

Annex 7 - Calculation method for the indicators and breakdown of the fleet for the 2023 capacity report

The following reference documents explain in detail how the indicators used in the 2023 report were defined and calculated:

- Guidelines COM(2014) 545 final for the biological, technical and economic indicators. It is mandatory to report on these indicators, which are marked with an asterisk (*) in the text below,
- STECF-15-02 EWG Balance Capacity for the other biological indicators (EDI and NOS). These indicators were approved by the STECF in February 2015, but there is no legal requirement for them to be used in the national reports.

The indicators are calculated annually for the entire period covered by the report and for each segment of the French fishing fleet. The analysis must cover a period of at least 3 years. For the 2023 report, most indicators supplied by the French authorities (where data was available) cover a period of 11 years.

1 - Sustainable Harvest Indicator in accordance with the 2014 EU guidelines (or SHI_EU*): This indicator measures the dependence of segment j on overfished stocks, which are defined for the present purposes as stocks fished above Fmsy (or the upper range (Fmsy-upper) where this exists). For each of the years under consideration, the ratios between the fishing mortality of each stock i for the year and the reference mortality (F/Fmsy) are weighted according to the share of total landings, in value terms, of segment j accounted for by stock i. The F/Fmsy values used in the calculations are those for the previous 3 years, as presented in the latest available scientific opinion (i.e. F/Fmsy n-2, n-1 and n, as presented in the opinion published for year n+1).

Guidelines COM(2014) 545 final, p. 9: Where a fleet segment catches fish of a number of species (n) then the indicator is an average of the indicator above for each stock (i), weighted by the value of the landings Vi of that stock (11). The indicator is therefore:

$$\frac{\sum_{i=1}^{i=n} V_i \frac{F_i}{F_{msy_i}}}{\sum_{i=1}^{i=n} \sum V_i}$$

An SHI value above 1 indicates that the fishing strategy of the segment is not 'sustainable', meaning that it is mostly reliant on stocks assessed as overfished.

NB1: The SHI_EU indicator can only be calculated for stocks where the F/Fmsy ratio is available. However, the range of stocks caught by many fleet segments can contain a significant share of stocks for which this ratio is not available. In accordance with guidelines COM(2014) 545 final, a segment's SHI indicator is only used where the share of landings accounted for by stocks which have an estimate for F and Fmsy represents at least 40% of the segment's total landings.

NB 2: The EU guidelines do not specifically define the number of stocks n referred to for calculating the SHI_EU indicator per segment. Two options exist:

- **Option 1:** n refers to ALL stocks caught by the segment (including stocks which have not been assessed). The denominator in this case is the total turnover of the segment.

- **Option 2:** n corresponds only to the subset of stocks which have been assessed. The denominator in this case is the share of the turnover of the segment derived only from assessed stocks.

The SHI_EU option 2 indicator is therefore automatically \geq the SHI_EU option 1.

For the 2021 report, the French authorities calculated the SHI_EU indicator according to both options and applied SHI_EU option 2.

NB 3: A limitation of the SHI_EU indicator is that it does not take into account how much the segments in question effectively contribute to the total fishing mortality for the stock, unlike the SHI_DPMA indicator previously used by the French authorities (see comments in STECF 15-02, p. 42).

2 – Economic Dependency Indicator (or EDI) for overfished stocks

The EDI indicator proposed in reports STECF 15-02 and STECF 20-11 corresponds to the proportion of a segment's income derived from overfished stocks in relation to its total annual income (landing value). *Details regarding EDI calculations in accordance with STECF 15-02, p. 78.*

'Overfishing' is a qualitative assessment which, contrary to the SHI indicator, allows all stocks which have been assessed to be integrated into the EDI calculation (and not only those for which the F/Fmsy ratio can be quantified). The downside is that it considers stocks on an equal basis whether they are heavily or slightly overfished, and is also very sensitive to the threshold effect (where F is very close to Fmsy).

An EDI exceeding 50% means that the segment's turnover depends predominantly on stocks in poor condition, compromising the economic viability of the segment.

3 - NOS, proposed by the STECF-15-02 report:

This indicator represents the number of overfished stocks exploited by a segment where it contributes significantly to fishing mortality (above an n% threshold). As with the EDI indicator, the NOS indicator allows all stocks which have been assessed to be integrated into the analysis and not only those for which an assessment of the F/Fmsy ratio is available. *Details regarding NOS calculations in accordance with STECF 15-02, p. 76.*

The footnote on page 77 of the STECF 15-02 report suggests setting a threshold (n%) equivalent to the number of segments exploiting a stock (all countries combined), e.g. a threshold of 10% for stock i if 10 segments exploit the stock, and 1% for stock j if 100 segments exploit the stock.

As the number of fleet segments fishing each stock at international level is not known, the French authorities carry out two NOS calculations:

NOS_1 is calculated only for stocks where French landings account for a significant share of total landings (>80%). In such cases, the number of segments targeting the stock in France is considered to be a proxy of the total number of segments targeting the stock, and the overfished stock is factored into the NOS_1 of the segment where the segment-stock catches/total catches of stock ratio is higher than the 1/total number of segments ratio.

NOS_2 is calculated by taking into account all stocks exploited by a segment which have been assessed, using as a direct basis the segment-stock catches/total catches of stock ratio irrespective of the number of segments targeting that stock. NOS_2 is calculated at thresholds of 5%, 10% and 15%.

NB: The thresholds set for calculating the NOS indicators (French landings/total landings for NOS_1 and contribution of segment to stock fishing mortality for NOS_2) determine to a very large extent the results obtained.

4 - SAR or 'Number of Stocks at Risk'

This indicator is compulsory but is only partly calculated by the French authorities due to the fact that an approved European list of stocks assessed as 'at risk' is not available. According to guideline COM(2014) 545 final, the SAR indicator represents the number of stocks at risk (SAR) exploited by the segment IF the stock in question makes up at least 10% of the segment's total landings OR if the segment takes at least 10% of total landings for that stock.

5 - RoFTA or 'Return on Fixed Tangible Assets'

This is the net profit (including depreciation costs) in relation to the net replacement value of physical assets. *Calculated in accordance with guideline COM(2014) 545 final, p. 11.*

RoFTA is an indicator of the profitability of capital invested in the sector and allows the long-term viability of the segment to be assessed.

6 - CR/BER 'Ratio between Current Revenue and Break-Even Revenue'*

BER is the break-even revenue whereby all variable and fixed costs can be covered, including depreciation.

Calculated in accordance with guideline COM(2014) 545 final, p. 14.

If current revenue is higher than break-even revenue, the segment is viable in the short and long term.

7 - 'Number of Inactive Vessels'

The number of inactive vessels is assessed by supra-region (Atlantic 27, Mediterranean 37 and outermost regions OR) on the basis of vessel registration districts.

8 - VUR_90 'Utilisation Capacity Ratio'

This indicator assesses fleet utilisation under the conditions governing fishing activity. It is calculated on the basis of days at sea declared per vessel and corresponds to the average number of days at sea for the segment in relation to the maximum number of days at sea theoretically possible within the segment. As information is not available on the theoretical maximum, a proxy corresponding to 90% (P90) of that variable was used.

In principle, the UR90 ratio should be high, i.e. close to 1, for all segments. Guidelines COM(2014) 545 final (page 17) suggest that a ratio below 0.7 points to difficulties in making efficient use of production assets and therefore indicates technical overcapacity.

NB: This indicator is difficult to interpret for small-scale coastal segments, which operate with highly variable levels of activity due to the strategies of vessel masters (very often with a variety of sources of activity and income) and weather-related restrictions. Ifremer calculates this indicator for all segments and records all segments with an indicator below 0.7 in one column and all segments [consisting of vessels] of more than 12m with an indicator below 0.7 in a second column.

The indicator is therefore only applied for fleets of more than 12 metres, as explained in the capacity report.

9 - Discussions on developing the indicators

Such discussions are regularly held at European level within the working groups of the STECF (see, in particular, reports STECF PLEN13-01, STECF 14-02, STECF 15-05, STECF 18-14 and, more recently, STECF 20-11).

These reports highlight the need to develop the biological indicators by incorporating into the EU guidelines alternative indicators such as the NOS and the EDI. They also suggest adding new economic indicators for measuring labour productivity with net value added per FTE (NVA/FTE) and resource productivity including the net profit margin (net profit (NP)/current revenue (CR)). To date, only capital productivity has been taken into account through the RoFTA and CR/BER indicators, whereby there are calculation differences between the EU guidelines and the AER.

10 - Data used

The indicator calculations are based on a variety of annual data covering the reference period (2011 to 2019 for the 2021 report):

- Technical data (length, age, etc.), geographical data (registration district, etc.) and activity (metiers, etc.) for each French vessel entered in the EU fleet register,
- landing data per vessel and per stock (in terms of volume and value),
- fishing effort data (in terms of number of days at sea) per vessel,
- economic data aggregated by segment (or 'cluster' where the number of vessels in the segment may compromise data confidentiality),
- biological data on stock status,
- total landings by stock (all countries combined) in terms of volume.

11- Data sources

- Ifremer's Fisheries Information System (Système d'Informations Halieutiques, SIH) (taking into account SACROIS, OBSDEB and SACROIS EXTRAPOL data),
- economic data aggregated and collected as part of EU MAP which is publicly available for fleet segments covered by the [Data Collection] Regulation,
- biological data on stock status from scientific organisations responsible for assessing fish stocks (ICES, RFMOs, etc.).

12 - Breakdown of vessels into fleet segments

The French fishing fleet comprises professional fishing vessels entered in the EU fleet register (some of which are classified as inactive). Each year, the fishing vessels are grouped into segments according to their technical characteristics and fishing strategies for the year in question.

As with EU MAP, vessels are assigned to a fleet segment on the basis of their length, the gears used, and the fishing zones they visit.

Finally, the regions in EU MAP correspond exactly to the Mediterranean and overseas capacity regions, but this not the case for the Atlantic supra region.

13 - Clusters to maintain the confidentiality of economic indicators

In order to keep economic data confidential, segments are sometimes grouped into 'clusters'. These groupings concern over one hundred segments which, at least once over the period, have comprised fewer than 10 vessels.

Ultimately, the economic indicators are reported annually at cluster level. Economic indicators must be interpreted with caution (1 cluster = n segments).

The approach for grouping segments into clusters is based on methods which guarantee their quality and consistency over time. The same approach has been used since 2015, i.e. grouping by activity, vessels size, gear type, similar economic model, etc.

Groupings comply with the following criteria:

- a) vessels practising the same metier and belonging to a closely adjoining length overall (LOA) class (e.g. 0–10 m/10–12 m) are grouped together as a priority,
- b) if not possible, vessels practising a similar metier and belonging to an identical LOA class (e.g. 0–10 m/10–12 m) are grouped together as a priority,
- c) OR for certain segments:
 - grouping by LOA is given priority (e.g. vessels of more than 40 m) for different metiers or types of metier (passive/active),
 - grouping by type of metier combining all LOA classes (e.g. 0–12 m vessels in Martinique).

Groupings also take into account the following vessel categories identified by the EU:

- SSF: small scale fleet, i.e. vessels of less than 12 m with primary 'passive' gear,
- LSF: large scale fleet, i.e. other vessels, with the exception of the vessels below,
- LWF: long distance water fleet, i.e. overseas vessels of more than 24 m.