

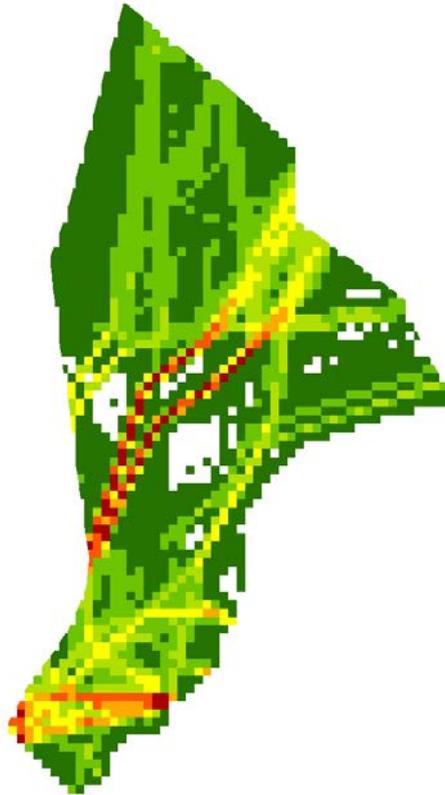
20) Name: allocation to grid cell (national continental shelf) based on fuel consumption or number of nautical miles

Description

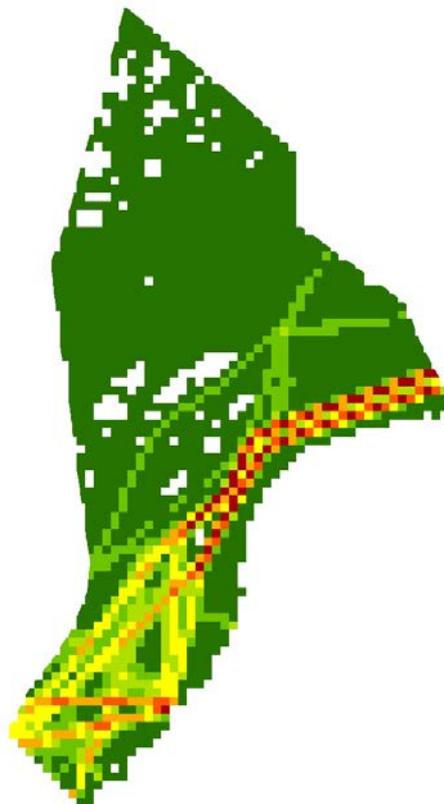
Emissions to the air as a result from fuel consumption by ocean shipping are allocated to grid cells of 5 x 5 km within the national continental shelf. For *non-fishing vessels* (9 different categories, see table 1) the distribution is based on the yearly fuel consumption in Tera Joule (TJ). Information on vessel type and fuel consumption is based on data from the Automatic Identification System (AIS). Since 2005, all merchant vessels over 300 Gross Tonnage are equipped with this system. It transmits information about the ship, its voyage and its current position, speed and course. Static information, such as name, IMO number, ship type, size, destination and draft, is transmitted every six minutes. Dynamic information such as position, speed and course is transmitted every 2 to 10 seconds. By linking the AIS data with ship databases, as provided by Lloyd's registry, additional characteristics about the ship are obtained, such as age and motor type. The combination of AIS data and ship characteristics allows for calculations of fuel consumption and emissions during movements. The Marine Research Institute Netherlands (MARIN) analyzed AIS data. Subsequent, TNO calculated emissions. As AIS data are not yet fully available for *fishing vessels*, a different approach is followed here. Emissions are allocated through a distribution based on the annual number of nautical miles sailed per grid cell. This is calculated using the SAMSON model (Safety Assessment for Shipping and Offshore on the North Sea), which again is administered by MARIN.

Table 1 shipping type

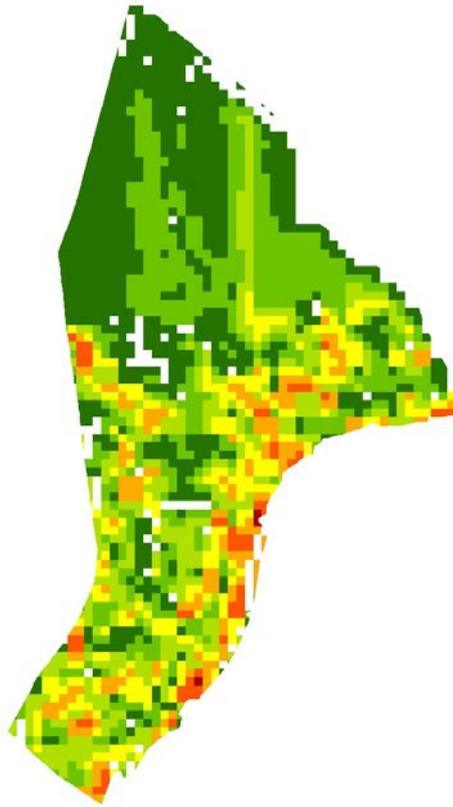
Bulkcarrier
Chemical/Gastankers
Containership
General Dry Cargo
Refrigerated ship
Oil tanker
Other ships
Passenger ship
Roro cargo/vehicle



*Example map 20a: oil tankers, total fuel consumption (TJ), NCS 5*5km. Orange and red colours indicate higher fuel consumption.*



*Example map 20b: container ships, total fuel consumption (TJ), NCS 5*5km. Orange and red colours indicate higher fuel consumption.*



*Example map 20c: fishing vessels, nautical miles 5*5km. Orange and red colours indicate higher numbers of nautical miles per grid cell.*

Institutes involved

RIVM
MARIN
TNO

Currency of distribution basis data

2014 (non-fishing vessels), 2004 (fishing vessels)

Background documents

Sea shipping emissions 2014: Netherlands continental shelf, 12-mile-zone, port areas and OSPAR region II
MARIN Report no. 28771-1-MSCN-rev.2
MARIN, Wageningen, 2016

Fisheries (in Dutch)

Koldenhof, Y.

Afgelegde zeemijlen op het NCP in 2004

MARIN rapportnr 20894.620/1

MARIN, Wageningen, 2006