

# FINLAND MUST SAFEGUARD BALTIC SEA WATERWAYS AS A SUSTAINABLE SOURCE OF WELLBEING, SECURITY AND SAFETY

**Baltic Sea maritime routes are critical infrastructure for Finland. More than 95% of the total weight of Finland's foreign goods traffic is transported by sea, but their importance extends beyond trade and security of supply. Maritime routes are also closely linked to national safety, emergency preparedness, and environmental protection.**

**The Baltic Sea operating environment is changing fast. Geopolitical tensions have created new safety and security risks. Environmental and climate conditions are changing. The expansion of offshore wind energy production will create new demands for marine space, while climate change is leading to increasingly uncertain ice and weather conditions.**

**As the future becomes more complex and uncertain, Finland more than ever needs an anticipatory, integrated and adaptive approach to deal with today's and tomorrow's maritime challenges and threats. Shared situational awareness and stronger maritime data and knowledge infrastructure should guide planning and decision-making across sectors. This is essential to safeguard waterways as a sustainable source of wellbeing, security, and safety.**

## WATERWAYS POLICY PRIORITIES

### 1 MOVE TOWARDS ANTICIPATORY AND INTEGRATED GOVERNANCE OF MARITIME SYSTEM

Maritime routes are one component of a wider system of actors, activities, and infrastructures operating and interacting within shared marine space, and governance must therefore anticipate cross-sectoral impacts, dependencies, and trade-offs.

### 2 UTILISE MODERN TECHNOLOGY TO BUILD SHARED SITUATIONAL AWARENESS

Blind spots at sea are growing, but satellites, AI, and new analysis methods can be used to close the gaps.

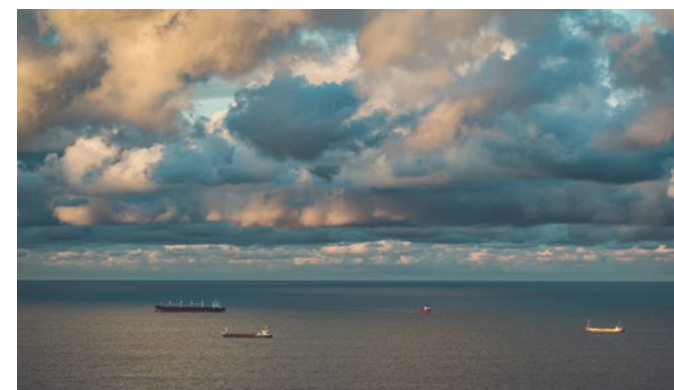
### 3 MAKE FULL USE OF EXISTING MARITIME REGULATORY AND COOPERATION FRAMEWORKS

Finland should use existing legislative, regulatory, and cooperation frameworks more systematically, while recognising the legal and practical limits of national action in this field.

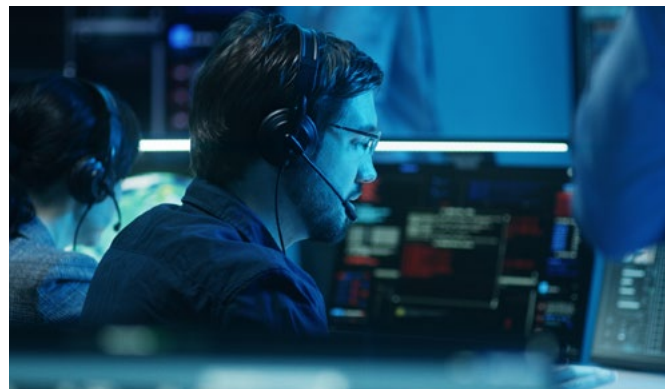
# 1. MOVE TOWARDS ANTICIPATORY AND INTEGRATED GOVERNANCE OF MARITIME SYSTEM

Maritime routes are part of a wider system of actors, activities, and infrastructures that supports Finland's well-being and comprehensive security. Existing planning processes, including maritime spatial planning, do recognise the need to coordinate different sea uses. What remains weaker is common understanding of how changes in one part of the system affect others, and how these interactions may create dependencies, synergies, and trade-offs in the shared marine space.

Climate, safety and security, and economic objectives do not always point in the same direction, and the changing Baltic Sea environment can make those tensions more pronounced. For example, offshore wind farms can support climate and energy security goals, but narrow shipping lanes and complicate surveillance, icebreaking, and rescue operations. Fairway dredging and icebreaking keep trade routes open and winter navigation reliable, yet may concentrate traffic and add pressure on the marine environment. These developments are often assessed within their sectoral boundaries, which can leave cross-sectoral interactions, dependencies, and cumulative effects invisible.



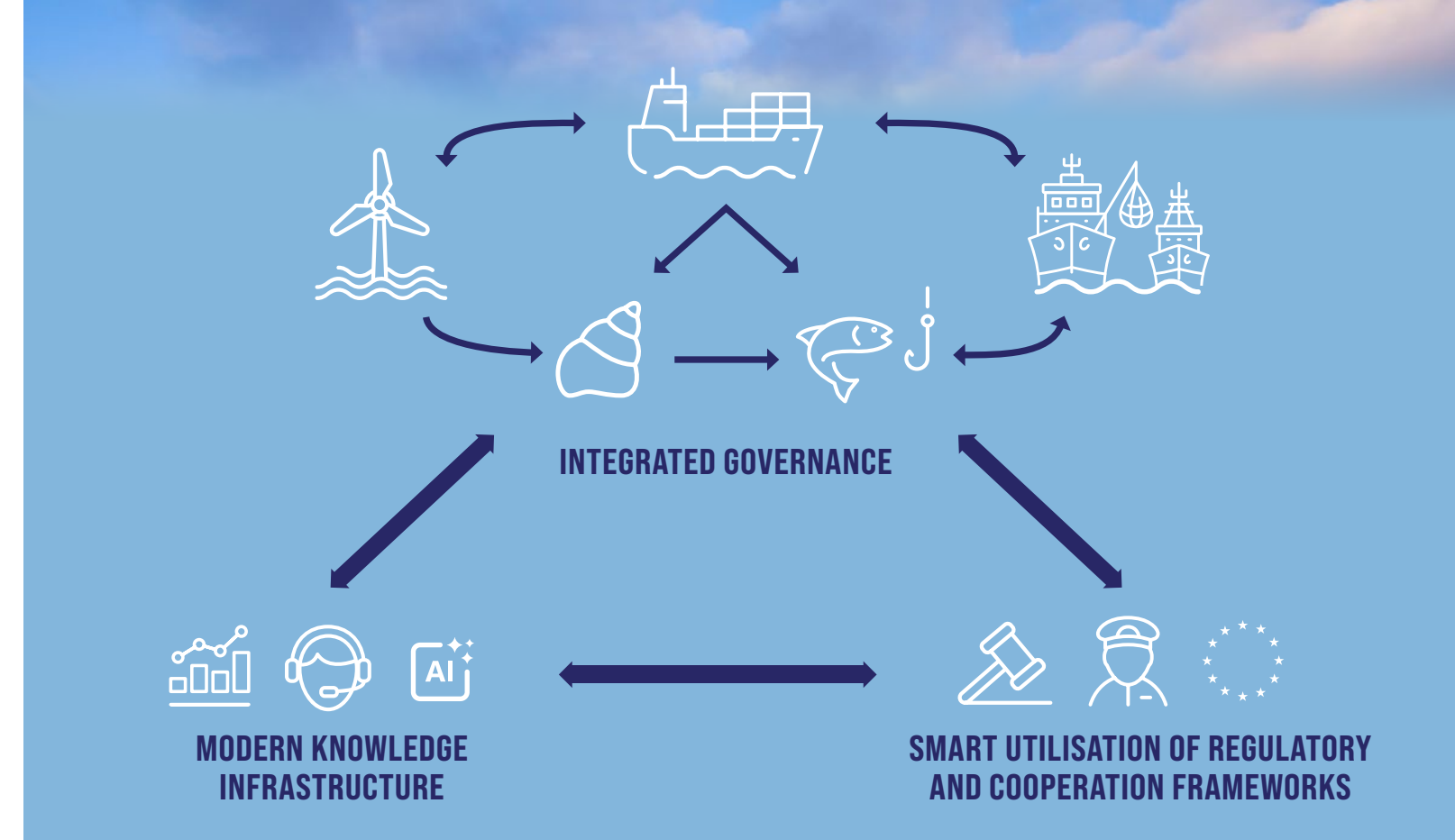
Governance should therefore consider the bigger picture: what each option or scenario supports, what it may constrain, who benefits, who needs to adapt, and where costs, risks or pressures may shift across sectors, actors, or sea areas. In addition, decisions need to be adaptive in the face of future changes in the operating environment. Climate change, geopolitical tensions, digitalisation and the green transition are reshaping both opportunities and risks, while their impacts vary across actors, sectors and locations.



The key paradigm shift needed is from assessing individual activities in isolation to understanding how they interact within the maritime system. This requires shared system understanding, participatory assessment of cross-sectoral dependencies, and the ability to explore how decisions perform under different future conditions. The suggested approach would support more anticipatory and integrated planning, helping decision-makers strengthen the sustainability and resilience of the whole maritime system while accounting for the wider environmental, economic, and societal context in which it operates.



**Decisions affecting maritime routes, transportation, and other key maritime activities should be assessed through their systemic dependencies before plans are locked in. This means identifying synergies, managing trade-offs, and recognising where risks, costs, or pressures may shift across sectors, actors, or sea areas through participatory and collaborative approaches.**



## 2. UTILISE MODERN TECHNOLOGY TO BUILD SHARED SITUATIONAL AWARENESS

Finland already collects extensive information on maritime traffic and other activities at sea, ice conditions, weather, emissions and discharges, underwater noise, oil and chemical spills, and sea-use plans. However, this information remains fragmented across sectors, authorities, and planning processes. At the same time, geopolitical tensions increase the blind spots. The growing presence of vessels associated with the shadow fleet in the Gulf of Finland, combined with unreliable position reporting, and reduced access to information from Russia, makes it increasingly difficult to maintain a comprehensive picture of what is happening at sea.

New approaches are therefore needed to acquire, integrate, and interpret data on maritime activities and risks.

The means to close these data gaps are, however, better than ever. Satellite-based vessel detection combined with AI can identify vessels that AIS-based monitoring misses. Machine learning makes it possible to mine decades of

written accident investigation and near-miss reports for recurring patterns of failure. But data alone does not produce situational awareness. That requires a knowledge infrastructure: the models, other analytical tools, and institutional arrangements needed to turn separate observations into a shared picture that authorities and planners can understand, trust, and act upon.

Shared situational awareness should optimally show where risks and pressures concentrate, how they are changing, and where action is needed. It should also reveal how different sea uses interact, and where those interactions create pressure points that may affect safety, sustainability, or resilience.

**Finland should strengthen shared situational awareness through modern maritime data and knowledge infrastructure, turning fragmented information into an integrated picture that makes risks, synergies, trade-offs, and uncertainties visible early enough to guide action.**

### 3. MAKE FULL USE OF EXISTING MARITIME REGULATORY AND COOPERATION FRAMEWORKS

Maritime routes are governed by national law, EU regulation, the law of the sea, and Baltic Sea cooperation. Finland's room for action depends on which level applies and the sea areas concerned. Understanding how existing rules and cooperation frameworks operate and interact strengthens the anticipatory and integrated governance of the Baltic Sea routes and the whole maritime system.

Existing regulation already provides a basis for monitoring maritime activities, improving authority coordination, preparing for oil and chemical spills, supporting emergency response, and using traffic and environmental data for planning and reporting. This knowledge should be applied more systematically, in particular when risks are recognised early, vessels operate without reliable tracking, or offshore infrastructure and changing environmental conditions alter the risk landscape.

The changing operating environment tests rules and cooperation arrangements designed under more stable conditions. Where existing rules are clear, they should be used. Where rules leave room for interpretation, authorities need guidance on how Finland can act. Where existing frameworks are insufficient to address emerging risks, Finland should promote clearer or stronger common rules at the appropriate governance level.

**Finland should make fuller use of existing maritime regulation and cooperation frameworks, while actively developing them through Baltic Sea cooperation, the EU, IMO, and other relevant regional and international forums to address emerging risks and changing operating conditions.**

### MORE INFORMATION

WATERWAYS is a multidisciplinary research project producing knowledge to support the safe, responsible, and sustainable use of maritime routes in the changing operational environment of the Baltic Sea. The project examines maritime safety, cross-sectoral interactions, environmental impacts and risks, and maritime spatial planning. In addition, the consortium aims to develop novel tools for monitoring, analysis, and collaborative planning by utilising modern technologies and AI-based solutions.

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#### WATERWAYS PROJECT CONTRIBUTES TO THESE RECOMMENDATIONS IN THE FOLLOWING WAYS:

- 1** We develop tools and approaches for integrated and anticipatory assessment of the maritime system. These combine risk and geospatial modelling, scenario development, and participatory systems analysis to reveal cross-sectoral interdependencies, trade-offs, and resilience gaps, while also examining how risks and interactions may evolve under different future conditions.
- 2** We develop methods and tools to strengthen modern maritime data and knowledge infrastructure. The project integrates satellite-based vessel detection, AI and machine learning, while bringing together data, expertise, and stakeholder networks to support shared situational awareness.
- 3** We assess how existing maritime law and cooperation frameworks are able to respond to a changing geopolitical environment and evolving operational conditions, including grey-zone activities. The project also develops tools and evidence to support risk monitoring and informed decision-making at the national, EU, HELCOM, and IMO levels.