Tua Nylén and Harri Tolvanen

Deliverable D.T3.5.1 Collection of contemporary Gulf of Finland maps for scenario building

For use in Delphi panel and scenario workshop

25.4.2017

SUMMARY

This collection of maps is intended for use in the scenario-building phase of the Plan4Blue project. The maps cover the Plan4Blue project area, including the Gulf of Finland and coastal areas of Estonia and Finland. The map collection also aims at serving as an example of useful background maps in cross-border MSP processes where extensive geographical areas are targeted.

The maps describe the current status of the Plan4Blue project area in 2017. Together with other background information, these maps set the stage for MSP scenario-building. The maps are utilised in participatory scenario-building processes, the Delphi panel in April-May 2017 and the stakeholder workshop in June 2017. Both processes involve experts from Estonia and Finland, and the workshop also invites other stakeholders. Moreover, one version of the basemap (Figure 1) is published on the project website.

These maps are designed to appear in sizes corresponding to full A4 to A3 paper. Therefore, their size in this document may not be optimal. An inventory of the spatial data and their providers, utilised in these maps, is available in deliverable D.T3.5.2, “Inventory report of MSP-relevant spatial data and its quality”.

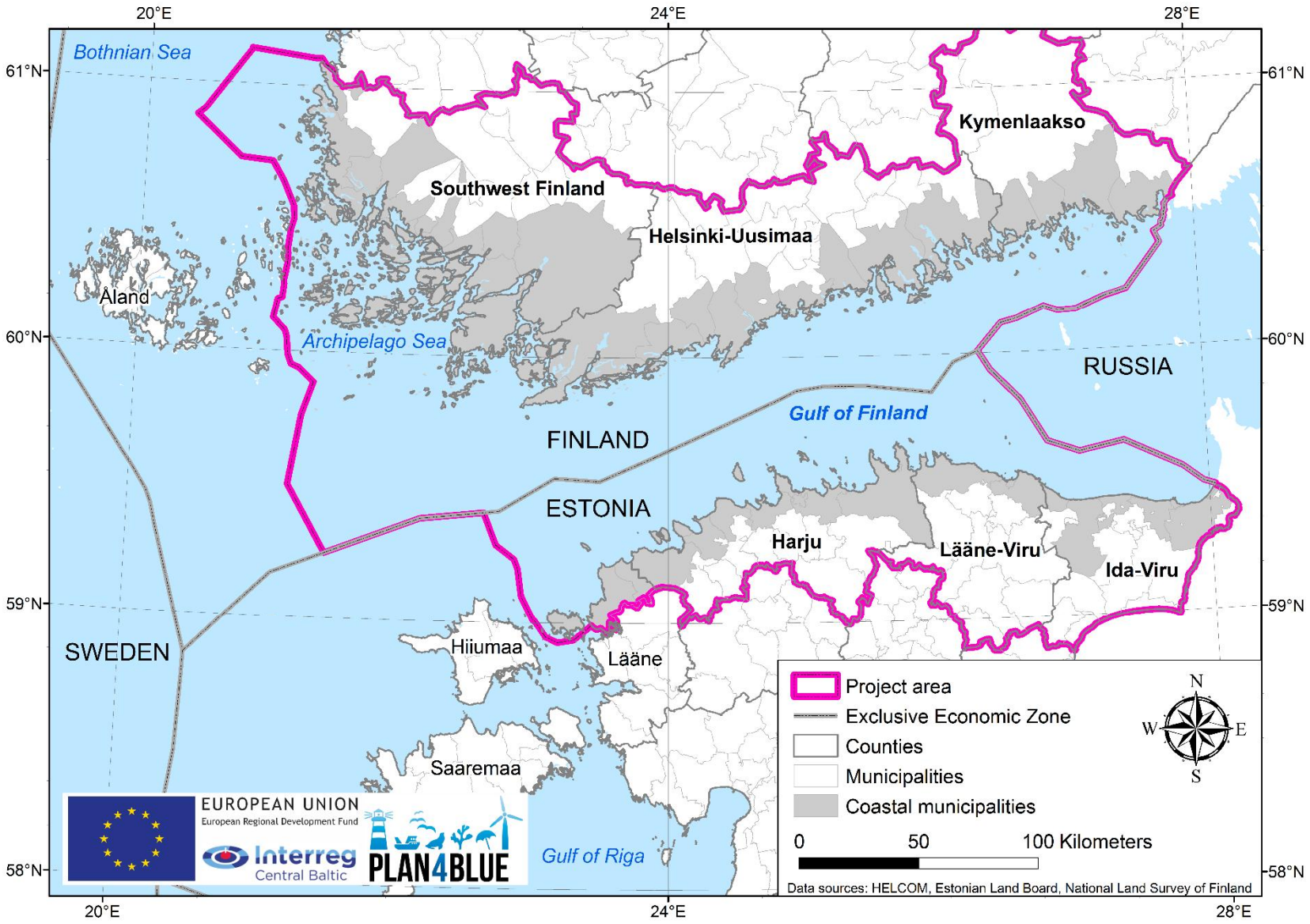

Figure 1. Basemap of the project area. The Gulf of Finland and the Archipelago Sea in Estonia and Finland. The project area includes three counties (regions) in Finland and three counties in Estonia. In addition, three coastal municipalities of the Lääne county are included. Plan4Blue focuses on processes on the sea and in 53 coastal municipalities (with less than a 10-kilometer distance to coast).

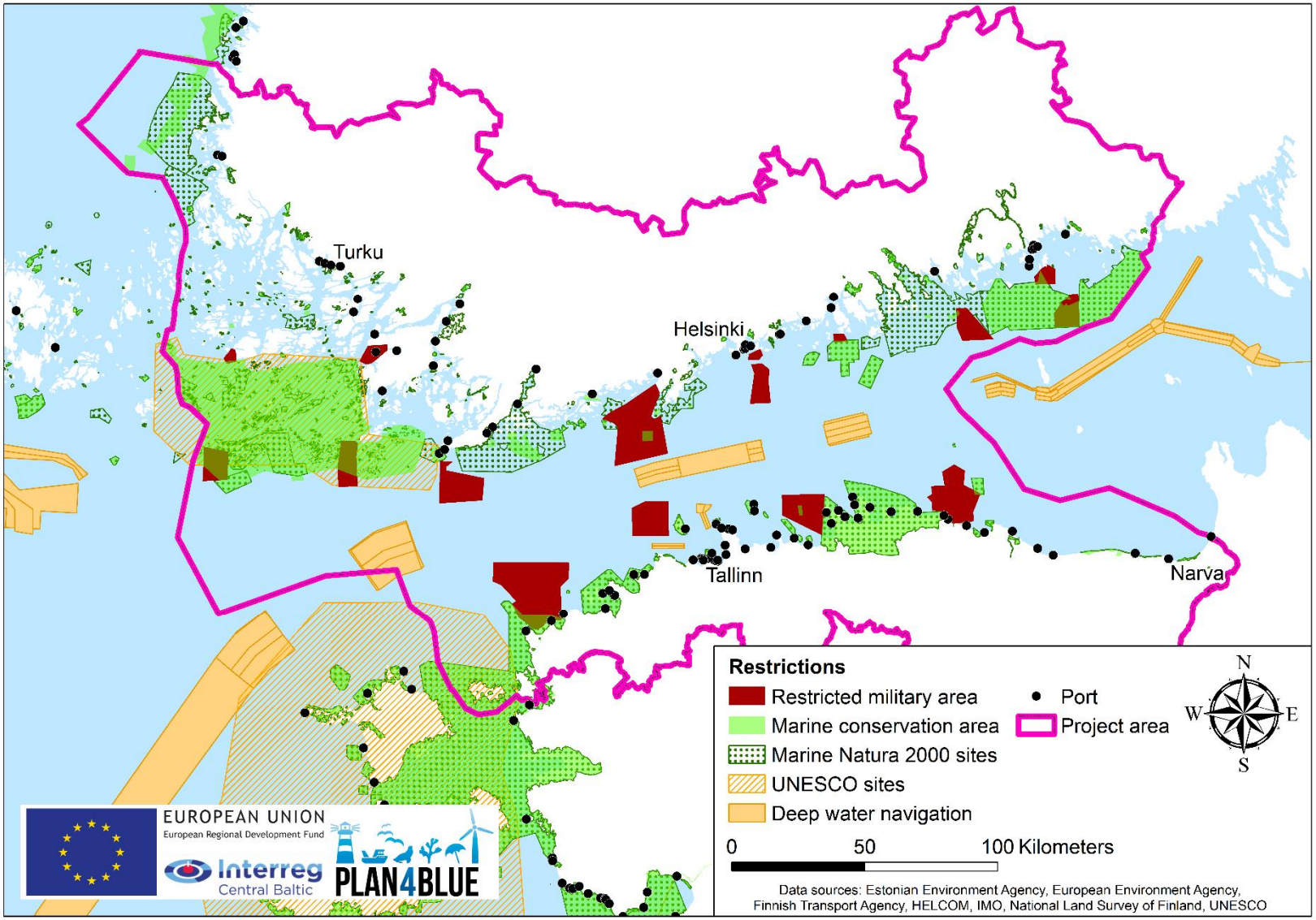

Figure 2. Restrictions. Military areas, deep water navigation areas, national nature conservation areas, Natura 2000 sites and UNESCO world heritage sites (Data: Estonian Environment Agency, European Environment Agency, Finnish Transport Agency, HELCOM, IMO, National Land Survey of Finland, UNESCO).

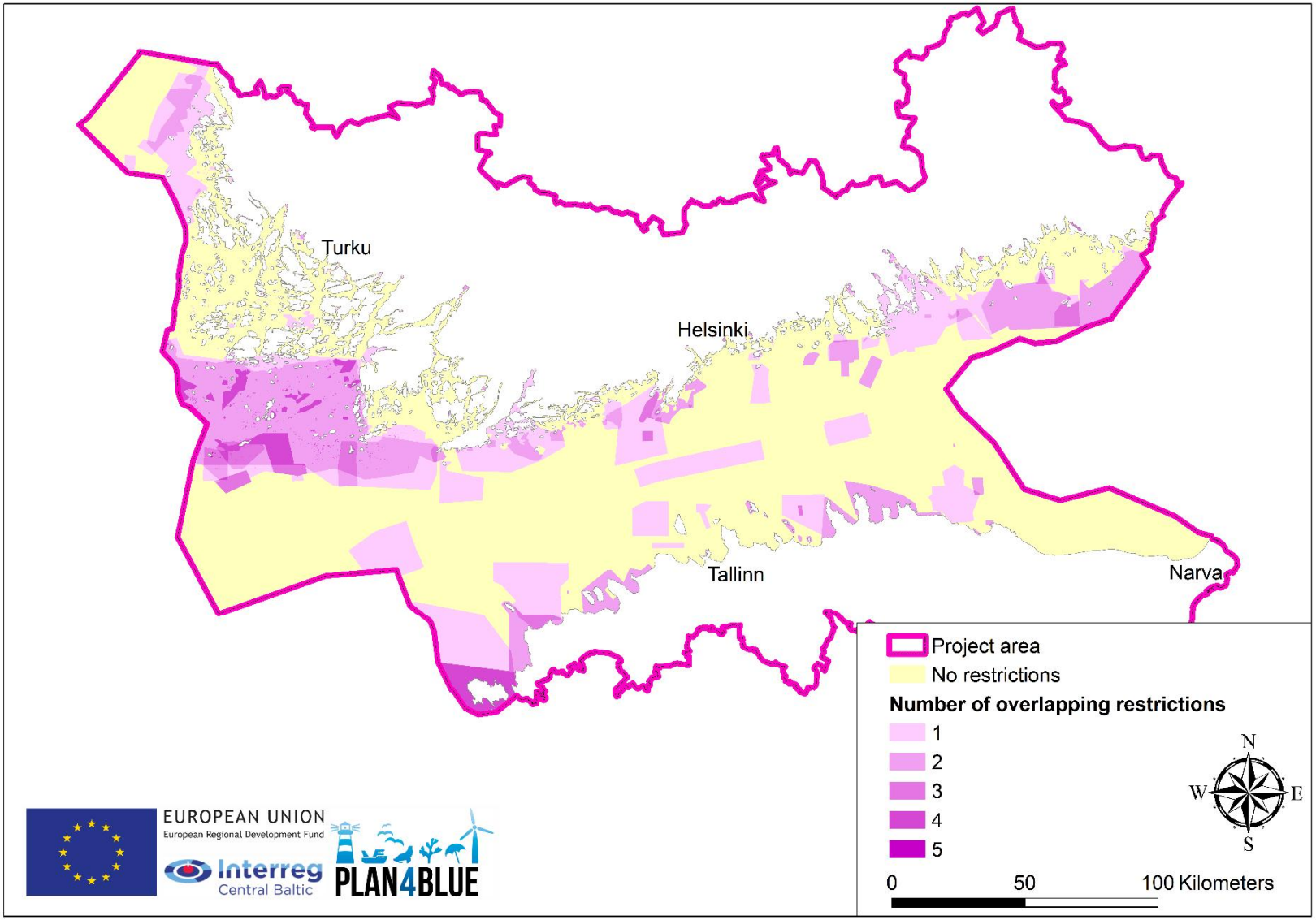

Figure 3. Overlap of restrictions. The map identifies areas with no restrictions and considers the interaction between military areas, deep water navigation areas, national nature conservation areas, Natura 2000 sites and UNESCO world heritage sites (Data: Estonian Environment Agency, European Environment Agency, Finnish Transport Agency, HELCOM, IMO, National Land Survey of Finland, UNESCO).

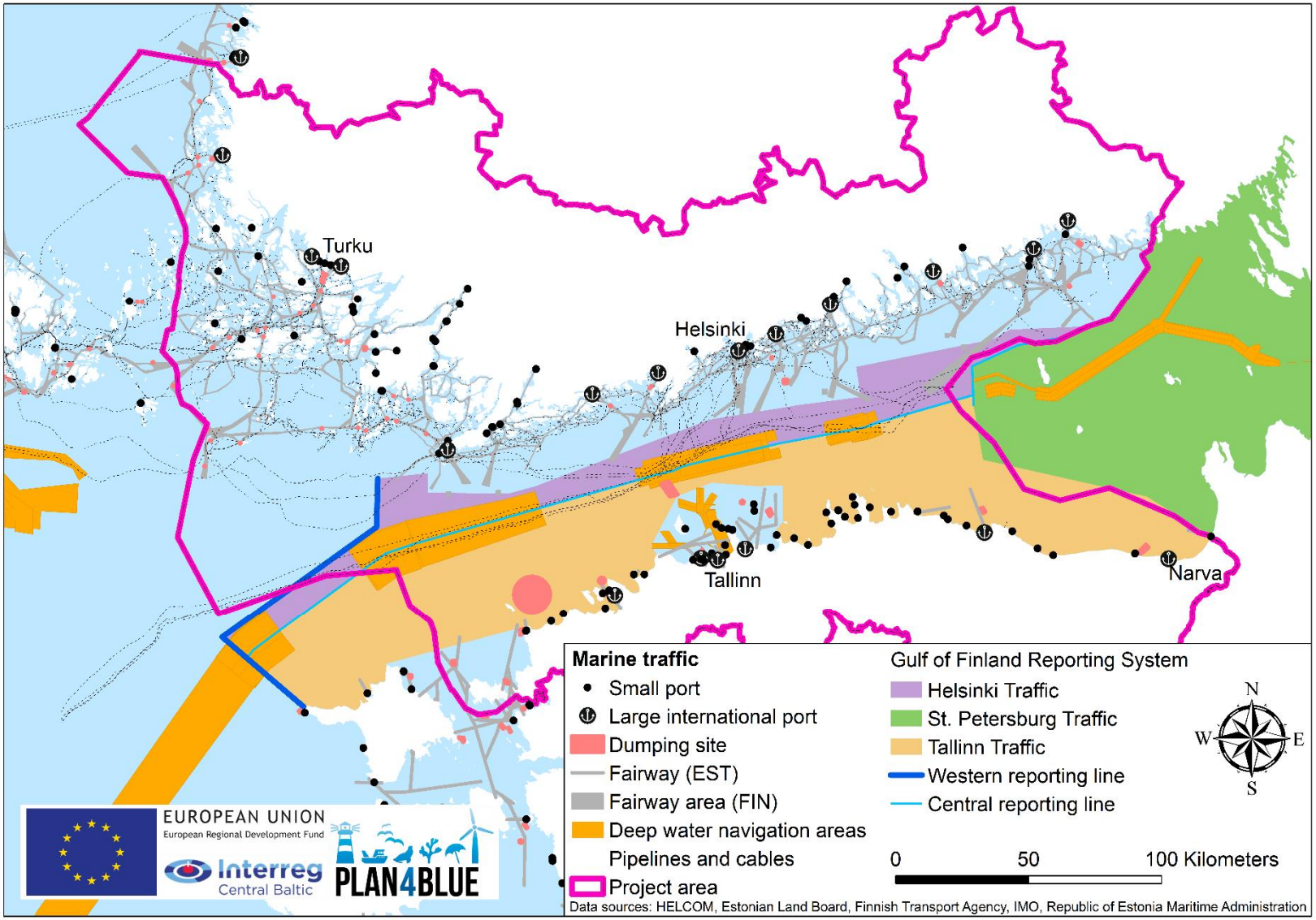

Figure 4. Marine traffic. Ports, fairways, marine cables and pipelines, dumping sites, deep water navigation and the Gulf of Finland reporting system (Data: HELCOM, Estonian Land Board, Finnish Transport Agency, IMO, Republic of Estonia Maritime Administration).

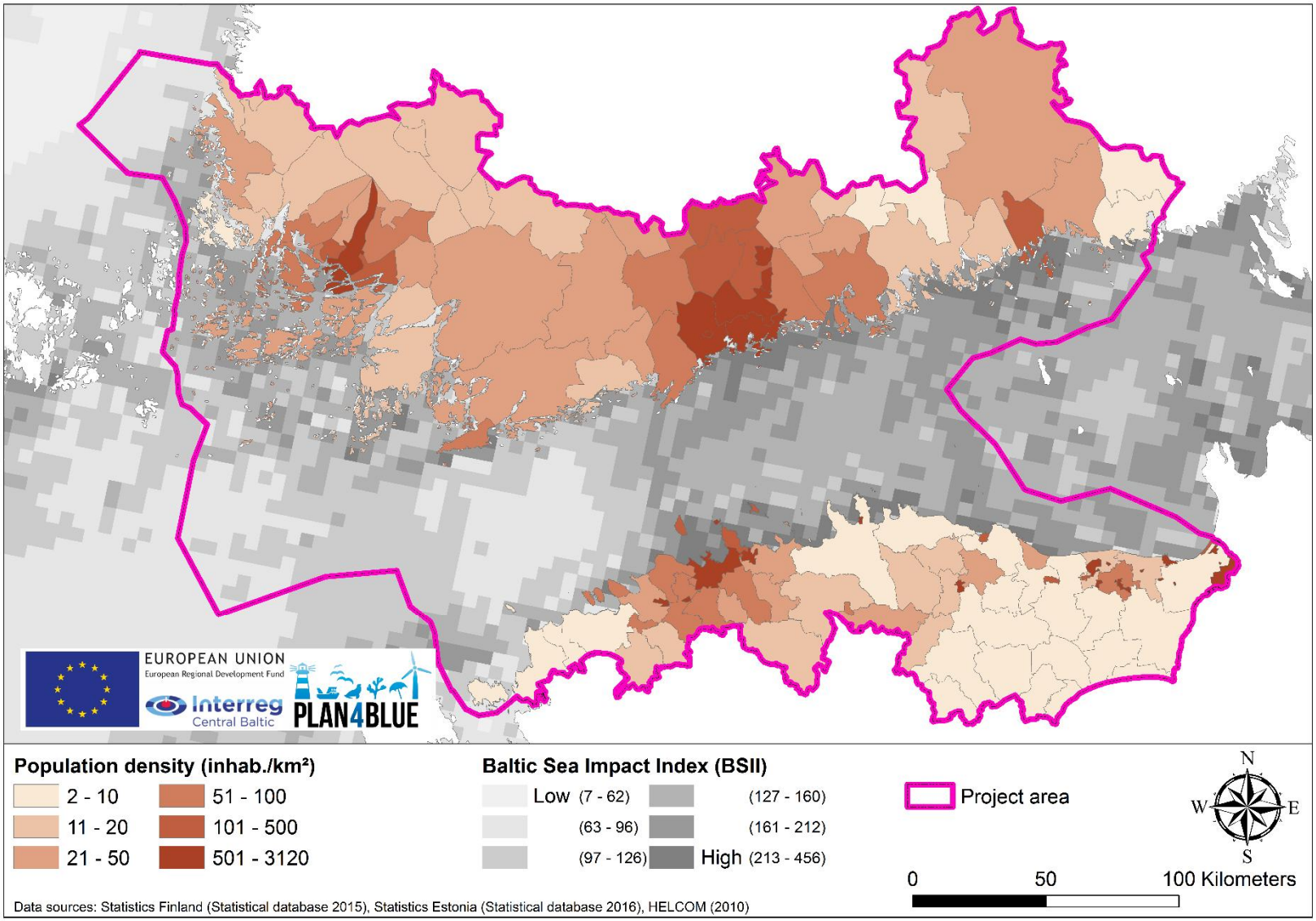

Figure 5. Population density and human impact on the sea. The distribution of human impact quantified as the "Baltic Sea Impact Index" (BSII) by HELCOM. It estimates the combined influence of 52 anthropogenic activities on the marine environment. Human activities (data from 2003-2007) are transformed into pressures and pressures into impacts on 14 key ecosystem components* utilising expert judgement. High index values correspond to high total human impact (HELCOM 2010). Marine parts of the Finnish municipalities are not considered when calculating population density (Data: Statistical database 2015 of the Statistics Finland and Statistical database 2016 of the Statistics Estonia).

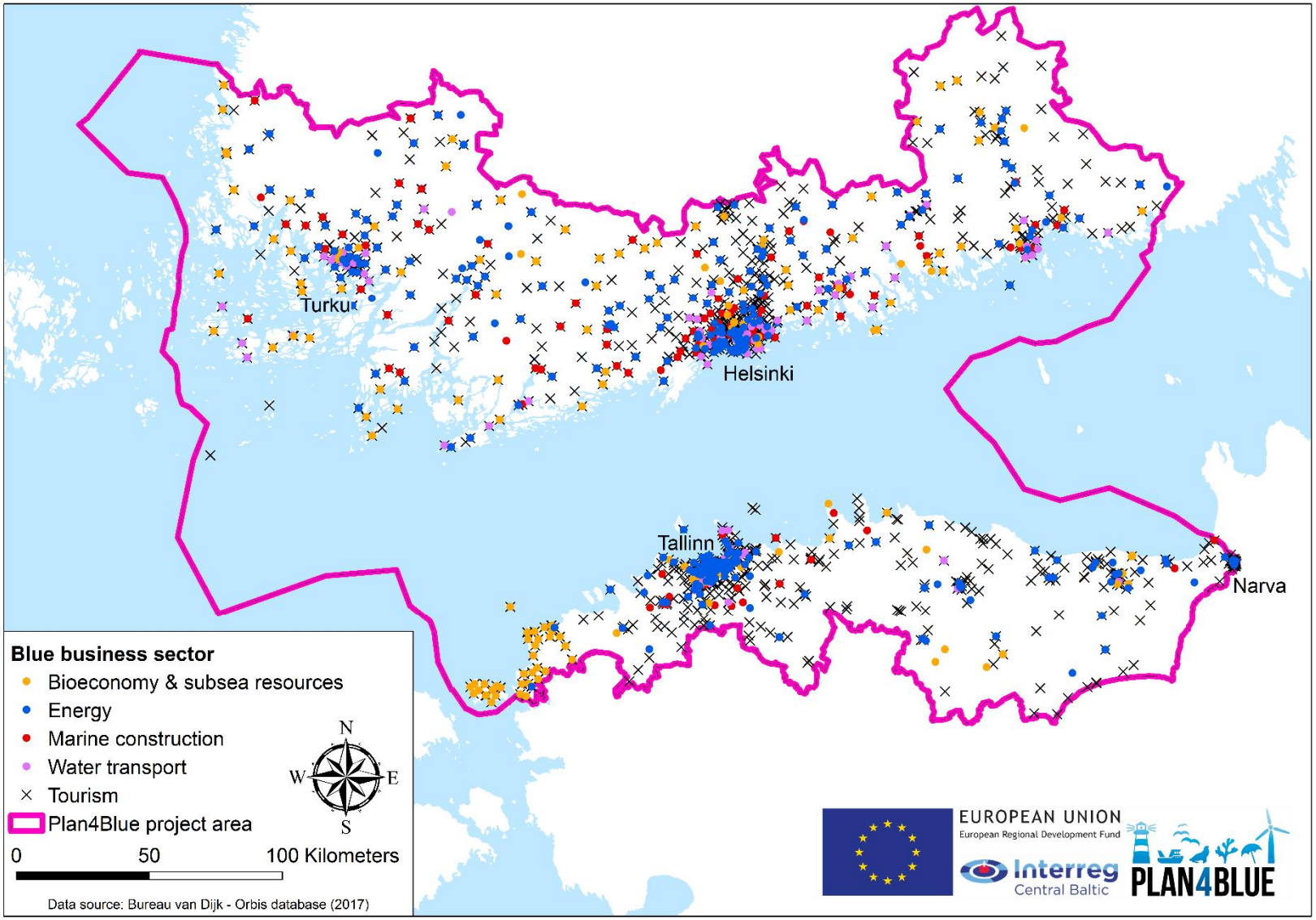

Figure 6. Blue business. Distribution of five "blue" business sectors in the Plan4Blue project area. Individual businesses are located based on their registered address; thus, their activities may be located elsewhere (Data: Bureau van Dijk, Orbis database 2017).

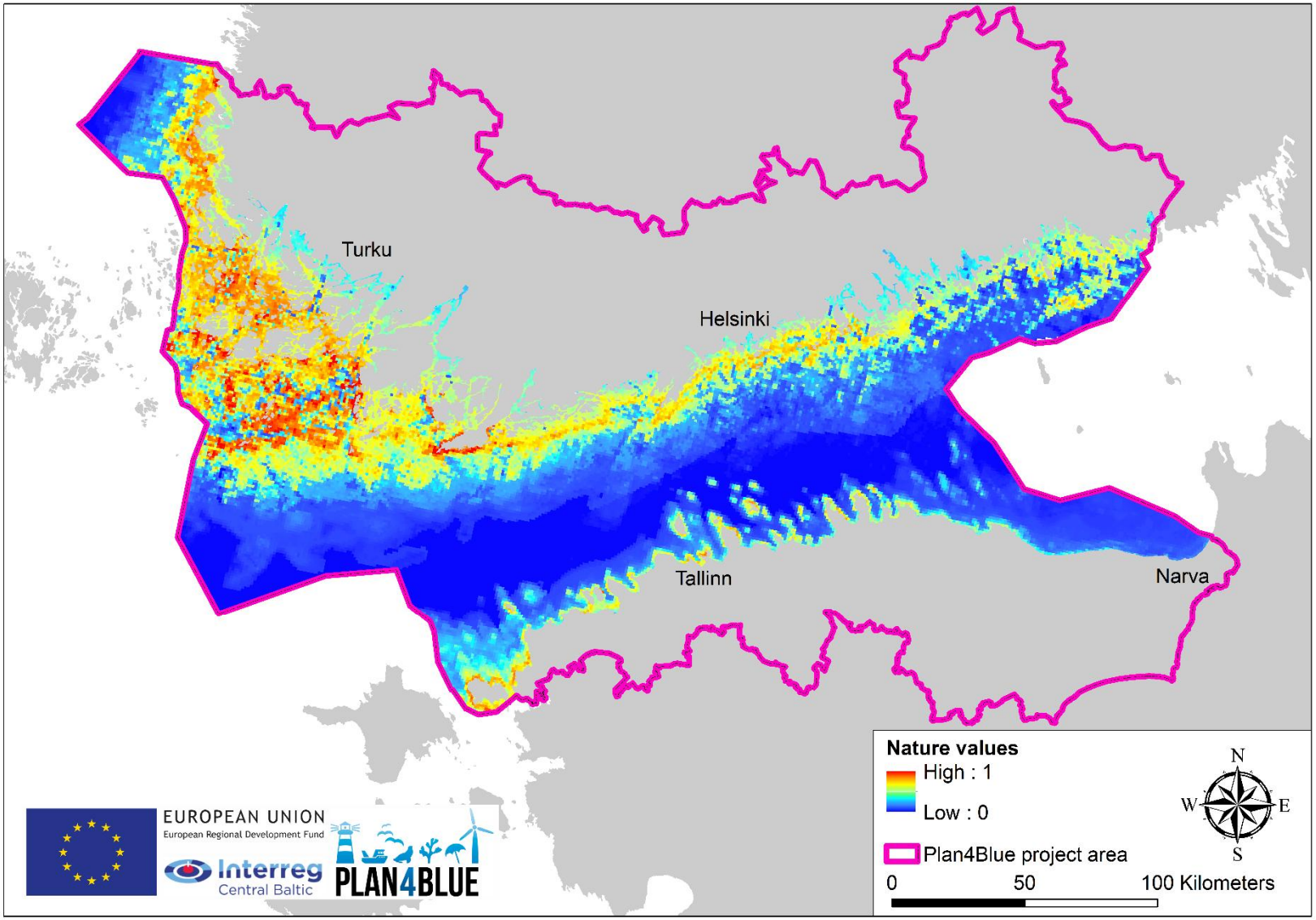

Figure 7. Nature values on the sea. Distribution of standardised and aggregated benthic nature values and their sensitivity to disturbances, quantified as "Environmental vulnerability profile". Values vary between 0 and 1, where 1 expresses the highest vulnerability. Nature values combine eight important taxa and the total benthic biodiversity. The sensitivity of each nature value is measured as the time required for their recovery after a destruction (Herkül et al. 2017).**

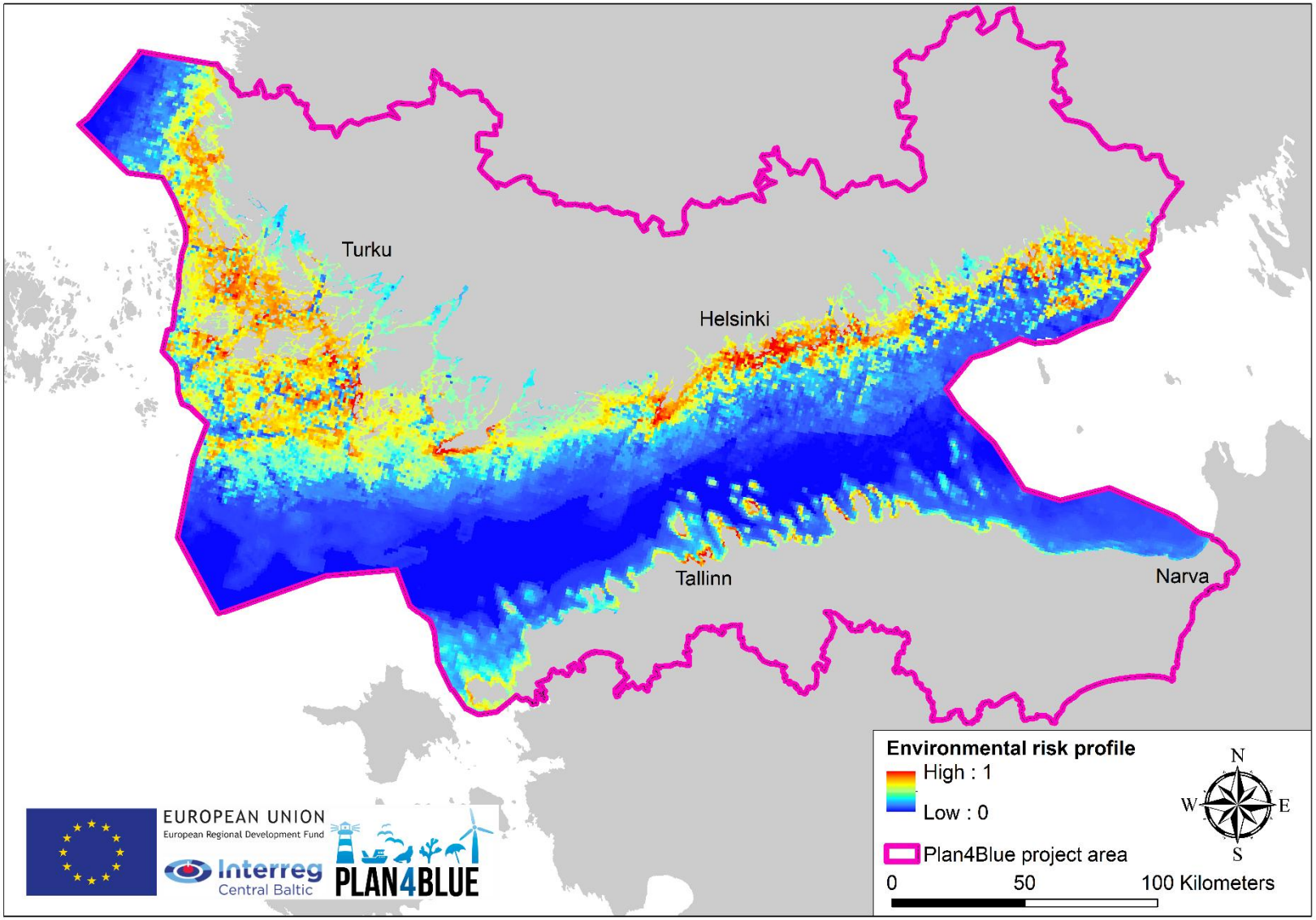

Figure 8. Environmental risk profile. Environmental risk profile determines distribution of the risk of losing nature values due to human pressure. It is calculated by incorporating nature values ("Environmental vulnerability profile") and the cumulative human pressure (HELCOM "Baltic Sea Pressure Index", BSPI). Values vary between 0 and 1, where 1 expresses the highest environmental risk (Herkül et al. 2017).

REFERENCES

HELCOM 2010. Towards a tool for quantifying anthropogenic pressures and potential impacts on the Baltic Sea marine environment: A background document on the method, data and testing of the Baltic Sea Pressure and Impact Indices. Baltic Sea Environment Proceedings 125.

Herkül, K., Aps, R., Kostamo, K., Kotta, J., Laamanen, L., Lappalainen, J., Lokko, K., Peterson, A., Varjopuro, R. 2017. Plan4Blue report Deliverable T2.1.1 “The Gulf of Finland marine and coastal environmental vulnerability profile”.

* The ecosystem components include: Photic and non-photic water, sand, mud and hard bottoms, Zostera meadows, mussel beds, spawning and nursery areas of cod, seabird wintering grounds, distribution of seals and harbour porpoises.

** The taxa include: Bladder wrack (*Fucus vesiculosus*), the perennial red seaweed *Furcellaria lumbricalis*, filamentous algae, epibenthic bivalves (*Mytilus trossulus*, *Dreissena polymorpha*), vascular plants (excluding *Zostera marina*), eelgrass (*Zostera marina*), charophytes (*Chara* spp., *Tolypella nidifica*, *Nitella* spp.), infaunal bivalves (*Macoma balthica*, *Cerastoderma glaucum*, *Mya areanaria*).

European Union

European Regional Development Fund

Interreg Central Baltic

SYKE

Turun yliopisto
University of Turku

UNIVERSITY OF TARTU

Helsinki-Uusimaa Regional Council

VARSINAIS-SUOMEN LIITTO
EGENTLIGA FINLANDS FÖRBUND
REGIONAL COUNCIL OF SOUTHWEST FINLAND

BEF ESTONIA

SYKE.FI/PROJECTS/PLAN4BLUE