

# 1.A.4.c iii - Agriculture/Forestry/Fishing: National Fishing

## Short description

In NFR sub-category *1.A.4.c iii* fuel consumption and emissions of Germany's maritime fishing fleet are reported.

| Method | AD    | EF               | Key Category Analysis  |
|--------|-------|------------------|------------------------|
| T1, T2 | NS, M | D, M, CS, T1, T2 | <i>no key category</i> |

## Methodology

### Activity Data

Primary fuel delivery data for national fishing is included in NEB lines 6 ('International Deep-Sea Bunkers') and 64 ('Coastal and Inland Navigation') for IMO-registered and unregistered ships respectively.

The actual annual amounts used are therefore calculated within (Deichnik (2019)), where ship movement data (AIS signal) allows for a bottom-up approach providing the needed differentiation.<sup>1)</sup>

Table 1: Annual fuel consumption, in terajoules

|                       | 1990       | 1995       | 2000       | 2005       | 2010       | 2011       | 2012       | 2013       | 2014       | 2015       | 2016         | 2017         | 2018         | 2019       |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|--------------|--------------|------------|
| <b>Diesel oil</b>     | 711        | 549        | 531        | 488        | 473        | 442        | 431        | 429        | 472        | 555        | 1.117        | 1.208        | 2.529        | 512        |
| <b>Heavy fuel oil</b> | 23,7       | 18,1       | 17,7       | 16,1       | 15,6       | 14,6       | 14,2       | 14,1       | 13,4       | NO         | NO           | NO           | NO           | NO         |
| <b>Σ 1.A.4.c iii</b>  | <b>735</b> | <b>567</b> | <b>549</b> | <b>504</b> | <b>489</b> | <b>456</b> | <b>445</b> | <b>443</b> | <b>485</b> | <b>555</b> | <b>1.117</b> | <b>1.208</b> | <b>2.529</b> | <b>512</b> |

The strong increase after 2015 cannot be conclusively explained at the moment. However, even if the over-all fuel quantities delivered to the navigation sector would be somehow misallocated between the specific nautical activities, there would be no over- or under-estimation of over-all emissions.

### Emission factors

The emission factors applied here, are derived from different sources and therefore are of very different quality.

For the main pollutants, country-specific implied values are used, that are based on tier3 EF included in the BSH model<sup>2)</sup> which mainly relate on values from the EMEP/EEA guidebook 2016<sup>3)</sup>. These modelled IEFs take into account the ship specific information derived from AIS data as well as the mix of fuel-qualities applied depending on the type of ship and the current state of activity.

Table 2: Annual country-specific emission factors, in kg/TJ

**NOTE:** For the country-specific emission factors applied for particulate matter, no clear indication is available, whether or not condensables are included.

For information on the **emission factors for heavy-metal and POP exhaust emissions**, please refer to [Appendix 2.3 - Heavy Metal \(HM\) exhaust emissions from mobile sources](#) and [Appendix 2.4 - Persistent Organic Pollutant \(POP\) exhaust emissions from mobile sources](#) ].

## Trend discussion for Key Sources

**NFR 1.A.4.c iii - National Fishing** is no key source.

## Recalculations

Recalculations occur only to the revised **activity data** reported for 2016 and 2017. Here, due to a revision of the official blending rates, the amounts of biodiesel used in NFR 1.A.4.c iii have been revised for 2016 and 2017.

Table 3: Revised biodiesel consumption estimates 2016 and 2017, in terajoules

| =                 |         | = Biodiesel |  |  |
|-------------------|---------|-------------|--|--|
| =                 | = 2016  | = 2017      |  |  |
| ~ Submission 2020 | > 8.49  | > 7.82      |  |  |
| ~ Submission 2019 | > 7.88  | > 8.11      |  |  |
| ~ absolute change | > 0.61  | > -0.29     |  |  |
| ~ relative change | > 7.77% | > -3.57%    |  |  |

All **emission factors** remain unrevised, instead.



For pollutant-specific information on recalculated emission estimates for Base Year and 2018, please see the pollutant specific recalculation tables following [chapter 8.1 - Recalculations](#).

## Uncertainties

Uncertainty estimates for **emission factors** were adopted from NFR 1.A.3.d i as a comparable emission source.

## Planned improvements

Besides a routine revision of the BSH model, further focus will be put on the correct allocation of

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activity data to the different navigation activities covered in different NFR sub-sectors.

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**bibliography** : 1 : Dechnik (2019): Aktualisierung und Revision des Modells zur Berechnung der spezifischen Verbräuche und Emissionen des von Deutschland ausgehenden Seeverkehrs. from Bundesamts für Seeschifffahrt und Hydrographie (BSH); Hamburg, 2019. : 2 : EMEP/EEA, 2019: EMEP/EEA air pollutant emission inventory guidebook – 2019; Chapter 1.A.3.d.i, 1.A.3.d.ii, 1.A.4.c.iii Navigation; URL: <https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters/1-energy/1-a-combustion/1-a-3-d-navigation> : 3 : Rentz et al., 2008: Nationaler Durchführungsplan unter dem Stockholmer Abkommen zu persistenten organischen Schadstoffen (POPs), im Auftrag des Umweltbundesamtes, FKZ 205 67 444, UBA Texte | 01/2008, January 2008; URL: <https://www.umweltbundesamt.de/en/publikationen/nationaler-durchfuehrungsplan-unter-stockholmer-bibliography>

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<sup>1)</sup> (bibcite 1)

<sup>2)</sup> (bibcite 1)

<sup>3)</sup> (bibcite 2)