ANNUAL REPORT ON

THE IRISH FISHING FLEET FOR 2019

Department of Agriculture, Food and the Marine
Ireland

ANNUAL REPORT TO THE EUROPEAN COMMISSION ON THE IRISH FISHING FLEET FOR 2019 (Pursuant to Article 22 of Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy)

1. Summary

This report gives a description of the Irish fishing fleet in relation to fisheries developments during 2019, the impact on fishing capacity of fishing effort reduction schemes, information on the compliance with the entry/exit scheme, a summary report on the weaknesses and strengths of the fleet management system together with a plan for improvements and information on the general level of compliance with fleet policy instruments as well as any information on changes of the administrative procedures relevant to the management of the fleet.

2. MS opinion on balance of fleet capacity & fishing opportunities

The technical indicators as currently set down do not allow for the highly diverse nature of the fleet or the range of natural variation within these segments. For example, the

polyvalent segment of the fleet is diverse in terms of size of vessels, geographical spread of activity and species targeted. Also certain specified areas carry effort restrictions, or are subject to seasonal/monthly patterns. It is difficult when dealing with such a wide variety to compare them all on the same basis so, while the assessment in relation to technical indicators has been carried out, it cannot give an accurate picture until such time as these natural variations can be allowed for within the assessment.

With regard to economic indicators, the results show a broadly positive outlook for the Irish fleet with most segments passing both indicators in 2018 and in the most recent years assessed. The main worry here is the DTS 18-24m length class which failed both indicators in 2018. This length class had passed both indicators in the previous two years, but this year is the second year in a row where the trend has continued in a negative fashion. Despite this the extent of failing the indicators is not extreme and the segment has recovered from similar situations in the timeline assessed. Given the strong performance of the 24-40m segment, the market conditions should permit the segment to recover and hopefully thrive. Finally, when assessed through Department of Agriculture, Food and Marine (DAFM) segments the polyvalent general 18-24m segment passes the RoFTA and only fails the CR/BER by 1%. For these reasons it is deemed unnecessary to make an action plan for the segment but to maintain close observance of the segments economic state. The pelagic trawl segment both show positive results for the last three years. Overall, the indicators are positive from the economic point of view and therefore signal that no specific measures are required for the Irish fishing fleet.

With regard to biological indicators, of the 14 fleet segments for which the 2017 Sustainable Harvest Indicator (SHI) was considered meaningful to assess balance or imbalance, 2 fleet segments are in balance with their fishing opportunities. However preliminary figures for 2018 show that 8 of these segments are now in balance. The Stock at Risk (SAR) indicator was available for all the 32 active fleet segments in 2017, 23 of which may be in balance with their fishing opportunities. The report undertakes a

detailed analysis of the main stocks targeted by these fleets. This analysis indicates that the diversity within the fleet does not support the view that the fleets are out of balance.

Taking all factors and indicators into consideration, Ireland is of the view that based on the analysis herein; a structural imbalance does not exist with the fleet.

3. Section A

(i) Description of the fleet segments

The Irish fishing fleet is largely a coastal fleet made up of 2,004 vessels, varying in size from in excess of 24 metres to under 12 metres. The fleet operates over five segments: pelagic, polyvalent, beam-trawl, specific and aquaculture. An outline of the 5 fleet segments in the Irish fleet in respect of 2019 is provided below:

(a) **Refrigerated Seawater (RSW) Pelagic Segment:** This segment comprised 23 vessels with a total capacity of 24,876 GT and 47,109 kW.

(b) **Beam Trawler Segment:** This segment comprised 10 vessels, which are dedicated to beam trawling, with a total capacity of 1,139 GT and 2,818 kW.

(c) **Polyvalent Segment:** This segment comprised 1,723 vessels, the vast majority of vessels in the fleet, with a total capacity of 32,918 GT and 117,177 kW. These vessels are multi-purpose and include small inshore vessels (netters and potters), and medium and large offshore vessels.

This segment also includes vessels licensed and registered under the Scheme for the Licensing of Traditional Pot Fishing Boats in the Irish Inshore Fleet. The scheme for the registration of previously unregistered traditional potting boats in the inshore fleet was completed in 2007. These potting vessels may only fish for non-quota species exclusively by means of traps/pots. They are ring-fenced within this segment and the capacity of these boats may not be used elsewhere in the segment for the purposes of compliance with the entry/exit regime.

(d) **Specific Segment:** This segment comprised 151 vessels, with a total capacity of 2,267 GT and 12,240 kW, which are permitted to fish for bivalve molluscs and aquaculture species only.

(e) **Aquaculture Segment:** These vessels must be exclusively used in the management, development and servicing of aquaculture areas. This segment, which comprised 97 vessels, with a total capacity of 4,280 GT and 11,673 kW, is not subject to the entry / exit regime.

Capacity of Irish Fleet on 31 December 2019 (Extracted from Vessel Register Report on 31 December 2019).			
Fleet Segment	**Number of Vessels**	**Gross Tonnage (GT)**	**kilowatts (kW)**
Aquaculture	*97*	*4,280*	*11,673*
Specific	*151*	*2,267*	*12,240*
Polyvalent	*1,723*	*32,918*	*117,177*
Beam Trawl	*10*	*1,139*	*2,818*
RSW Pelagic	*23*	*24,876*	*47,109*
Total	*2,004*	*65,480*	*191,017*

Table 1: Structure of the Irish Fleet 2019

The segmentation of the Irish fishing fleet is provided for by Policy Directive 2 of 2003, as amended by Policy Directive 1 of 2006, Policy Directive 1 of 2011 and Policy Directive 2 of 2011. The transfer of capacity between the segments (or sub-segments) is not permitted, and equivalent "replacement" capacity must be taken out of the segment (or sub-segment) into which a vessel is being introduced. This is known as the "entry/exit regime" and is a requirement since 1 January 2003 under Regulation (EU) No 1380/2013 of the European Parliament and of the Council which repealed and replaced EU Council Regulation 2371/2002.

Of the 2,004 vessels in the Irish fleet, 1,491 are less than 10 metres length overall, 232 vessels are between 10 and 12 metres length overall, 68 vessels are between 12 and 15 metres length overall, 99 vessels are between 15 metres and 24 metres length overall

and 114 vessels are greater than or equal to 24 metres length overall.

Traditionally, up to 90% of ownership of the Irish fishing fleet has been vested in skipper/owner single vessel family operations[1]. Despite some consolidation in recent years with the reduction in vessel numbers, this ownership profile continues to dominate in the Irish fleet.

(ii) Link with fisheries

The RSW (Pelagic) Segment is engaged predominantly in fishing for pelagic species such as herring, mackerel, horse mackerel and blue whiting.

Vessels in the Beam Trawler Segment target demersal species such as monkfish, megrim and sole.

Polyvalent vessels are multi-purpose vessels which prosecute a range of fisheries. The species targeted include demersal species, pelagic species, shellfish (e.g. *Nephrops,* crab and lobster) and bivalve molluscs (e.g. scallop, mussel and razor clam).

Vessels in the Specific Segment may target bivalve molluscs and aquaculture species only.

Vessels in the Aquaculture Segment are restricted to use in the management, development and servicing of aquaculture areas. As part of a service to aquaculture installations, such vessels may collect mussel seed, subject to certain restrictions, as have been determined in the context of Regulation (EU) No 1380/2013.

The profile of the Irish fleet in Table 2, below, shows the main target species for each segment.

[1] OECD Country Note 2002

Fleet Segments	Main Target Species	
	Fin Fish	**Shellfish**
(a)Refrigerated Sea Water (RSW) Pelagic	Pelagic (e.g. Mackerel, Herring, Horse Mackerel, Blue Whiting, Boarfish, Albacore)	
(b)Polyvalent (sub-divided into:- Potting Sub-segment; Scallop Sub-segment; ≥ 18 metre length overall Sub-segment and < 18 metre length overall Sub-segment)	Demersal (e.g. Whiting, Haddock, Hake, Cod, Halibut, Sole, Plaice, Monkfish, Megrim, Skate) Pelagic (e.g. Mackerel, Herring, Horse Mackerel, Blue Whiting, Boarfish, Albacore)	Lobster, Crab, *Nephrops*, Shrimp, Whelk, Bi-Valve Molluscs (e.g. Mussels, Scallop, Razor Clam, Clam, Oyster etc.)
(c)Beam Trawl	Demersal (e.g. Whiting, Haddock, Hake, Cod, Halibut, Sole, Plaice, Monkfish, Megrim, Skate)	*Nephrops*, Scallop
(d)Specific (sub-divided into Scallop Sub-segment and General Sub-segment)	N/A	Farmed species and wild Bi-Valve Molluscs (e.g. Mussels, Scallop, Razor Clam, Clam, Oyster etc.)
(e) Aquaculture	Farmed species only	Farmed species only

Table 2: Irish Fleet Profile

(iii) <u>Development in fleets</u>

Compared with 2018, the RSW (Pelagic) Segment did not change in terms of number of vessels but increased in capacity by 42 GT arising from 1 modified vessel during 2019.

The Beam Trawler Segment did not change in terms of the number of vessels however capacity increased by 103 GT and by 54 kW due to a larger replacement vessel.

The Polyvalent Segment increased by 2 vessels and by 688 GT and 1,298 kW in 2019. The Registrar General of Fishing Boats carries out ongoing reviews of the Register to identify and follow up on registered vessels whose sea-fishing boat licences have lapsed. Under this review in 2019, 16 vessels were compulsorily de-registered and 7 were voluntarily de-registered.

The Specific Segment decreased by 2 vessels and by 13 GT and 161 kW in 2019.

The Aquaculture Segment decreased by 1 vessel however it increased by 795 GT and by 1,218 kW due to the introduction of a large vessel.

Figure 1 illustrates the number of vessels in the Irish Fleet since 2005 which has grown to approximately 2,000 vessels.

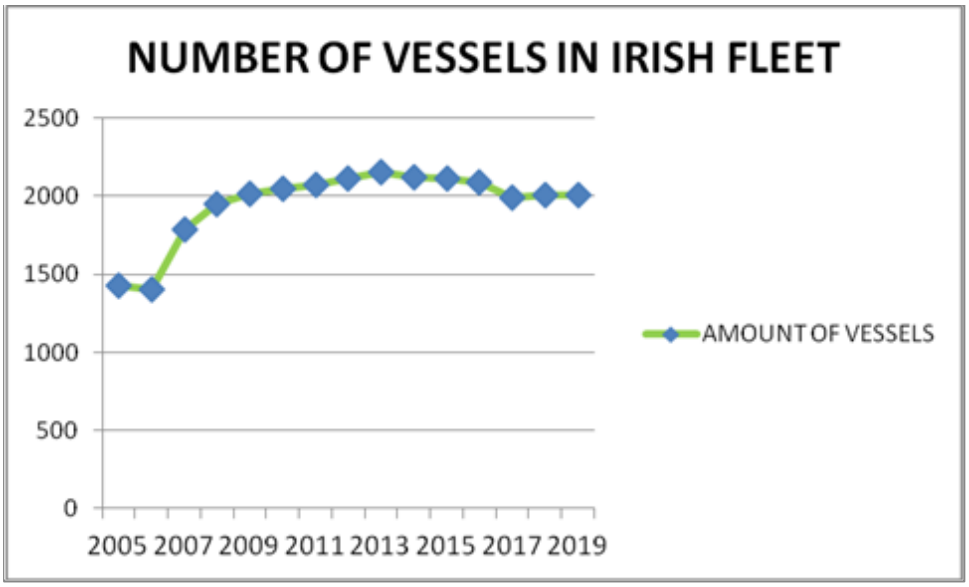


Figure 1:Number of vessels in the Irish Fleet since 2005. The increase in the number of vessels since the year 2006 is mainly due to (a) the number of vessels regularised (i.e. registered and licensed) under the Special Inshore Schemes, (b) the number of Aquaculture vessels registered and licensed and (c) the tendency to replace larger vessels with smaller vessels for economic reasons.

Figures 2 and 3 illustrate that the capacity of the Irish fleet, measured in Gross Tonnes and kW, has in fact decreased since 2003. This can be attributed largely to (a) the amount of RSW Pelagic capacity currently off-register[2], (b) the decommissioning of larger vessels[3], and (c) in a minor way to new safety regulations. The fleet capacity ceiling set at 1 January 2014 for the Irish fleet under Regulation (EU) No 1380/2013 is 77,568 GT and 210,083 kW. The Irish fleet makes up just 2.5% of the EU fleet in terms of numbers of vessels but holds capacity just above this percentage. Figures 4 and 5 illustrate the capacity of the Irish fleet, measured in Gross Tonnes and kW, over the more recent period of 2014 to 2019.

[2] Current RSW Pelagic capacity off-register of: 11,273 GT/662 kW

[3] Department of Agriculture, Food and the Marine (2011) Value for Money Review Fisheries Decommissioning Scheme 2005-2008

Figure 2: Capacity of the Irish Fleet in Gross Tonnes 2003-2018

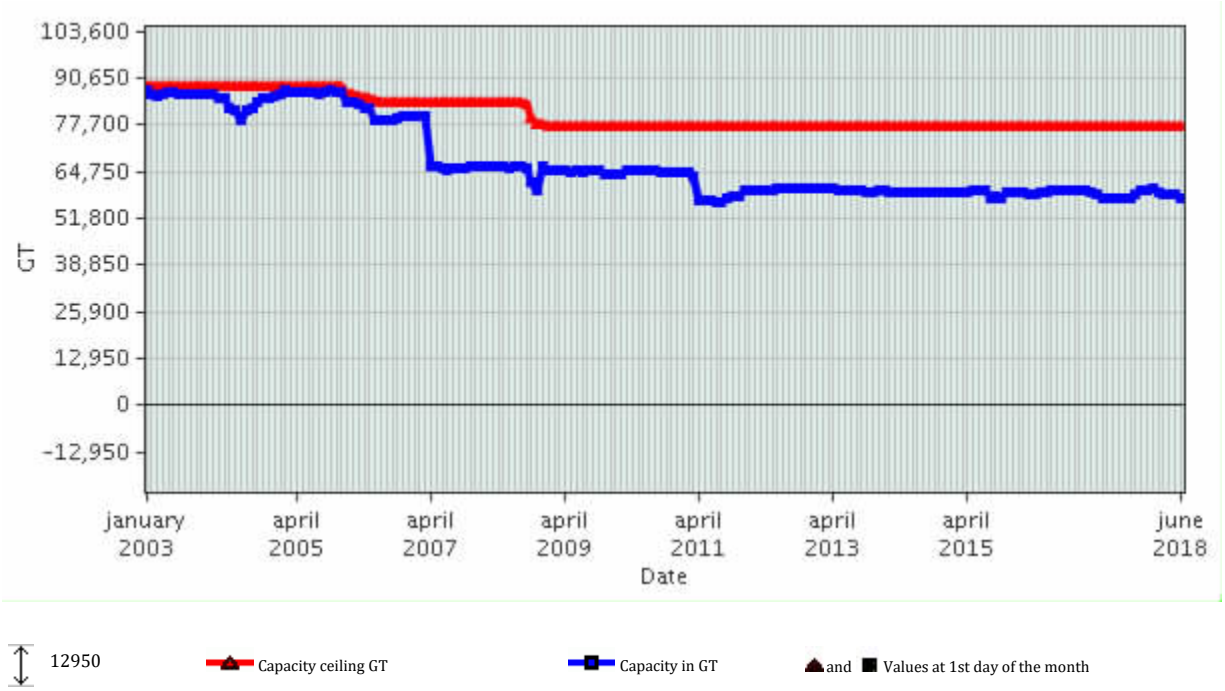


Figure 3: Capacity of the Irish Fleet in kW 2003-2018

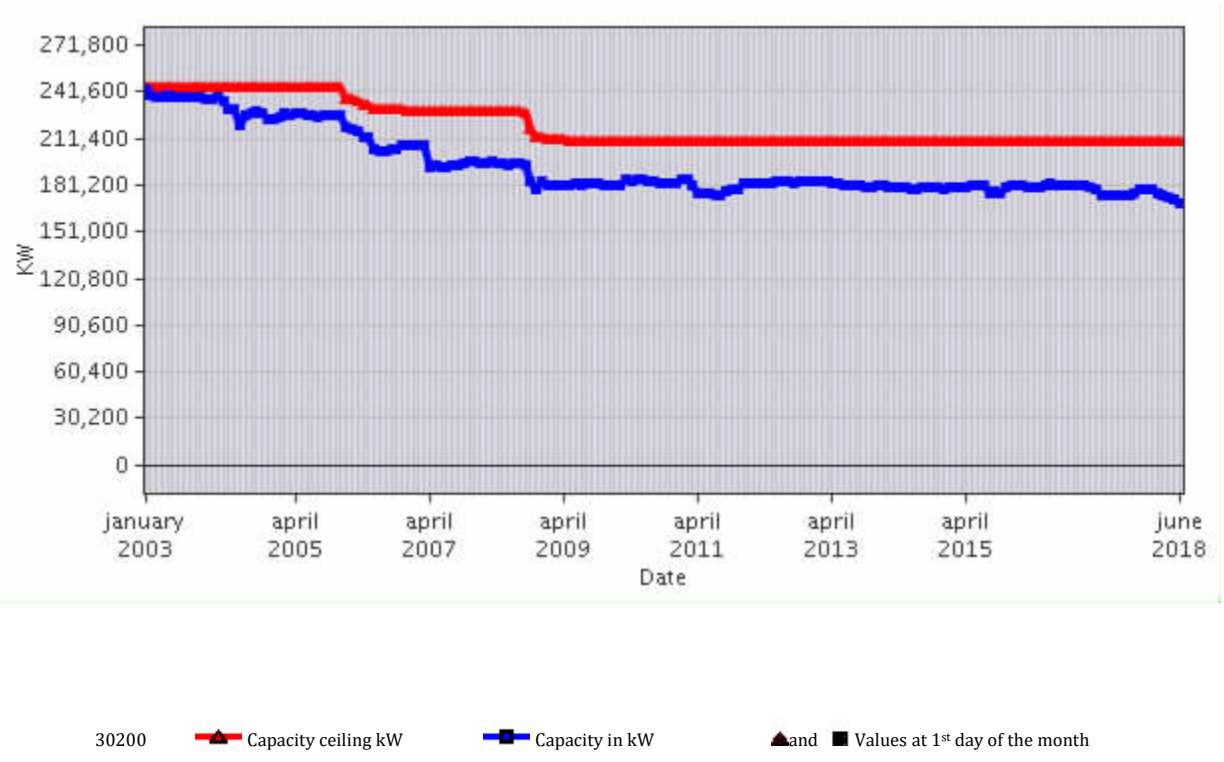


Figure 4: Capacity of the Irish Fleet in Gross Tonnes 2014-2019

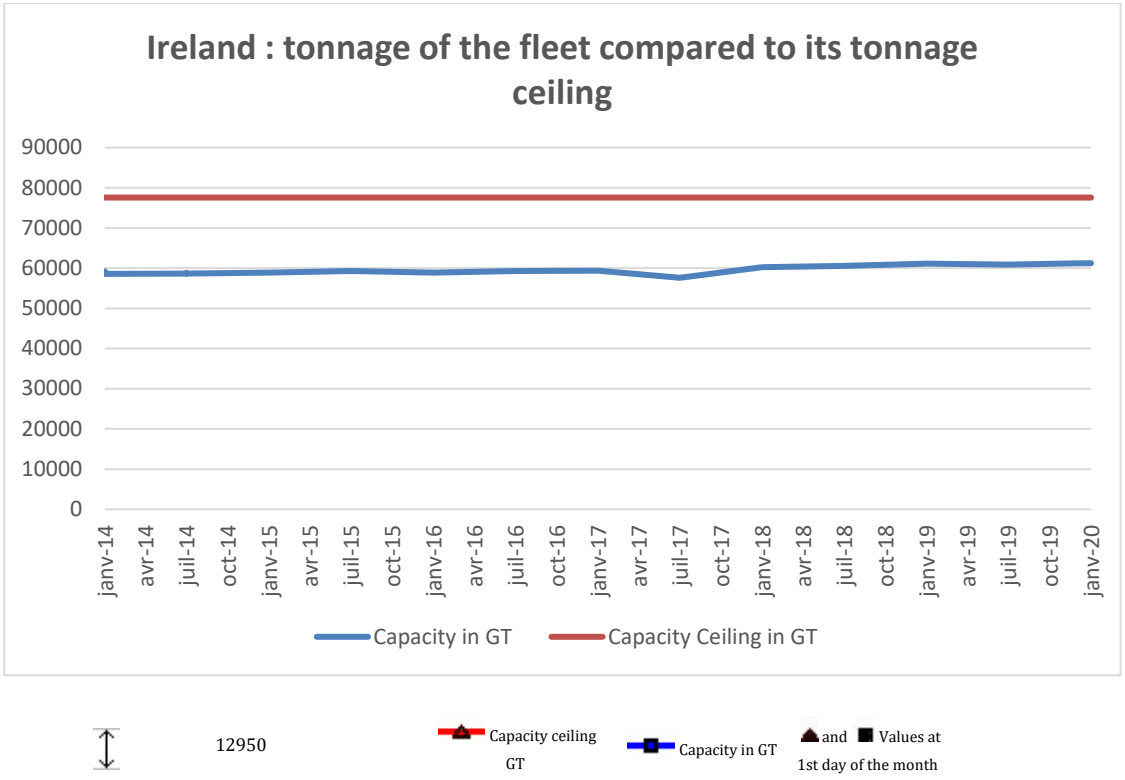
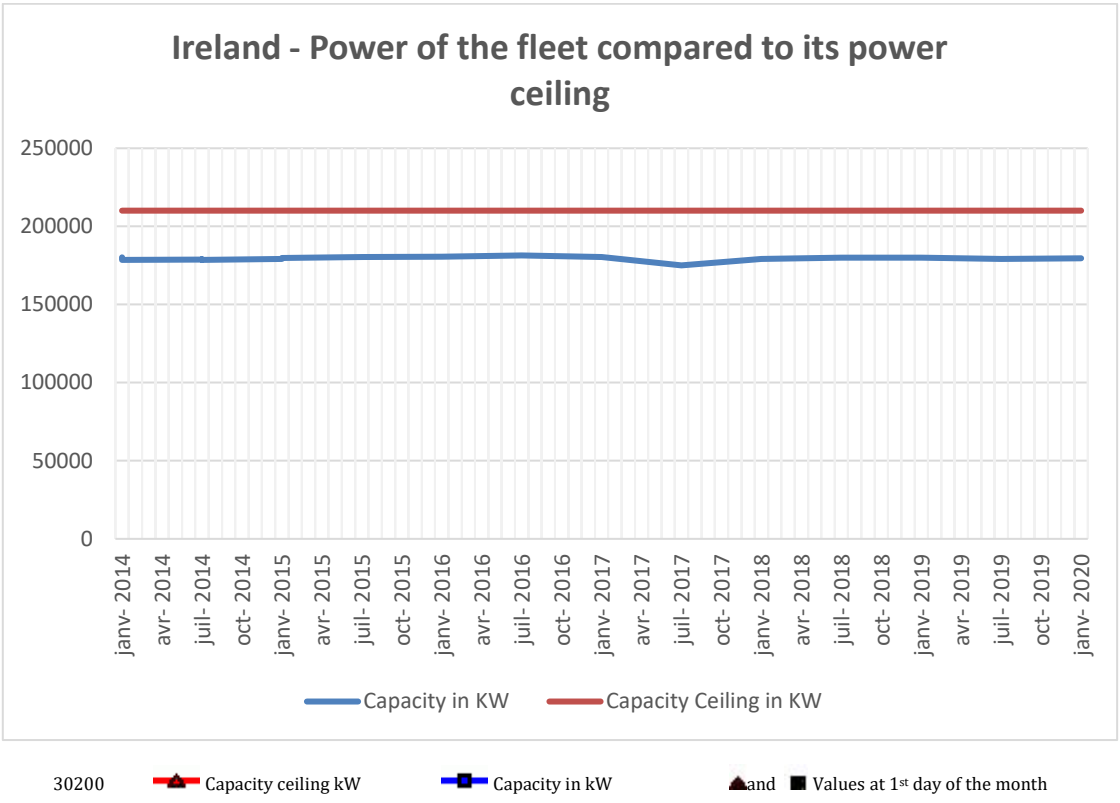


Figure 5: Capacity of the Irish Fleet in kW 2014-2019



4. Section B

(i) Statement of Effort Reduction Schemes

Fishing Effort – Stock Recovery plans

The Irish demersal fisheries coming within the scope of stock recovery plans (ICES Area VIa and VIIa) are of a highly mixed nature.

In 2009 a new kW days scheme was introduced as part of the Cod Recovery Programme and to comply with the effort ceilings all vessels operating in the areas were required to have specific Authorisations. These Authorisations placed restrictions on the area where the vessels operate, the gear type that could be used and set an upper limit on the maximum kW effort allowed.

Area VIa

Since 2009, Ireland has introduced a seasonal closure in statistical rectangle 39E3, for the protection of juvenile cod as the area was identified as a vulnerable spawning area. Historically, over 40% of Irish cod landings in VIa had been attributed to this area. In its submission to the Commission in 2012, Ireland anticipated that the closure would result in a reduction of cod catches of 24% in 2012. This closure has since been modified and implemented under EU legislation (Regulation (EU) 2019/12412). The area boundary has been defined in line with STECF advice and the closure is effective for 6 months of the year from 1 October to 31 March.

Area VIIa

A range of new selectivity measures were introduced under the Technical measures Regulation (2019/1241). This regulation included the setting of minimum conservation references sizes, mesh sizes and defined closed or restricted areas. These closed areas include a part of the Irish Sea that is closed from 14 February to 30 April to protect the cod population. During this time it is prohibited to use any demersel trawl, seine or similar towed net, any gillnet, entangling net or trammel net or any fishing gear

incorporating hooks. Demersel trawls are only permitted in the area if they are fitted with STECF assessed selective gears.

Fleet Restructuring

In 2005/2006 and 2008, Ireland implemented two fleet decommissioning schemes. The 2005/2006 Scheme removed 3,323 GT, while the 2008 Scheme removed 6,914 GT.

(ii) Impact on fishing capacity of effort reduction schemes

As a result of significant changes to the recovery plan operation in 2009 there were reductions in fleet activity in Areas VIa and VIIa but it is difficult to gauge the full impact on fishing capacity of fishing effort reduction schemes.

In 2011, a Value for Money Review of the two fleet decommissioning schemes was concluded. The Value for Money Review was undertaken in accordance with Ireland's Value for Money and Policy Review Initiative which was introduced to secure improved value for money from public expenditure. VFM reviews aim to analyse Government spending in a systematic manner and provide a basis on which more informed decisions can be made on priorities within and between programmes. While the report was not published until 2012, it was shared with the Commission in 2011.

The review examined the efficiency and effectiveness of the Whitefish Decommissioning Schemes. Overall, the conclusions of the VFM Review were that the 2008 Scheme, co-funded by the European Fisheries Fund, was good value for money, in that it achieved its objectives in an efficient manner, with extremely low deadweight cost and it improved the quota availability to and viability of the remaining whitefish fleet.

5. Section C

Statement of Compliance with Entry/Exit Scheme & with Fleet Capacity Ceiling

Regulation (EU) No 1380/2013 set Ireland's Fleet Capacity Ceiling on 1 January 2014 at 77,568 GT and 210,083 kW.

The total capacity which entered the fleet between 2014 and 2019 was 15,175 GT and 50,323 kW (no decommissioned capacity included). The total capacity which exited the fleet between 2014 and 2019 was 13,491 GT and 52,620 kW (no capacity was decommissioned).

The term "capacity exiting the fleet" refers to capacity coming off-register due to a vessel de-registration or due to a vessel being decommissioned i.e. Decommissioning Schemes. The term "capacity entering the fleet" refers to capacity temporarily off-register from de-registered vessels used to license new/replacement vessels. The capacity of a de-registered vessel can re-enter the fleet whereas the capacity of a vessel decommissioned with public aid cannot as it is permanently withdrawn.

Fishing Capacity at 31 December 2019 (Extracted from Fleet Register 31 December 2019)

The overall fishing capacity situation of the Irish fleet at 31 December 2019 was GT and kW (see Table 3, below).

Table 3: Overall fishing capacity situation of the Irish fleet 2019

	GT	kW
Capacity of the Fleet on 31/12/2013	59,516	181,641
2014 to 2019 Entries of Vessels Without Public Aid	15,175	50,323
2014 to 2019 Exits of Vessels Without Public Aid	13,491	52,620
Capacity of the Fleet on 31/12/2019	61,200	179,344
Fleet Capacity Ceiling 31/12/2019	77,568	210,083

6. Section D

(I) Summary of Weaknesses & Strengths of Fleet Management System

Fleet management in Ireland involves a number of tools that act upon the Irish fleet and other tools that act upon the impact of the fleet on Irish fisheries. Fleet management tools include the specification of the five Irish segments mentioned previously in section 1A, licensing of sea-fishing boats, gear and vessel restrictions associated with the licensing process and a decommissioning scheme carried out in the period 2005 to 2008. Fishery management policy is developed through a transparent and inclusive system. Fishery management tools include a partnership quota management system with Producer Organisations and other key industry players with monthly meetings and allocation arrangements that are responsive to criteria such as marketing initiatives and market prices.

The strengths of the fleet management system include; the strict control exercised by Ireland's Registrar General of Sea Fishing Boats (Ireland's licensing authority for the fleet) over the entry/exit regime and the fleet remained within its reference level; the logical segmentation of the fleet; the well-functioning of the monthly vessel catch limits agreed upon by Irish fishing stakeholders and the success of the last decommissioning scheme carried out in the Irish fleet.

The weaknesses in the fleet management system include; overcapitalisation evident in parts of the fleet; challenges in responding to the Landing Obligation which may to lead to exacerbation of economic indicators signalling further overcapitalisation, particularly in the smaller and medium sized polyvalent fleet.

(II) Plan for improvements in fleet management system

The Fisheries Operational Programme is focusing on improving the economic performance of the fleet under a range of measures and in particular to improvements in on board handling which will increase the quayside value of landings. It also focuses on adding value both at sea and on landing. Within the Programme there is a strong commitment to an enhanced training programme for crew of fishing vessels.

(III) Information on general level of compliance with fleet policy instruments

Ireland's Registrar General of Sea Fishing Boats (Ireland's licensing authority for the fleet) exercised strict control over the entry/exit regime and the fleet remained within its reference level.

7. Section E

(i) Information on changes of the Administrative Procedures Relevant to Fleet Management

Fleet Policy Directives

Under section 3(2) of Ireland's Fisheries (Amendment) Act 2003 (as amended by section 99 of the Sea Fisheries and Maritime Jurisdiction Act 2006), the Minister may from time to time issue policy directives to the Registrar General of Sea-fishing Boats in relation to sea-fishing boat licensing for the purposes of protecting, conserving or allowing the sustainable exploitation of living marine aquatic species. One new policy directive was issued in 2019 which gives effect to the Minister's decision that vessels over 18m length overall would be excluded from trawling in inshore waters inside the six nautical mile zone and the baselines of Ireland. It is intended that this decision will provide ecosystem benefits including for nursery areas and juvenile fish stocks.

Council Regulation 1224/2009

SI 54 of 2016 (which replaces SI 320 of 2012 and SI 453 of 2012) implements Council Regulation (EC) No. 1224/2009 of 20 November 2009 and Commission Implementing Regulation (EU) No. 404/2011 of 8 April 2011 as they relate to fisheries control systems and rules for the recording of fish catches. This Statutory Instrument gives the Marine Survey Office, Sea Fisheries Protection Authority and the Navy the necessary powers to implement the requirements of these regulations in particular in relation to monitoring, certification and verification of engine power.

8. Section F

Estimation & Discussion of Balance Indicators

Summary of Biological Indicators

The estimation and discussion on balance indicators are based on Tables extracts from the JRC website on 30th March 2020 for Sustainable Harvest Indicators (SHI) and Stock at Risk Indicators (SAR) related to the Irish fleet segments (https://stecf.jrc.ec.europa.eu/reports/balance). Table 1 (see page 19) gives the Sustainable Harvest Indictors (SHI) for Ireland in Supra Region Area 27, for all gears and all vessel lengths. Table 2 (see page 20) gives the Stock at Risk indicator (SAR) for Ireland in Supra Region Area 27, for all gears and all vessel lengths. The discussion material is based on these tables and the comments for Ireland from the 2019 STECF report – Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (STECF-19-13). Annex 1 gives the Fishing Technologies – DCF categories used in Table 1 and Table 2. Annex 2 is a map of supra region 27.

The Guidelines referred to in this document are Com (2014) 545 FINAL - Guidelines for the analysis of the balance between fishing capacity and fishing opportunities according to Art 22 of Regulation (EU) No 1380/2013 of the European Parliament and the Council on the Common Fisheries Policy.

Indicators

This section should be read while referring to Table 1 and Table 2. The Sustainable harvest indicator (SHI) presented in Table 1 is designed to reflect the extent to which a fleet segment is dependent on stocks that are over harvested, where 'over harvested' is assessed with reference to F_{msy} values over time, and dependency is based on fleet segment revenues (value of landings).

The SHI is calculated using landings value for 2008-2017/18 for every EU fleet segment for which data were available; 2018 data is preliminary. Data on Fcurrent (mean F) and Fmsy for fish stocks found in FAO Area 27 were obtained from the ICES online database. For FAO Area 37 the most recent estimate of Fcurrent and Fmsy (or its proxy F0.1) were extracted from the database compiled by the JRC.

Comments on balance (status 2017): SHI ≥ 1 'out of balance'; SHI < 1 'in balance' (as according to the 2014 Balance Indicator Guidelines as requested by the TOR)

Green cells indicate SHI values that were calculated where 40% or more of the fleet segment's annual landed value came from assessed stocks (an indication that the SHI value is representative).

Trend analysed for the period 2012-2017, using the slope equation and a 5% threshold to indicate significance, as: Slope > 0.05 increasing; Slope < -0.05 decreasing; -0.5 < Slope < 0.5 no significant trend and slope = 0 flat/null trend

The Stock at Risk indicator (SAR) presented in Table 2 aims to measure how many stocks are being affected by the activities of a fleet segment that are biologically vulnerable.

SAR calculated for the years 2009-2017/18 for all fleet segments for which data were available.

Comment on balance (status in 2017): SAR ≥ 1 'out of balance'; SAR < 1 'in balance'; (as according to the 2014 Balance Indicator Guidelines as requested by the TOR). No SAR found when SAR = -1

Coverage is indicated by the availability of data (landings in weight)

Comments on SHI Indicator Findings for Ireland

Table 1 gives the Sustainable harvest indicator (SHI) for Ireland in Supra Region 27 for all gear and all vessel lengths by year for the time series 2008-2018.

Out of 32 fleet segments active in 2017, landings in value have been provided aggregated in 30 fleet segments and SHI indicator values were available for 26.
According to the criteria in the 2014 Balance Indicator Guidelines, the SHI indicator values for 12 fleet segments cannot be used meaningfully to assess the balance or imbalance because the indicator values are based on stocks that comprise less than 40% of the total value of landings by those fleet segments.

The EWG notes that for the 14 fleet segments for which the SHI indicator may be considered meaningful to assess balance or imbalance, accounted for 81.63% of the total value of the landings in 2017 provided by MS, and 14 fleet segments may not be in balance with their fishing opportunities.

In the period 2012-2017, the SHI indicator values considered meaningful to assess balance or imbalance were decreasing for 3 fleet segments, increasing for 1 fleet segment and no evident trend was revealed for 9 fleet segments. For 1 fleet segment information for full time series was not available

The 14 fleet segments for which the SHI indicator may be considered meaningful to assess balance or imbalance, and were as follows:

- 12 fleet segments may not be in balance with their fishing opportunities, these are;
    - drift and/or fixed netters (DFN) in the 10-12m, 12-18m, 18-24m and the 24-40m length categories;
    - demersal trawlers and/or demersal seiners (DTS) in the 10-12m, 12-18m and the 24-40m length categories;
    - the beam trawlers(TBB) in the 24-40m length category and

- the pelagic trawlers (TM) in the 12-18m, 18-24m. 24-40m and the >40m length categories.

- 2 fleet **segments** may be **in balance with their fishing opportunities**, these are:
  - demersal trawlers and/or demersal seiners (DTS) in the 18-24m category and
  - the beam trawlers (TBB) in the 18-24m length category.

Comments on Fleet Segments that may not be in balance for SHI

DFN (drift and/or fixed netters) in the 10-12m

- 12 vessels active in 2017
- The main stocks exploited by this fleet are Northern hake and pollack in 7. The hake stock is sustainably exploited, the stock status for Pollack is unknown but work is underway to improve the basis for assessment for this stock.

DFN (drift and/or fixed netters) in the 12-18m

- 13 vessels active in 2017
- The main stocks exploited by this fleet are Northern hake and herring in 6a. The hake stock is sustainably exploited. The herring stock is over exploited but there is a monitoring TAC in place and this fleet takes minor catches as part of the monitoring programme.

DFN (drift and/or fixed netters) 18-24m

- 6 vessels active in 2017
- The main stocks exploited by this fleet are Northern hake, whiting and pollack in 7. The hake stock is sustainably exploited, the stock status for Pollack is unknown but work is underway to improve the basis for assessment for this stock. The

stock status of whiting was sustainably exploited in 2017 but since then the stock has declined and fishing mortality has increased above F_{MSY}. The percentage of whiting catches taken by this fleet is low (<5%).

DFN (drift and/or fixed netters) 24-40m

- 1 vessel active in 2017
- The main stocks exploited by this fleet was Northern hake which is sustainably exploited.

DTS (demersal trawlers and/or demersal seiners) 10-12m

- 16 vessels active in 2017
- The main stocks exploited by this fleet is *Nephrops* in 7. The *Nephrops* stocks fished by this fleet are largely sustainably exploited.

DTS (demersal trawlers and/or demersal seiners) 12-18m

- 36 vessels active in 2017
- The main stocks exploited by this fleet are *Nephrops* in 7, Celtic sea whiting, and hake, monk and megrim. *Nephrops,* hake, megrim and monkfish were all sustainably exploited in 2017. Celtic Sea whiting was estimated to be sustainably exploited in 2017 but since then the stock has declined and fishing mortality has increased above F_{MSY}. The percentage of whiting catches taken by this fleet is low (<5%).

DTS (demersal trawlers and/or demersal seiners) 24-40m

- 57 vessels active in 2017
- The main stocks exploited by this fleet are *Nephrops* in 7, Celtic sea whiting, and hake, monk and megrim. *Nephrops,* hake, megrim and monkfish were all sustainably exploited in 2017. Celtic Sea whiting was estimated to be

sustainably exploited in 2017 but since then the stock has declined and fishing mortality has increased above F_{MSY}.

TBB (beam trawls) 24-40m

- 8 active vessels in 2017.
- The main stock exploited by these vessels is megrim in 7 and monkfish in 7. The most recent analysis by ICES showed the primary species caught by this fleet to be harvested sustainably and the biomass to be at a safe level.

TM (midwater trawls) 12-18m

- 3 active vessels in 2017
- The main stock exploited is herring in 6a. The herring stock is over exploited but there is a monitoring TAC in place and this fleet takes minor catches as part of the monitoring programme.

TM (midwater trawls) 18-24m

- 1 active vessels in 2017
- The main stock exploited is herring in 6a. The herring stock is over exploited but there is a monitoring TAC in place and this fleet takes minor catches as part of the monitoring programme.

TM (midwater trawls) 24-40m

- 10 active vessels in 2017.
- The dominant stocks for these vessels are blue whiting, mackerel, horse mackerel and albacore tuna. Both blue whiting and mackerel were fished above MSY in 2017 but their stock sizes were well above MSY $B_{trigger}$. The reason for the high exploitation on these stocks is due to lack of international agreement with different coastal states setting autonomous TAC's the sum of which exceeds the catch advised from ICES. The landings from this fleet are within the quota allocated to Ireland. Horse mackerel was not exploited sustainably and the biomass was at increased risk in 2017. Albacore tuna is sustainably exploited.

TM (midwater trawls) >40m

- 21 active vessels in 2017.
- The dominant stocks for these vessels are blue whiting, mackerel, horse mackerel and boarfish. Both blue whiting and mackerel were fished above MSY in 2017 but their stock sizes were well above MSY $B_{trigger}$. The reason for the high exploitation on these stocks is due to lack of international agreement with different coastal states setting autonomous TAC's the sum of which exceeds the catch advised from ICES. The landings from this fleet are within the quota allocated to Ireland. Horse mackerel was not exploited sustainably and the biomass was at increased risk in 2017. The stock status of boarfish is unknown but catches were below the ICES advice.

Comments on SAR Indicator Findings for Ireland

Table 2 gives the Stocks at Risk Indicator (SAR) for Ireland in Supra Region 27 for all gear and all vessel lengths by year for the time series 2008-2018.

For 11 active fleet segments in 2017, one or more stock at risk was detected.

According to the criteria in the 2014 Balance Indicator Guidelines, the number of fleet segments per SAR category is shown in the table below:

SAR	1	2	3	4	5	6	7	>7
N of fleet-segments	4	5			2			

Comments on Fleet Segments that may not be in balance for SAR

DTS (demersal trawls/seines) 00-10m

- There around 200 vessels in this segment above 8m which would be capable of using towed gear, but over 90% of these would be potters and dredgers. The

number of these which were active as demersal trawlers in 2017 is likely less than 15.

- This fleet 'depends' on 2 stock that is considered biologically vulnerable.
- Demersal trawlers this size would have a low catching capacity and a wide variety of species in the catches, their dependence and impact on vulnerable species therefore would be low.

DTS (demersal trawls/seines) 10-12m

- 16 vessels active in 2017
- This fleet has catches of 2 stocks that are considered biologically vulnerable, cod in the Celtic Sea and Irish Sea withing. By-catches of both stocks is relatively minor (~25t for cod and ~11t for whiting) in mixed fisheries.

DTS (demersal trawls/seines) 18-24m

- 36 vessels active in 2017
- The main stocks exploited by this fleet are *Nephrops* in 7, Celtic sea whiting, and hake, monk and megrim. *Nephrops,* hake, megrim and monkfish were all sustainably exploited in 2017. Celtic Sea whiting was estimated to be sustainably exploited in 2017 but since then the stock has declined and fishing mortality has increased above F_{MSY}. The percentage of whiting catches taken by this fleet is low (<5%).
- This fleet has catches of 9 stocks that are considered biologically vulnerable; 3 cod stocks, 2 whiting stocks, 2 herring stocks, 1 sole and 1 place stocks. Catches of all vulnerable stocks are very minor compared to the sustainably fished target species and various avoidance and technical measures are in place to reduce by-catches of vulnerable stocks.

DTS (demersal trawls/seines) 24-40m

- 57 vessels active in 2017
- The main stocks exploited by this fleet are *Nephrops* in 7, Celtic sea whiting, and hake, monk and megrim. *Nephrops,* hake, megrim and monkfish were all

sustainably exploited in 2017. Celtic Sea whiting was estimated to be sustainably exploited in 2017 but since then the stock has declined and fishing mortality has increased above F_{MSY}.

- This fleet has catches of 8 stocks that are considered biologically vulnerable; 3 cod stocks, 2 whiting stocks, 2 herring stocks and 1 place stock. Catches of all vulnerable stocks are very minor compared to the sustainably fished target species and various avoidance and technical measures are in place to reduce by-catches of vulnerable stocks.

PMP (vessels using active and passive gears) 12-18m

- A small number of vessels report passive and active gears.
- This group of vessels, it is not a persistent fleet, had catches of 4 vulnerable stocks in 2017 and none in 2018.

TBB (beam trawls) 18-24m

- 8 active vessels in 2017.
- The main stock exploited by these vessels is megrim in 7 and monkfish in 7. The most recent analysis by ICES showed the primary species caught by this fleet to be harvested sustainably and the biomass to be at a safe level.
- This fleet has catches of 2 stocks that are considered biologically vulnerable in 2017 and none in 2018.

TM (midwater trawls) 10-12m

- 10 active vessels in 2017
- This fleet has catches of 1 stock that are considered biologically vulnerable in 2018. This is the herring stock in 6a where fleet takes minor catches as part of the monitoring programme.

TM (midwater trawls) 12-18m

- 3 active vessels in 2017

- This fleet has catches of 1 stock that are considered biologically vulnerable in 2018. This is the herring stock in 6a where fleet takes minor catches as part of the monitoring programme.

TM (midwater trawls) 18-24m

- 1 active vessels in 2017
- This fleet has catches of 2 stocks that are considered biologically vulnerable in 2018. This is the herring stock in 6a where fleet takes minor catches as part of the monitoring programme and herring in the Celtic Sea where again this fleet makes a minor proportion of the total catches.

TM (midwater trawls) 24-40m

- 10 active vessels in 2017.
- This fleet has catches of 4 stocks that are considered biologically vulnerable in 2018. The dominant stocks for these vessels are blue whiting, mackerel, horse mackerel and albacore tuna. Both blue whiting and mackerel were fished above MSY in 2017 but their stock sizes were well above MSY $B_{trigger}$. The reason for the high exploitation on these stocks is due to lack of international agreement with different coastal states setting autonomous TAC's the sum of which exceeds the catch advised from ICES. The landings from this fleet are within the quota allocated to Ireland. Horse mackerel was not exploited sustainably and the biomass was at increased risk in 2017. Celtic Sea herring was also not exploited sustainably in 2017.

TM (midwater trawls) >40m

- 21 active vessels in 2017.
- This fleet has catches of 2 stocks that are considered biologically vulnerable in 2018. The dominant stocks for these vessels are blue whiting, mackerel, horse mackerel and boarfish. Both blue whiting and mackerel were fished above MSY in 2017 but their stock sizes were well above MSY $B_{trigger}$. The reason for the high exploitation on these stocks is due to lack of international agreement with

different coastal states setting autonomous TAC's the sum of which exceeds the catch advised from ICES. The landings from this fleet are within the quota allocated to Ireland.

Conclusion

Most of the fleets that are considered to be out of balance in relation to SHI are very close to or below the reference value of 1 in 2017 or 2018. This indicates an improvement in the balance between the fleet and the resource. We do not consider that it is valid to state that the stock is over-exploited each time F is slightly above F_{msy}, in fact there is a range around F_{msy} that is consistent with maximising yield and the Precautionary Approach. Stocks are only over exploited when they are consistently fished above F_{pa}.

In relation to the fleets that may be out of balance in relation to SAR, the STECF analyses do not provide any information on what the vulnerable stocks are - the tables presented simply list the number of vulnerable stocks. Ireland examined the catch profile of these fleets and attempted to match the results in the STECF table with expert knowledge of the vulnerable stocks caught by those fleets. In general Irish fleets take minor catches of the vulnerable stocks but without access to the international data used, it is not possible to assess whether fleets take more than 10% of the landings of a vulnerable stock.

TABLE 1: Ireland - Sustainable Harvest Indictors (SHI) for Supra Region Area 27; all gears and all vessel lengths. This table was extracted from https://stecf.jrc.ec.europa.eu/reports/balance STECF 19-13 - Balance capacity - Indicator table.xlsx.

		SHI											Status 2017*	Status 2017 according to thresholds and criteria in the 2014 Guidelines
Fishing tech	Vessel length	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Trend (5%) 2012/17		SHI
DFN	VL0010						1.18	1.27	1.06	1.13	1.13	1.00	no trend		
DFN	VL1012	1.48	1.84	1.59	1.25	1.33	1.41	1.24	1.18	1.17	1.16	1.00	no trend	out of balance	
DFN	VL1218	1.60	1.85	1.41	1.19	1.21	1.30	1.06	1.03	1.04	1.06	0.95	no trend	out of balance	
DFN	VL1824	1.67	2.09	1.64	1.11	1.17	1.06	0.96	0.95	0.99	1.09	0.93	no trend	out of balance	
DFN	VL2440	1.06	2.04	1.54	1.21	1.08	0.97	0.92	0.87	0.92	1.02	0.89	no trend	out of balance	
DRB	VL0010						0.71	0.61	0.75	1.21	1.25	0.68	increasing		
DRB	VL1012						0.64		1.06	1.73	0.58	1.17	increasing		
DRB	VL1218									0.84	0.58		decreasing		
DRB	VL1824	2.29						0.94					-		
DRB	VL2440												-		
DTS	VL0010						1.35	1.25	1.16	1.18	1.21	1.06	no trend		
DTS	VL1012	1.23	1.11	1.08	0.85	1.02	0.92	1.06	0.97	1.21	1.16	1.02	no trend	out of balance	
DTS	VL1218	1.25	1.20	1.17	0.93	1.02	0.96	0.94	0.93	1.08	1.07	0.96	no trend	out of balance	
DTS	VL1824	1.27	1.17	1.11	0.94	1.02	0.96	0.95	0.93	1.14	0.98	1.03	no trend	in balance	
DTS	VL2440	1.27	1.10	1.14	0.96	0.94	0.88	0.88	0.86	1.07	1.13	1.10	no trend	out of balance	
DTS	VL40XX	1.69			1.18								-		
FPO	VL0010						1.05	1.06	1.06	1.18	1.07	1.15	no trend		
FPO	VL1012	1.21	1.41	1.22	0.94	1.05	1.04	1.04	1.02	1.25	1.27	0.98	no trend		
FPO	VL1218	1.39	1.08	1.19	1.02	1.39	0.83	1.17	1.00	1.36	1.13	0.94	no trend		
FPO	VL1824			0.81									-		
FPO	VL2440												-		
HOK	VL0010						1.21	1.16	1.17	1.25	1.30	1.25	no trend		
HOK	VL1012	1.46	1.04	1.08	1.29	1.23	1.25	1.30	1.27	1.21	1.25	1.25	no trend		
HOK	VL1218				1.28			0.98	0.89				-		
HOK	VL2440		0.67										-		
PGP	VL0010												-		
PGP	VL1012	1.48	1.32		1.29					1.19			-		
PMP	VL1012								1.82				-		
PMP	VL1012	1.31		1.41	1.08	1.28		0.69		1.29			-		
PMP	VL1218	1.52	1.74	1.36	0.88	1.02	0.73	0.93		1.57	1.63		increasing		
PMP	VL1824					1.01							-		
PMP	VL2440												-		
PS	VL0010									1.07			-		
PS	VL1824	1.56											-		
PS	VL2440	1.23	1.45										-		
TBB	VL0010								1.15	1.24			-		
TBB	VL1824	1.56	1.62	1.59	1.48	1.52	1.43	1.27	1.14	0.98	0.97	0.85	decreasing	in balance	
TBB	VL2440	1.62	1.64	1.71	1.51	1.58	1.65	1.44	1.22	1.18	1.20	0.98	decreasing	out of balance	
TBB	VL40XX												-		
TM	VL0010						1.18	1.10	1.12				-		
TM	VL1012	1.13				0.89	0.81		0.91				-		
TM	VL1012									1.73	1.43	1.11	decreasing		
TM	VL1218	1.25	1.00		1.29	0.93	0.77	0.97	0.91	1.32	1.44		increasing	out of balance	
TM	VL1824	1.22	0.96			0.96	0.76	0.93	1.21		1.37	0.99	-	out of balance	
TM	VL2440	1.05	0.94	1.01	0.93	0.90	0.90	1.11	1.06	1.10	1.08	1.09	no trend	out of balance	
TM	VL40XX	1.22	1.21	1.22	1.13	1.02	1.00	1.23	1.20	1.12	1.17	1.13	no trend	out of balance	
INACTIVE	VL0010														
INACTIVE	VL1012														
INACTIVE	VL1218														
INACTIVE	VL1824														
INACTIVE	VL2440														
INACTIVE	VL40XX														

* Status according to 2014 Guidelines

Table 2: Ireland - Stock at Risk indicator (SAR) for Supra Region Area 27; all gears and all vessel lengths. This table was extracted from https://stecf.jrc.ec.europa.eu/reports/balance STECF 19-13 - Balance capacity - Indicator table.xlsx - Balance indicator table.xlsx.

		SAR										Status 2017*	Status 2017 according to thresholds and criteria in the 2014 Guidelines
Fishing tech	Vessel length	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		SAR
DFN	VL0010												
DFN	VL1012												
DFN	VL1218												
DFN	VL1824												
DFN	VL2440												
DRB	VL0010												
DRB	VL1012												
DRB	VL1218												
DRB	VL1824												
DRB	VL2440												
DTS	VL0010								2	2		out of balance	
DTS	VL1012						2	2		2	4	out of balance	
DTS	VL1218	2			2			1					
DTS	VL1824	5	7	5	3	3	7	7	9	9	6	out of balance	
DTS	VL2440	4	6	6	7	6	5	5	5	8	11	out of balance	
DTS	VL40XX												
FPO	VL0010												
FPO	VL1012												
FPO	VL1218												
FPO	VL1824												
FPO	VL2440												
HOK	VL0010												
HOK	VL1012												
HOK	VL1218												
HOK	VL2440												
PGP	VL0010												
PGP	VL1012												
PMP	VL1012												
PMP	VL1012		2										
PMP	VL1218						2		2	4		out of balance	
PMP	VL1824												
PMP	VL2440												
PS	VL0010												
PS	VL1824												
PS	VL2440												
TBB	VL0010								2				
TBB	VL1824	2	2		2	3	3	2	1	2		out of balance	
TBB	VL2440							2					
TBB	VL40XX												
TM	VL0010												
TM	VL1012												
TM	VL1012									4	1	out of balance	
TM	VL1218						2			2	1	out of balance	
TM	VL1824						2			4	2	out of balance	
TM	VL2440							2	2	4	4	out of balance	
TM	VL40XX					2	2	2	4	4	2	out of balance	
INACTIVE	VL0010												
INACTIVE	VL1012												
INACTIVE	VL1218												
INACTIVE	VL1824												
INACTIVE	VL2440												
INACTIVE	VL40XX												

* Status according to 2014 Guidelines

ANNEX 1

FISHING_TECHNIQUE – DCF categories used in Table 1 and Table 2

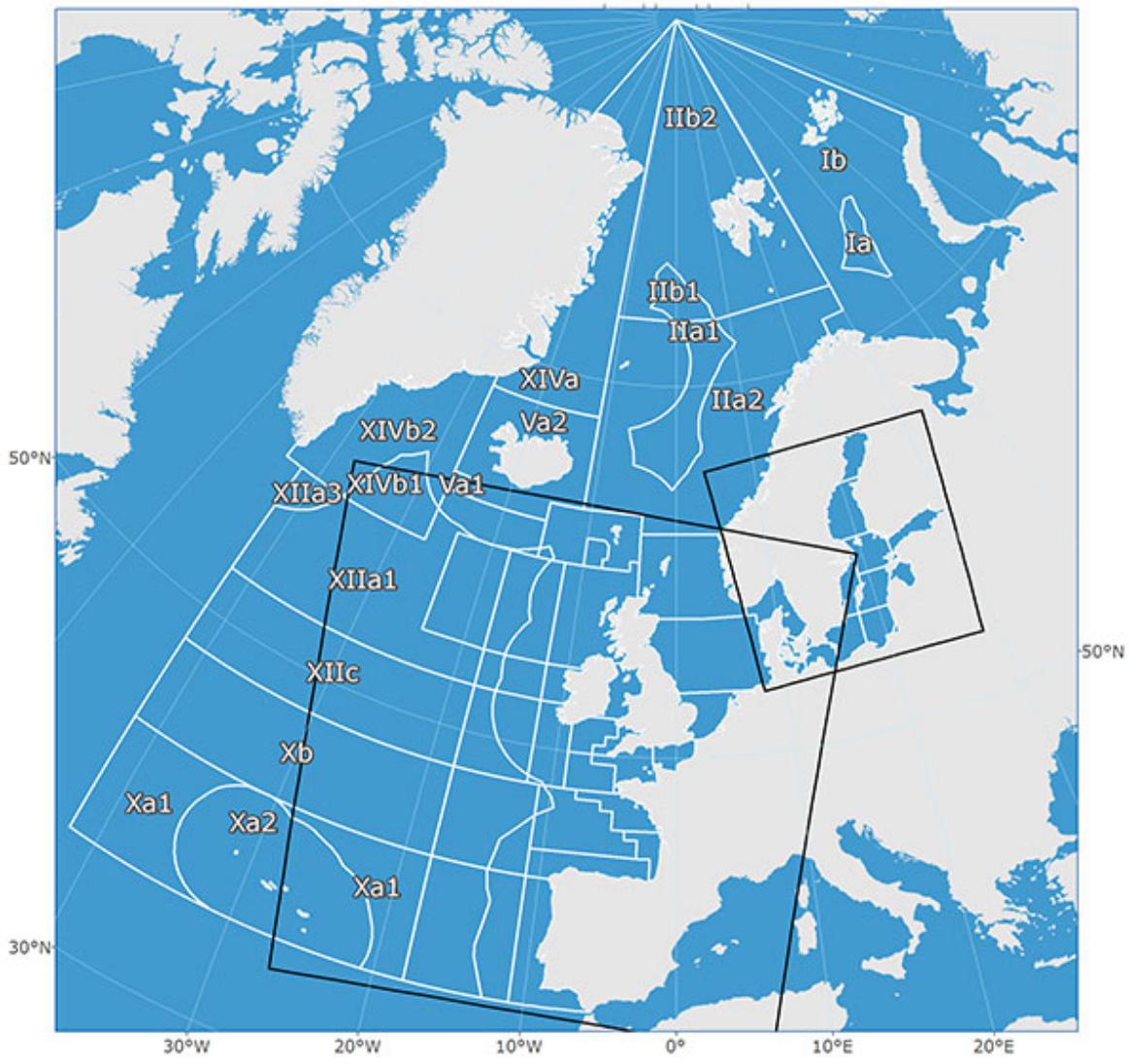
DFN	=	Drift and/or fixed netters
DRB	=	Dredgers
DTS	=	Demersal trawlers and/or demersal seiners
FPO	=	Vessels using pots and/or traps
HOK	=	Vessels using hooks
MGO	=	Vessel using other active gears
MGP	=	Vessels using polyvalent active gears only
PG	=	Vessels using passive gears only for vessels < 12m
PGO	=	Vessels using other passive gears
PGP	=	Vessels using polyvalent passive gears only
PMP	=	Vessels using active and passive gears
PS	=	Purse seiners
TM	=	Pelagic trawlers
TBB	=	Beam trawlers

VESSEL_LENGTH classes

VL0010	=	Vessel between 0 meters and 10 meters in length
VL1012	=	Vessel between 10 meters and 12 meters in length
VL1218	=	Vessel between 12 meters and 18 meters in length.
VL1824	=	Vessel between 18 meters and 24 meters in length.
VL2440	=	Vessel between 24 meters and 40 meters in length.
VL40XX	=	Vessel greater than 40 meters in length.

Annex 2

Supra Region Area 27 - Baltic Sea, North Sea, Eastern Arctic, North Atlantic;



The boundaries of the Atlantic, Northeast (Major Fishing Area 27) corresponding to the ICES fishing areas for statistical purposes. (Source: http://www.fao.org/fishery/area/Area27/en)

Estimation & Discussion of Balance Indicators

2. Economic Indicators

The Annual Economic Report (AER), the STECF Working Group on balance between fleet capacity and fishing opportunities (STECF-15-02), and the DG Fisheries and Maritime Affairs Guidelines for analysis of the balance between fishing capacity and fishing opportunities **ALL** have distinct definitions of the economic indicators.

The fact that these indicators have not been harmonised creates confusion and leads to member states using different calculations. In the following sections, the two main indicators, Return on Fixed Tangible Assets (RoFTA) and Current Revenue against Breakeven Revenue (CR/BER) along with their disparate definitions will be described and their results detailed. The main difference among these is the calculation of opportunity costs which involves applying a long term interest rate to the estimated capital value of the fleet and her segments.

In relation to the calculation of the Irish fleet segments' economic trajectory via these indicators it is essential to recognise that, in this report, the indicators are calculated for the sample of the active fleet that returned a DCF economic survey outlining the vessels annual costs in contrast to the AER method which calculates socio-economic performance indicators by fleet segments using the DCF economic survey data raised up to the active national totals.

Table 1: Percentage DCF economic survey returns from the active fleet

DCF Clusters	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
DFNVL0010			13	2	14	10	11	18	26	11	13
DFNVL1012	9	20	36	40	50	33	27	20	58	17	11
DFNVL1824	20		17	45	18	40	18	25	17	17	25
DRBVL0010		2	13	6	17	12	9	14	17	4	4
DRBVL1012	8	36	50	37	52	29	31	15	17	13	11
DRBVL2440	50	40	71	17	33	29	25	29	14	29	14
DTSVL0010						7		17	27	7	10
DTSVL1012	6		5	12	20	24	16	20	20	15	21
DTSVL1218	19	18	16	18	19	26	23	7	19	21	18
DTSVL1824	25	20	19	21	25	22	17	29	22	25	13
DTSVL2440	39	40	17	40	41	29	35	16	33	43	26
FPOVL0010	4	7	6	9	15	10	10	8	10	5	4
FPOVL1012	11	16	21	33	43	34	39	34	33	31	28
FPOVL1218	16	28	28	43	38	26	29	26	35	39	32
HOKVL0010				8	3	16	15	8	24	9	8
HOKVL1012	11			29	75	233	17	13			50
TBBVL2440	6	38	18	9		23	15			13	78
TMVL2440	29	42	50	64	18	50	33	33	58	42	25
TMVL40XX	35	45	25	42	52	48	33	19	30	40	35

The methodology used by the member state (IRL), for the AER, is to submit landings income from the landings declarations. In this report the declared revenue from the landings declarations of those vessels that provided DCF economic survey data are compared against the stated costs from the DCF surveys. **Hence, there is no raising up of the data in this report, this is, as mentioned, a summary of the sample data, as detailed in table 1.**

Differences in economic indicator results may arise between both methodologies. These differences can be caused by biases in the data. For instance, those vessels that have returned DCF cost surveys may have landed below the average for their segment and so their revenue may be below the average segment level and may skew the results of the indicators, or vice versa.

The segmentation used here will follow the DCF segmentation as opposed to the Irish national segmentation used by the Department of Agriculture, Food and the Marine (DAFM); however the results for the latter will be included in Annex 1 and Annex 2.

2.1 Economic indicator 1: ROI/RoFTA

Annual Economic Report Methodology for Economic Indicators – Chapter 6 AER REPORT METHODOLOGY

The AER defines ROI/RoFTA as follows :

Net Profit/Loss:

Net Profit = Income from landings + other income – crew costs – unpaid labour - energy costs – repair costs – other variable costs – non variable costs – depreciation cost – opportunity cost of capital

*Where opportunity cost of capital = fixed tangible asset value * real interest*

Where real interest (r) = [(1 + i)/ (1 + π)] -1.

Where i is the nominal interest rate of the Member State in the year concerned and π is the inflation rate of the Member State in the year concerned. See Table 6.3.

Rate of Return on Fixed Tangible Assets (RoFTA):

ROFTA = (net profit + opportunity cost of capital) / tangible asset value (vessel depreciated replacement value)

In the calculations above opportunity cost is included as a cost in the calculation for net profit. However, in the RoFTA calculation it is included again as what would seem to be an income i.e. the net profit side of the equation should exclude the opportunity cost. It has been clarified that the net profit on its own should include opportunity costs while the RoFTA should not include opportunity costs as part of the net profit [by adding back the opportunity cost after it was already taken off in the previous equation]. The RoFTA is then compared against the opportunity cost of capital.

STECF WG on balance :

RoFTA* is calculated as:

Net profit* / (fleet depreciated replacement value);

where, Net profit* = (Income from landings + other income) - (crew wage + unpaid labour + energy + repair + other variable costs + non variable costs + annual depreciation)

ROI is compared against a Target Reference point (TRP). For this exercise, **the 5-year average of the risk free long-term interest rate for each MS was used**.

Maritime Affairs Guidelines for analysis of the balance between fishing capacity and fishing opportunities

The suggested calculation method is as follows:

ROI = Net profit / Capital asset value

Where:

Net profit = (Income from landings + other income) – (crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs + non variable costs + depreciation)

And where:

Capital asset value = Vessel replacement value + estimated value of fishing rights

In instances where data on intangible assets are not available, the Return on Fixed Tangible Assets (ROFTA) should be calculated instead, using exactly the same calculation method but without including an estimated value for fishing rights.

ROI (or ROFTA) would then be compared to the interest rate of a low risk long term investment calculated as proposed above. That interest rate represents the profitability that the same invested capital will obtain if it was invested in the next best available alternative (normally long term government bonds).

The resulting formula for the indicator would be *ROI – low risk long term interest rate.*

Threshold: If the return on investment (RoI) ***is less than zero and less than the best available long-term risk-free interest rate****, this is an indication of long-term economic inefficiency that could indicate the existence of an imbalance.*

Conclusion: all three definitions differ in terms of interest rates. Both the STECF balance report and the Guidelines to MS refer to the '*low risk long term interest rate***'**

however the **STECF balance report recognises that the** *'low risk long term interest rate' which would formerly have been the ECB rate IRL has fluctuated wildly during the years of the economic crisis and so has suggested using a 5-year average of the interest rate.* **The AER uses real interest rate. The difference for Ireland can be seen in the following graph:**

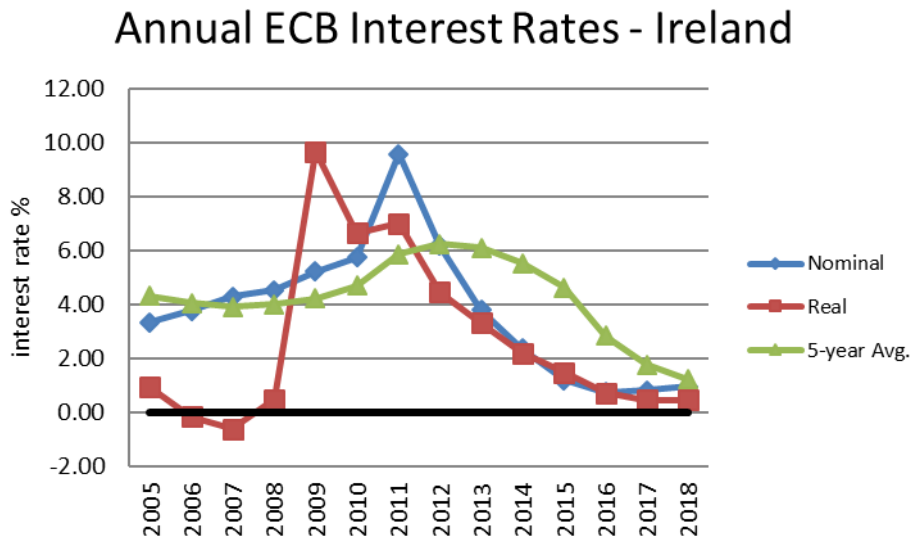


Figure 1: Nominal, real and 5 year average nominal interest rates for Ireland

The **ECB rate IRL** is the nominal interest rate to Ireland from the ECB in each year, the **Real-iR** is the real rate of interest that adjusts the ECB nominal rate for annual inflation, and the **5-year ECB rate IRL** is the average interest rate for each year of the 5 former years (e.g. The 2008 value is the average interest rate to Ireland from 2004-2008 and so on).

In this report the indicator will be calculated following the suggestion of the STECF WG on balance and use the 5-year average ECB rate to Ireland (5-year ECB rate IRL).

Table 2: RoFTA using the declared landing income in combination with costs stated in the DCF surveys and the 5 year average interest rate from the ECB to Ireland:

DCF Segment	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
DFNVL0010			0.29	0.21			6.57	0.84	1.11		
DFNVL1012	0.15		-0.06	0.13	0.04	0.60	0.69	0.99	0.18	0.49	
DFNVL1218									1.53		0.07
DFNVL1824	0.38		0.21	0.06	1.14	0.09	6.06	0.04	0.04	0.00	0.17
DRBVL0010			0.31	0.53			5.06	1.37	1.39		
DRBVL1012	7.48	2.71	0.30	2.18	0.92		12.24	1.01	0.28	0.12	1.40
DRBVL2440	-0.08	-0.01	-0.63	-0.05	-0.08	0.04	0.46	-0.12	0.00	0.73	0.46
DTSVL0010								0.48	0.46		
DTSVL1012	-0.04			0.60	0.27	0.41	0.21	0.00	0.42	-0.40	-0.04
DTSVL1218	-0.01	-0.03	0.00	-0.02	0.04	0.02	0.15	0.03	0.19	0.02	-0.01
DTSVL1824	-0.06	-0.02	-0.10	0.01	0.06	-0.04	-0.08	0.03	0.15	0.12	-0.04
DTSVL2440	-0.08	0.00	0.04	0.01	0.04	-0.04	0.02	0.08	0.06	0.08	0.06
FPOVL0010			0.41	0.48	2508	21.56	12.71	1.05	0.53		
FPOVL1012	3.59		0.40	0.40	0.55	1.18	3.08	1.08	1.14	0.68	1.08
FPOVL1218	-0.13	-0.06	0.09	0.04	0.08	0.52	3.22	1.91	0.54	0.51	4.45
HOKVL0010				-14.13			1.54	1.78	1.99		
HOKVL1012	0.62			0.26	0.03	2.96		3.38			-0.05
TBBVL2440	-0.19	-0.19	-0.09	0.02		-0.34				3.45	
TMVL2440	-0.01	-0.03	-0.02	0.08	0.00	0.06	0.21	-0.25	0.04	0.08	0.12
TMVL40XX	-0.03	0.00	0.03	0.01	0.04	0.03	0.11	0.03	0.02	0.06	0.05
Grand Total	-0.02	0.00	0.01	0.03	0.06	0.05	0.15	0.02	0.07	0.10	0.10

Results of RoFTA:

Overall, the results for 2018 for the Irish fleet are broadly positive with four segments failing the RoFTA indicator, the trawl and seiner fleet of 10-12m, 12-18m and 18-24m along with the hook and lines segment between 10-12m.

All other segments pass the indicators with the important length class of 24-40m showing strong long-term profitability in 2018. Both of the main pelagic fleet segments (TM) show a steady return on fixed tangible assets in 2017.

2.2 Economic indicator 2: CR/BER

Annual Economic Report Methodology for Economic Indicators – Chapter 6 AER REPORT METHODOLOGY

Break-Even Revenue (BER):

BER = (Fixed costs + opportunity costs of capital +depreciation) / (1-(crew costs + unpaid labour + energy costs + repair and maintenance costs + other variable costs)/Revenue)

Revenue to Break-Even Revenue Ratio (CR/BER):

CR/BER = revenue / break-even revenue = Income from landings + other income / BER

CR/BER gives an indication of the short term profitability of the fleet/fleet segment (or over/under capitalised): if the ratio is greater than 1, then enough cash flow is generated to cover fixed costs (economically viable in the short term). If the ratio is less than 1, insufficient cash flow is generated to cover fixed costs (indicating that the segment is economically unviable in the short to mid-term).

STECF WG on balance :

Current revenue to break-even revenue ratio (CR/BER) is calculated as:

Current revenue (CR) / Break Even Revenue (BER),
where,
CR = income from landings + other income
where,
BER = fixed costs / (1-[variable costs / current revenue])
and,
Fixed costs = non variable costs + annual depreciation
and,
Variable costs = crew wage + unpaid labour + energy costs + repair costs + other variable costs

Maritime Affairs Guidelines for analysis of the balance between fishing capacity and fishing opportunities

The formula for calculating the BER is as follows:

BER = (Fixed Costs) / (1- [Variable costs / Current Revenue])
Where:
Variable costs =
Crew costs + Unpaid labour + Energy costs + Repair and Maintenance costs + other variable costs
And where:
Fixed costs = Non variable costs + depreciation
And current income = income from landings + other income
The ratio is calculated by dividing the current revenue by the BER i.e.
Ratio = Current Revenue (CR) / BER

The calculation of the ratio as indicated above gives a short term view of financial viability. Should data permit, MS could also opt for providing an economic long term viability analysis of CR/BER. Doing so would require ***adding opportunity costs to fixed costs***:

Fixed costs = Non variable costs + depreciation+ opportunity cost of capital

*Opportunity cost of capital = capital asset value * low risk long term interest rate.*

MS will need to state which CR/BER concept they are using.

*Threshold: If the ratio between current revenue and break-even revenue **is less than one**, this is an indication of short-term economic inefficiency that could indicate the existence of an imbalance.*

Conclusion: the CR/BER defined in the STECF report is what the Guidelines refer to as the short-term CR/BER while the CR/BER defined in the AER is what the Guidelines refer to as the long-term CR/BER. Hence, the long-term indicator includes opportunity costs. The difference between the AER and the Guidelines in this regard is the 'low risk long term interest rate'.

In this report we will use the **long term indicator** that includes opportunity costs of capital.

Table 3: Current Revenue to Breakeven Revenue long term (CR/BER) using the declared landing income in combination with costs stated in the DCF surveys:

DCF Segment	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
DFNVL0010			4.16	1.33	6.20	7.52	4.44	6.05	4.36	13.60	10.18
DFNVL1012	1.90	-0.31	0.30	1.54	1.27	3.67	4.52	4.13	2.12	20.37	51.94
DFNVL1218									2.73		1.93
DFNVL1824	1.90		3.14	1.25	4.96	1.76	5.82	1.17	1.26	1.00	1.94
DRBVL0010		0.61	4.86	3.87	10.79	3.19	7.97	6.60	5.39	8.62	8.71
DRBVL1012	1.75	4.35	2.88	5.91	2.46	7.77	12.53	8.35	2.82	1.91	11.08
DRBVL2440	0.59	0.85	-0.94	0.70	0.62	1.12	2.97	0.14	0.99	2.44	5.11
DTSVL0010						48.53		2.45	2.35	4.45	9.17
DTSVL1012	0.77			5.06	2.26	1.87	1.91	1.00	2.51	-0.15	0.84
DTSVL1218	0.94	0.85	0.98	0.92	1.14	1.12	1.69	1.18	1.95	1.13	0.96
DTSVL1824	0.79	0.91	0.62	1.05	1.23	0.85	0.76	1.12	1.89	1.50	0.79
DTSVL2440	0.65	0.99	1.21	1.05	1.25	0.80	1.14	1.62	1.39	1.56	1.55
FPOVL0010	13.65	9.89	5.37	3.10	4.56	12.34	12.79	4.12	3.35	7.80	7.32
FPOVL1012	6.01	3.39	5.90	3.03	3.33	5.64	12.39	4.51	4.63	4.37	5.65
FPOVL1218	0.42	0.63	1.77	1.17	1.38	2.99	11.69	5.53	3.47	3.58	7.40
HOKVL0010				-0.81	12.99	7.84	11.87	4.41	7.68	26.33	10.29
HOKVL1012	2.24			5.48	1.11	5.18	10.35	9.53			0.16
TBBVL2440	0.24	0.23	0.49	1.08		0.45	1.58			3.34	4.84
TMVL2440	0.96	0.86	0.92	1.36	1.00	1.40	2.34	0.33	1.34	1.66	2.45
TMVL40XX	0.86	1.02	1.26	1.08	1.26	1.18	1.78	1.30	1.16	1.62	1.53
Grand Total	0.88	0.98	1.09	1.20	1.33	1.31	1.92	1.11	1.53	1.75	1.87

Results of CR/BER:

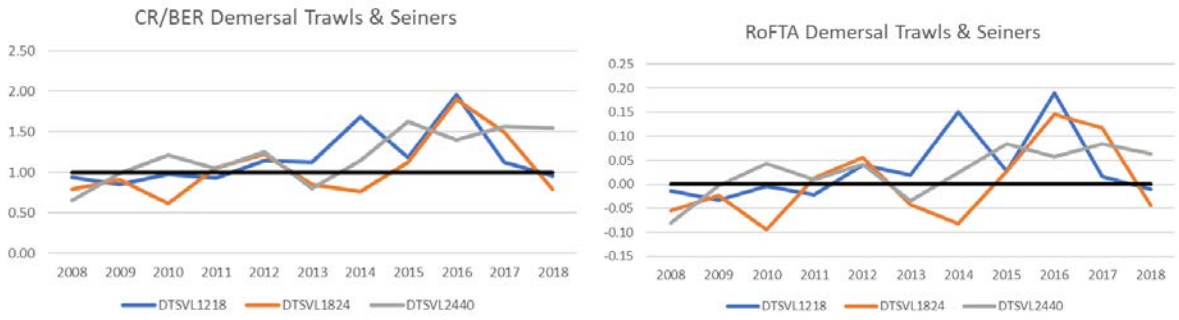
The results of this indicator are broadly positive again showing the same four segments that failed the RoFTA failing this indicator, namely the trawl and seiner fleet segments of 10-12m, 12-18m and 18-24m along with the hook and lines segment of 10-12m. All other fleet segments pass this indicator. Notably, the main demersal trawl segment of 24-40m passes the indicator as do all pelagic trawl segments.

Economic Indicator Summary

STECF balance and Guideline for fleet reports use similar methodology in terms of long term interest rate while the AER uses real interest rates to incorporate the opportunity costs of capital. In this report for the long term indicator (RoFTA) we used the STECF recommendation of 5-year average ECB rates to Ireland. For the breakeven revenue indicator we follow the Guidelines and incorporate opportunity costs in the CR/BER indicator.

The most important revenue generating segments in the Irish fleet to be analysed here are polyvalent general, pelagic and specific DCF segments:

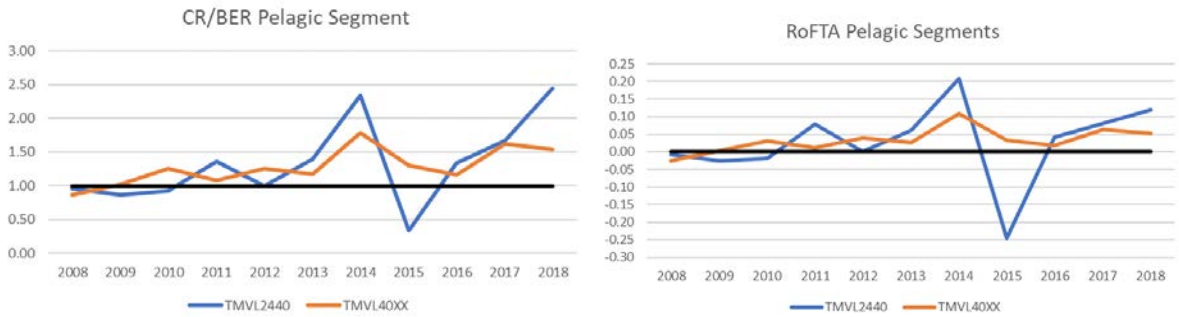
- Polyvalent general: DTS segments:DTS1218 - DTS1824 - DTS2440
- Pelagic: TM segments: TM2440 - TM40XX
- Specific: DRB segments - DRB2440



Figures 2a & 2b: Current Revenue against Break Even Revenue in the Long Term and Return on Fixed Tangible Assets for DTS length classes respectively (polyvalent general)

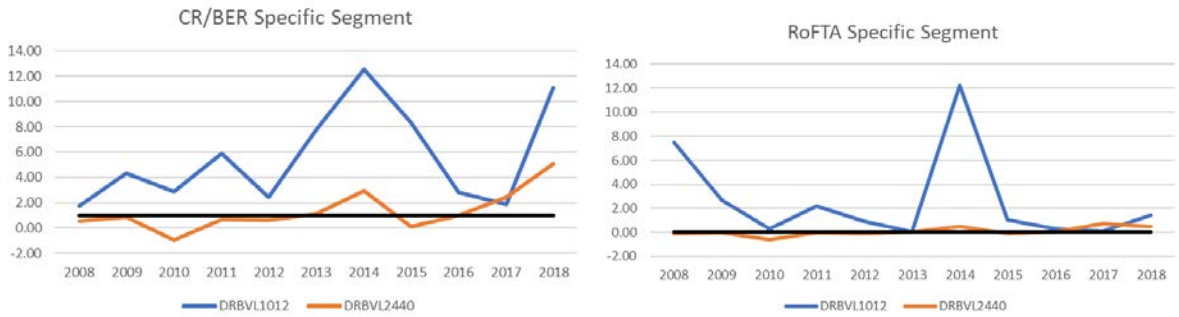
Results show that there have been improvements in both (CR/BER) and (RoFTA) economic indicators for the DTS fleet since 2008. The trends in both indicators are overall positive however there have been sharp fluctuations throughout. The results show that in 2018 two of the three length classes over 12m fail both indicators. The length classes of 12-18m and 18-24m both fell in 2017 and continued to fall into

negative territory in 2018. This two year trend is worrying for the 18-24m segment however it has occurred within the time line shown here before a recovery ensued. The state of the segment should be monitored however given that the failure of the indicator is not by a very large margin an action plan may not be required currently. The 24-40m segment continues to operate at a strong economic level.



Figures 3a & 3b: Current Revenue against Break Even Revenue in the Long Term and Return on Fixed Tangible Assets for TM length classes respectively (pelagic trawlers)

Results for the pelagic segment show positive results for 2018 again. Despite significant fluctuations in both segments since 2008 they show strong results since 2011. The length class 24-40m shows more volatile results than the more stable 40XX class. In 2018 the 24-40m and 40XX classes show positive results in both indicators, with the smaller 2440 length class improving their performance in this year.



Figures 4a & 4b: Current Revenue against Break Even Revenue in the Long Term and Return on Fixed Tangible Assets for DRB length classes respectively (specific segment)

The specific segment has shown mixed results for both indicators throughout the time series with some sharp fluctuation between years. The segment has continued to improve its economic results in 2018 with both segments, the 10-12m and 24-40m length classes passing both economic indicators comfortably.

The results of both economic indicators are shown by Irish DAFM segmentation in Annex 1 and Annex 2.

Conclusion

These results show a broadly positive outlook for the Irish fleet with most segments passing both indicators in 2018 and in the most recent years assessed. The main worry here is the DTS 18-24m length class which failed both indicators in 2018. This length class had passed both indicators in the previous two years, but this year is the second year in a row where the trend has continued in a negative fashion. Despite this the extent of failing the indicators is not extreme and the segment has recovered from similar situations in the timeline assessed. Given the strong performance of the 24-40m segment, the market conditions should permit the segment to recover and hopefully thrive. Finally, when assessed through Department of Agriculture, Food and Marine (DAFM) segments the polyvalent general 18-24m segment passes the RoFTA and only fails the CR/BER by 1%. For these reasons it is deemed unnecessary to make an action plan for the segment but to maintain close observance of the segments economic state. The pelagic trawl segment both show positive results for the last three years. Overall, the indicators are positive from the economic point of view and therefore signal that no specific measures are required for the Irish fishing fleet.

4. Technical Indicators

– see attached spreadsheet

Annex 1 – RoFTA Irish Segmentation

DAFM Segment	Length	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Beamer	VL1824	-0.19	-2.00	-0.22	0.02		-1.16			0.13		
Beamer	VL2440		-0.13	-0.04			-0.16				0.78	
Pelagic	VL2440	-0.05	-0.02	0.00	0.04	0.10	-0.01	-0.06	-0.32	0.01	0.06	0.10
Pelagic	VL40XX	-0.02	0.00	0.03	0.01	0.03	0.03	0.11	0.03	0.02	0.06	0.05
Polyvalent General	VL0010			0.33	0.45	3486	10.94	7.67	0.81	0.90	6.08	
Polyvalent General	VL1012	0.63		0.24	0.37	0.33	1.12	2.28	0.99	0.63	0.56	0.74
Polyvalent General	VL1218	0.04	0.04	0.00	0.09	0.12	0.18	0.50	0.67	0.45	0.16	0.32
Polyvalent General	VL1824	0.02	-0.05	-0.09	0.01	0.05	-0.03	-0.07	0.02	0.12	0.10	0.00
Polyvalent General	VL2440	-0.08	-0.01	0.10	0.03	0.04	0.03	0.14	0.05	0.08	0.09	0.15
Polyvalent Potting	VL0010			0.71	0.63				1.94	0.37		
Polyvalent Potting	VL1012			0.69	0.78	0.61		1.53	2.72	7.21		
Specific	VL0010			0.18	0.36				1.61	0.91		
Specific	VL1012	7.48		0.25	1.74	1.56		10.32	0.91	0.20	0.12	0.88
Specific	VL1218		0.90	0.90		0.33						
Specific	VL1824	-0.14	-0.06	-1.86					-0.16	-0.01		
Specific	VL2440	-0.03			-0.05		0.04	0.41	0.26	0.00	0.51	0.46
Grand Total		-0.02	0.00	0.01	0.03	0.06	0.05	0.15	0.02	0.07	0.10	0.10

Annex 2 – CR/BER Irish segmentation

DAFM Segment	Length	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Beamer	VL1824	0.24	-3.14	0.29	1.08		-0.79	1.58		1.18	12.70	-8.43
Beamer	VL2440		0.29	0.70			0.74				1.63	0.91
Pelagic	VL2440	0.60	0.88	1.00	1.21	1.36	0.91	0.53	0.24	1.07	1.61	2.24
Pelagic	VL40XX	0.91	1.02	1.26	1.08	1.23	1.18	1.78	1.30	1.16	1.62	1.53
Polyvalent General	VL0010	9.92	7.73	4.79	2.83	5.47	6.57	8.72	4.04	3.78	7.37	8.54
Polyvalent General	VL1012	3.67	4.44	3.95	2.84	2.68	4.48	9.84	4.21	3.75	3.99	4.44
Polyvalent General	VL1218	1.21	1.20	1.03	1.37	1.42	2.07	3.11	3.89	2.69	2.04	2.60
Polyvalent General	VL1824	1.07	0.79	0.66	1.05	1.18	0.91	0.78	1.10	1.76	1.38	0.99
Polyvalent General	VL2440	0.60	0.95	1.62	1.15	1.25	1.16	1.83	1.34	1.53	1.61	2.18
Polyvalent Potting	VL0010	19.75	13.34	7.63	4.53	11.23	21.48	30.18	4.41	2.82	5.93	11.71
Polyvalent Potting	VL1012		-1.58	8.38	5.33	1.46	37.57	7.39	5.62	5.39	10.41	8.31
Specific	VL0		0.	2.	4.	2.	9.	8.	8.	3.		3.

	010		61	7 9	0 4	05	54	94	0 8	7 7		33
Specific	VL1 012	1. 75	0. 57	2. 3 8	5. 1 4	2. 83	8. 59	13 .2 9	7. 9 1	2. 3 0	1. 98	8. 41
Specific	VL1 218		3. 13	3. 0 9		2. 20						
Specific	VL1 824	0. 31	0. 58	- 2. 3 2					- 0. 1 4	0. 9 3	1. 66	
Specific	VL2 440	0. 84			0. 7 0		1. 12	2. 82	2. 2 4	0. 9 9	3. 84	5. 11
Grand Total		0. 88	0. 98	1. 0 9	1. 2 0	1. 33	1. 31	1. 92	1. 1 1	1. 5 3	1. 75	1. 87