 1) power 2) legitimacy 3) urgency, and 4) proximity?
- Who to 1) inform 2) consult 3) engage, and 4) collaborate with? And how?

II. Interaction Plan

- Internal
- External/Public

III. Co-creation of knowledge during the whole planning process.

IV. Two formal consultations

V. Transboundary cooperation and consultation

It is important to understand the basic theory of

1) How to build social trust towards planners
2) The role of institutional trust
3) What effects on motivation levels to participate
4) How to support the emergence of psychological ownership towards the Plan

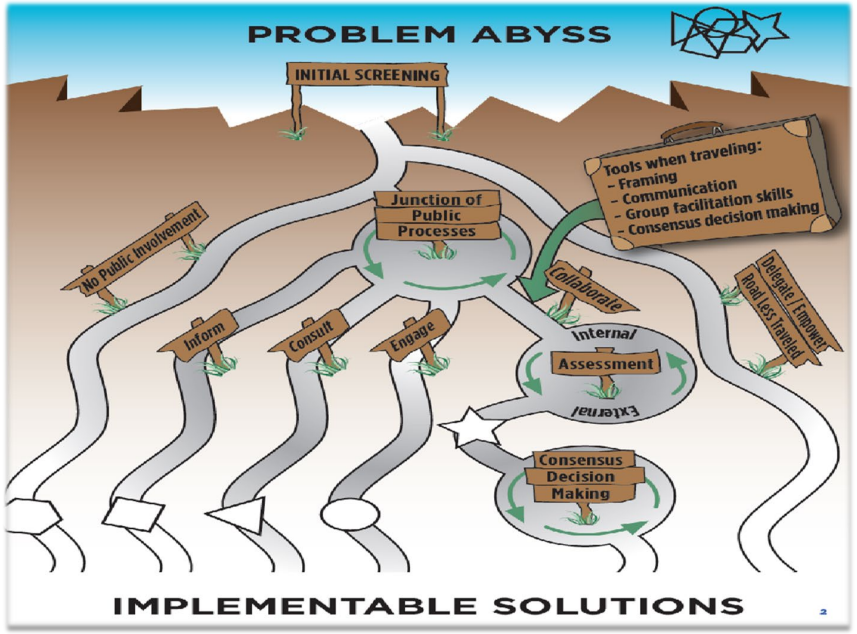


Figure: Steve Greenwood and Turner Odell, National Policy Consensus Center, Portland State University

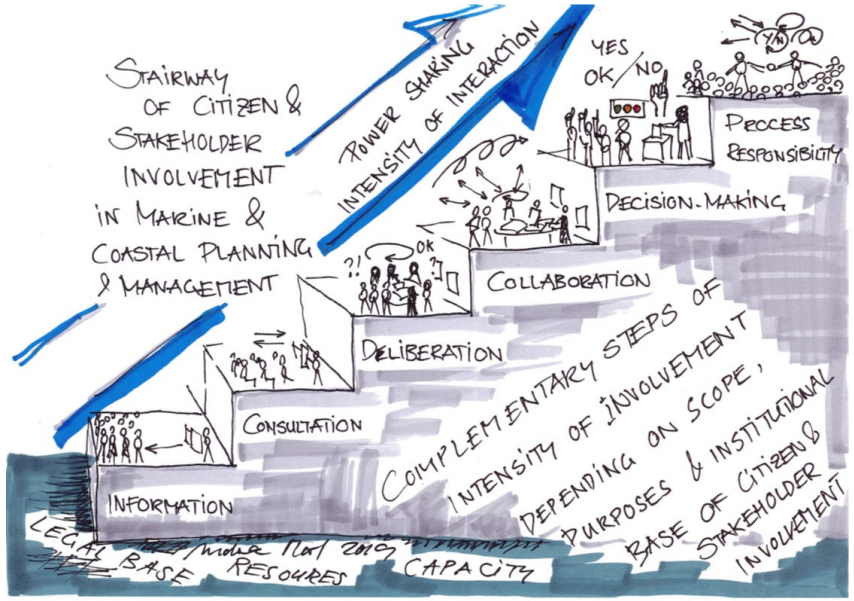
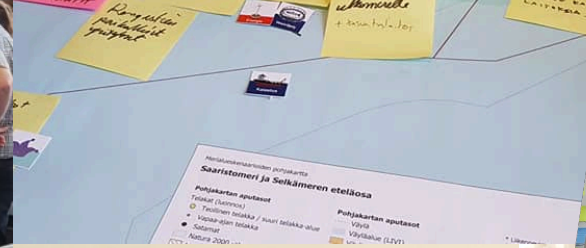
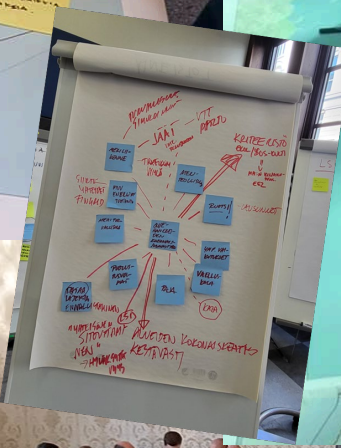


Figure: Andrea Morf / Basmati Project







Saaristomeri ja Selkämeren eteläosa
Pohjakartan aputasot
Pohjakartan aputasot








EXTRA EFFORTS ON COMMUNICATION

MSP Newspaper to inform authorities and organizations

https://www.merialuesuunnittelu.fi/en/msp-newspaper/


MERIALUESUUNNITTELU

Suomi vahvasti mukaan merenkulun tiukentuvan ympäristösääntelyn ratkaisijaksi

Merialuesuunnitelma 1.0 on valmis – entä nyt?

Världens mest miljövänliga passagerarfärja sammanlänkar Finland och Sverige

Merialuesuunnittelulla kohti kestävää kalankasvatusta

Cross-border MSP – Experiences in Sweden

Estonian MSP

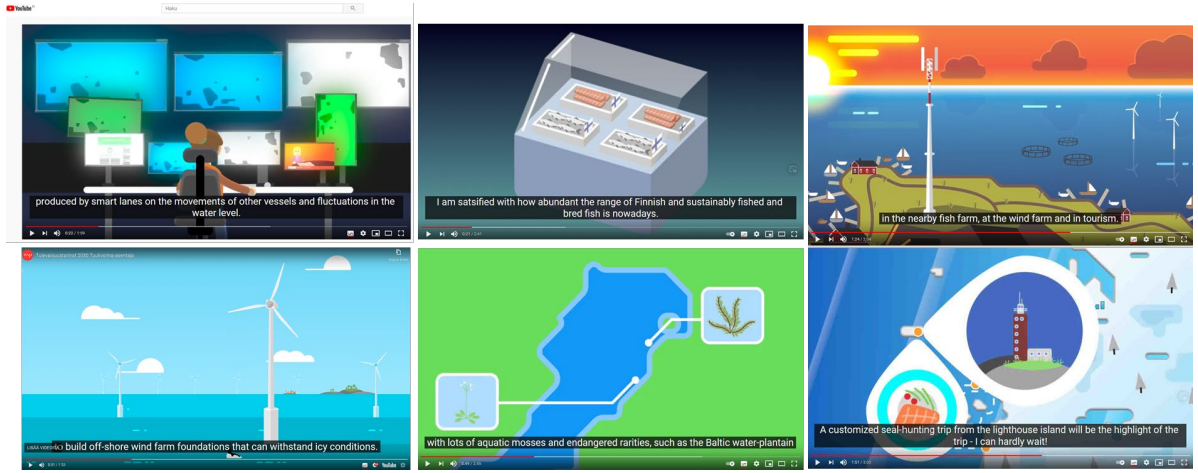
Join our MSP Network (in Finnish)

https://www.merialuesuunnittelu.fi/en/295/participate-in-the-planning/

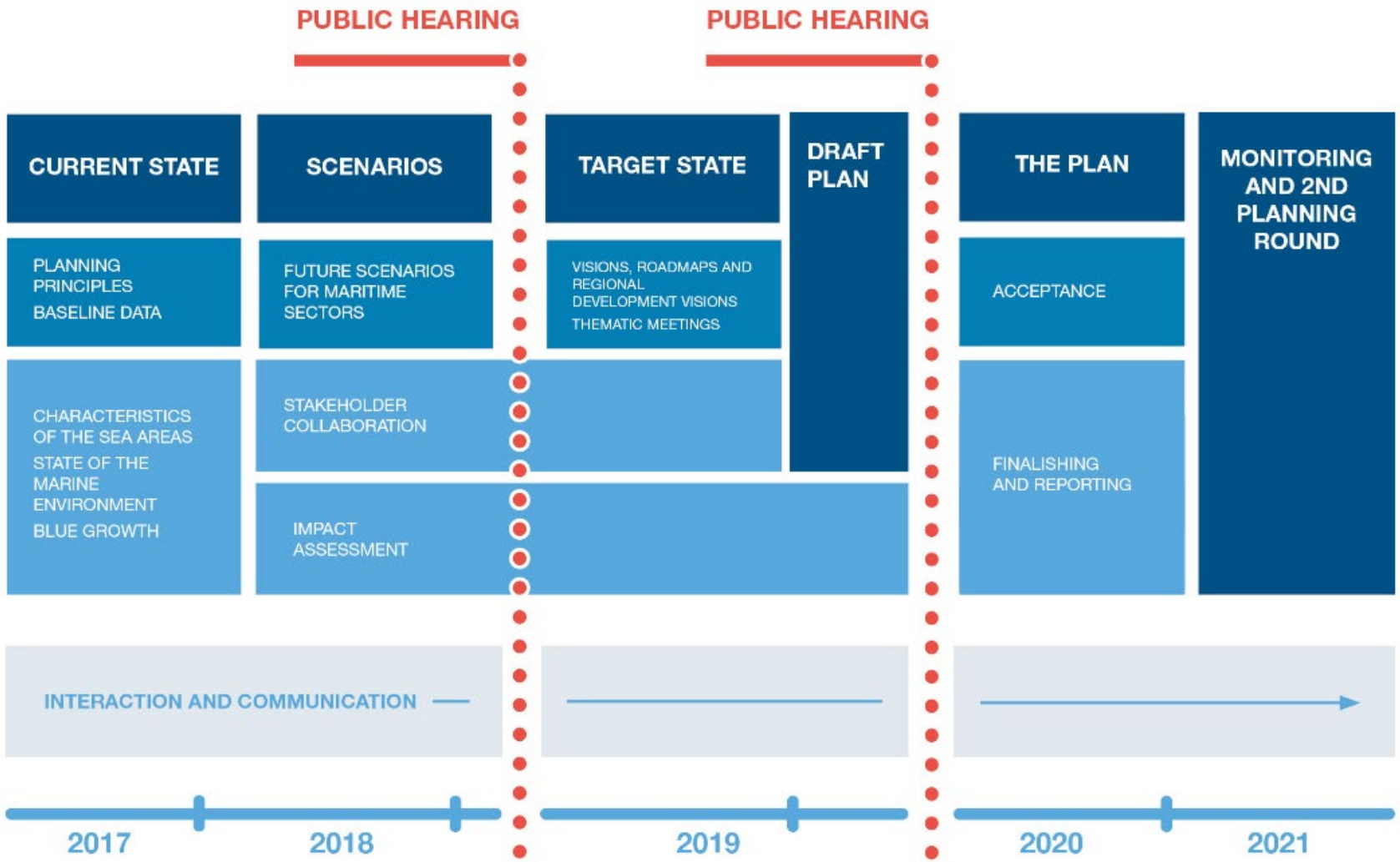
MSP Newsletters (in Finnish)

https://www.merialuesuunnittelu.fi/en/msp-now/newsletters/

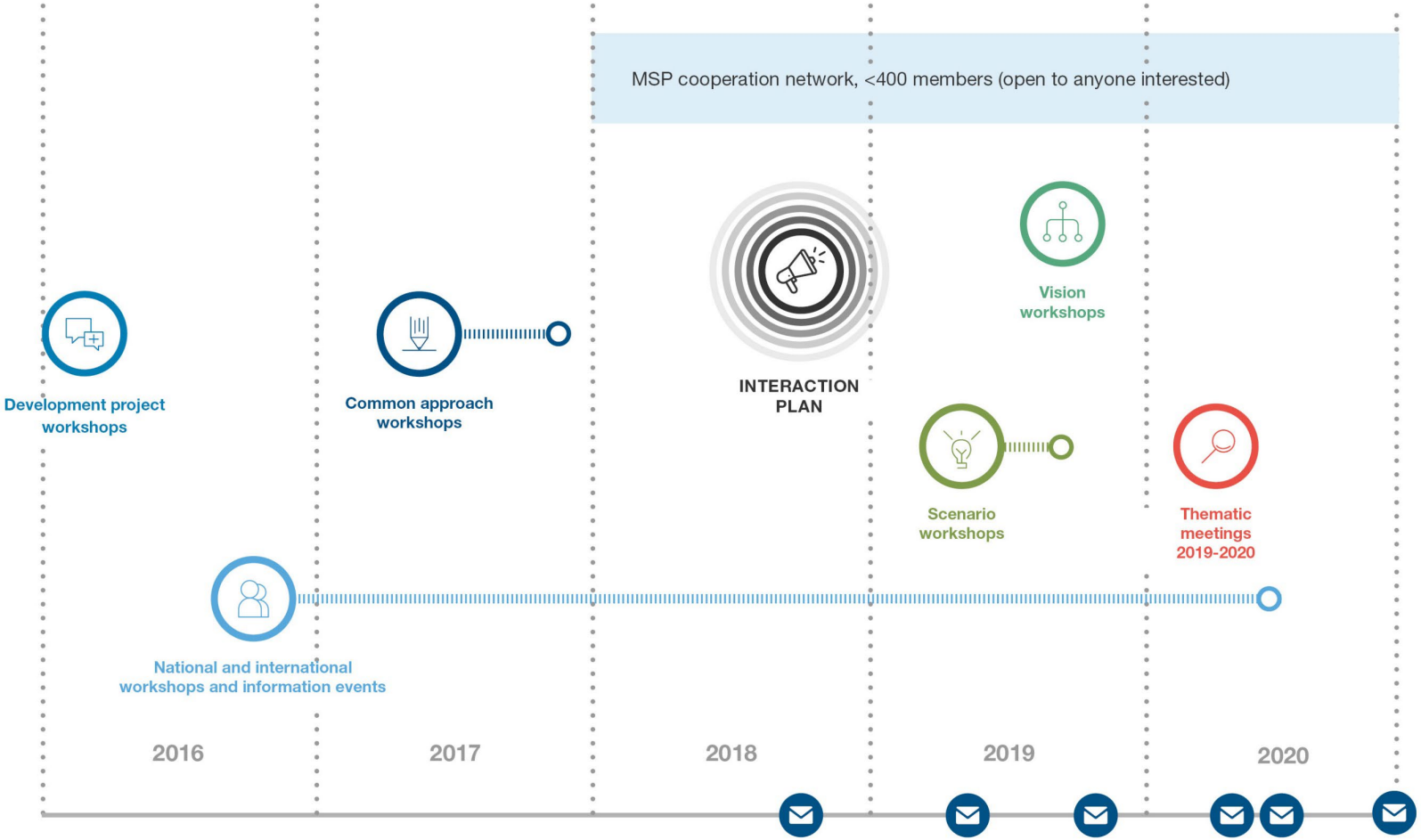
Vision 2030 videos for wider public (Youtube)



PLANNING PROCESS
2017–2021



COOPERATIVE PROCESS
2016–2020



Social media

MSP_FIN

Merialuesuunnittelu

MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

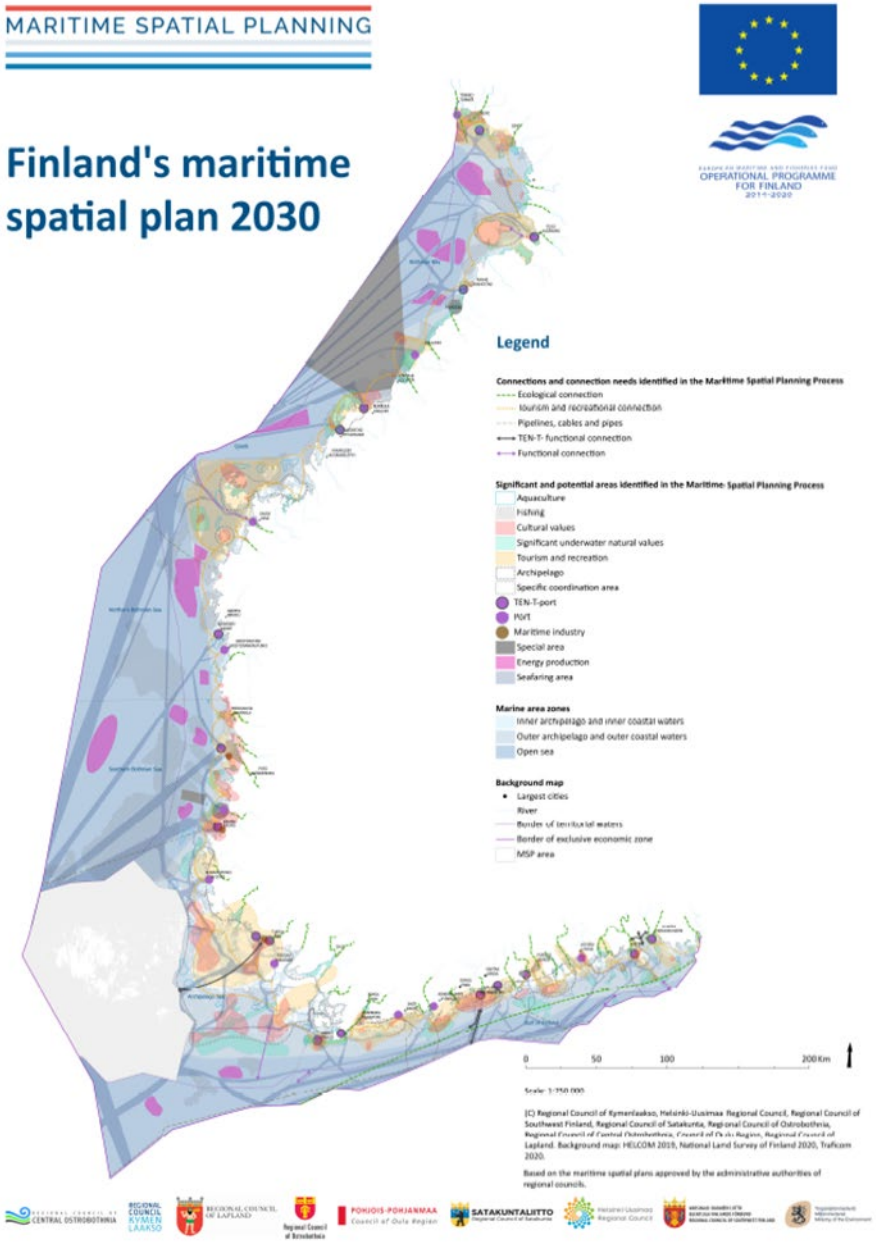
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



ECOSYSTEM-BASED APPROACH

CBD (1992): "A **strategy** for the integrated management of land, water and living resources **that promotes conservation and sustainable use** in an equitable way, with the aim to ensure that human use of ecosystems is kept within the limits of the ecosystems' capacity to regenerate with regard to their structure, dynamics and function."

MSFD (2008): "An Ecosystem-based Approach, whereby **human activities affecting the marine environment will be managed** in an integrated manner **promoting conservation and sustainable use** in an equitable way of oceans and seas."

MSPD (2014): "The application of an Ecosystem-based Approach will contribute to **promoting sustainable development and growth** of the maritime and coastal economies and the **sustainable use** of marine and coastal resources."

Pan Baltic Scope (2019): "A holistic consideration of the marine environment, while **acknowledging that humans are an integral part of the natural system**."

Report: Ecosystem-based approach in the Finnish MSP (2020)

DIGITAL MARITIME SPATIAL PLAN

FRONT PAGE | MARITIME SPATIAL PLANNING | SCENARIOS | VISIONS | PLAN | IMPACT ASSESSMENT

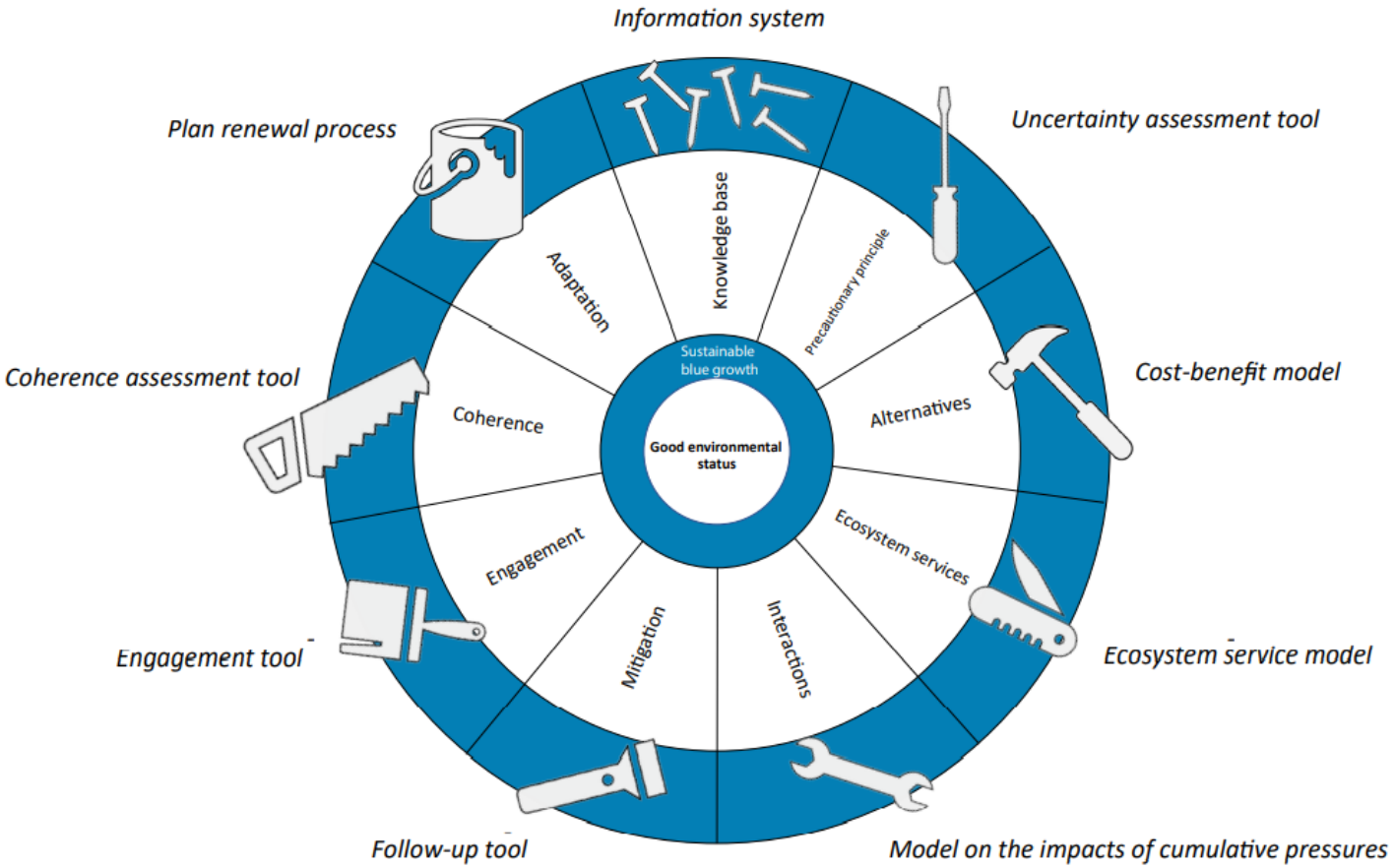
Ecosystem approach

Concepts

The HELCOM-VASAB maritime spatial planning working group has identified nine principles for the application of the ecosystem approach in maritime spatial planning. These principles are recommended for application in maritime spatial planning in Finland:

1. Compiling best available knowledge on the sea and its use
2. Applying the precautionary principle to maritime spatial planning
3. Exploring alternative planning solutions
4. Identification of ecosystem services
5. Comprehensive understanding of interactions
6. Mitigating the effects of maritime spatial plans
7. Participatory planning and communication
8. Level of detail and coherence of maritime spatial plans
9. Monitoring, assessment and adaptation of the impacts of maritime spatial plans

The ecosystem approach is a holistic use and management planning method. Its key principle is that people are an integral part of nature and affect its functions.



Compiling the best available knowledge on the sea and its use

The data used for planning must be up to date and include relevant information on marine ecosystem structure and functioning as well as on human activity and its impact at sea.

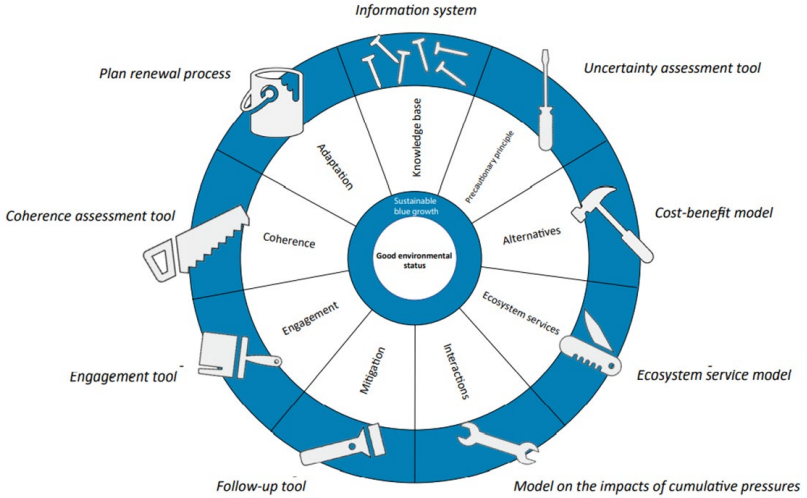
- Expert networks and open data
- Stakeholders and local knowledge

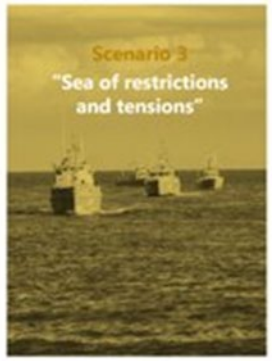
Precautionary principle

The precautionary principle should be observed if the effects of human activities cannot be reliably assessed and there is a risk that the activities will result in significant environmental impacts.

- Collaboration with authorities and researchers
- Needs knowledge on local and regional charasteristics
- How much information is enough?
- Strategic nature of the Plan

SCENARIOS FOR – MERIALUEIDEN SKENAARIOT 2050





Exploring the alternative planning solutions

Alternative planning solutions and/or scenarios will be developed in the planning process to clarify the interests and views of different stakeholders and sectors on how sustainable marine use can and should be developed. The aim is to prevent the impacts of human activity from exceeding the carrying capacity of the marine ecosystem and to ensure that planning will produce maximum benefits for both marine sectors and the environment.

- Requires collaboration with stakehoders
- Supports adaptive planning

Participatory planning with 350 maritime stakeholders

- expert interviews
- national and regional workshops open to anyone

Scenarios - key change factors

- Condition of the marine environment
- Environmental attitudes
- Climate change
- Urbanization
- Security situation
- Maritime sectors

- Chosen as a good example in an EU-level. EC report on the implementation of the Maritime Spatial Planning Directive, https://oceans-and-fisheries.ec.europa.eu/news/european-commission-report-implementation-maritime-spatial-planning-directive-good-progress-more-2022-05-03_en

MERIALUESUUNNITTELU

SCENARIOS FOR MARITIME AREAS 2050

capful

Three alternative images of the future at the Baltic Sea

Dancing with big businesses

- The EU has been moving towards a more liberal market and deregulation is ongoing. **The interests of companies and cities are steering the development more than the state.**
- In addition to food production, maritime areas are being utilised especially **as raw material for high added value products** for the needs of companies.
- Environmental politics are ineffective and we are not getting rid of fossil fuels as we wanted. **Offshore wind power** is built by large global corporations as very extensive farms with little regulation.
- Autonomous vessels are becoming more common in the Baltic Sea. **The Helsinki–Tallinn tunnel is constructed** with the support of Chinese investments, which has an impact on passenger traffic in particular. Maritime logistics are increasing, also in the Arctic Sea (the Northern Sea Route).
- Population concentrates in the biggest cities around the Baltic Sea. **Climate refugees** increase the passenger flows of the Baltic Sea.
- The Baltic Sea has regressed to a difficult patient as **eutrophication and oxygen loss aggravate in all maritime areas**. The living conditions of key species and communities are under threat.
- **Aquaculture** increases as it becomes more profitable and production focuses on larger and larger units.
- Tourist interest is focused on the large cities and cultural heritage of the Baltic Sea. **The poor condition of the maritime environment reduces nature and cultural tourism** in the archipelago.

Baltic Sea as a source of energy and minerals

Profitability under the environment's terms

- Concern over the environment is increasing and **climate issues become a central focus of politics**. Consumers are more environmentally aware and their choices also guide companies towards providing sustainable solutions.
- The search for renewable forms of energy is strong and **the state supports the connection of offshore wind power to the grid.** Production is profitable also further from the shore.
- The electrification of traffic also reaches to waters.
- **Small volume transport becomes more and more common**, which moves the load from the sea to the air and also improves the accessibility and services of the archipelago. **Local traffic and logistics are emphasised.**
- People seek clean nature in increasing volumes. **New housing trends and the transformation of work life increase the popularity of the archipelago** also for living.
- The harmful impact of climate change on the weather at the Baltic Sea turns out to be less severe than expected.
- **Natural fish populations gain strength** and professional and leisure fishing increase within the boundaries allowed by the environment.
- **Strict environmental regulation restricts the increase of large-scale aquaculture on the sea** and fish farming in closed water systems becomes more common, especially on the ground.
- The calm and clean environment and the improved service offering attract **new tourists to the Baltic Sea from nearby countries**. The majority of tourism concerns the Archipelago Sea and nature sites.

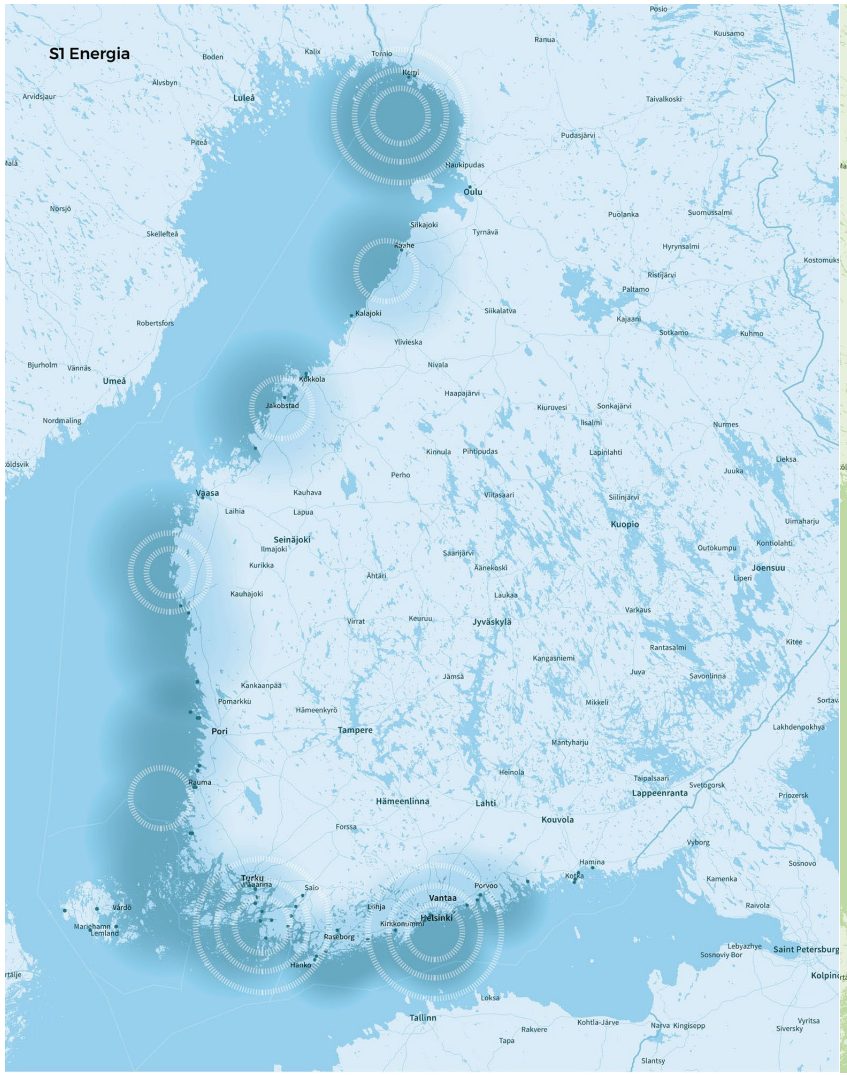
Baltic Sea as an oasis of recreation and experiences

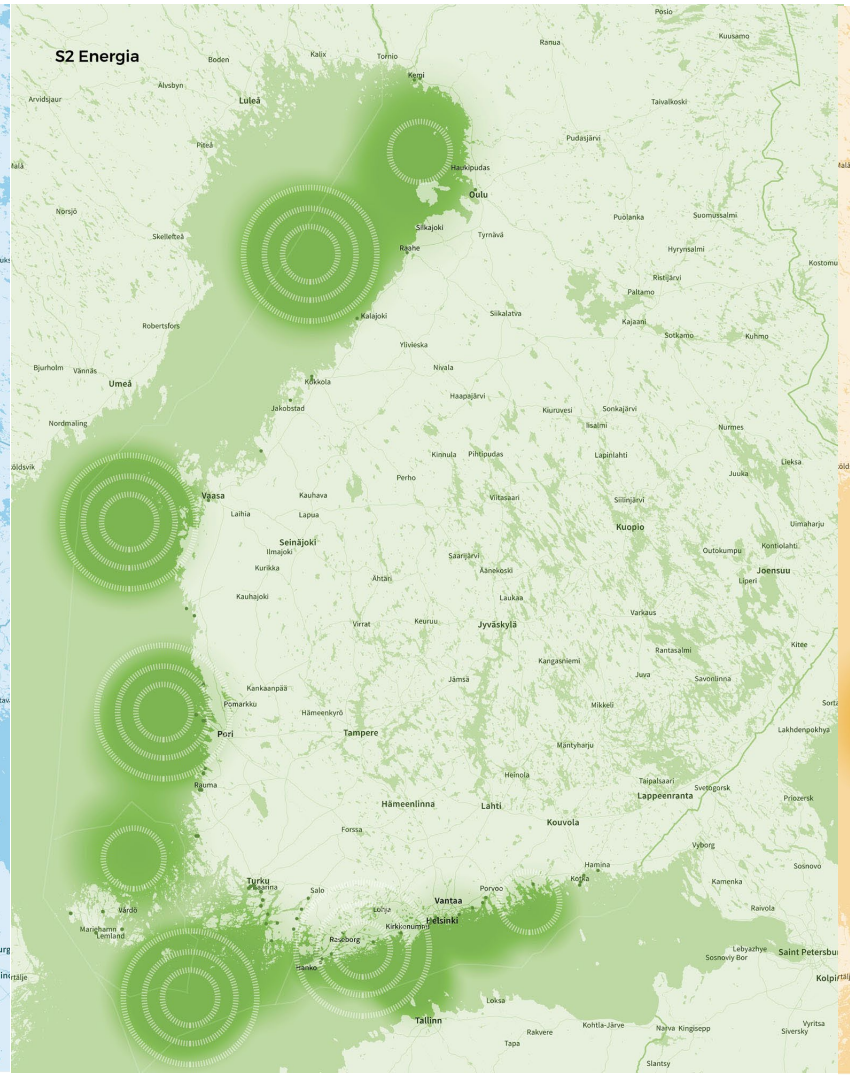
Baltic Sea of restrictions and tensions

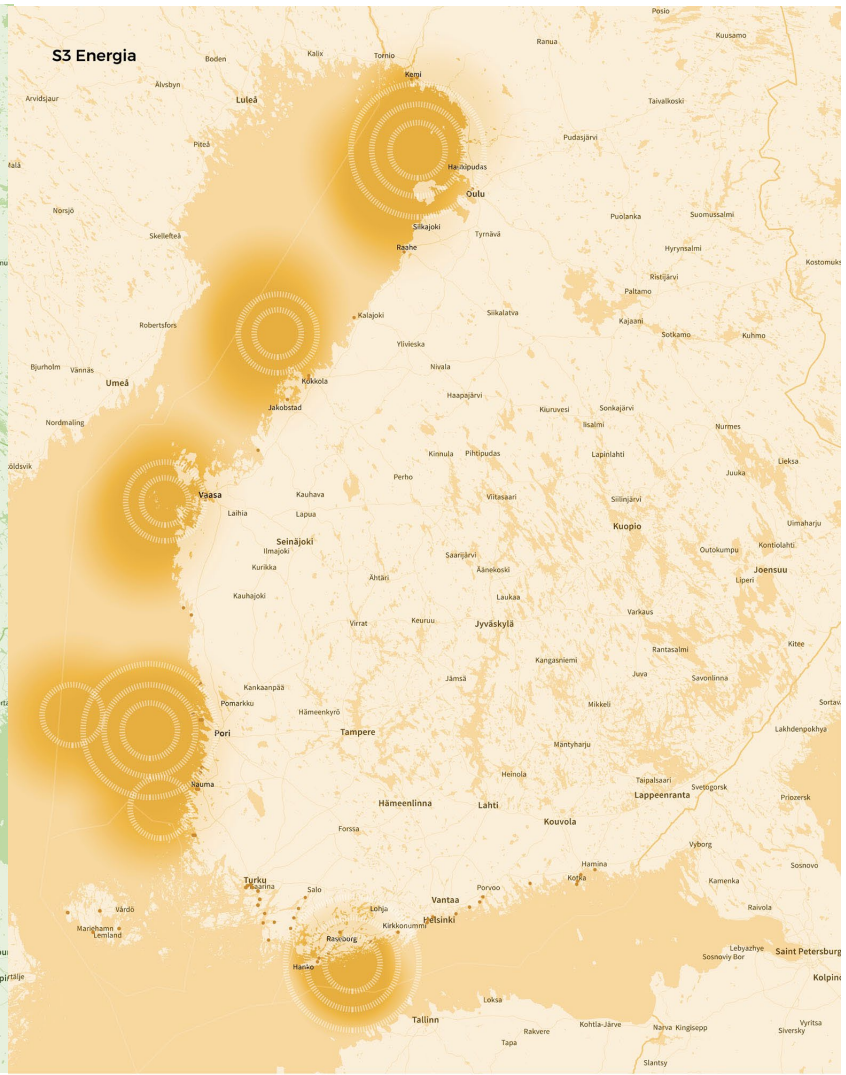
- The power struggle between global superpowers has escalated into a trade war and **tensions between the West and Russia are increasing in the Baltic Sea**. The uncertain security situation reduces investments.
- Cooperation between EU countries increases and **the union tightens its control especially with respect to environmental and energy politics**.
- Energy self-sufficiency on the European level is emphasised and a **joint energy union** of the EU is created. Renewable energy, such as offshore wind power, is subsidised and farms are constructed alongside transfer cables.
- The strategic importance of logistics routes is emphasised and **the ports of the west coast become stronger**. Passenger traffic reduces substantially especially in the south.
- Internal mobility within EU increases and Finland's biggest coastal cities keep their vitality. **The infrastructure of the archipelago gets weaker**.
- Signs of climate change can be observed in the weather conditions, but the Baltic Sea is still a favourable environment for many sources of livelihood.
- **Environmental cooperation with Russia is challenging,** which has a negative impact on the state of the maritime environment.
- **Efforts to reach self-sufficiency in the production of protein increase aquaculture** and production becomes multifold, focusing on the Bay of Bothnia and the Archipelago Sea in particular.
- Tourism has become more difficult and **local recreation is emphasised**. Tourism potential is aimed towards the Bay of Bothnia.

Baltic Sea as a breadbasket and strategic playing field

Kuva Suomen Hyötytuuli







MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning

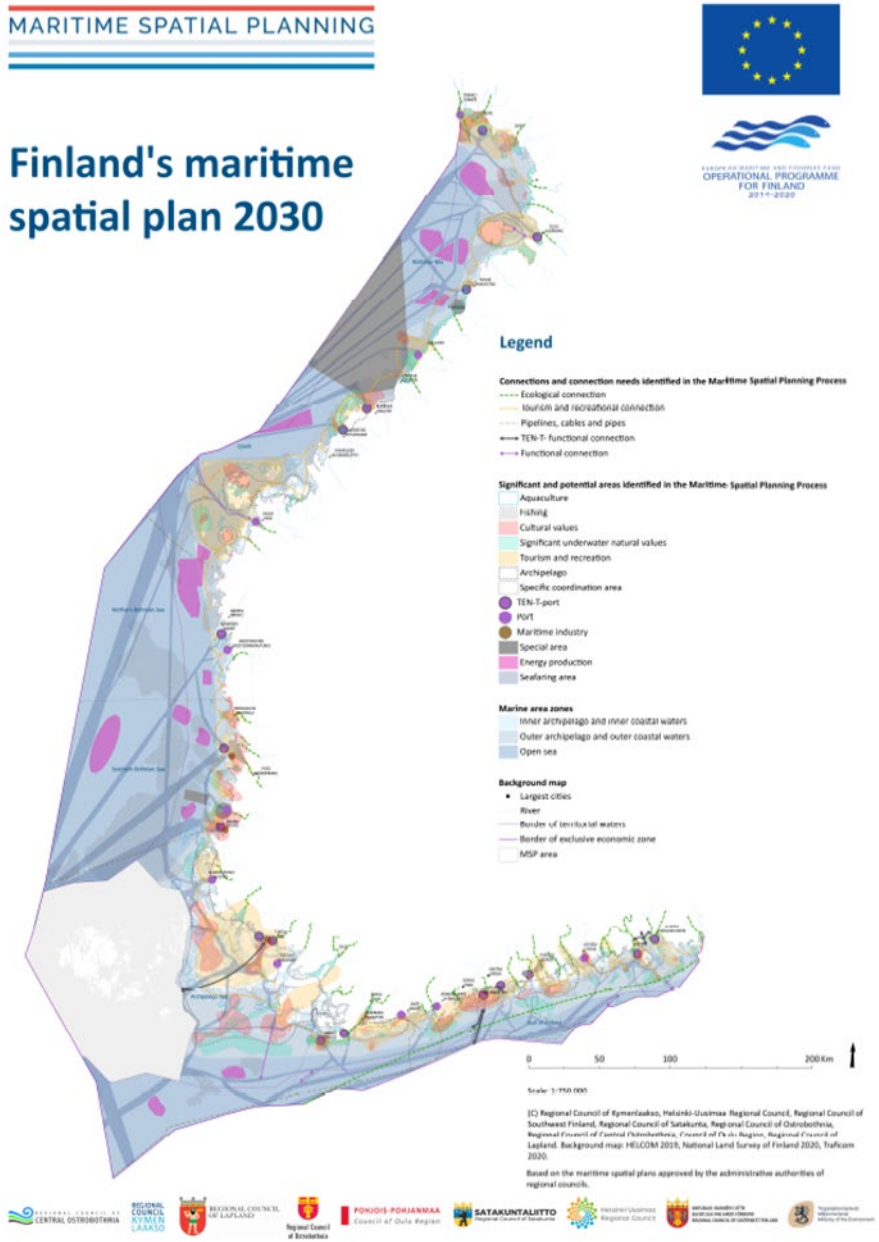


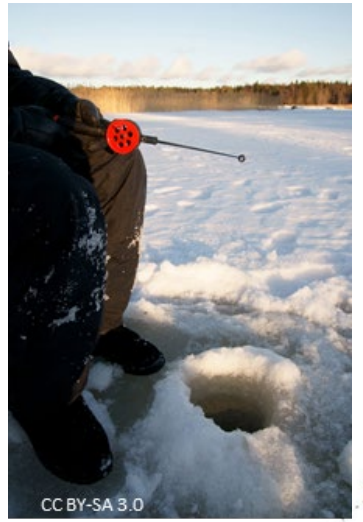
Photo Kemi Tuorim Ltd. Arctic Island Hopping

CHARASTERISTICS TO FINLAND

- Shoreline 6 800 km (48 000 km), 95 000 islands and islets
- 2,5% of the population live year-round in the islands. In addition, c. 63 000 holiday homes.
- Water area ownership
  - Privately owned waters
  - Common waters of shareholders
  - State owned waters, 60 % of the territorial waters is administrated by Metsähallitus
- Everyman's rights
  - Moving/passing, diving, swimming, ice-fishing, angling
  - Applies also to conservation areas
  - Includes business operations, e.g. nature-based tourism operations without a permission of the water area owner
- Shallow waters, low salinity, land uplift coast
- Long winter period, sea area freezes

Photo An aerial photograph of Naantali Archipelago, Plenz 2006

Photo Seppo Lammi: De Geer moraine fields Land uplift area

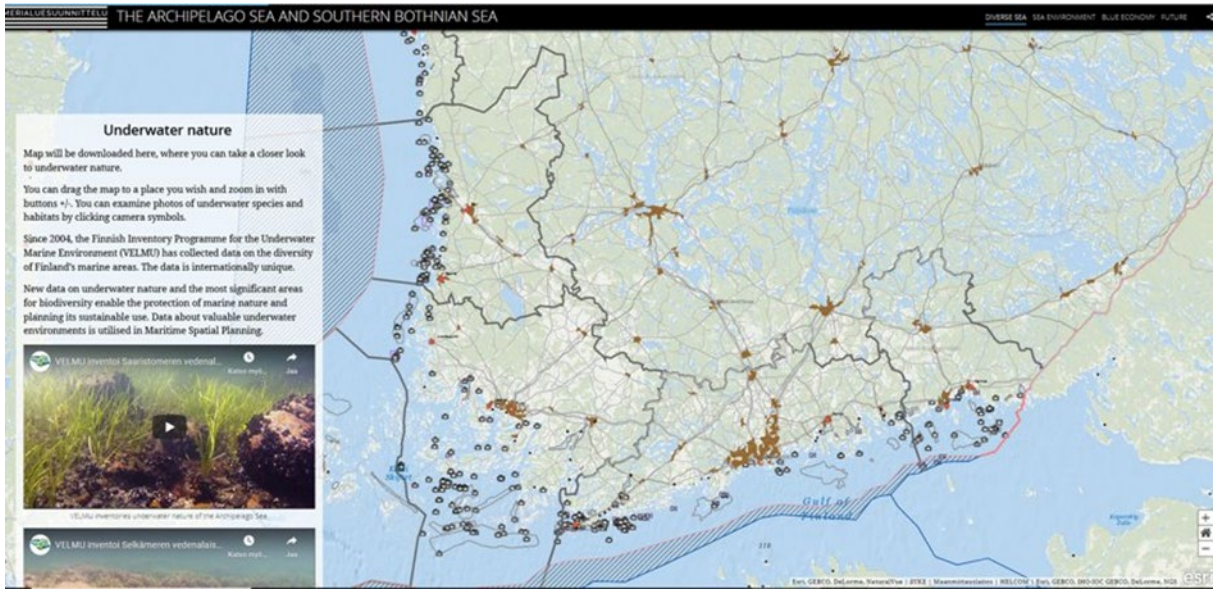


CC BY-SA 3.0

Photo Ice-breaker Sampo, VisitKemi

www.merialuesuunnittelu.fi/en/situational-picture-material-and-reports/
www.merialuesuunnitelma.fi → Part *Maritime spatial planning* and Part *Plan/Gulf of Finland etc./Situational Picture*

Storymaps targeted to wider public
https://www.merialuesuunnittelu.fi/en/situational-picture-material-and-reports/



MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

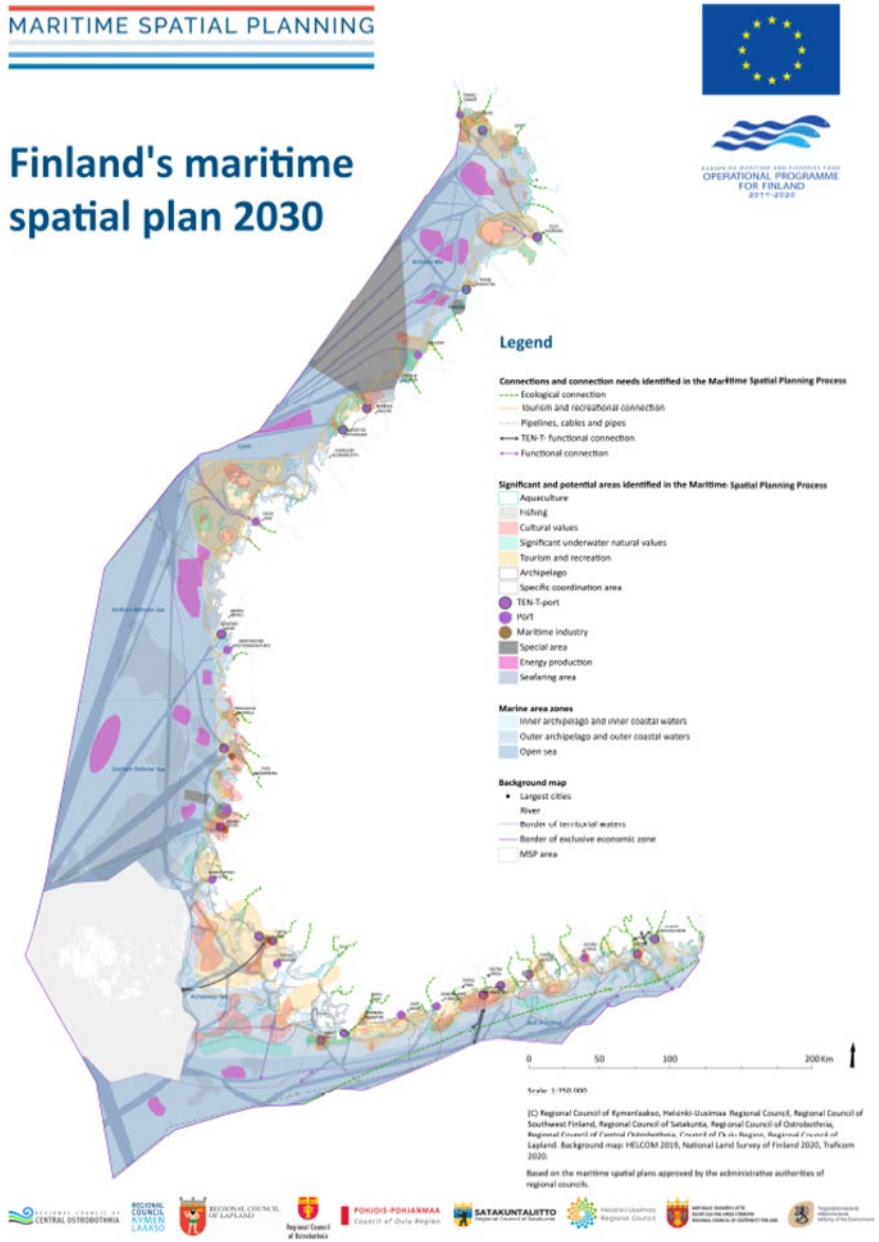
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



VISION PHASE = MSP CO-CREATION OF KNOWLEDGE

Bridging social capital

Shared understanding of socio-ecological systems[1]

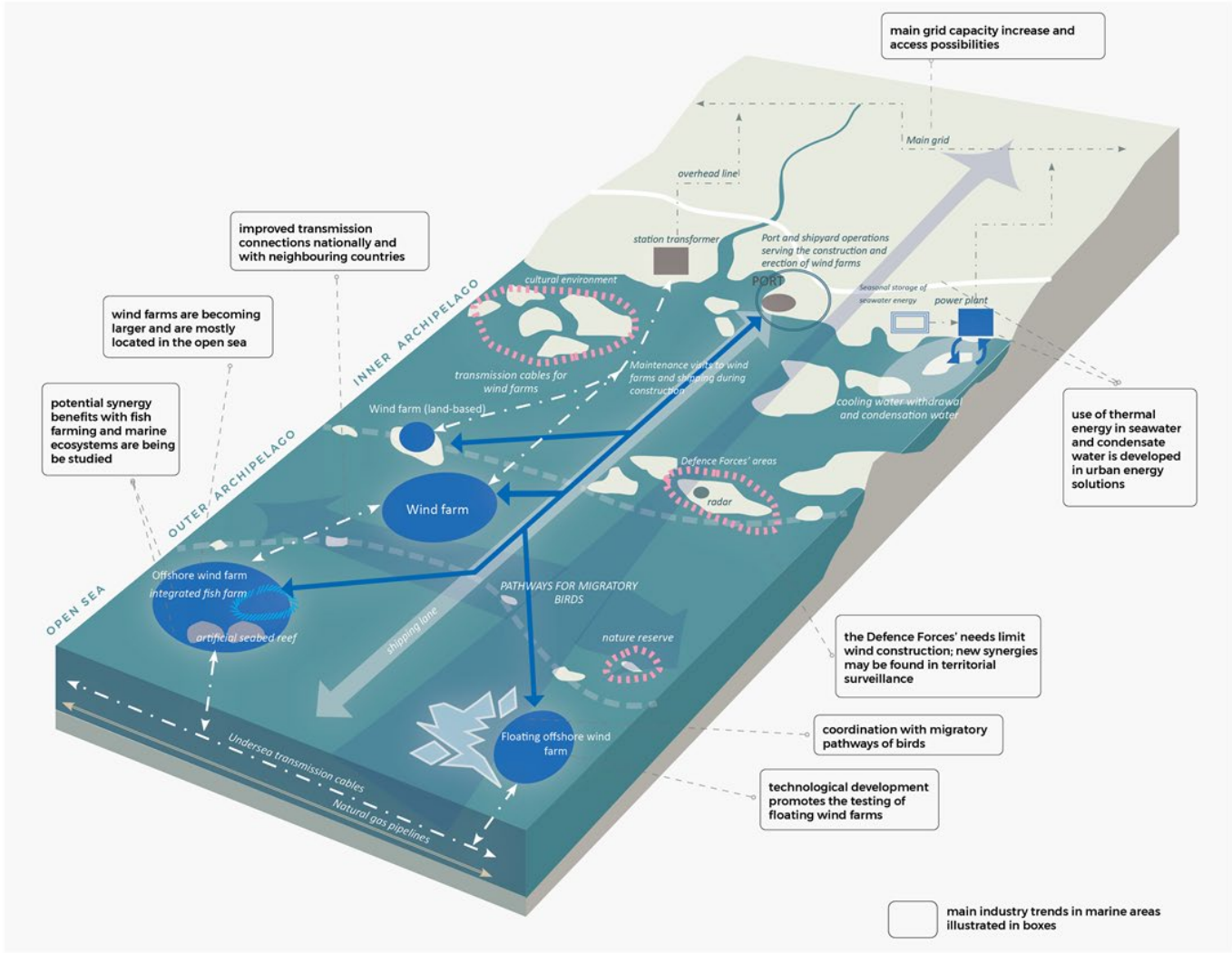
Shared vision for marine areas up to 2030 and 2050

Practical way of adopting Ecosystem-Based Approach in MSP

Practical way of taking Land-Sea Interactions into account and plan from the shoreline.

Natural resource conflict mitigation

Maritime Spatial Plan for Finland 2030:
” The maritime spatial plan identifies the needs of the marine environment and the wellbeing of maritime actors equally, without placing sectors in an order of importance. The maritime sectors examined have different societal and community values, which the plan seeks to foster.”

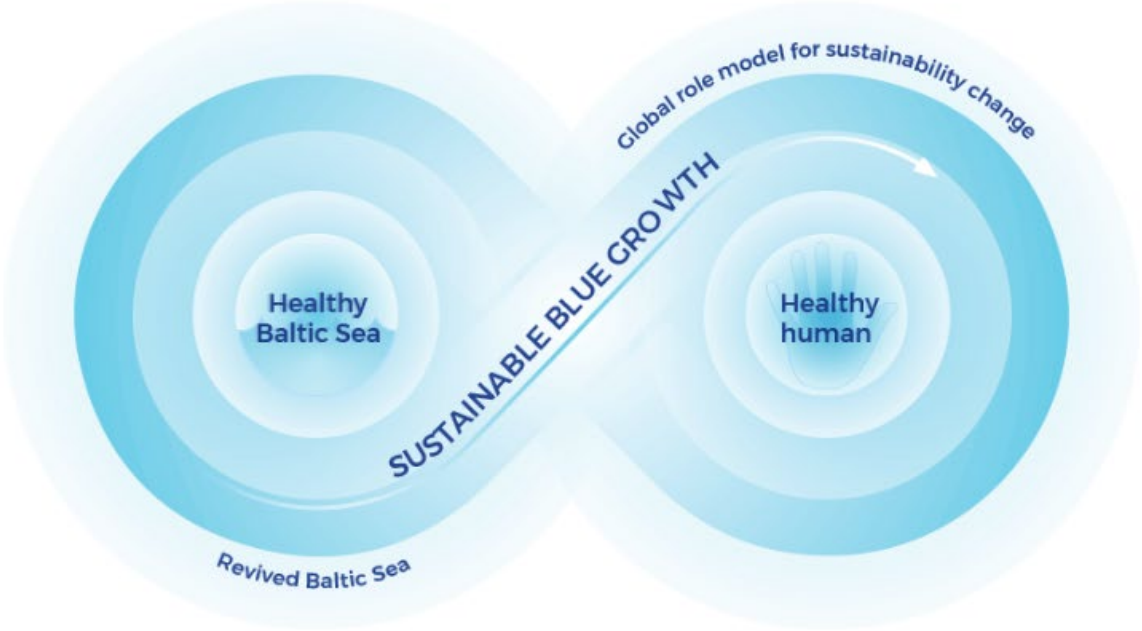


[1]Lähde E, Pohja-Mykrä M, Schreck J (2024) Co-creation of socio-ecological systems knowledge to adapt Ecosystem-Based Approach and Land-Sea Interactions in Maritime Spatial Planning, Marine Policy [manuscript]

DIGITAL MARITIME SPATIAL PLAN

www.merialuesuunnitelma.fi

Sustainable wellbeing from the sea



MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

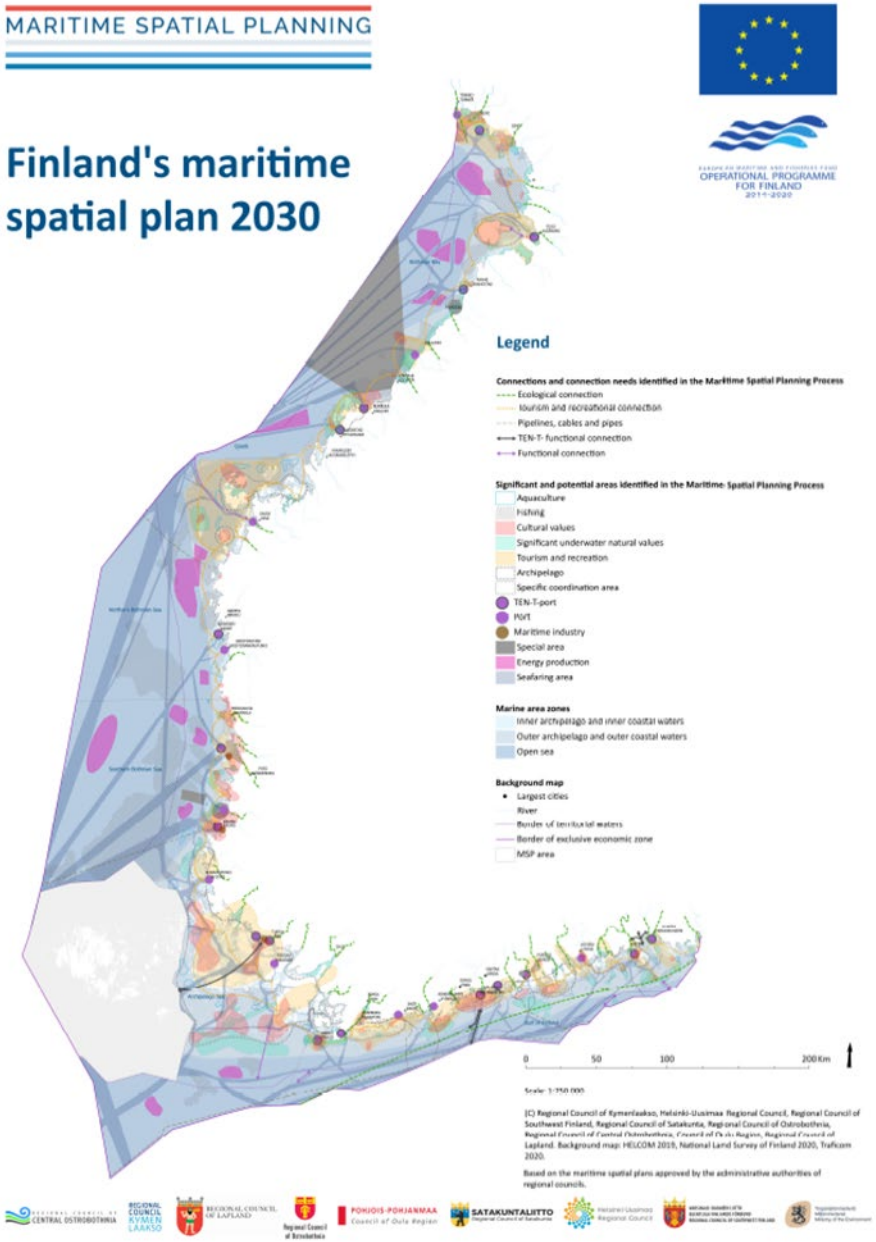
Draw the map and explain

Conduct impact assessment

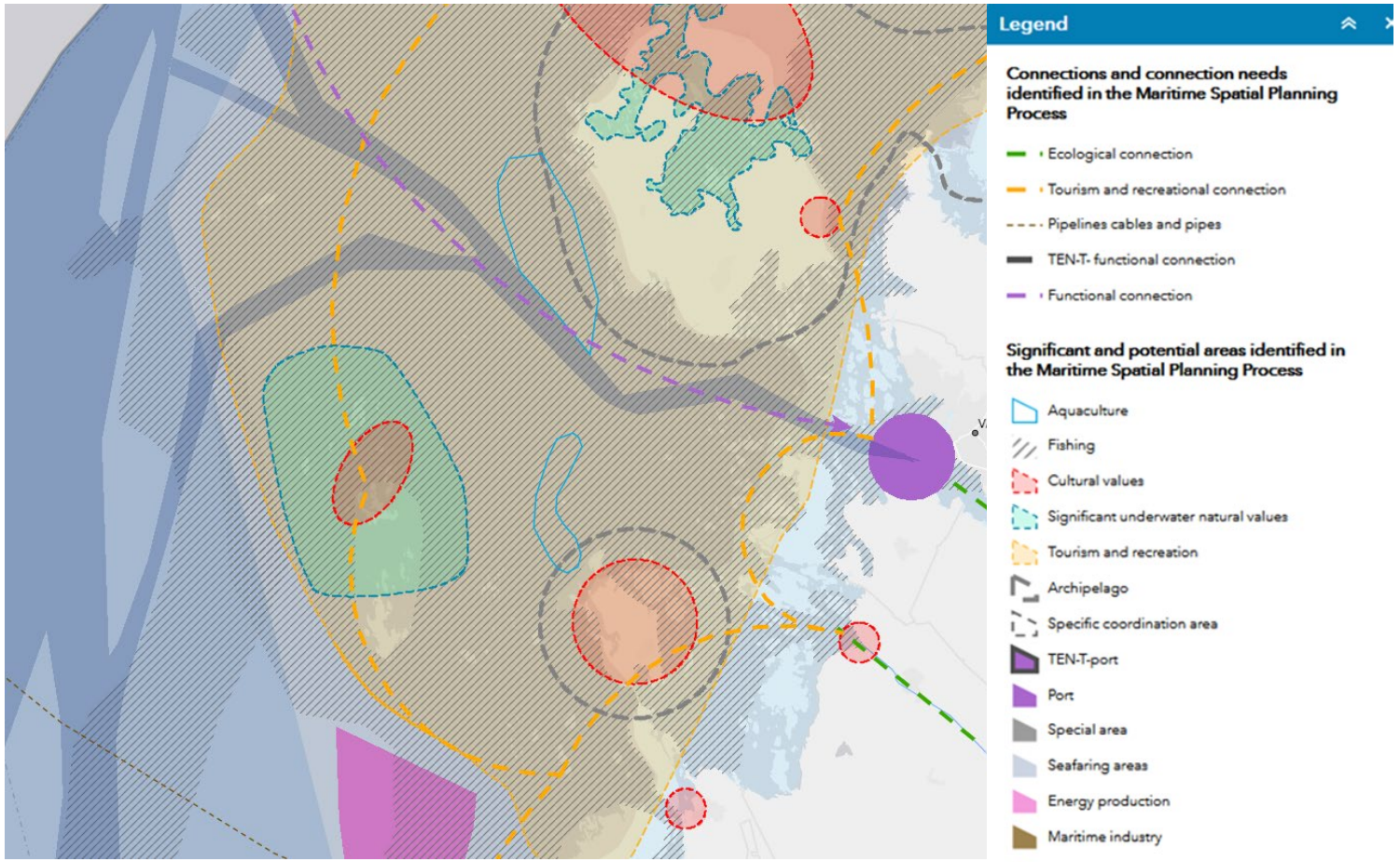
Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



MARITIME SPATIAL PLAN 2030 FOR FINLAND



Identifies significant and potential areas and connections for maritime sectors.

Allowing, not restricting. No *no-go* areas.

Multiuse.

Looks at the future – years 2030 and 2050.

Provides knowledge about possibilities and preconditions. Spatial and temporal approach.

ARCHIPELAGO

Current state

- Sustainable Coasts, Finnish Coastal Zone Strategy (2006)
- YKR-Data Report (2020)

Plan map

- Archipelago map marking indicates important functional archipelago entities, which have been limited taking into account variables affecting the creation of a vital archipelago, such as housing, livelihood, services, accessibility, good infrastructure connections, recreational opportunities and cultural environments.
- Functional connection and tourism/recreational connection

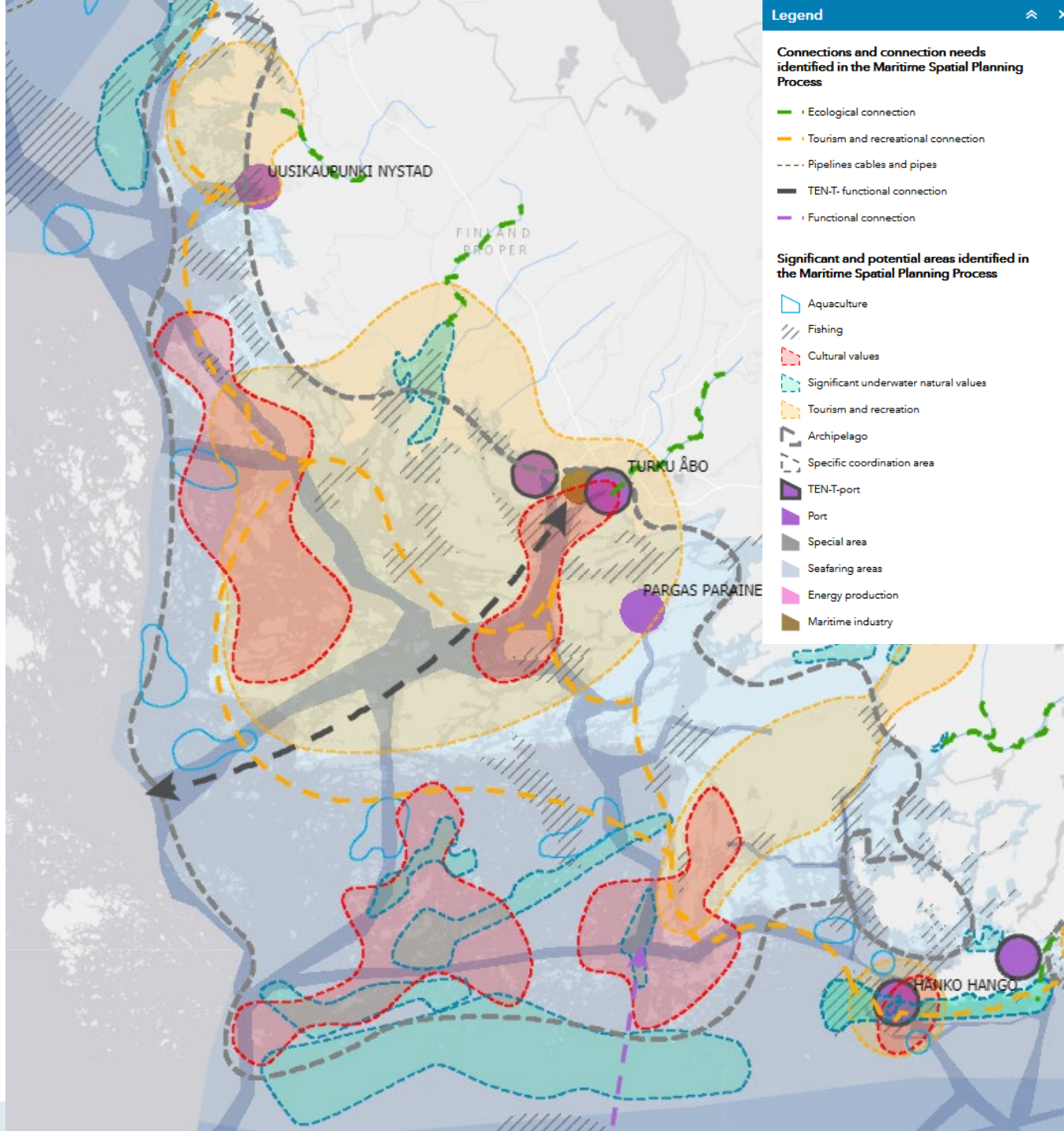
Planning principle

”The preconditions for permanent residents should be promoted, and the vital archipelago culture, diverse business life and year-round accessibility of the areas should be considered when developing the areas. The infrastructure in the area should be developed to support the vitality and characteristics of the area.”

Impact assessment

The wellbeing and development of archipelago areas were examined in relation to all marine sectors' development visions.

Land-sea interactions and coastal socio-ecological systems are vital for vital archipelago areas.



MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

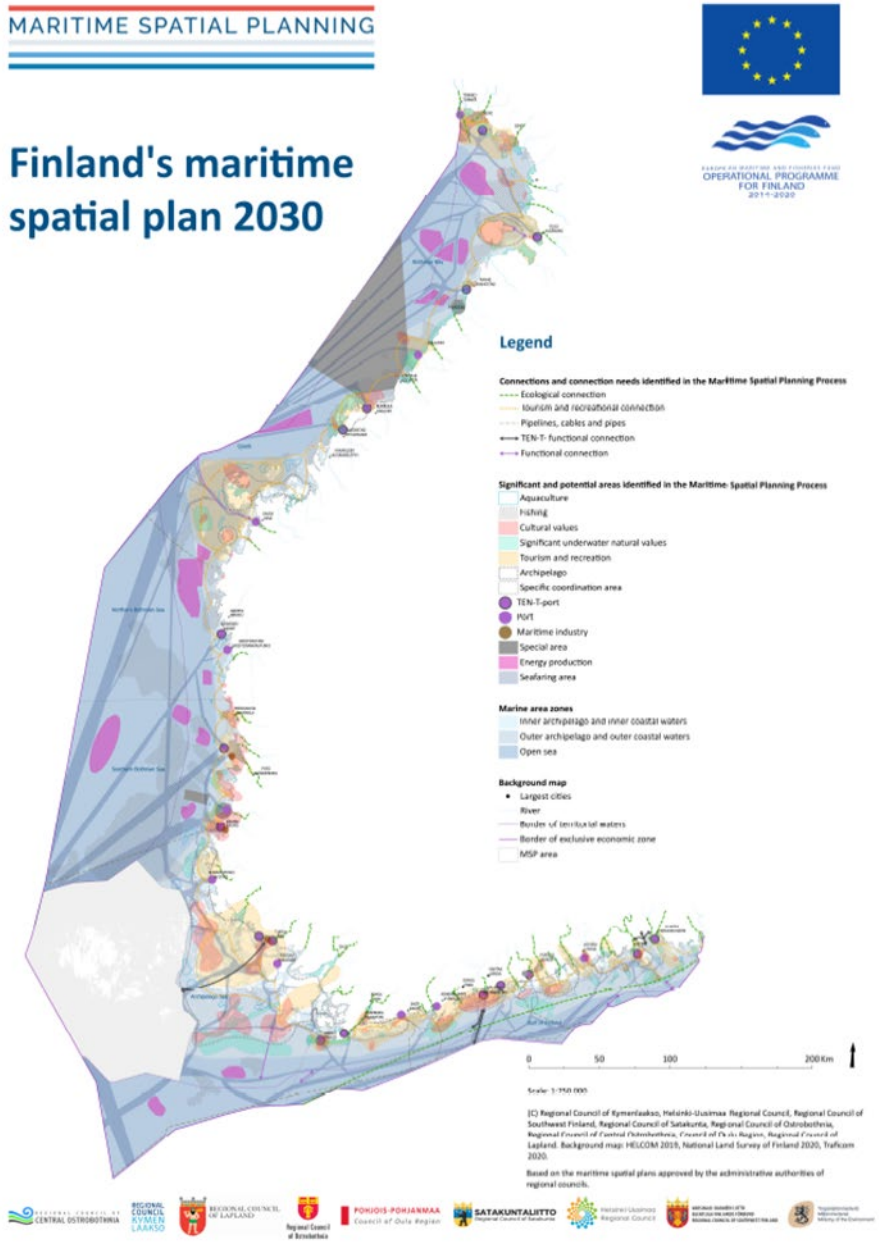
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

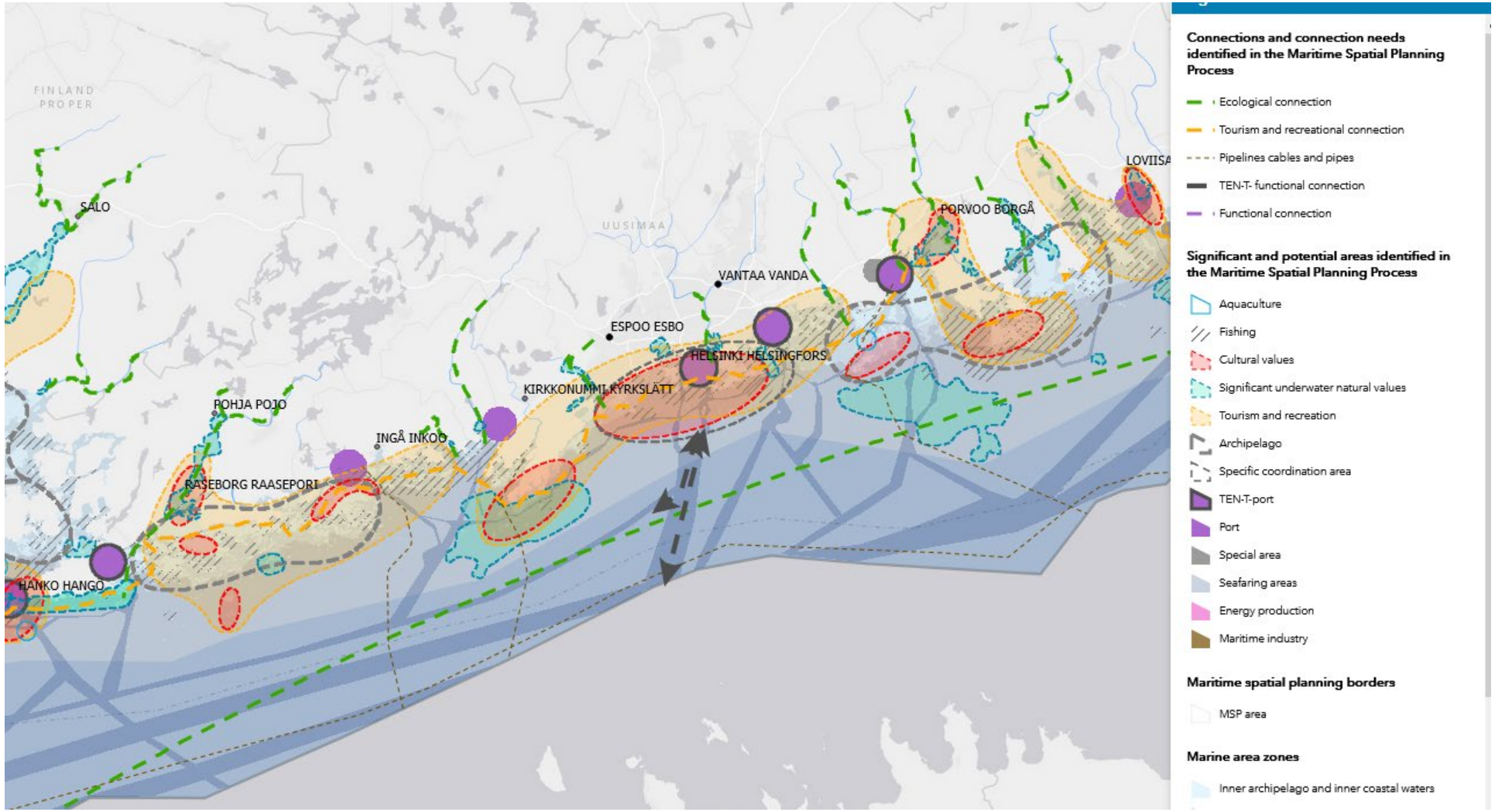
Start again

→ Adaptive planning

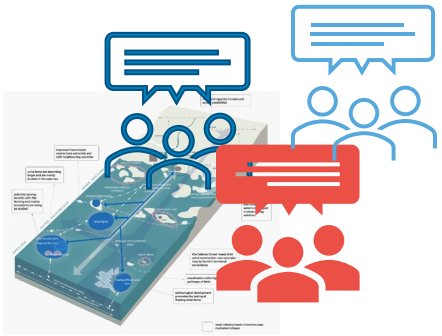


DIGITAL MARITIME SPATIAL PLAN

www.merialuesuunnitelma.fi/en

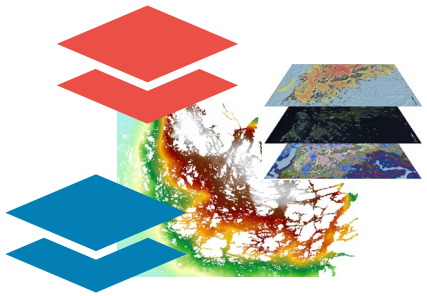


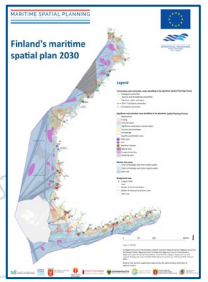
Stakeholder meetings

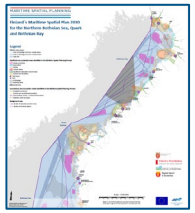


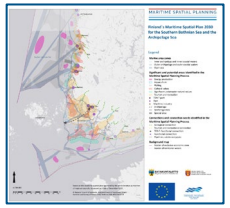
Planning meetings

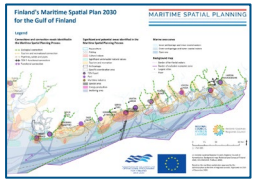
Data and analysis from scientific institutes and other stakeholders



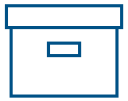




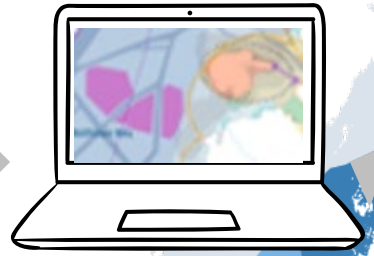


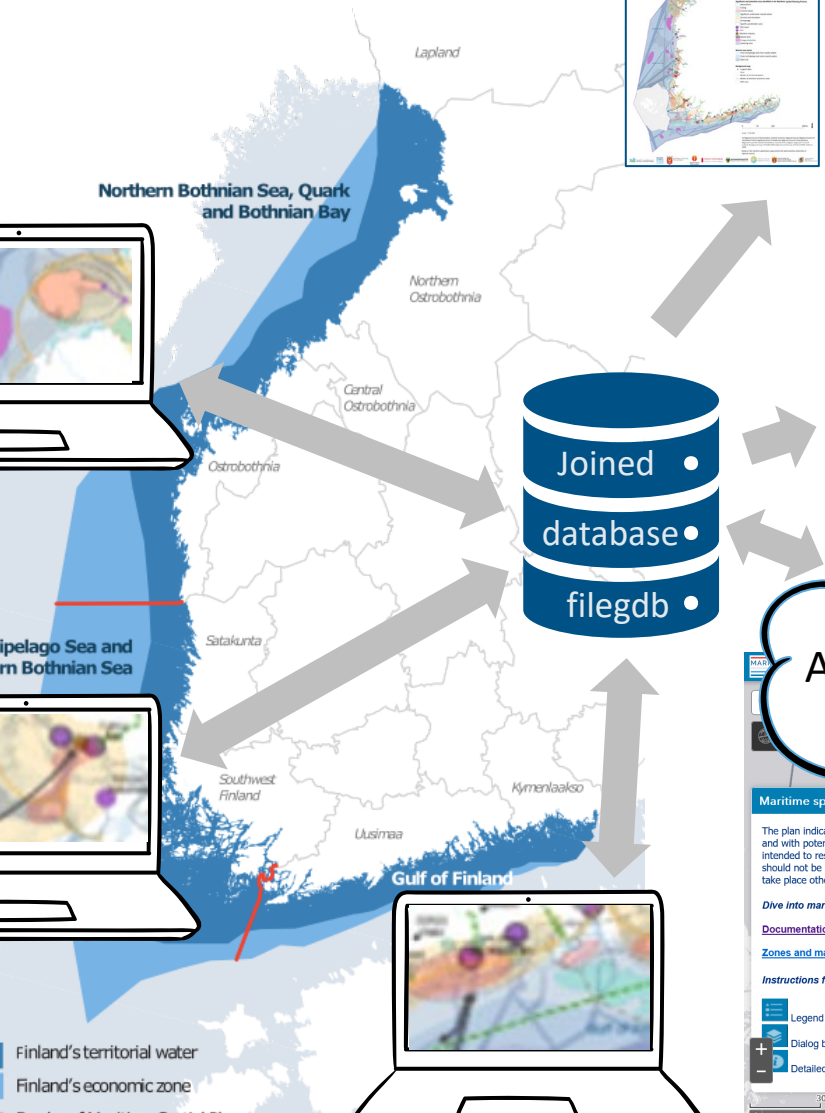


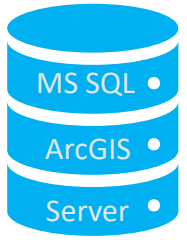
Print

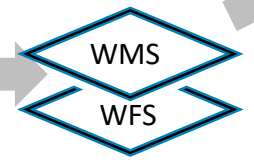


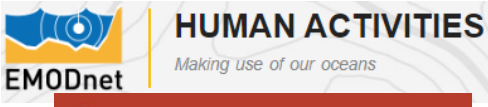
Archive



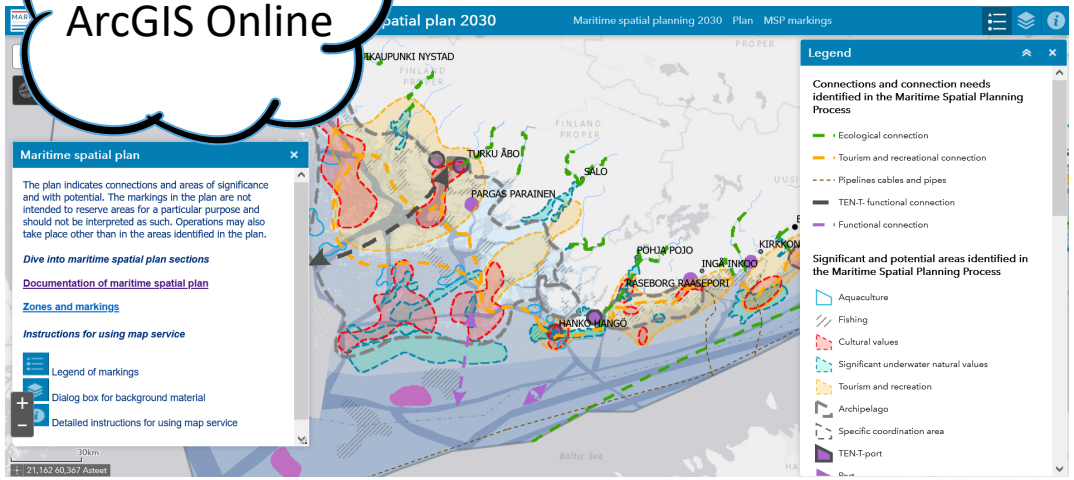


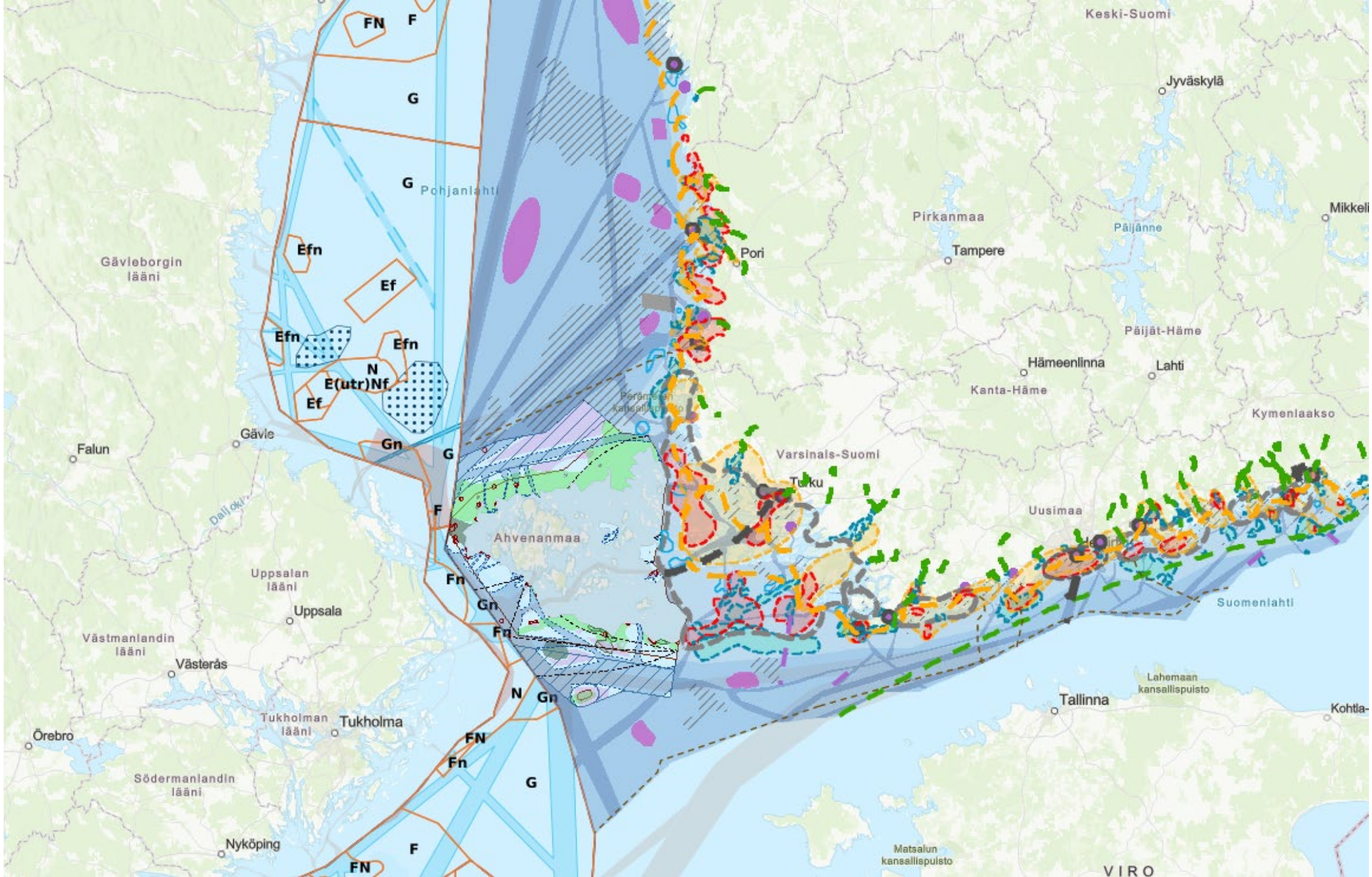




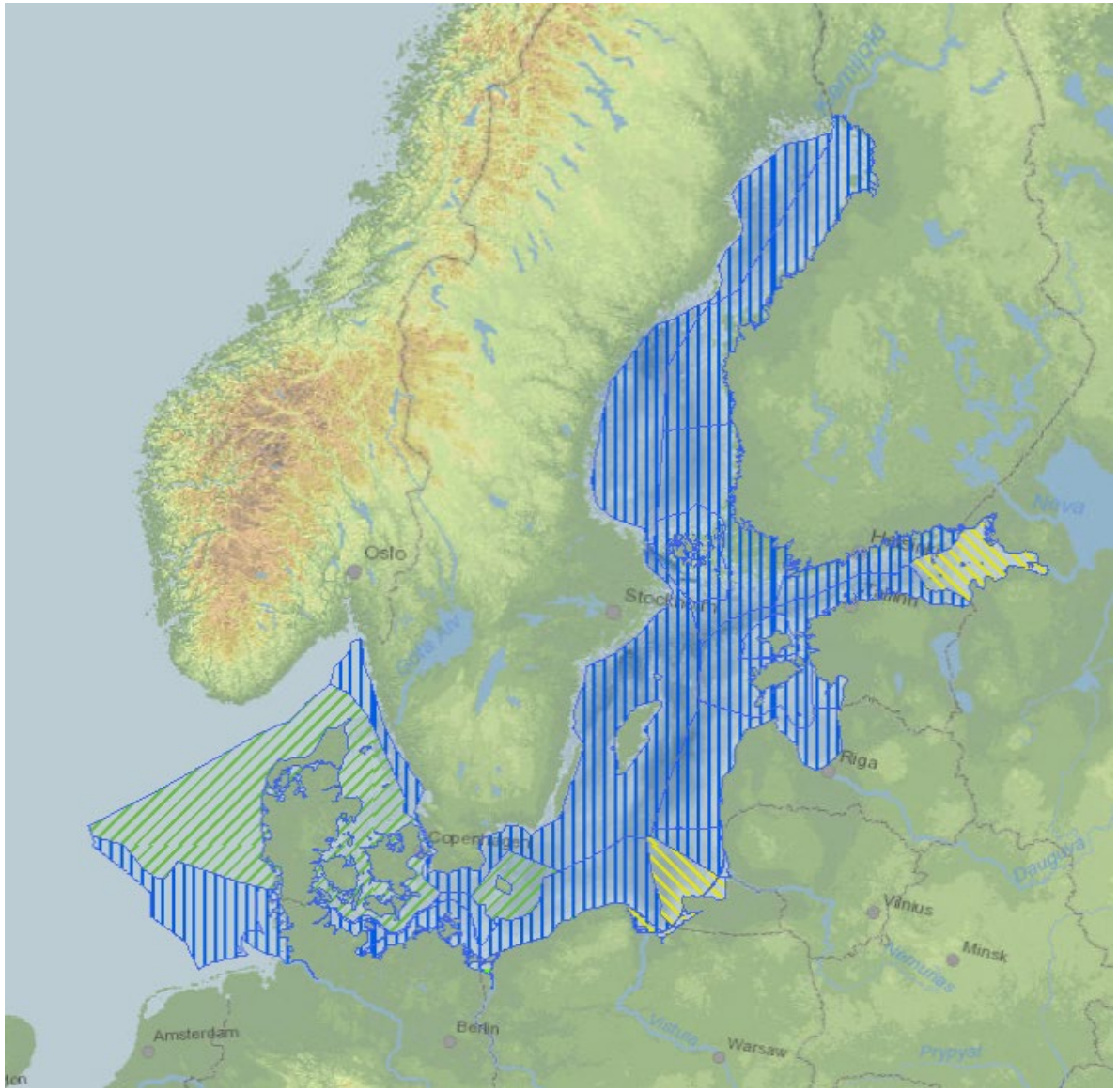


ArcGIS Online

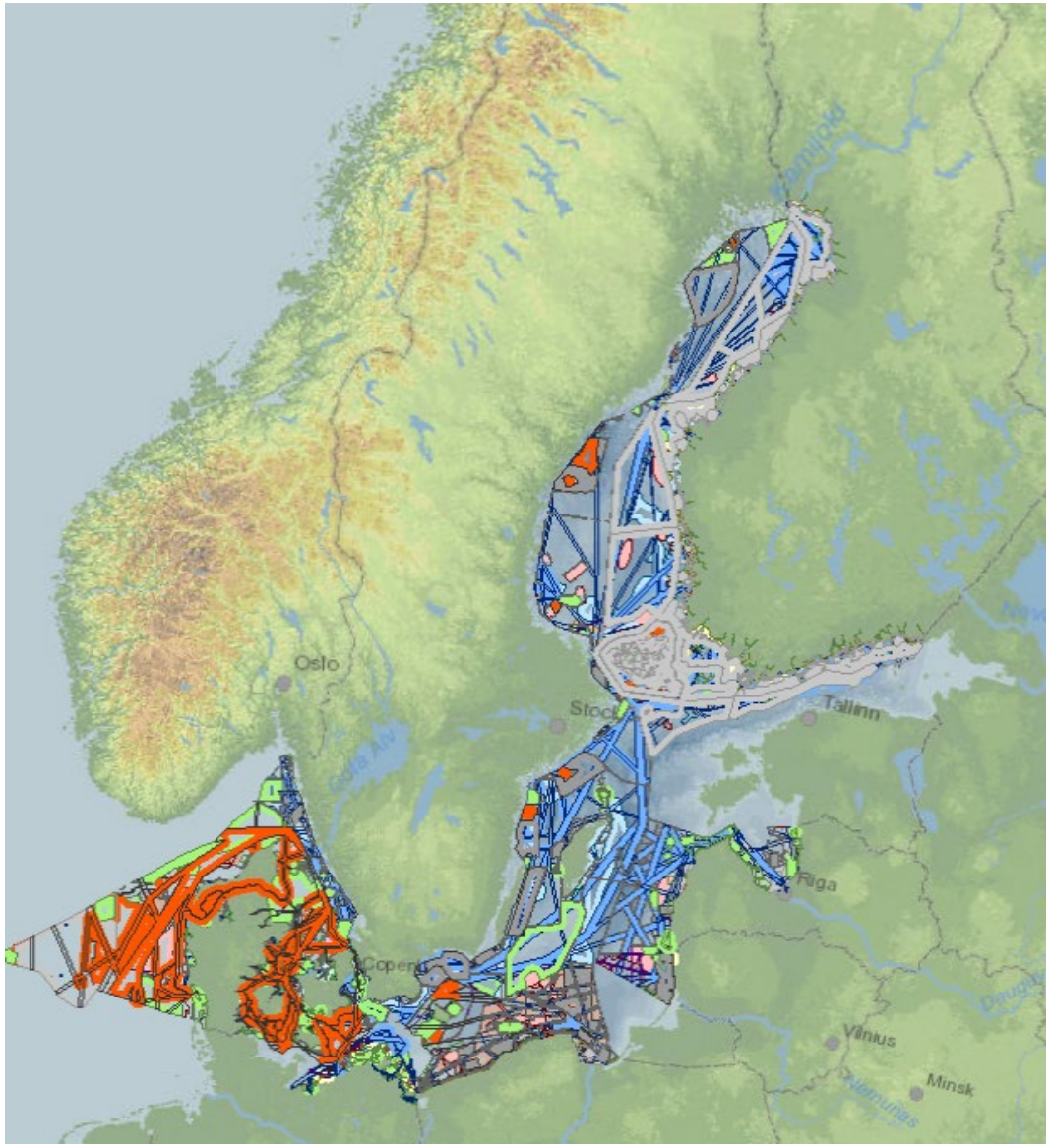



Keski-Suomi
Jyväskylä
Pirkanmaa
Päijänne
Mikkeli
Tampere
Pori
Päijät-Häme
Hämeenlinna
Lahti
Kanta-Häme
Kymenlaakso
Varsinais-Suomi
Turku
Uusimaa
Suomenlahti
Ahvenanmaa
Pohjanlahti
Gävleborgin lääni
Gävle
Falun
Dalälven
Uppsalan lääni
Uppsala
Västmanlandin lääni
Västerås
Tukholman lääni
Tukholma
Örebro
Södermanlandin lääni
Nyköping
Lahemaan kansallispuisto
Tallinna
Kohtla-
Matsalun kansallispuisto
VIRO
Efn
Ef
N
E(utr)Nf
Gn
G
F
Fn
FN

DATA SHARING - BASEMAPS https://basemaps.helcom.fi/

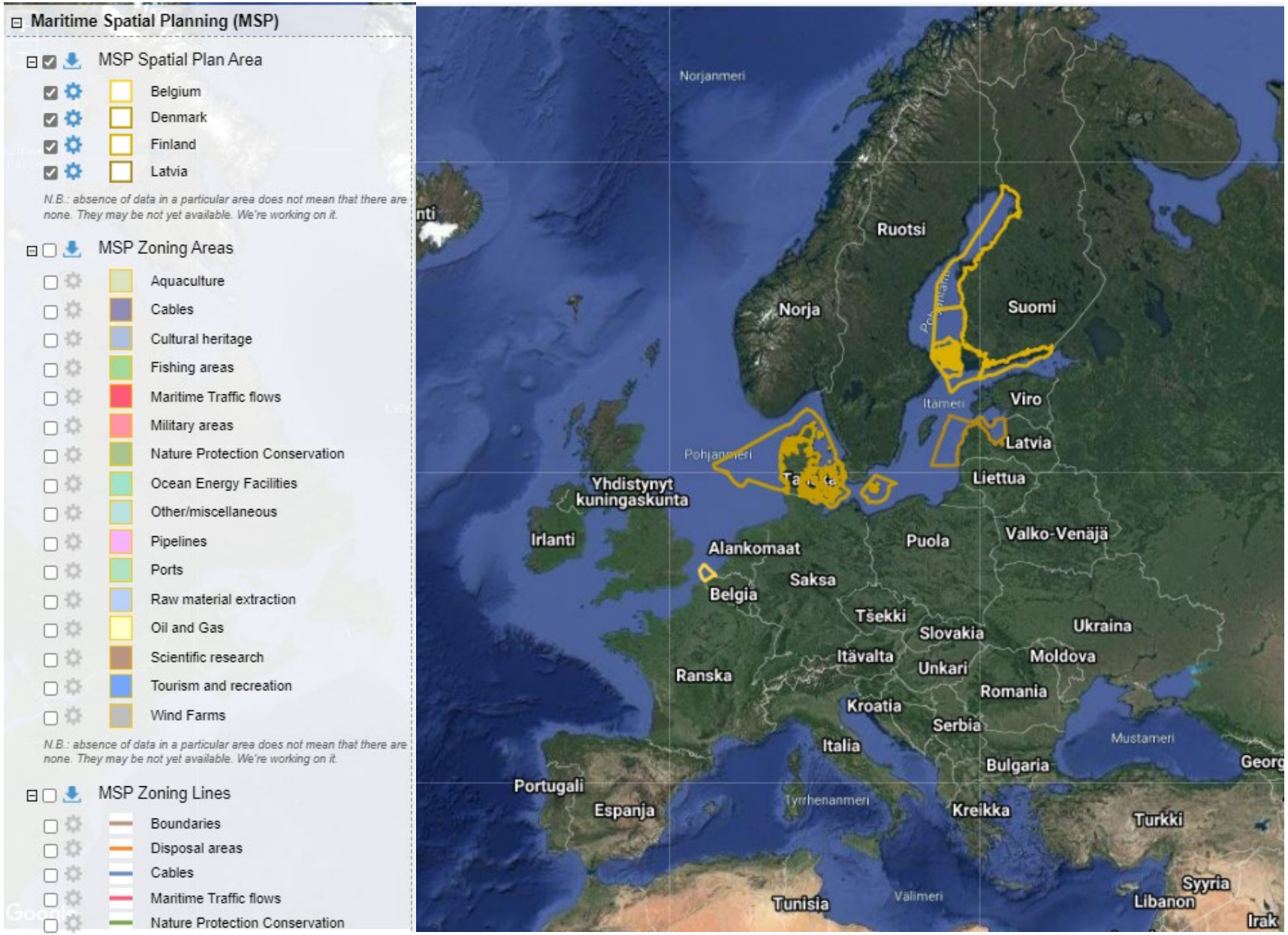


Status of the plans



Map markings

DATA SHARING -EMODnet https://emodnet.eu/en



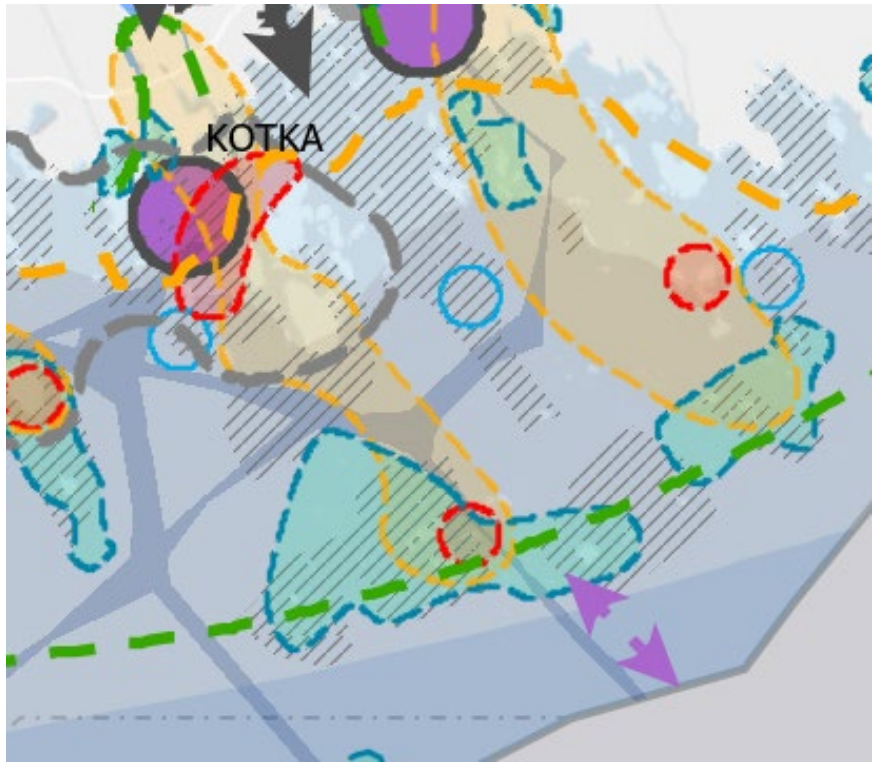
Seafare areas, cables, pipes, functional connections, ecological connections

Cumulative impacts (offshore wind, aquaculture)

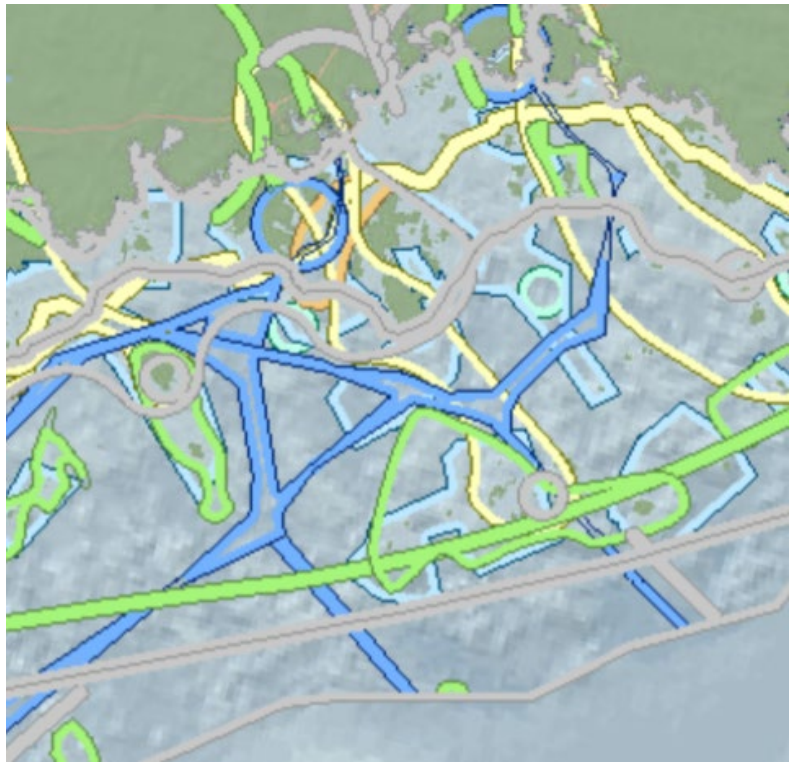
The wreck of frigate Sankt Nikolai

MSP CLASSIFICATION MODELS

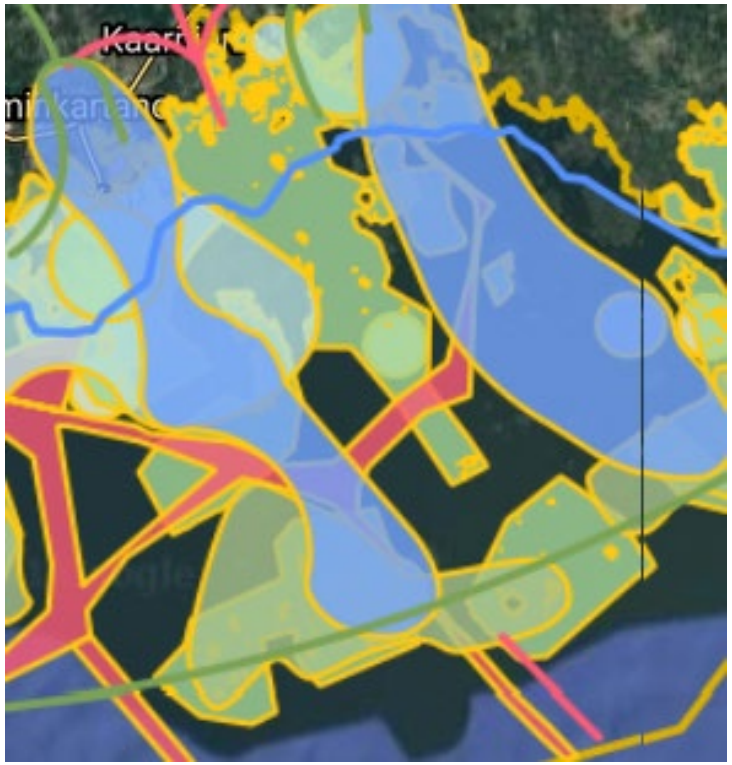
National classification



HELCOM classification



EMODnet classification



MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

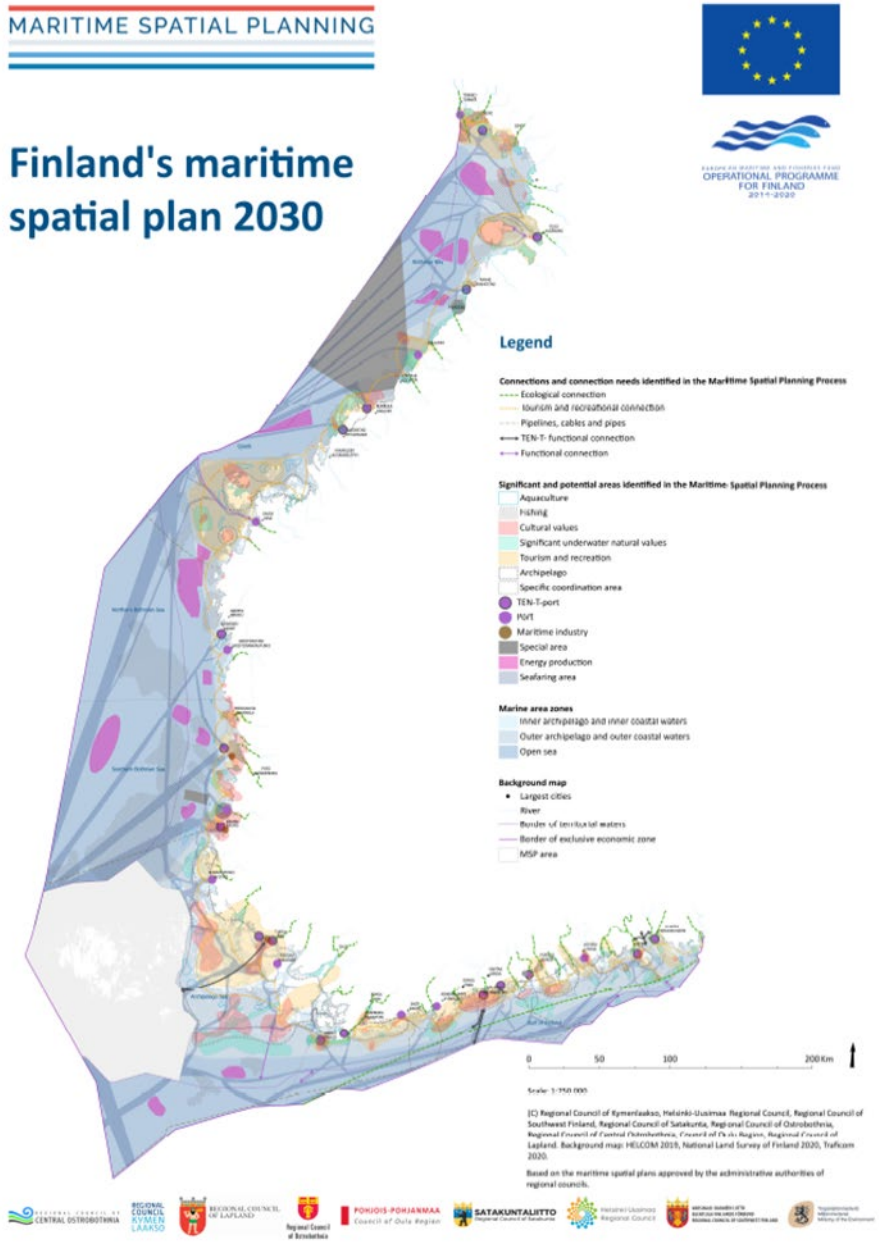
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

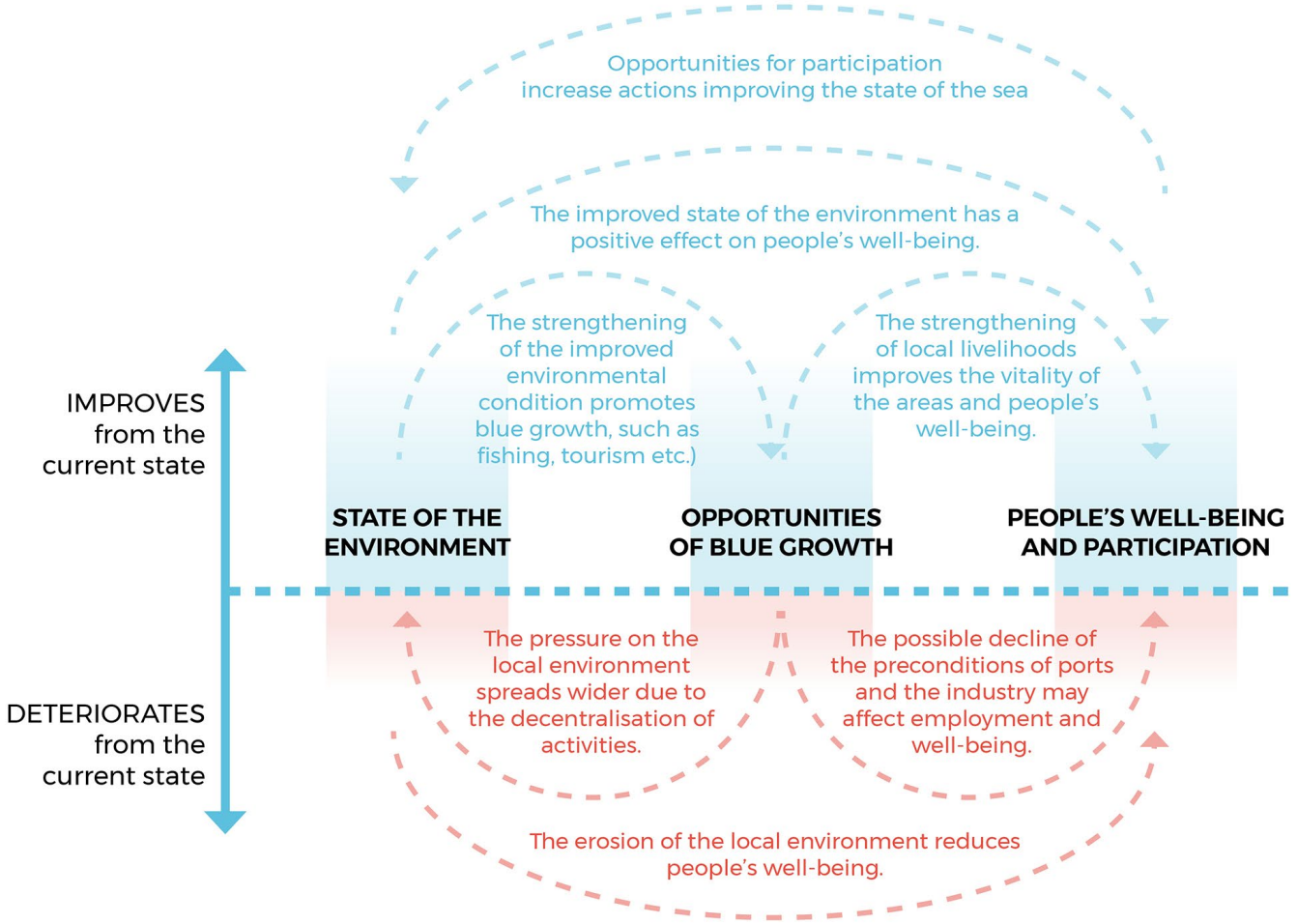
Start again

→ Adaptive planning



IMPACT ASSESSMENT – Scenario work

Profitability under the environment's terms



IMPACT ASSESSMENT – Plan

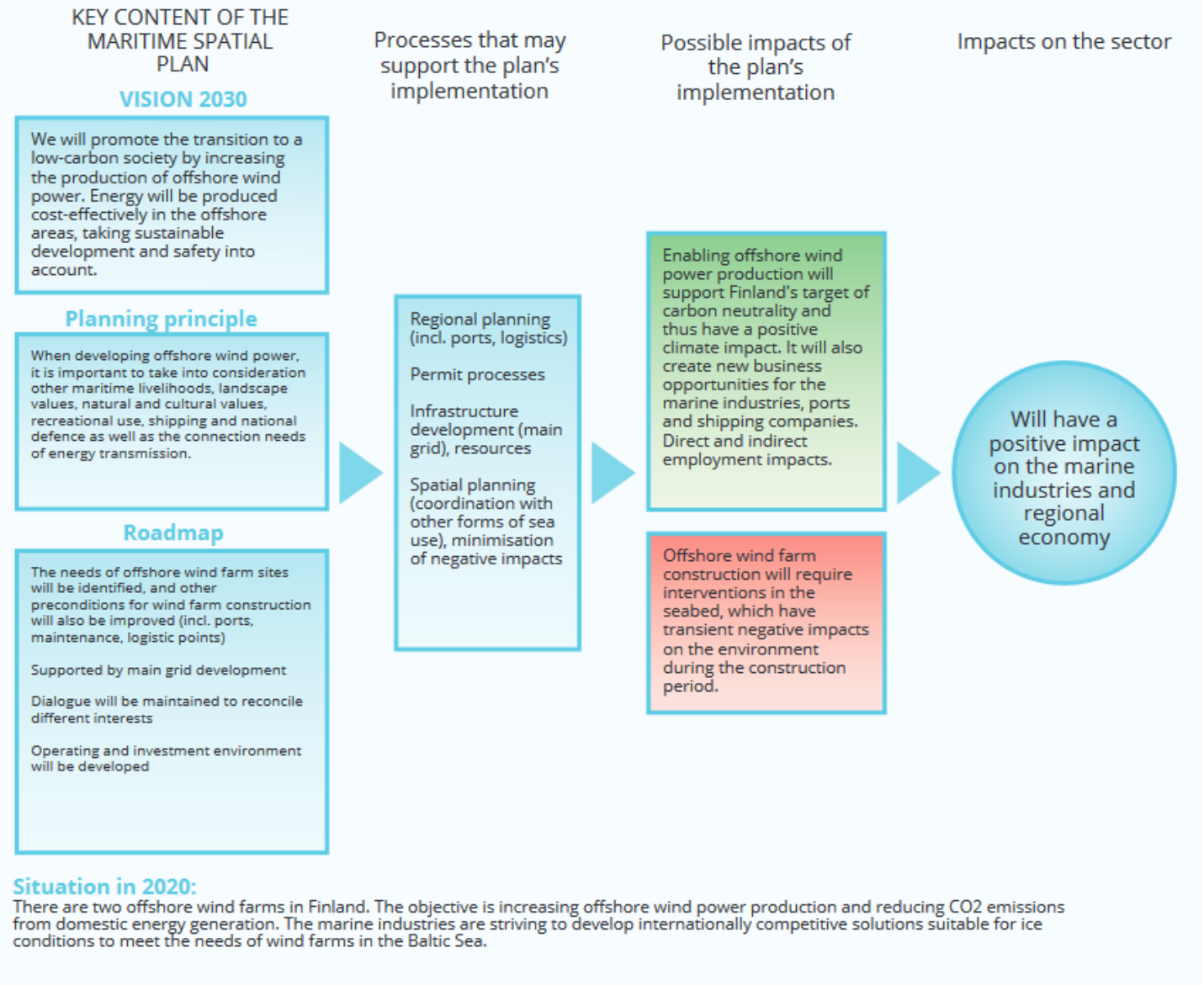
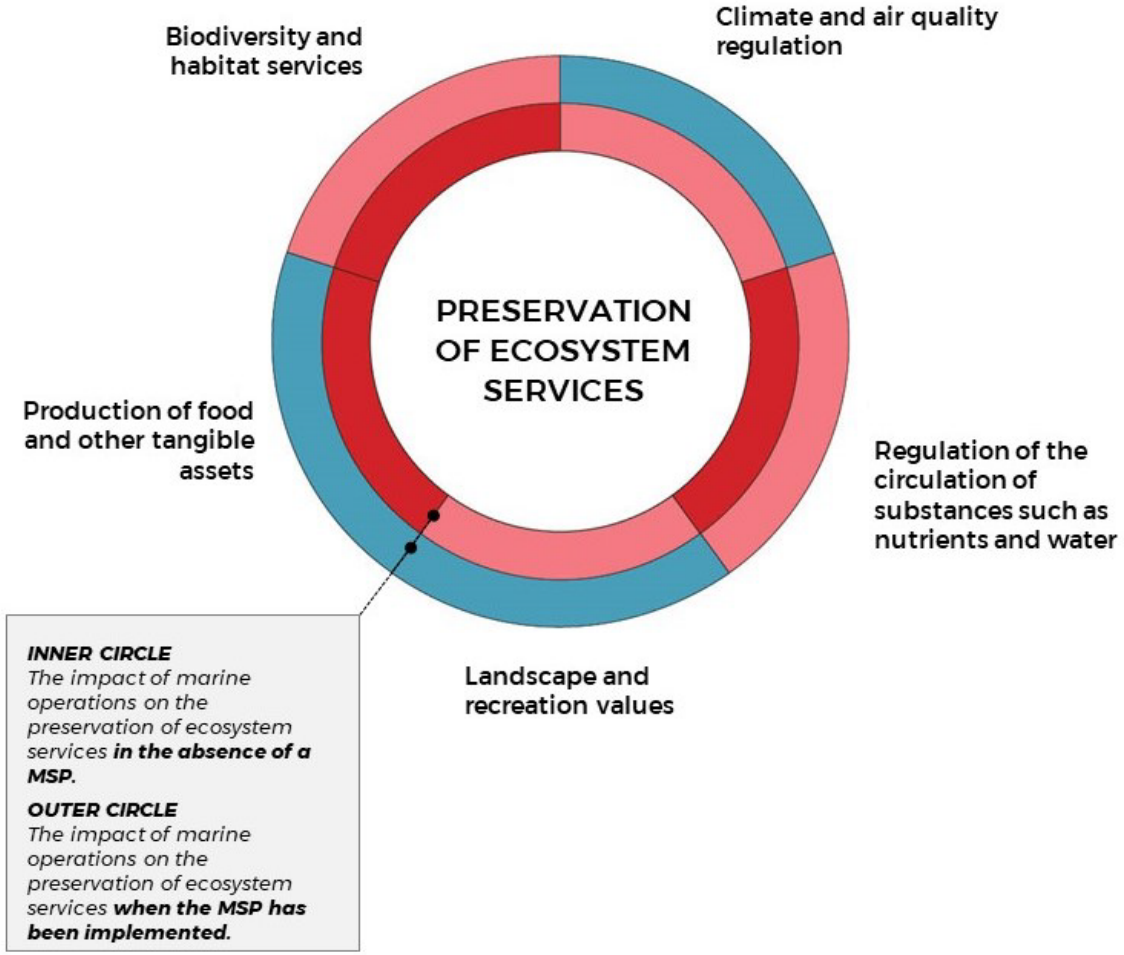
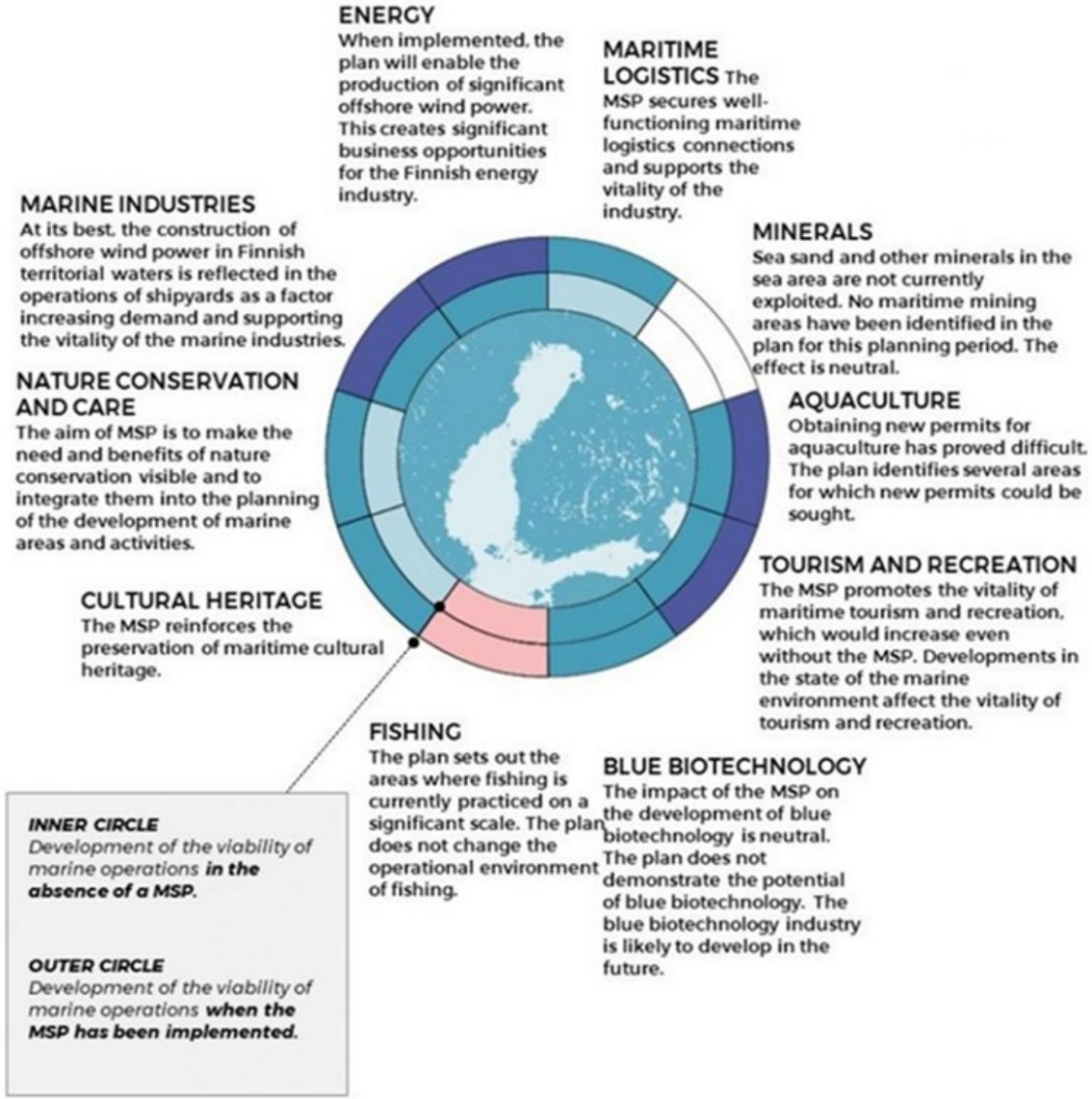
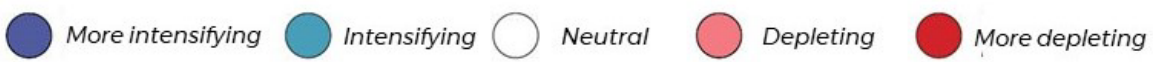


Figure 2. Impact pathway of offshore wind farms


Biodiversity and habitat services
Climate and air quality regulation
PRESERVATION OF ECOSYSTEM SERVICES
Production of food and other tangible assets
Regulation of the circulation of substances such as nutrients and water
Landscape and recreation values
INNER CIRCLE
The impact of marine operations on the preservation of ecosystem services in the absence of a MSP.
OUTER CIRCLE
The impact of marine operations on the preservation of ecosystem services when the MSP has been implemented.


ENERGY
When implemented, the plan will enable the production of significant offshore wind power. This creates significant business opportunities for the Finnish energy industry.
MARITIME LOGISTICS The MSP secures well-functioning maritime logistics connections and supports the vitality of the industry.
MARINE INDUSTRIES
At its best, the construction of offshore wind power in Finnish territorial waters is reflected in the operations of shipyards as a factor increasing demand and supporting the vitality of the marine industries.
MINERALS
Sea sand and other minerals in the sea area are not currently exploited. No maritime mining areas have been identified in the plan for this planning period. The effect is neutral.
NATURE CONSERVATION AND CARE
The aim of MSP is to make the need and benefits of nature conservation visible and to integrate them into the planning of the development of marine areas and activities.
AQUACULTURE
Obtaining new permits for aquaculture has proved difficult. The plan identifies several areas for which new permits could be sought.
TOURISM AND RECREATION
The MSP promotes the vitality of maritime tourism and recreation, which would increase even without the MSP. Developments in the state of the marine environment affect the vitality of tourism and recreation.
CULTURAL HERITAGE
The MSP reinforces the preservation of maritime cultural heritage.
FISHING
The plan sets out the areas where fishing is currently practiced on a significant scale. The plan does not change the operational environment of fishing.
BLUE BIOTECHNOLOGY
The impact of the MSP on the development of blue biotechnology is neutral. The plan does not demonstrate the potential of blue biotechnology. The blue biotechnology industry is likely to develop in the future.
INNER CIRCLE
Development of the viability of marine operations in the absence of a MSP.
OUTER CIRCLE
Development of the viability of marine operations when the MSP has been implemented.


More intensifying
Intensifying
Neutral
Depleting
More depleting


Significantly strengthening
Strengthening
Slightly strengthening
Neutral
Depleting

MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

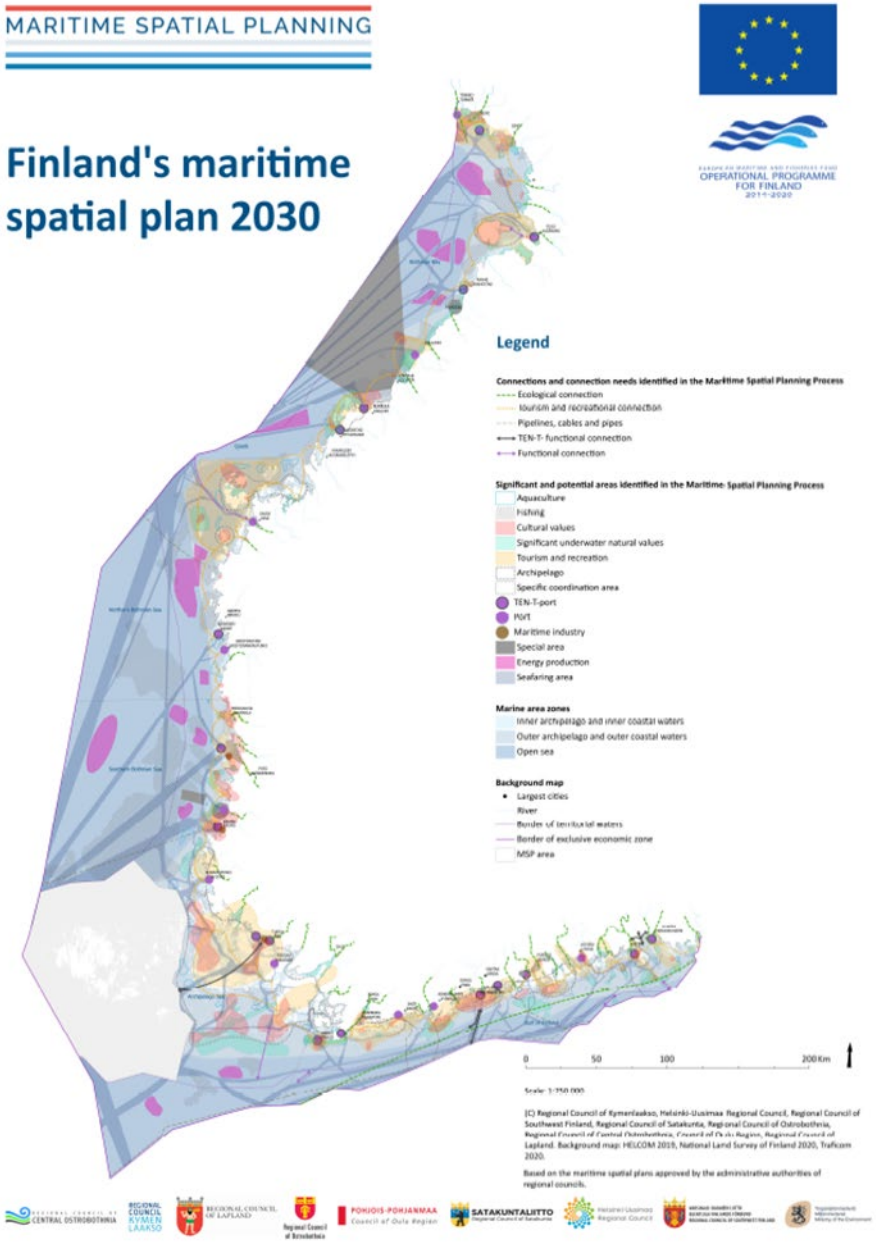
Draw the map and explain

Conduct impact assessment

Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



ME_report_2020.pdf (www.merialuesuunnittelu.fi)

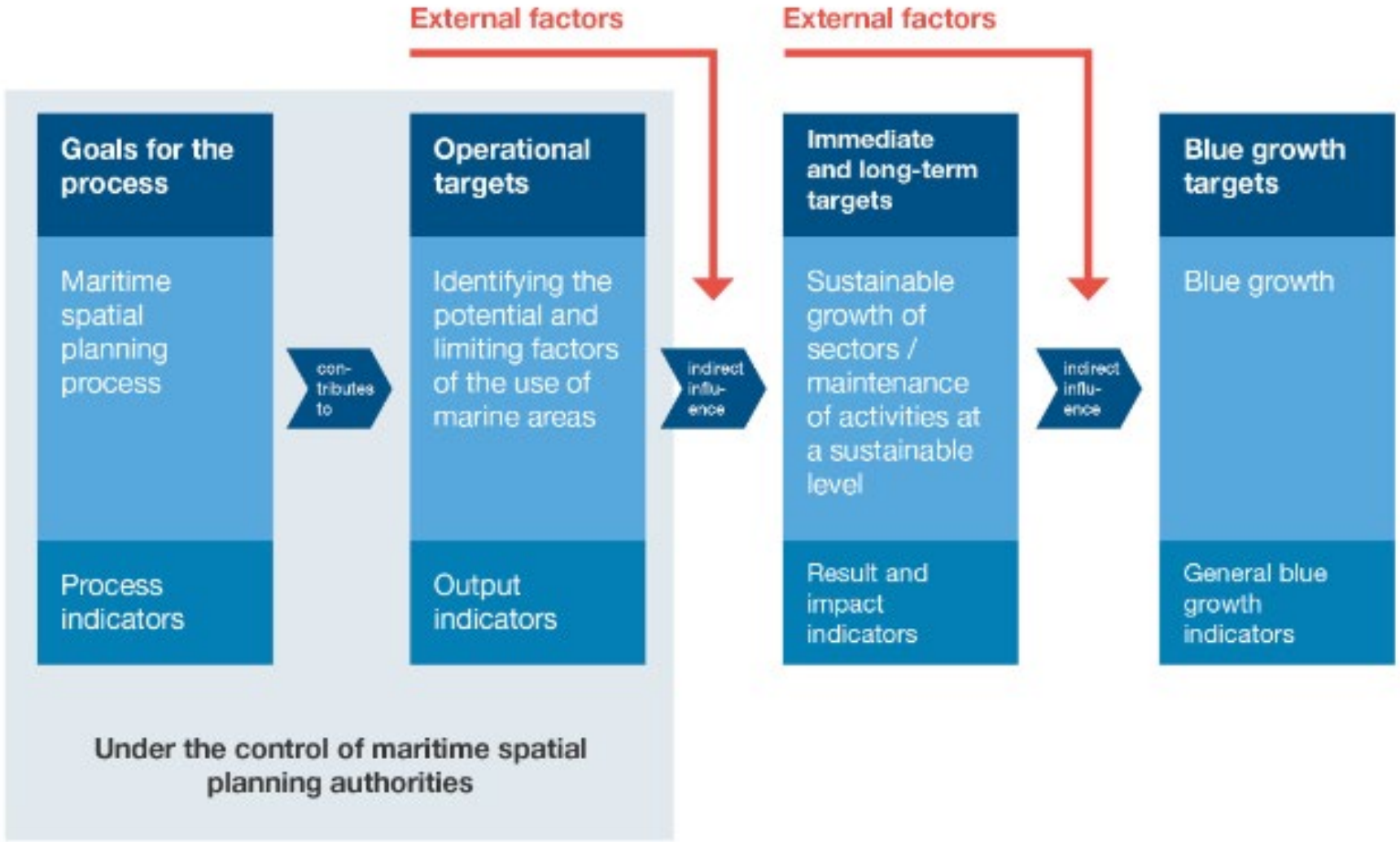


Figure 3. Impact path of maritime spatial planning

MARITIME SPATIAL PLANNING - MSP

Why, What and How?

The role and mandate (authority and organizational structure), and policy framework

Inform, consult, engage, collaborate – cross-sectoral, cross-border cooperation

Planning principles

Define the current state

Have a vision, the target state

Make planning solutions

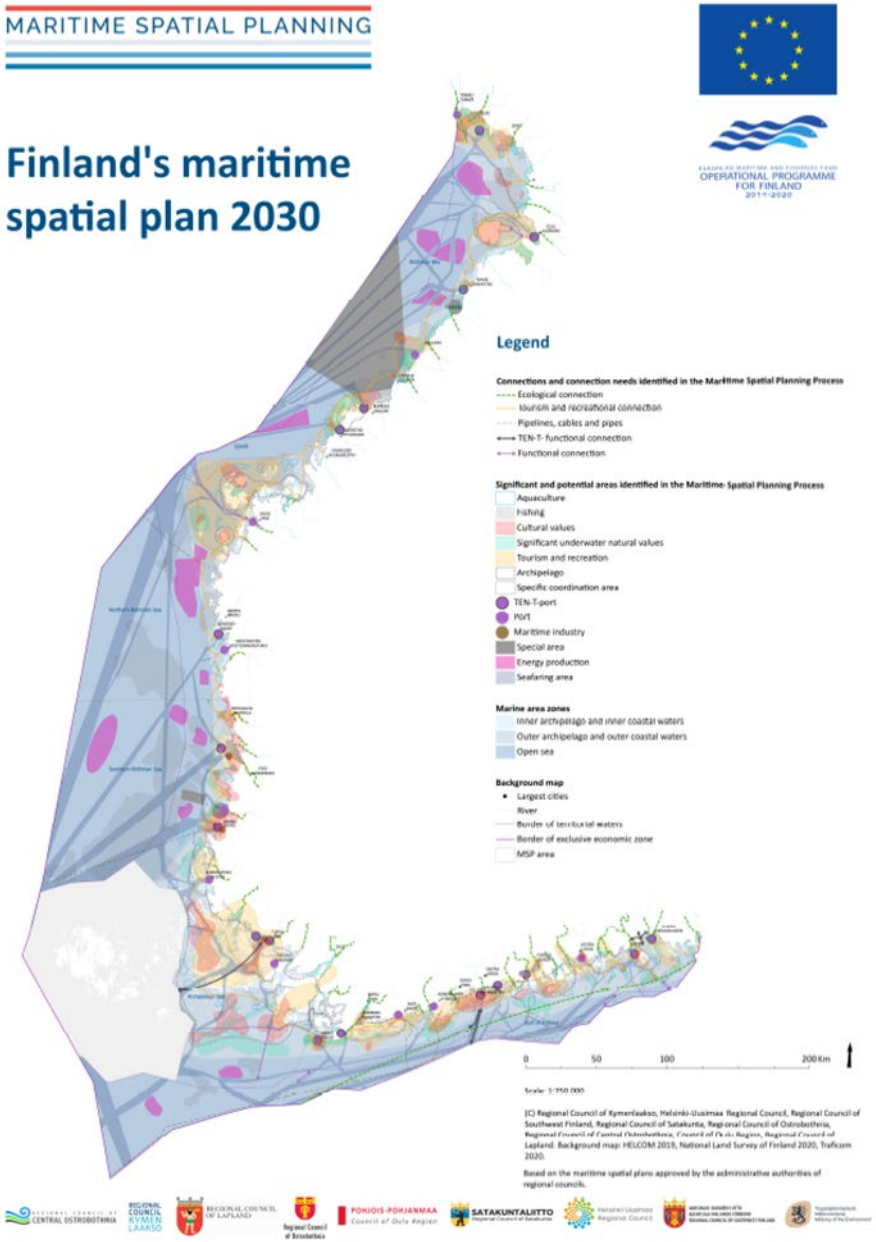
Draw the map and explain

Conduct impact assessment

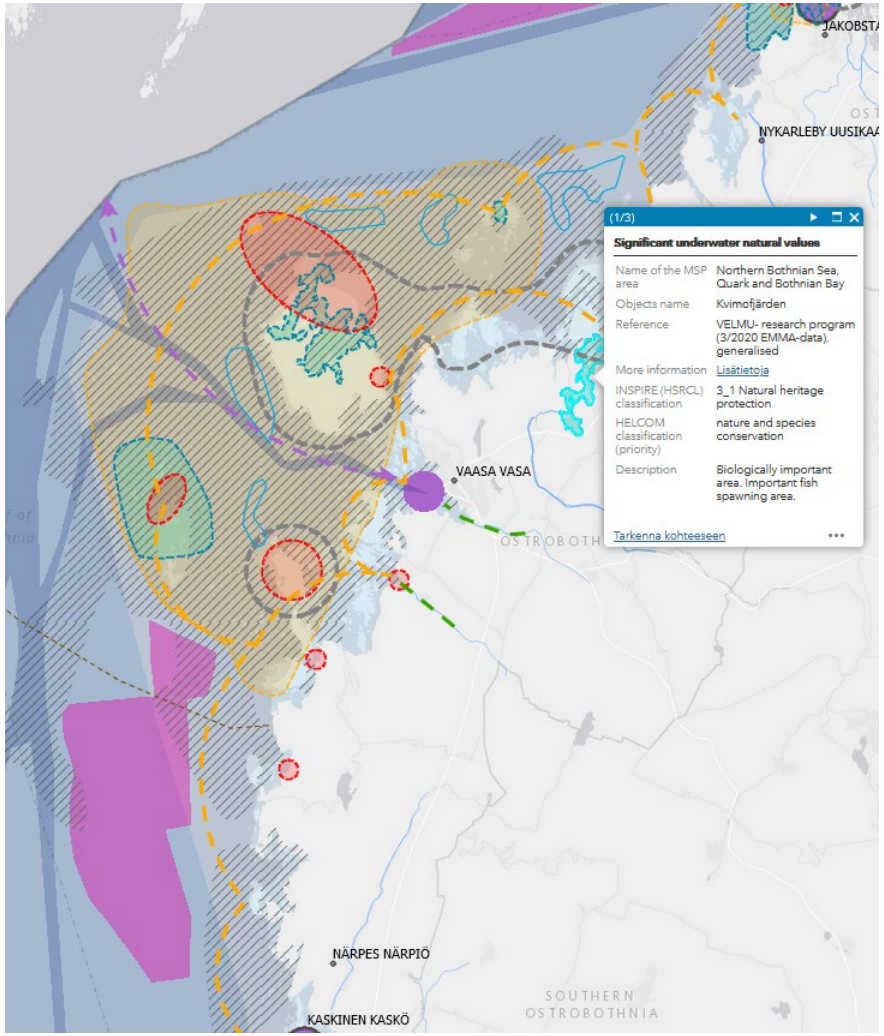
Monitor and evaluate the effectiveness of the plan

Start again

→ Adaptive planning



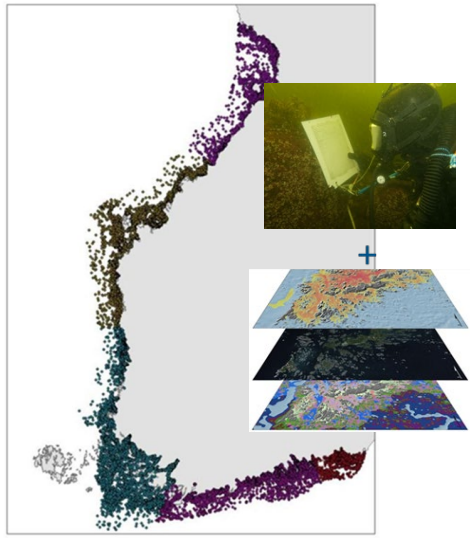
Biodiversity and ecosystem values, MSP 1.0



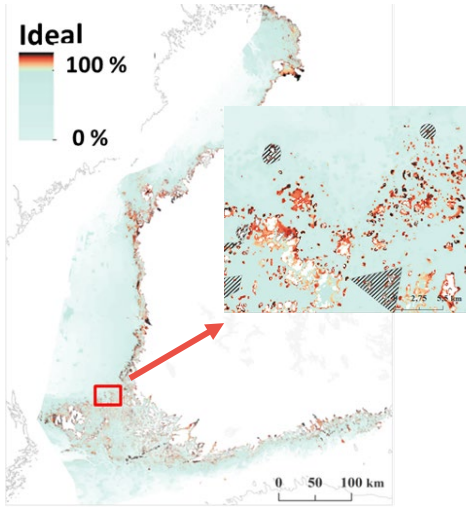
SIGNIFICANT UNDERWATER NATURAL VALUES ECOLOGICAL CONNECTION

VELMU – The Finnish Inventory Programme for the Underwater Marine Environment (2004–)

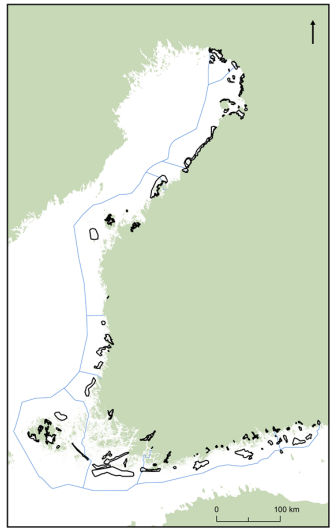
>170 000 underwater observation points



ZONATION ANALYSIS to identify the high nature value areas

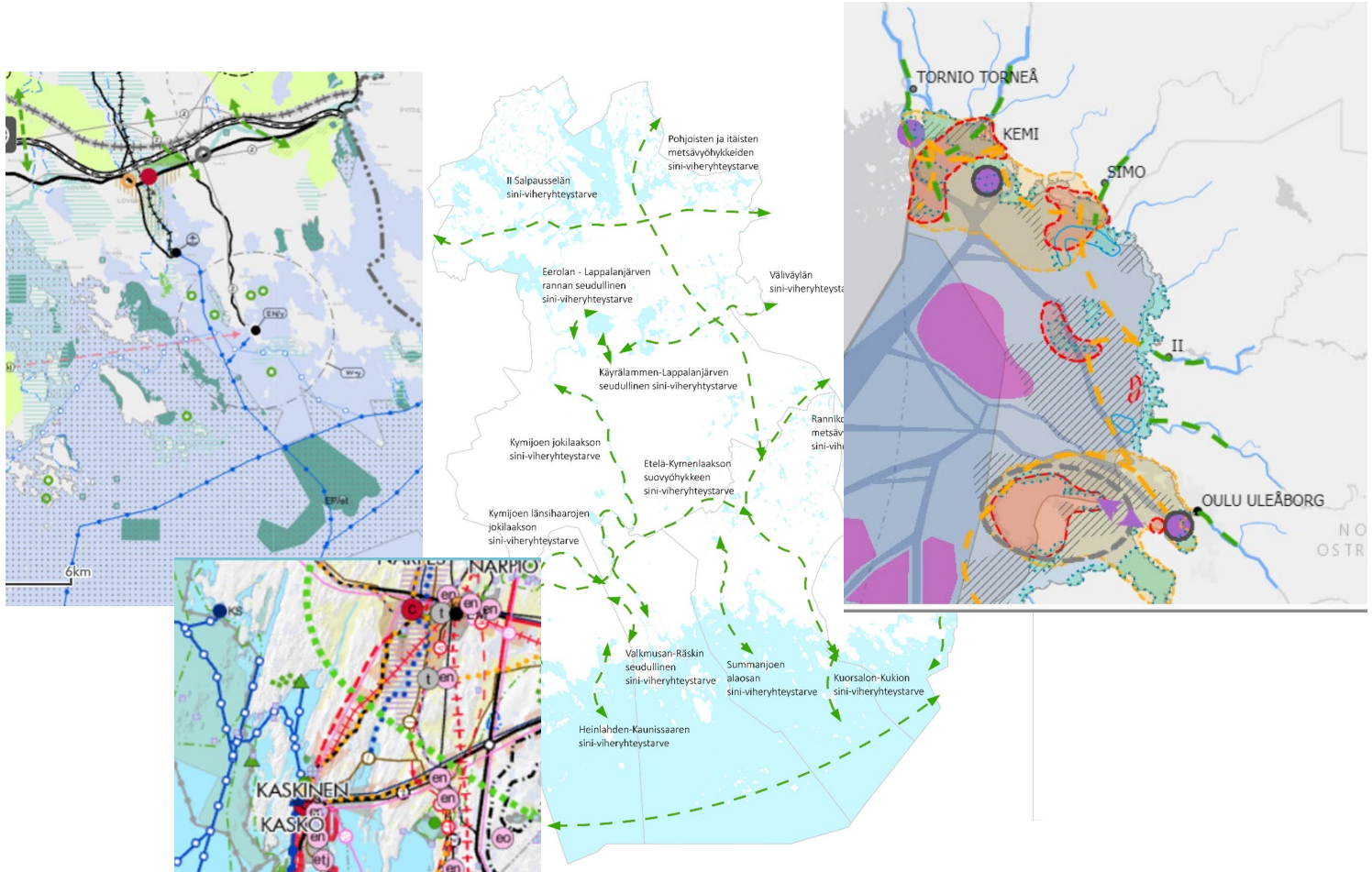


ECOLOGICALLY SIGNIFICANT MARINE UNDERWATER AREAS – A criteria of EBSA were applied and a total of 87 EMMAs were identified[1]



[1]Kuismanen, L. M. J., Virtanen, E. A., Lappalainen, J., Kurvinen, L., Blankett, P., & Viitasalo, M. (2023). Identifying ecologically valuable marine areas to support conservation and spatial planning at scales relevant for decision making. Marine Policy, 158, [105890]. https://doi.org/10.1016/j.marpol.2023.105890

EGD: Biodiversity and ecosystem protection and restoration, MSP 2.0 + Climate change adaptation MSP (Climate-Informed MSP)



How to support the targets of the EU Biodiversity Strategy 2030 and proposed EU Restoration Law?

A blue-green infrastructure map marking covering the entire land-sea interface and marine area, considering the natural value areas and their interconnections

- Migratory routes of fish, birds, bats
- International green connections
- Significant underwater natural values
- Ecosystem service areas
- CC-refugias
- Conservation areas

Ecosystem accounting

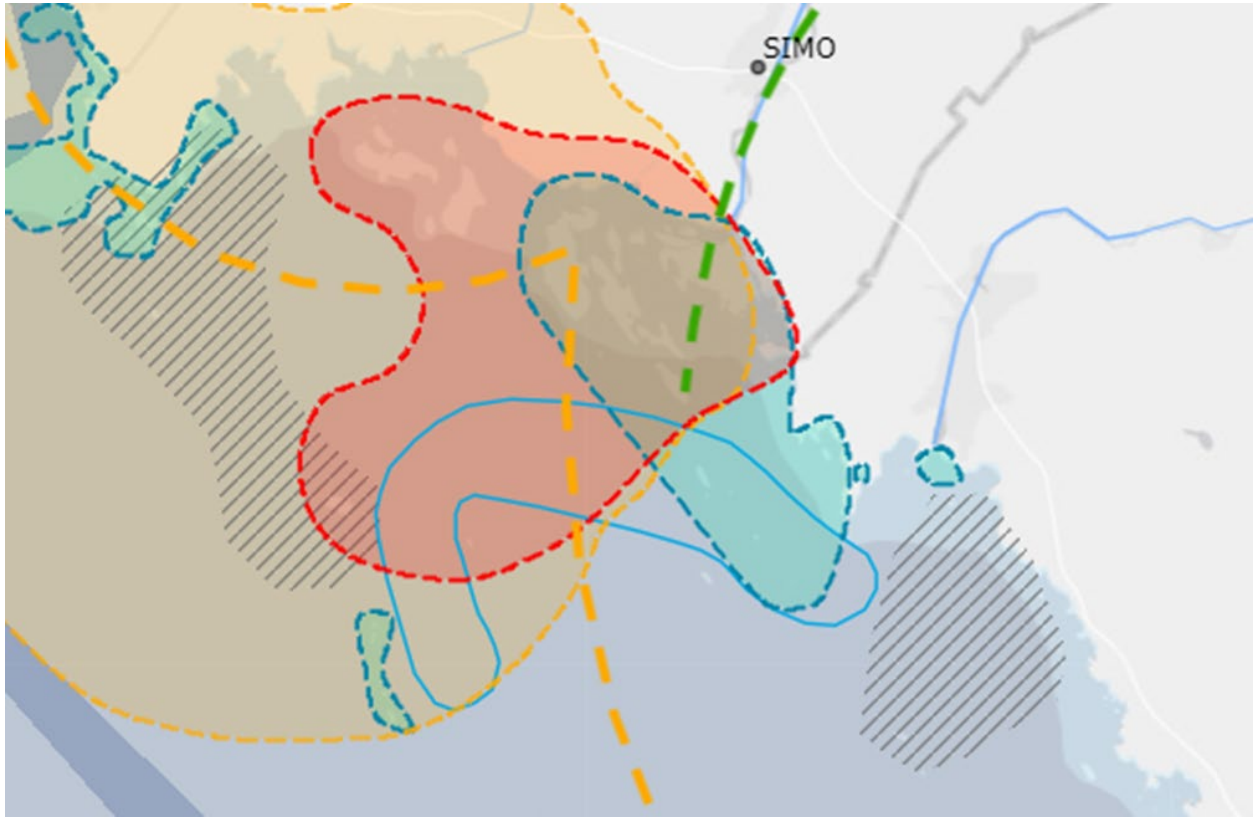
Role in CC-resilience

Fish farming and fishing, MSP 1.0

Aquaculture – The marking indicates the potential areas for further fish farming development. The modeling (FINFARMGIS) produced by the Natural Resources Institute Finland has been utilised when identifying areas.

Location optimization takes the following criteria into account

- Exclusive criteria: fairways, military areas, national parks, wrecks, cables, private and state nature reserves
- Ecological guiding criteria: Natura SPA areas, Natura SCA areas, sea area openness, ocean current, ecological status classification, depth, underwater nature peak areas (a-chlorophyll, other fish farms load)
- Social guiding criteria: recreational facilities (recreational areas and fishing areas)
- Criteria that guide the economy: distance from the shore (high-efficiency production areas, estimate of sustainable production, fish disease risk)



Fishing

Maritime spatial planning identifies potential areas for coastal net fishing and open sea trawl fishing in terms of professional fishing.

Fish spawning sites

Included in the significant underwater natural values

EGD: Sustainable seafood production, MSP 2.0

Aquaculture guidelines (2021) and Farm to Fork Strategy (2020), Security of supply

Co-location of OWE and fishing / fisheries including migratory fish

Most important open sea trawling places overlap with OWE areas

- Optimizing the location of windmills and cables

Impact of cables on migratory fish

- Cross-border research
- Public-private funding
- Electric hubs, Energy Islands

Fish spawning areas

- Spatial and temporal considerations

Aquaculture

Updating FINFARMGIS modeling to identify potential areas for fish farming

Multi-use / MariParks

- OWE and fish farming
- OWE and seaweed/mussels
- Fish farming and seaweed/mussels

Nutrient compensation scheme

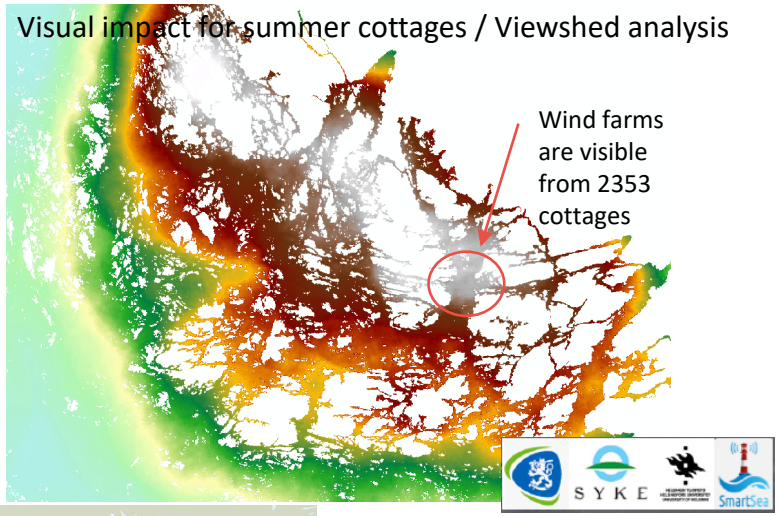
Land-sea interactions

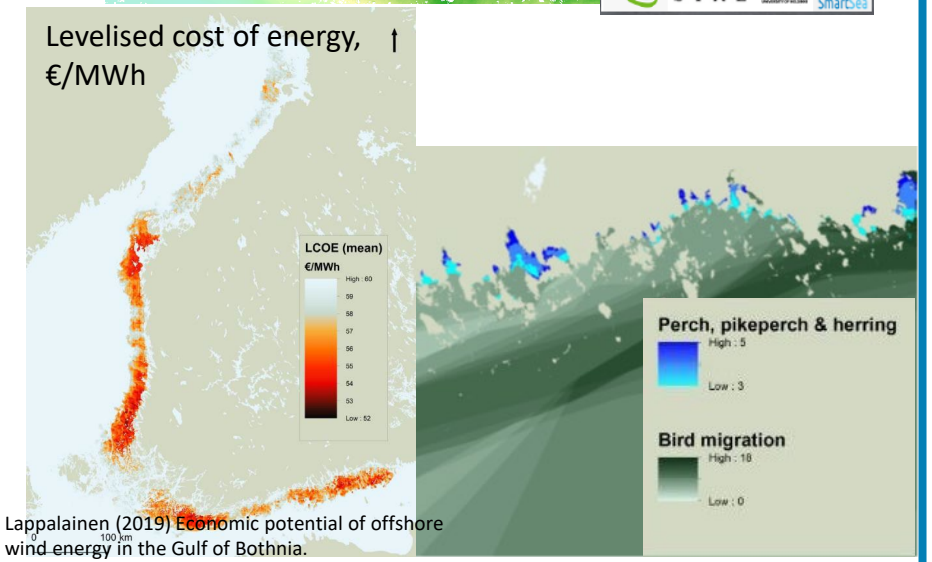
Recreational fishing?

A total of 25 % of the Finnish population is involved in recreational fishing.

Up to 70 % of the fish eaten in households comes from recreational fishing.

Synergies, but also conflicts with professional fishing.





Lappalainen (2019) Economic potential of offshore wind energy in the Gulf of Bothnia.

ENERGY PRODUCTION; Potential areas for off-shore wind farming

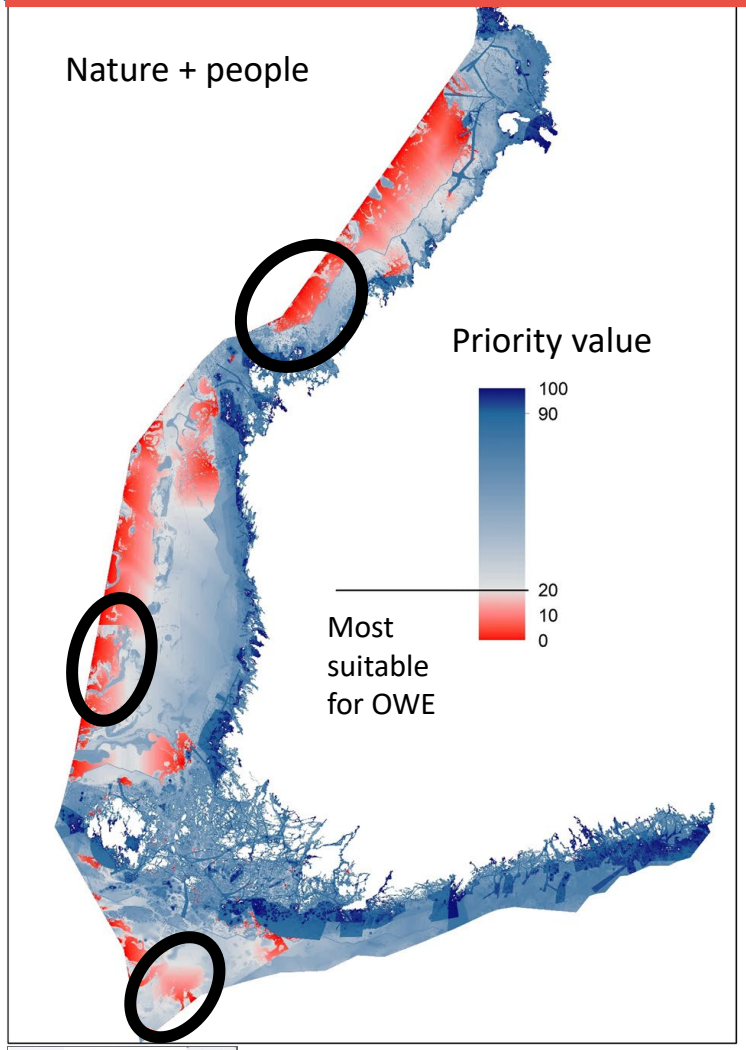
BALANCED SOLUTION

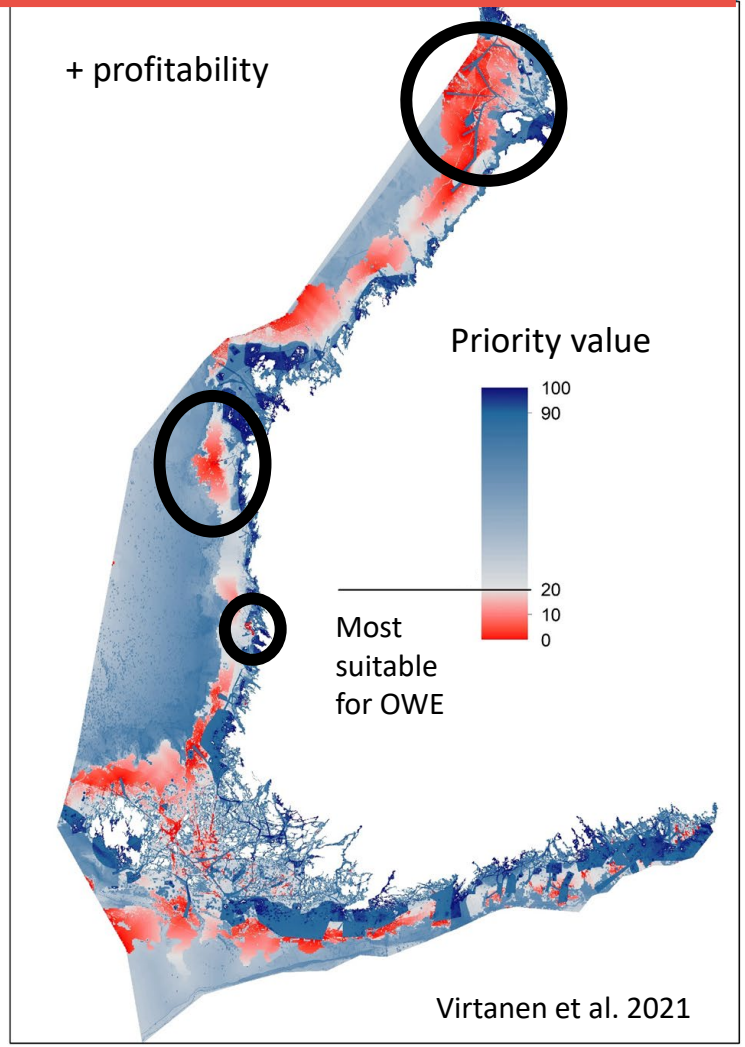
BIODIVERSITY	Conservation areas; Bird migration routes; Fish reproduction areas; Geodiversity; Marine and terrestrial values
PROFITABILITY	Spatial Life Cycle Cost Analysis (high wind velocity, seabed depth, surface soil type, infrastructure)
SOCIAL IMPACTS	Visual and noise impacts; Boating intensity; Livelihoods, e.g. fishing and aquaculture
RESTRICTIONS	Army areas; Weather radars; Anchoring areas; Natura 2000
ENABLERS	Extension of industrial areas; Hypoxia

ENERGY PRODUCTION Potential areas for off-shore wind farming

ZONATION ANALYSIS

Decision support –tool for ecologically based land use planning

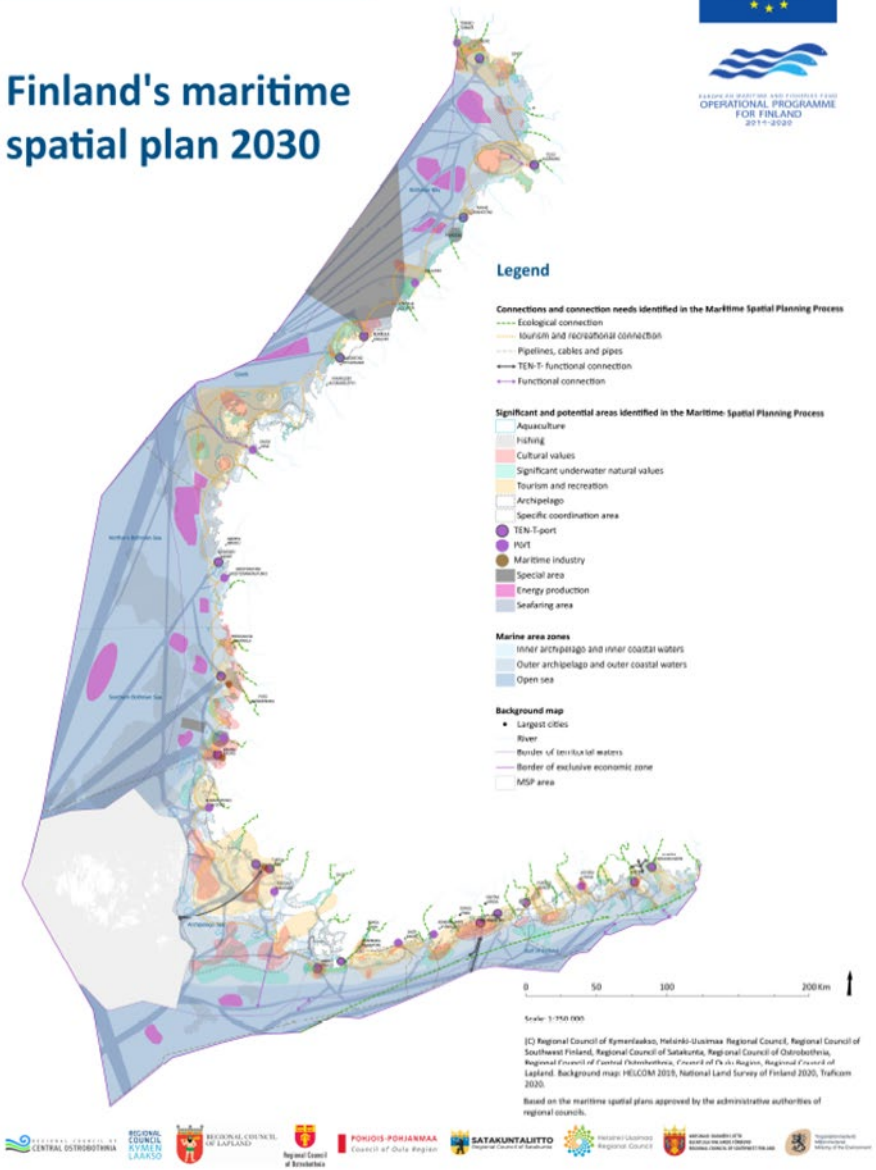




MARITIME SPATIAL PLANNING

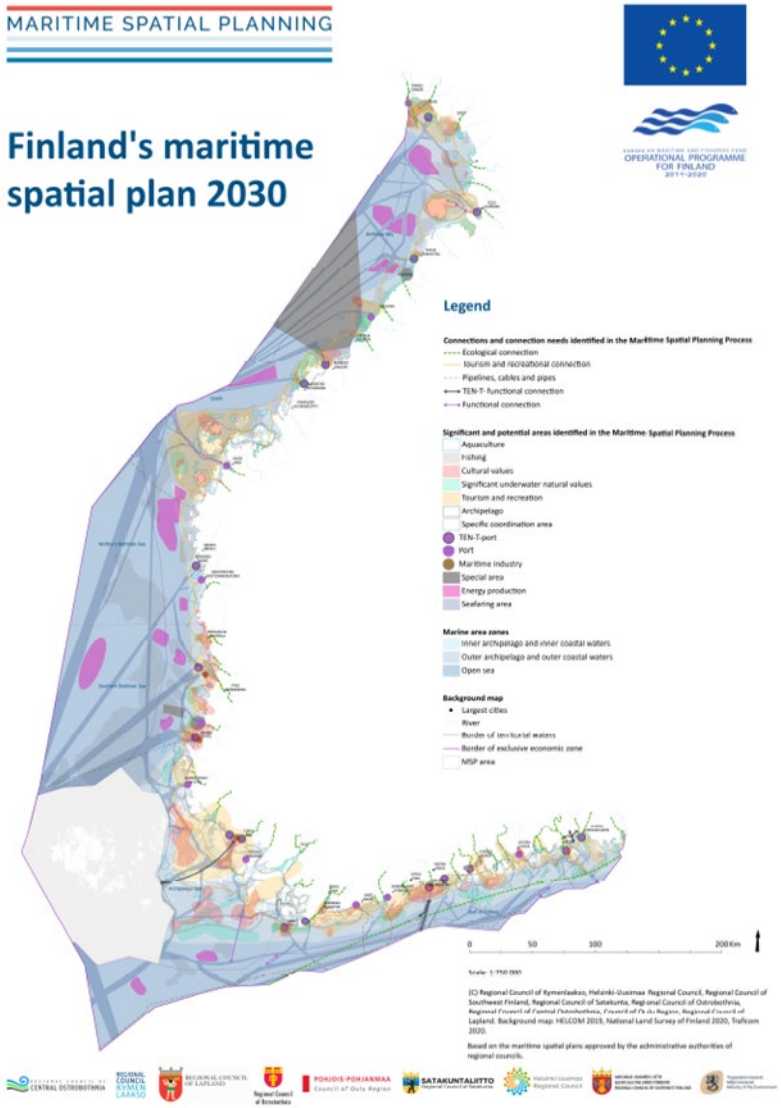
OPERATIONAL PROGRAMME FOR FINLAND 2014–2020

Finland's maritime spatial plan 2030



SYKE SmartSea

Virtanen ym. (2022) Balancing profitability of energy production, societal impacts and biodiversity in offshore wind farm design, *Renewable and Sustainable Energy Reviews*



The potential areas identified in the plan cover an area of 3066 km2. WindEurope's vision for Finland to add 15 GW by 2050 requires 3000 km2 of space.

- The OWE target is outdated.
- The EEZ is particularly attractive for investors.

Offshore Renewable Energy Strategy (2020)

- OWE 13 GW by 2020 → 60 GW by 2030 → 300 GW by 2050
- MariParks, Energy Islands
- Offshore Hydrogen production

REPowerEU (2022)

- 45% by 2030 from renewable energy
- Increasing renewable energy is “overriding public interest", and there is need to “designate ‘go-to’ areas”

EGD: Climate change mitigation MSP 2.0

Zonation analysis

Update existing data (circa 150 data layers, mainly of marine nature) to identify potential areas for OWE

Add new data such as

- Ecosystem Service Areas inluding carbon sinks, and natural structures that prevent and reduce coastal erosion and flooding, as well as socio-cultural values
- CC-Refugias and hot spots

Identify areas for cable corridors

Show ’marine energy areas and connections’ including OWE, hydrogen, TEN-E, ports

Current situation and future scenarios

Marine energy scenarios for 2035, 2040 and 2050.

Spatial and temporal approach

Special attention to the land-sea interface.

Impact assessment, special attention to the socio-cultural impacts.

Multi-use / MariParks

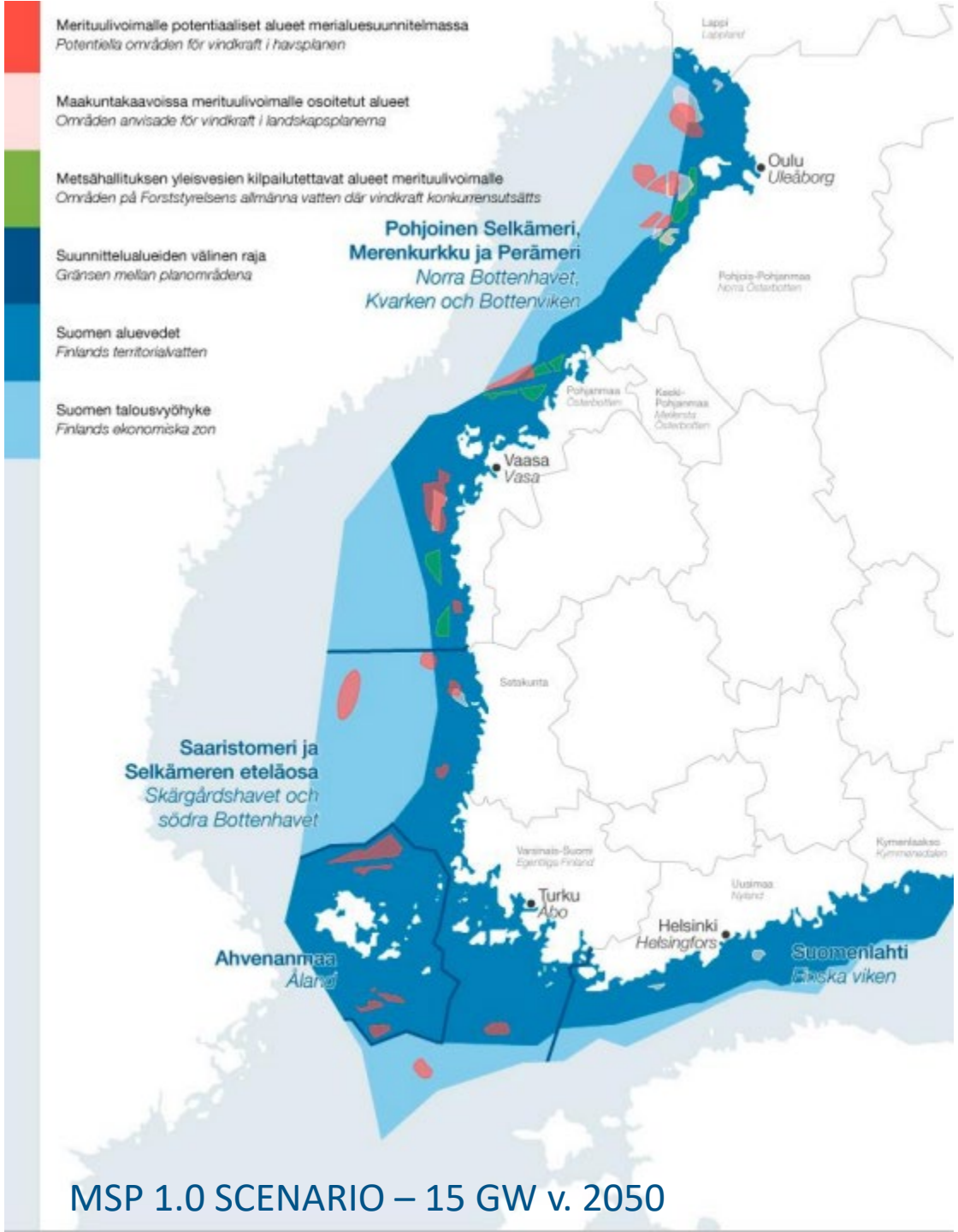
Non-exclusive access

Qualitative criteria for auctions (five areas in the territorial sea 2024-2025)

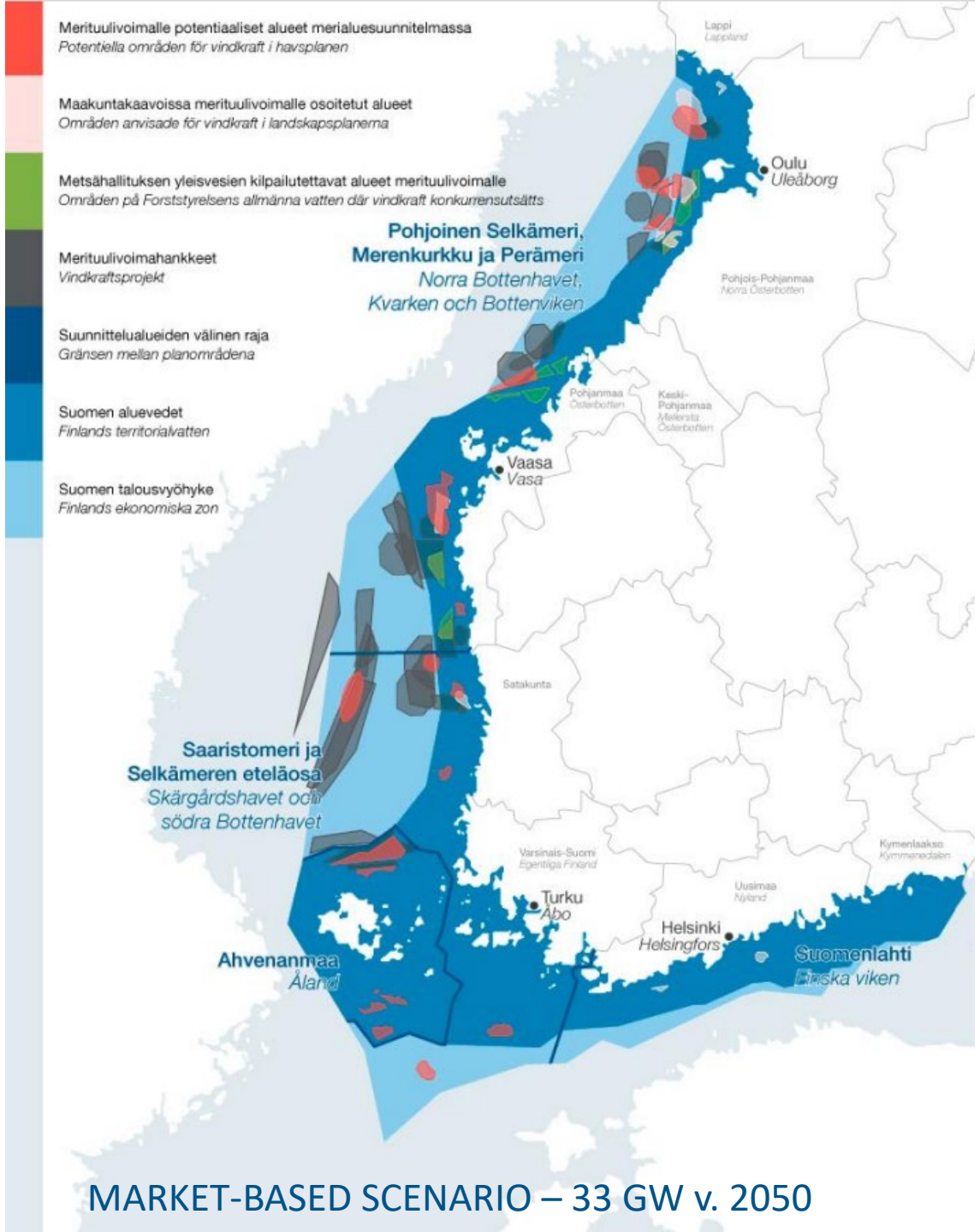
Nature-inclusive design (NID), synergies with regenerative actions

Energy islands

The role of MSP: from passive coordination of maritime activities to more active coordination.



MSP 1.0 SCENARIO – 15 GW v. 2050



MARKET-BASED SCENARIO – 33 GW v. 2050

EGD: Climate change mitigation MSP 2.0

Zonation analysis

Update existing data (circa 150 data layers, mainly of marine nature) to identify potential areas for OWE

Add new data such as

- Ecosystem Service Areas inluding carbon sinks, and natural structures that prevent and reduce coastal erosion and flooding, as well as socio-cultural values
- CC-Refugias and hot spots

Identify areas for cable corridors

Show ’marine energy areas and connections’ including OWE, hydrogen, TEN-E, ports

Current situation and future scenarios

Marine energy scenarios for 2035, 2040 and 2050.

Spatial and temporal approach

Special attention to the land-sea interface.

Impact assessment, special attention to the socio-cultural impacts.

Multi-use / MariParks

Non-exclusive access

Qualitative criteria for auctions (five areas in the territorial sea 2024-2025)

Nature-inclusive design (NID), synergies with regenerative actions

Energy Islands

The role of MSP: from passive coordination of maritime activities to more active coordination.

MariPark?

Space@Sea Project, Floating Island Development and Deployment Roadmap

MULTIUSE- MARIPARK

The aim is to support and enhance sustainable blue economy. The design of MariParks is driven by the need to improve self-sufficiency and security of supply in both Finland and the EU, and to promote a healthy marine environment. Marine space is finite.

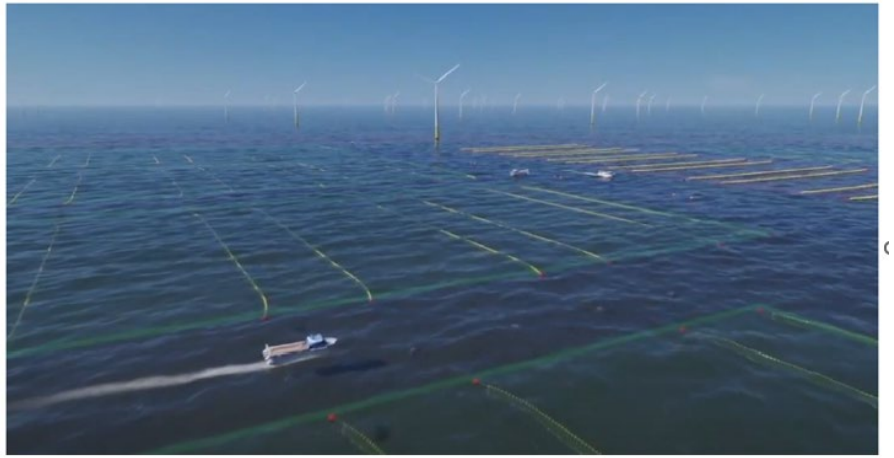
Leading principles

- Multiuse - Two or more users coexist or cooperate in the same marine area and exploit marine resources in a sustainable way.

  Marine resources include maritime space and landscapes and marine natural resources, marine and/or coastal infrastructure, marine-related products or services that are valuable and useful to one or more users.

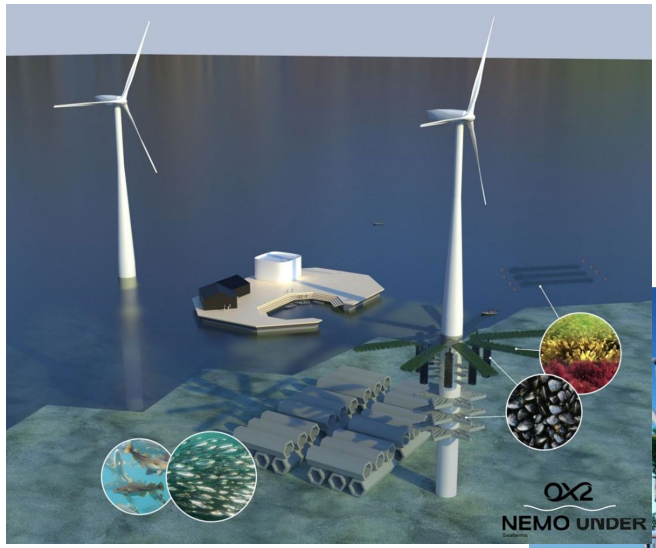
- 'Nature inclusive design' NID – Nature inclusive design aims to maintain or improve the status of the marine environment and marine nature in the area. NID are achieved through the synergies between the different activities in MariPark.

- Public-private partnership
- Non-exclusive access
- Legal framework



maripark, business park on sea

Bert Groenendaal, BGC Consultancy, eMSP NBSR Project SBE Workshop, 22.3.2022 Brussels



Hack the Ocean – a multi-use hackathon

www.merialuesuunnittelu.fi/en/
www.merialuesuunnitelma.fi

mari.pohja-mykra
@varsinais-suomi.fi