

## S1. Spatial proxies in the Nordic Countries

**Table S1 Main spatial proxies for all SNAP sectors used in the Nordic Countries.**

SNAP sector	Denmark	Finland	Iceland	Norway	Sweden
01 Energy	Point sources	Point sources Municipal energy production fuel use		Point sources	Point sources
02 Non-ind. combustion	Chimney sweeper data Building and dwelling register	Building data Residential area type Heating degree day Average wood use		Building number and type Wood consumption	Building number and type Wood consumption
03 Manufacturing industry	Point sources Land use	Point sources Municipal energy production fuel use	Point sources	Point sources	Point sources
04 Production processes	Point sources Land use Employment statistics Building data	Point sources Municipal energy production fuel use		Point sources	Point sources
05 Extraction and distribution of fuels	Point sources Building data Service stations Gas network data	Land use Population			
06 Solvent and product use	Population Building data Land use Road network	Land use Population		Population	Population
07 Road transport	Road and traffic data	Road and traffic data Municipal fuel use and vehicle- kilometres	Traffic modelling	Road and traffic data Share of HDV CO2 emission at regional level	Road and traffic data Share of HDV CO2 emission at regional level
08 Machinery and off-road	Aviation data Land use Fishing areas and catch statistics Military training areas Construction statistics The Danish land use matrix	Land use Road and traffic data		Land use	Land use
09 Waste	Point sources Building data Population Land use Waste and recycling data	Population Land use			

10	Agriculture	General Agricultural Register Central Husbandry Register Fertilizer and livestock reporting Land use The Danish land use matrix	Land use Municipal animal numbers	Land use	Land use
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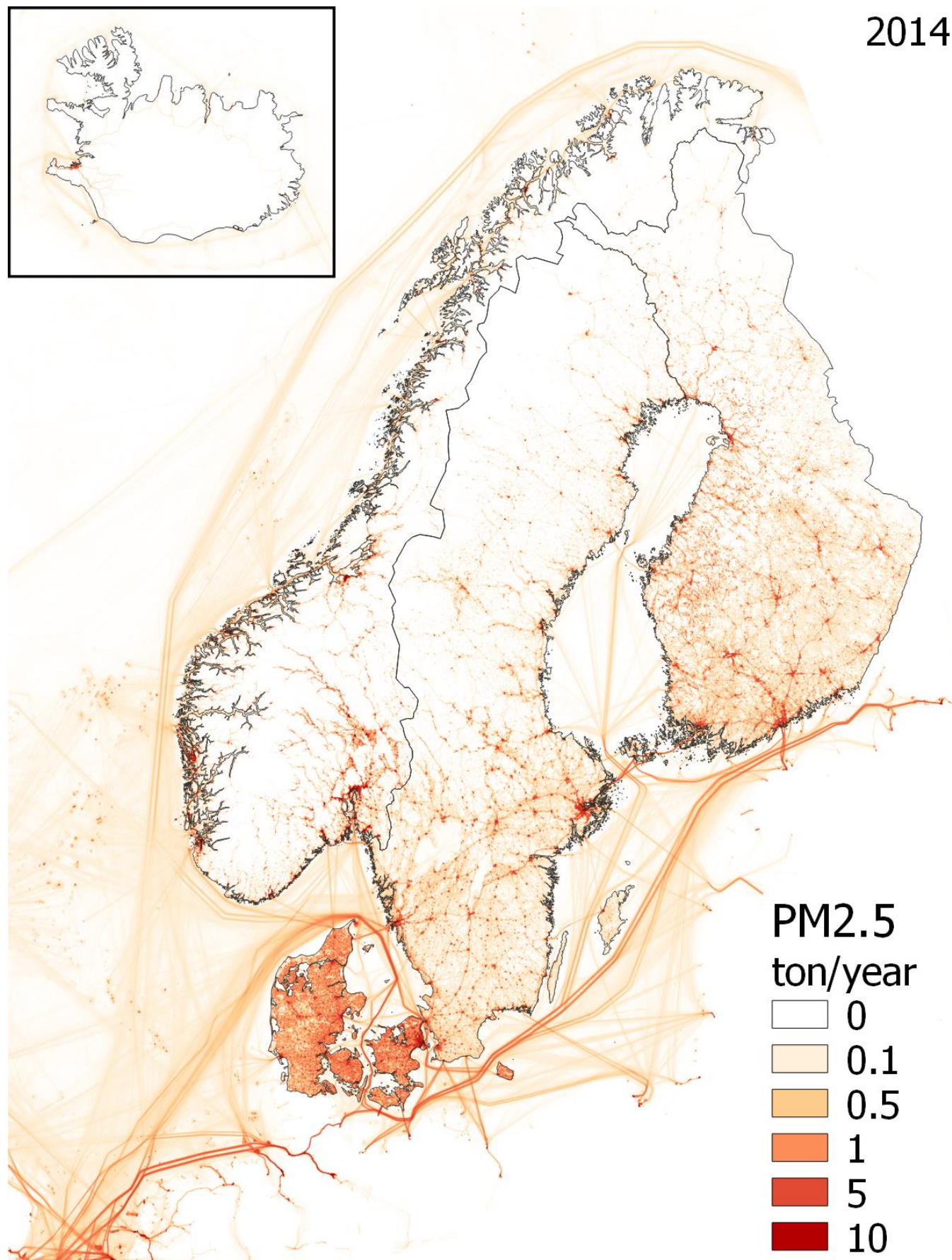
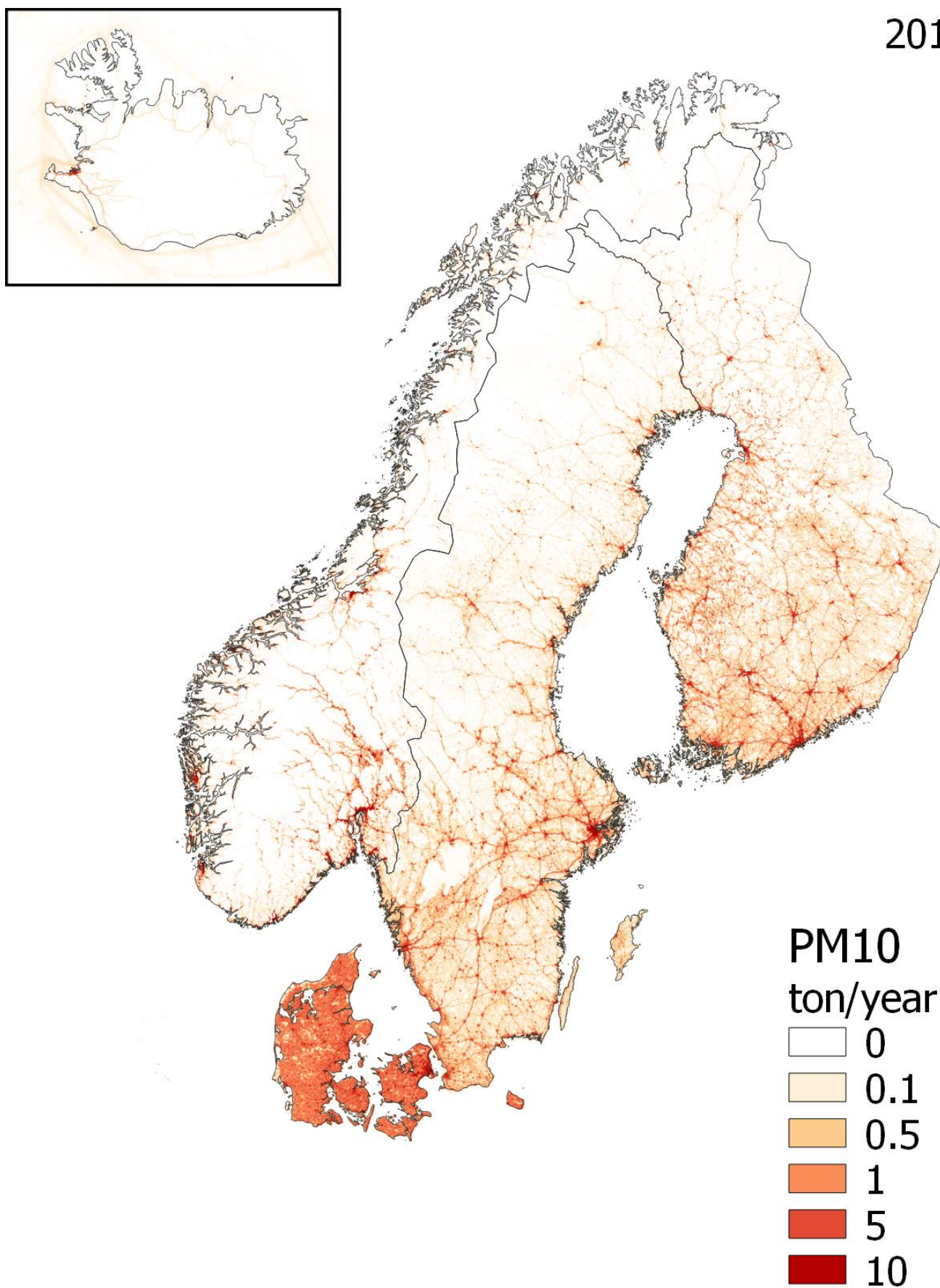


Figure S1 Total PM<sub>2.5</sub> emissions in the Nordic countries in 2014 (except shipping around Iceland in 2010) in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.

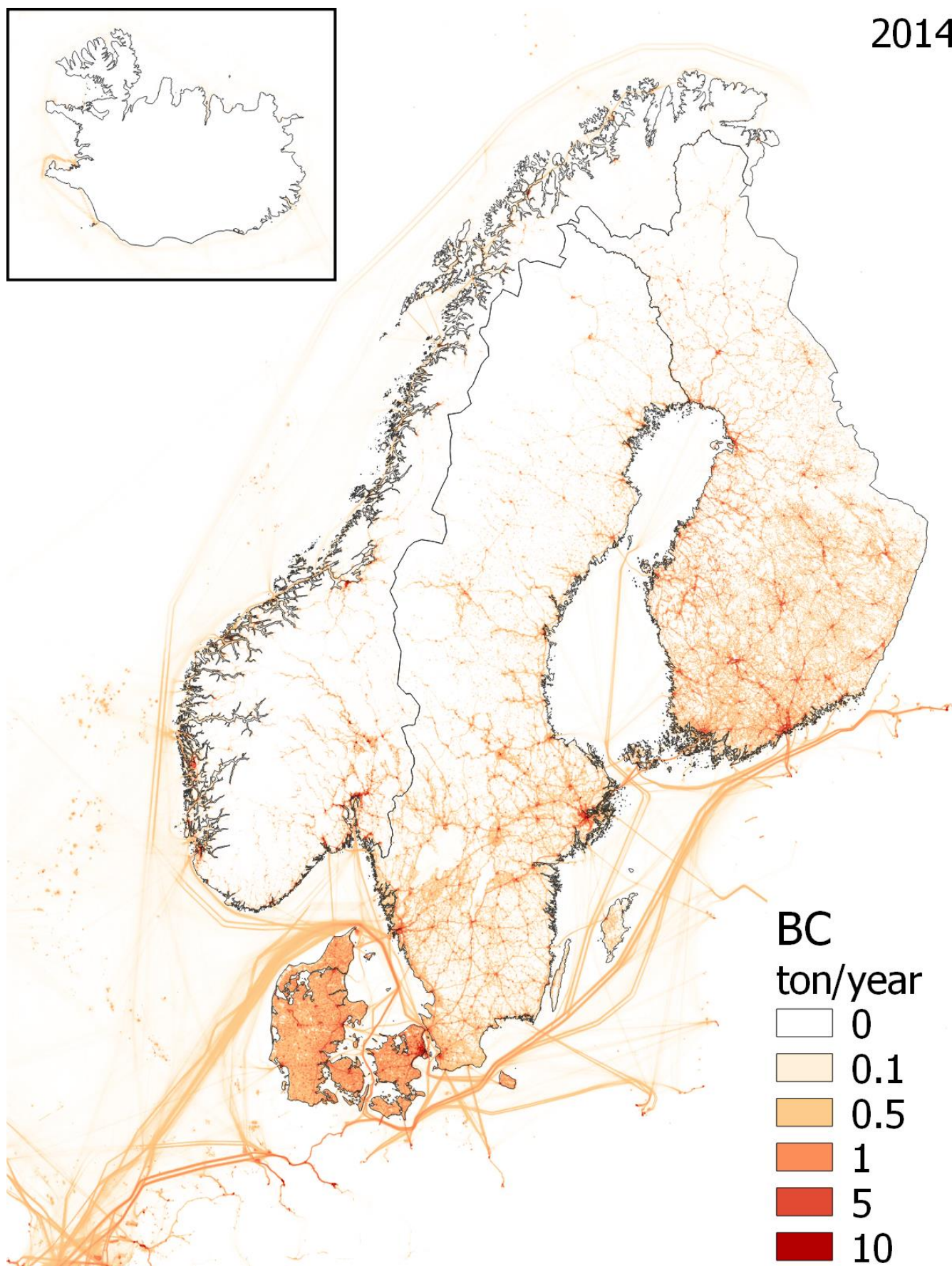


2014



**Figure S2** Total PM<sub>10</sub> emissions in the Nordic countries in 2014 in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.

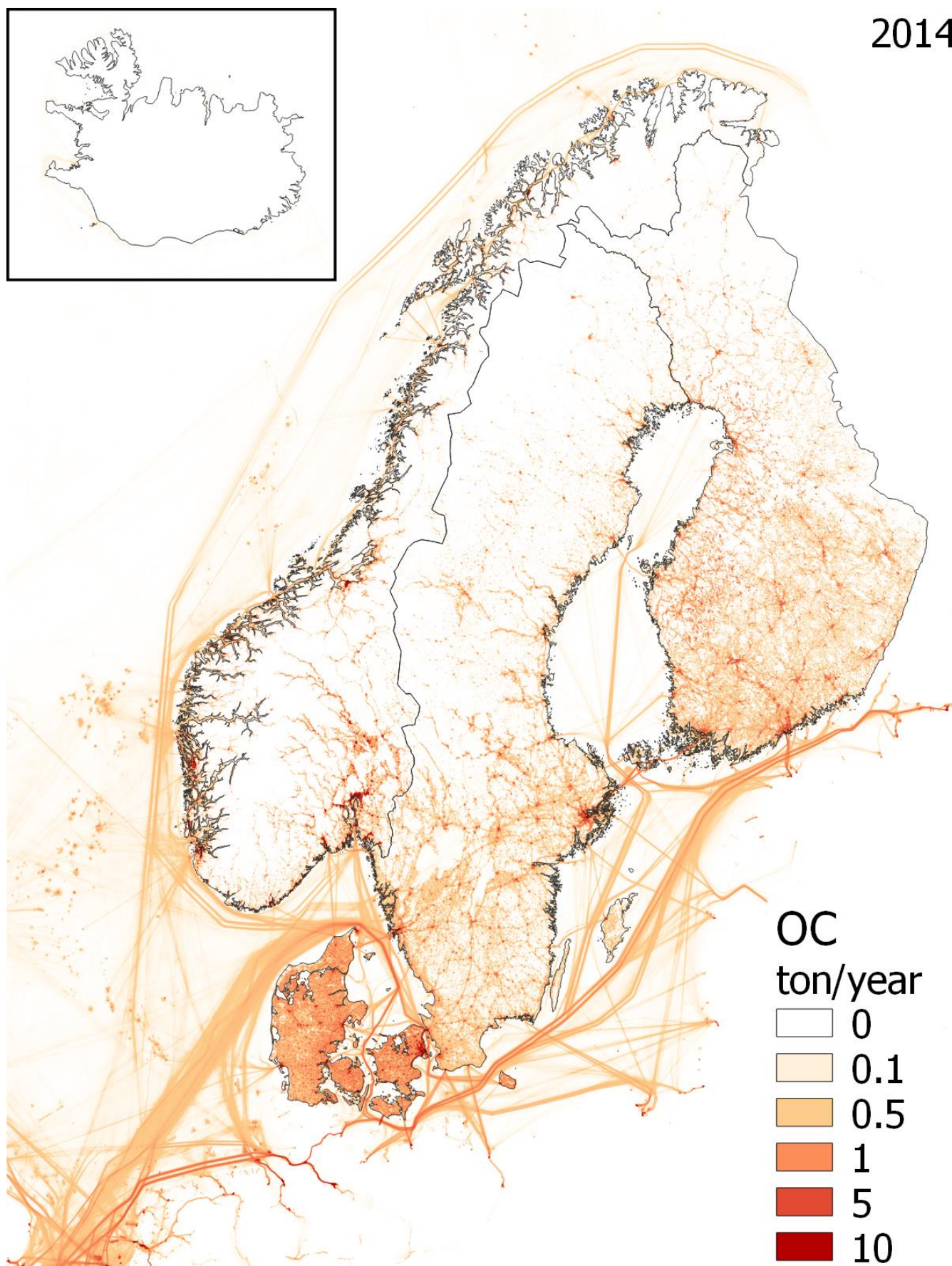
2014



**Figure S3** Total black carbon emissions in the Nordic countries in 2014 (except shipping around Iceland in 2010) in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.

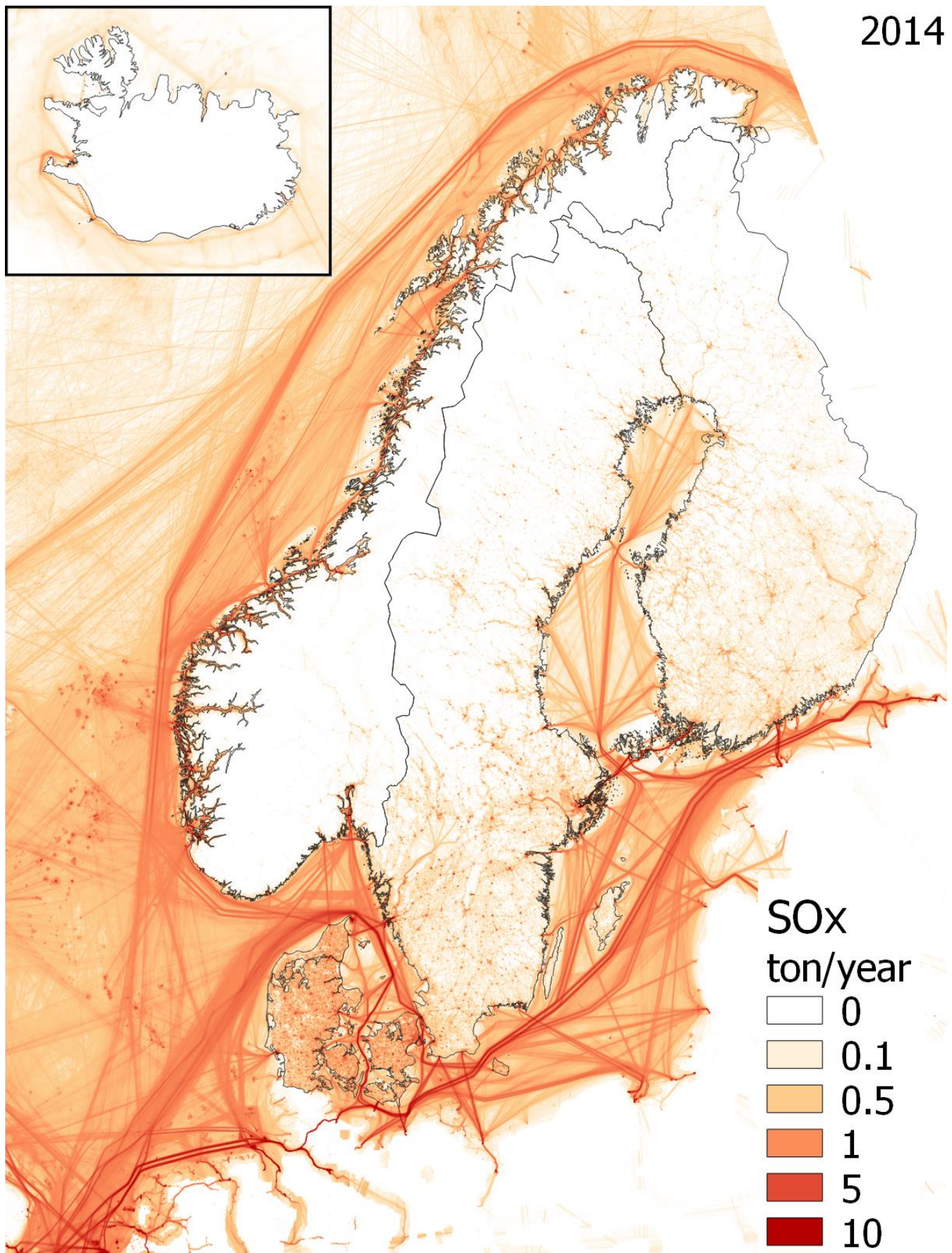


2014



**Figure S4** Total organic carbon emissions in the Nordic countries in 2014 (except shipping around Iceland in 2010) in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.





**Figure S5** Total sulphur oxides emissions in the Nordic countries in 2014 (except shipping around Iceland in 2010) in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.



2014

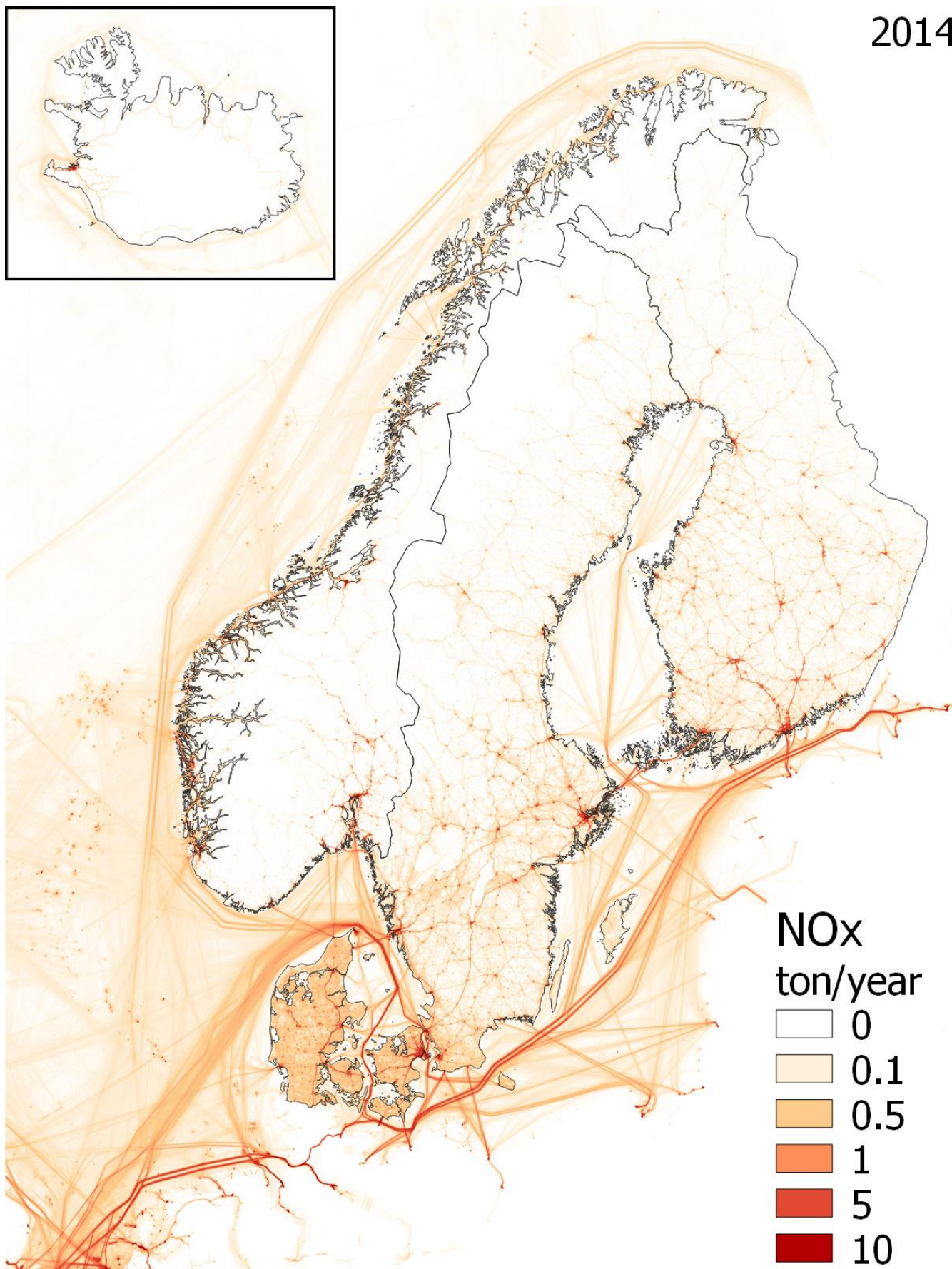


Figure S6 Total nitrogen oxides emissions in the Nordic countries in 2014 (except shipping around Iceland in 2010) in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.



2014

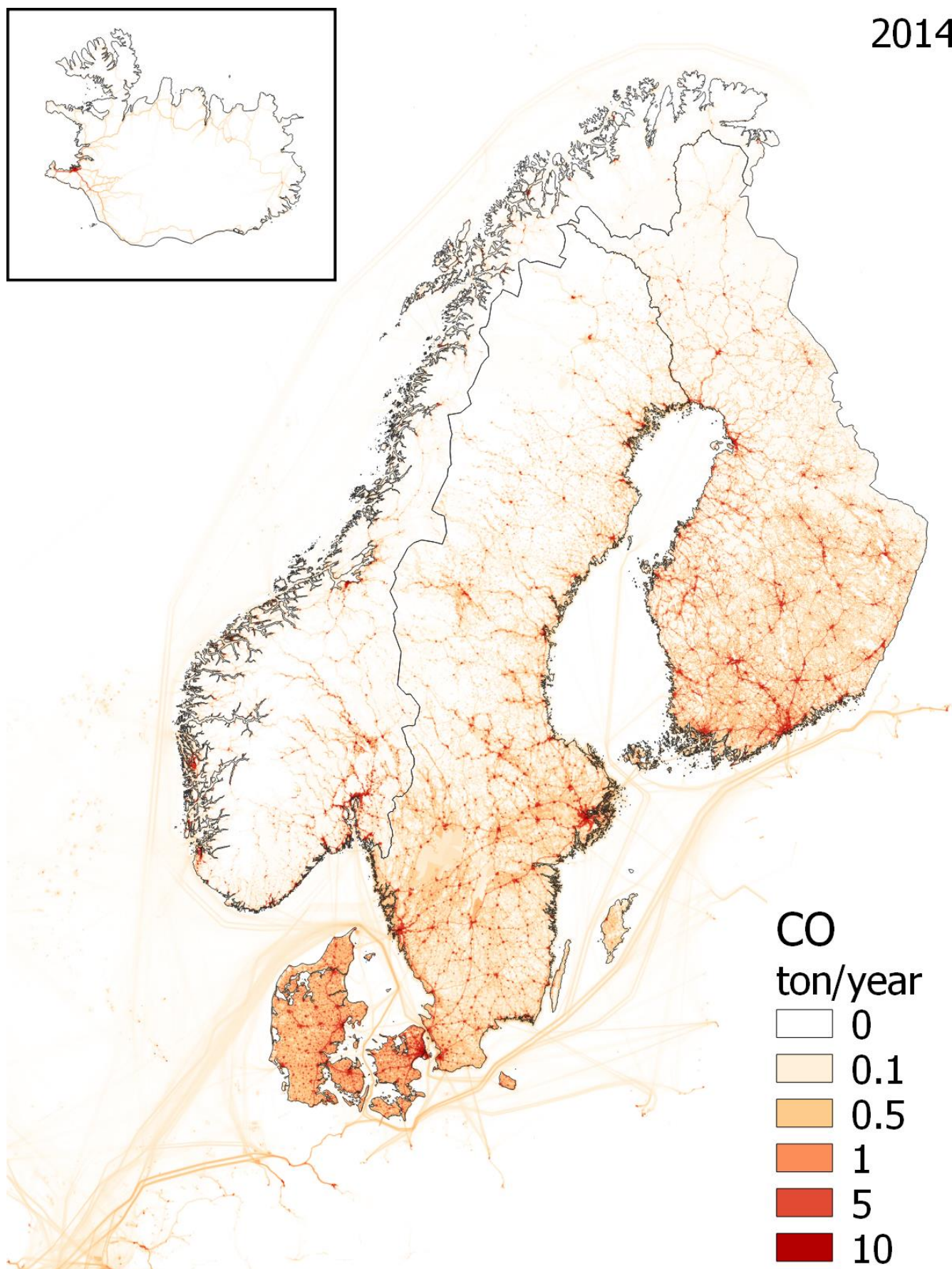


Figure S7 Total carbon monoxide emissions in the Nordic countries in 2014 (except shipping around Iceland in 2010) in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.

2014

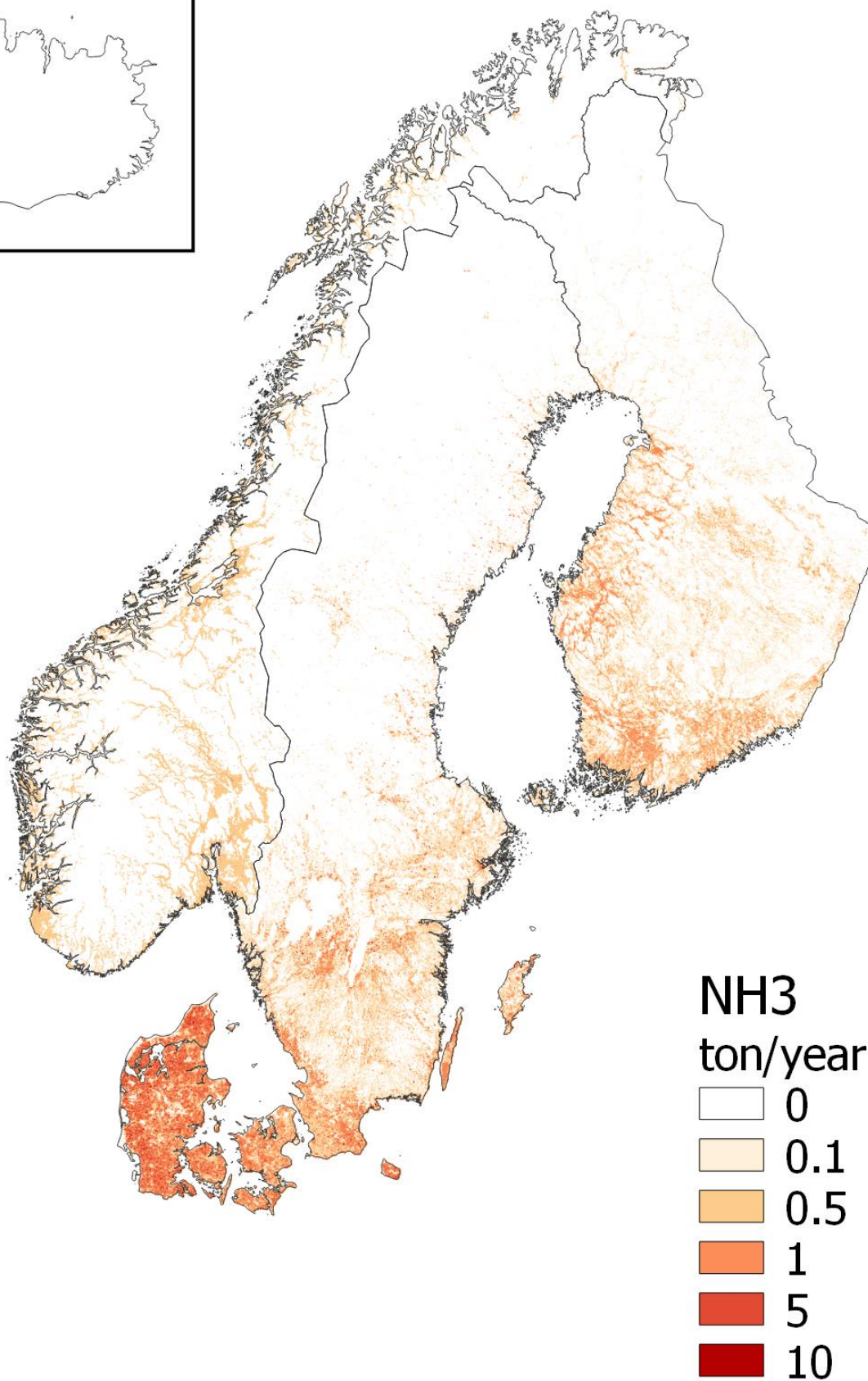
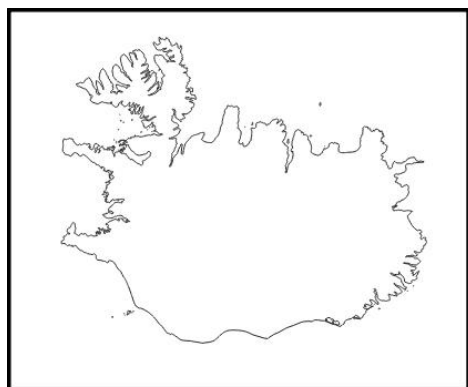
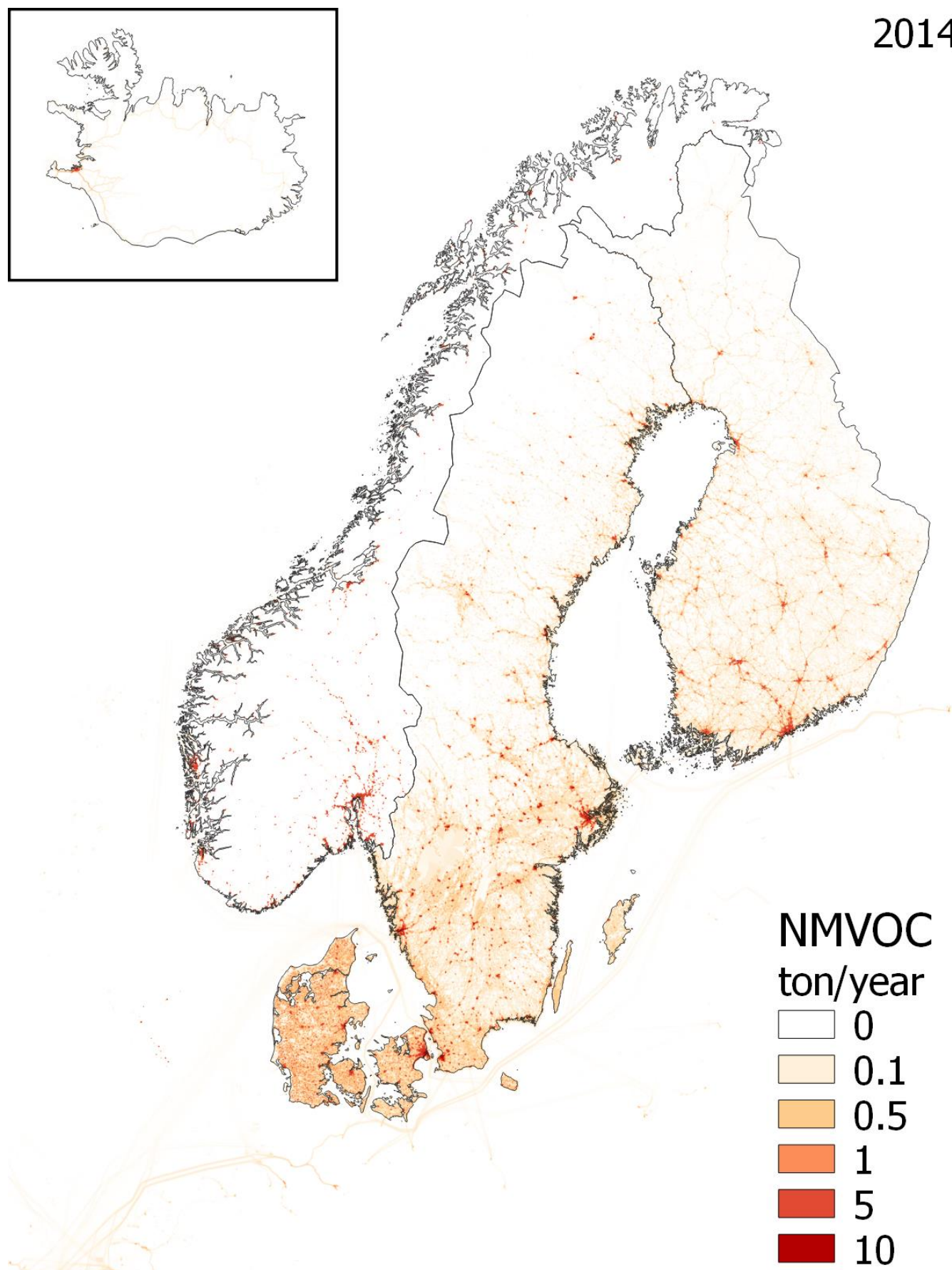


Figure S8 Total ammonia emissions in the Nordic countries in 2014 in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.



2014



**Figure S9** Total non-methane volatile organic compounds emissions in the Nordic countries in 2014 in 1 km x 1 km resolution. The map also shows the spatial extent of shipping emissions in the Nordic inventory. The legend shows the colours at the exact emissions values, and colours between these values are interpolated.