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Non-quota stocks – king scallops

(STECF-23-02)

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CONTENTS

Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. This report is from the WG 23-02 on "Non-quota stocks – king scallops, which met virtually on the 19th and 20th April 2023.

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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) – Non-quota stocks (STECF-23-02)

Request to the STECF

STECF is requested to review the findings of the STECF Working Group meeting and make any appropriate comments and recommendations.

In particular, STECF is invited to express its opinion regarding the future management of the king scallops fishery in the Channel.

STECF general comments

The WG 23-02 focused on the scallop fishery in the English Channel and had as a basis an ad hoc contract providing background information on the management measures for scallop in the English Channel. The WG had three ToRs: discussion on applicable and possible management measures (ToR1), discussion on the possibilities for stock assessment and data availability (ToR2) and overview of social-economic of the fishery (ToR3). The WG met virtually for two days, between 19-20 April.

STECF considers that the WG adequately addressed the TORs and has the following specific comments on the ToRs addressed by WG 23-02.

TOR 1: Following from the ad hoc contract report describe the similarities and differences between the current management measures in EU and UK waters and assess the effects on the fishery of alternative ways such measures might be aligned including the effects of alternative management such as using TACs/catch limits or effort regime.

STECF notes that the WG focused on the management measures already in place in scallop fisheries in EU and UK waters such as ring sizes, closed areas, effort restrictions and TACs. All these options for the management of scallop fisheries, were analysed by the WG and the pros and cons identified.

STECF notes that the WG compared the characteristics of different ring sizes. In French fisheries a ring size of 97 mm limit is used compared to the 85 mm ring size used in Irish and UK fisheries. Based on the information provided, a larger ring size in the French fleet improves size selectivity and does not reduce yield. However, the WG concluded that the different ring sizes in use between areas/fisheries reflects the different growth within their respective habitats.

STECF notes that temporal closed areas have been implemented nationally by France and voluntarily by the UK where fishers have the ability to change gear and target other species. Ireland has not adopted any such closures as the fishery in the Channel is not within the Irish EEZ. Additionally, Irish scallop vessels under national fleet policy are restricted in the species they can target.

STECF finally notes that effort limitations have been implemented by France and they differ by area. Additionally, a national TAC has also been introduced.

TOR 2: The WG shall describe the availability and quality of data to support stock assessments and investigate management scenarios. Discuss and propose ways to address any issues arising

STECF notes that the WG summarised the data currently collected by Member States and the UK. Much of the data, and particularly fisheries independent data, is collected through national schemes, and the WG noted that currently there is no way of accessing this data. Partial data is shared with ICES WGSCALLOP. This comprises processed data and sometimes presented only in graphical format.

STECF notes that the WG concluded that there is no agreed model for the assessment of stock status currently. As a start point, STECF suggests that suitable assessment models could follow similar approaches as used by France (e.g., harvestable biomass projection from annual surveys) or using ICES guidelines for assessing data-limited stocks (SPiCT, Cmsy+ or length based-assessment). However, there may be scope for more complex modelling approaches (catch at age) if data sources can be integrated.

STECF notes the WG observation that the absence of data sharing agreements between the EU and UK limits the capacity of any WG under the auspices of STECF to carry out quantitative assessments of the stock and/or any proposed management measures.

TOR 3: Provide a detailed overview of the socio-economic importance of the king scallops fishery in the English Channel (fleet size and segments, crew, employment, etc.) based on AER data.

STECF notes that the WG provided an overview of the socio-economic importance of the king scallop fishery in the English Channel. The English Channel is the main area for catches of king scallop in the EU accounting for over 93% of the total landings by Member States. According to the information from the ad hoc contracts, the fishery at EU level employs 461 persons in full time equivalents, with an average annual gross remuneration of about €92,000. It generates almost €64 million in GVA, €21.5 million in gross profits and €10 million in operational profits.

STECF recalls that it has already developed a general protocol to carry out Impact Assessments (IA) of management measures, which could be applied to any proposed management measures for scallop fisheries. This protocol comprises a three-step process (STECF, 2010) as follows:

1) Scoping exercise: In a first meeting experts together with stakeholders and DG Mare representatives define what information should be provided for an IA.
2) Run of the analysis: Experts run the analysis by applying bio-economic models to assess possible impacts. This may also include a data collection exercise or a check of background documents with information on possible impacts.
3) IA meeting: In a second meeting experts prepare the final report for the IA information.

WG Follow up work from the WG 23-02

STECF notes that WG 23-02 proposed the following approach could be taken:

1) Ad hoc contract to collect available social and economic information regarding the fleet segments impacted by limiting access compared to today. This contract should involve French fisheries economists with knowledge of the scallop fishery if possible.
2) Organising a meeting between the chair(s) of the WG with the scallop focus group of the NWWAC to discuss their position on the scallop fishery would be helpful to identify the most important fleet segments.
3) Invite French fisheries economists familiar with the scallop fishery to the next WG meeting.

STECF conclusions

STECF concludes that the management measures already in place in the English Channel scallop fishery, such as limitations on ring size, closed areas, effort restrictions and TACs, are all viable options for the management of the fishery.

STECF concludes that while there is no agreed model for the assessment of stock status currently, harvestable biomass projections from annual surveys or ICES guidelines for assessing data-limited stocks (e.g., SPiCT, Cmsy+ or length based-assessment) provide a good starting point to develop a suitable model.

STECF concludes that using the protocol developed by STECF previously would be the most appropriate way of carrying out an impact assessment of future management measures.

STECF concludes that the ICES WGSCALLOP provides the most appropriate forum where future requests relating to stock assessment of the stocks could be dealt with.

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REPORT TO THE STECF

WORKING GROUP ON
Non-quota stocks
(WG-23-02)

Virtual meeting, 19-20 April 2023

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

INTRODUCTION

The scallop fisheries in the Channel is divided into several different geographical areas: the fisheries in the UK and French coastal waters and in the middle of the Eastern Channel. The coastal fisheries are quasi-exclusive to the coastal states and the middle of the channel is being shared by many different fleets. The scallops population within the channel is subdivided into different geographical discreet stocks with a certain degree of connectivity; it would not be wrong to consider some of the stock ensembles as forming a meta-population with source-sink dynamics. As of now, the stocks are being managed (or not managed) independently. France has a multitude of management measures in place that cover the king scallops stocks within their waters as well as the activities of their fishermen when fishing for scallops anywhere.

The fisheries for king scallops within the entirety of the channel is worth around 100 million Euro for the EU fleet. A lion share of that revenue comes from the French coastal fisheries which underlies stringent management rules that are legislated by the French state. The middle of the eastern channel fisheries is composed by an Irish fleet from the EU side with other players from the UK. The target market for both fisheries is very different: the French fishers cater for the fresh king scallops market where as the Irish fleet feeds the frozen market.

The stocks of particular concern are those that are outwidth of the 15nm coastal areas, as they can be accessed by all fleets. Their management is currently subject of discussion between the EU and the UK. The state of knowledge of that particular stock is quite low and the management measures are very few. In order to determine what could work, this report looked at management measures implemented anywhere within the Channel and tried to provide a rationale on their functionality as well as a comment on their implementability.

Terms of Reference for WG-23-02

TOR 1: Following from the ad hoc contract report describe the similarities and differences between the current management measures in EU and UK waters and assess the effects on the fishery of alternative ways such measures might be aligned including the effects of alternative management such as using TACs/catch limits or effort regime.

TOR 2: The EWG shall describe the availability and quality of data to support stock assessments and investigate management scenarios. Discuss and propose ways to address any issues arising.

TOR 3: Provide a detailed overview of the socio-economic importance of the king scallops fishery in the English Channel (fleet size and segments, crew, employment, etc.) based on AER data.

TOR 1: FOLLOWING FROM THE AD HOC CONTRACT REPORT DESCRIBE THE SIMILARITIES AND DIFFERENCES BETWEEN THE CURRENT MANAGEMENT MEASURES IN EU AND UK WATERS AND ASSESS THE EFFECTS ON THE FISHERY OF ALTERNATIVE WAYS SUCH MEASURES MIGHT BE ALIGNED INCLUDING THE EFFECTS OF ALTERNATIVE MANAGEMENT SUCH AS USING TACS/CATCH LIMITS OR EFFORT REGIME.

Size selectivity / Mesh or hook size

Ring sizes commonly used are 85mm inside diameter for Irish and UK fleets, where as French fishers have to use 97mm inside diameter regardless of the fishing area (ie inside and outside of national waters, everywhere and all the time). The minimum ring size for French fishers is enshrined in French law. French fishers used 85mm until 2006 when the first change in law required them to use 92mm. In 2016 experiments on board of industry vessels in the Bay of St Brieuc using a ring size of 97mm. These experiments yielded a slightly better avoidance of the "just under minimum size" scallops, decreasing discard induced mortality. The ring size was adopted on the 1st of January 2021 against some opposition of the French fishers. After 2 seasons, the fishers agree that the change was positive. Apart from the changes in size selectivity, fouling was reduced, ensuring better overall functioning of the dredge (Fig 1).

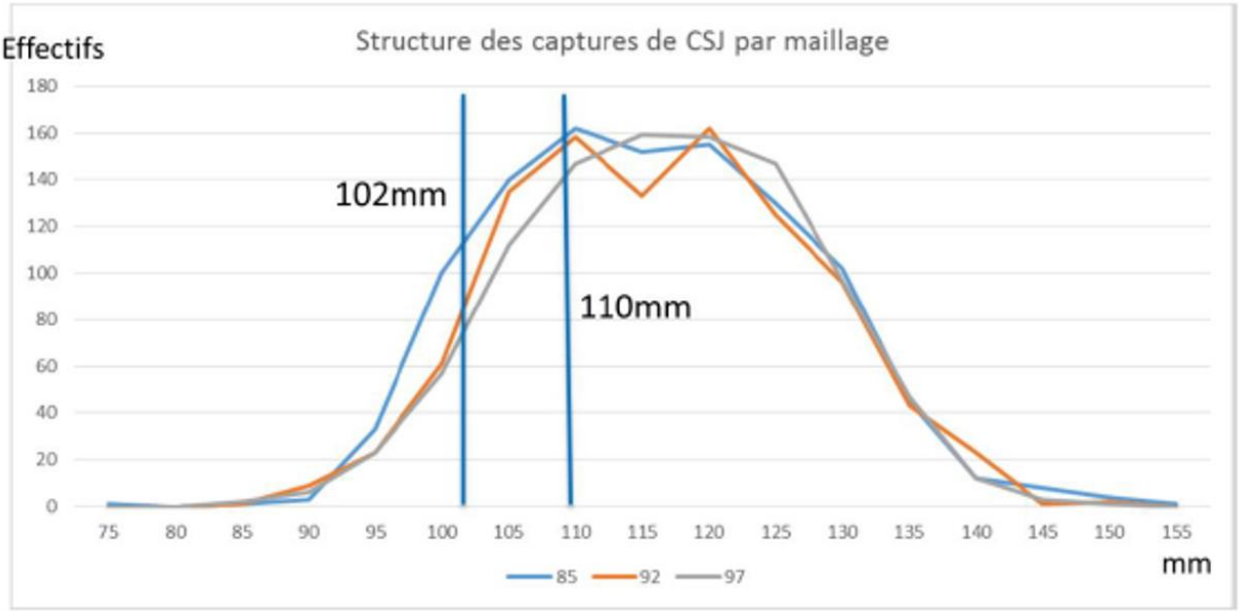

Figure 0-1 Catch structure distribution by ring size.

It should be noted that the changes of gear selectivity by introducing technical measures must be carefully weighed against the realities of fleet and growth behaviour of target scallop beds. These factors will influence the effectiveness of the regulations. Other consideration should be given to potential yield loss. However, in the case of the French vessels, this was not the case using 97mm ring sizes (Fig 2 and 3).

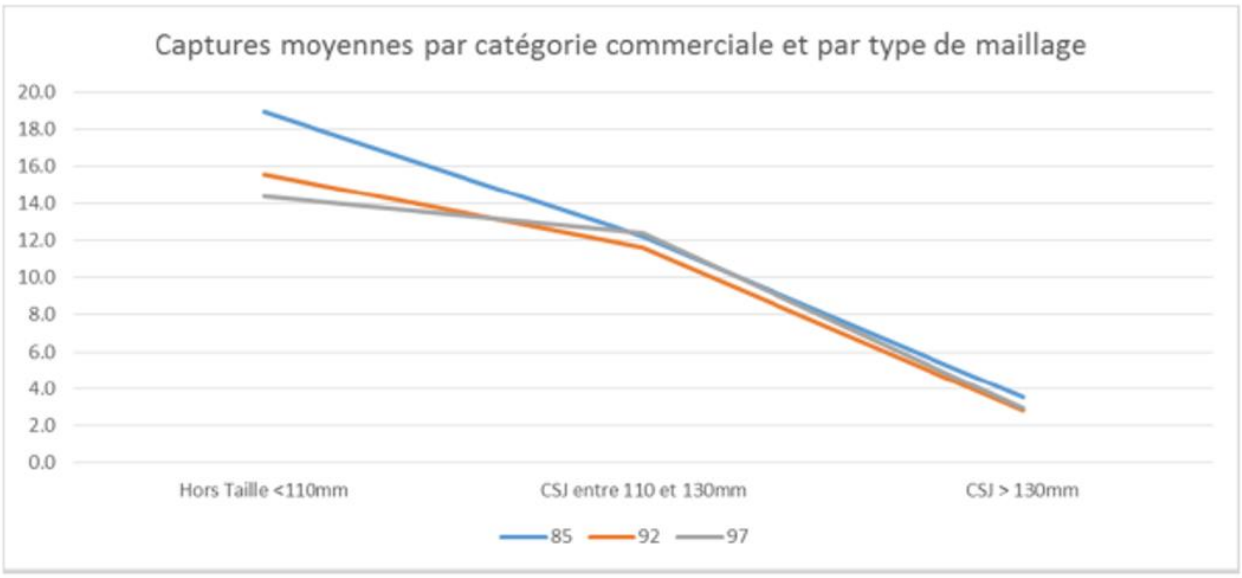

Figure 0-2: Mean catch (kg) by commercial size for the three ring size

It should be noted that the Irish industry is running trials at the moment using 97mm rings to assess their performance in the context of much larger and deeper fishing vessels.

Differences in the maximum number of dredges allowed do exist between the different fleet. The French fishers have to observe a legally dictated limit of 16 dredges per boat (everywhere they operate) where as there is no limit for fleets from other countries. For non-French fleets, the boat length/size is the determining factor for the number of dredges they can tow. This difference in number of dredges obviously affects the level of fishing effort per time unit.

The increase of the ring size also aided in the fulfilment of the requirements to protect juveniles set out under the technical measures regulation (Regulation (EU) 2019/1241).

Increasing the minimum landing sizes can lead to loss of yield and not increase the protection of juveniles beyond of what is granted already. The minimum landing sizes were set in such a way that the animals should at least spawn once, prior to recruitment into the fisheries. As such an increase in minimum landing size would not increase the likelihood of spawning. Furthermore, some scallops growth does slow down beyond 110mm (or 100mm, depending on the region) and would not be available to the fishery as they will remain too small for any increase of the required landing size.

At the moment, the differences in landing sizes between the different parts of the English Channel are appropriate as they reflect the different growth behaviours within their respective habitats (Chauvaud et al. 2012).

Species selectivity

The acceptable level of by-catch is regulated on European level, it is dictated that the incidence of by-catch should be below 5% by weight. As no reporting obligation exists, very few data on by-catch are collected. For the French fleet operating within and outwith of French territorial waters, some data do exist. Another useful source of data about bycatch is the MSC certification report for

the king scallops fishery in the Bay of Brieuc (MSC public certification report). No data is known to be collected for the stock complex in the Eastern Channel.

The by-catch of French dredgers is very small; the most common bycatch species is Sea Spider (*Maja squinado*), with other species including Cuttlefish (*Sepia officinalis*), rays, common sole (*Solea solea*), lesser-spotted dogfish (*Scylhiorinus cancula*), turbot (*Scophthalmus maximus*) and brill (*Scophthlamus rhombus*). Whelks and clams can also be found in the bycatch. (Ifremer, 2022)

STECF specific comments

STECF notes that to carry out a stock assessment and develop a management plan of a shared stock requires the involvement of all parties involved in the fishery and management plan.

STECF observes that all measures currently in place and analysed by the WG are all viable options for the management of scallop fisheries, with pros and cons that are discussed in the WG report.

STECF further notes, as highlighted by the WG 23-02, that ICES already has a WG on scallops that includes EU and UK scientists (WGSCALLOP) and where national data could be shared. STECF observes that WGSCALLOP constitutes the most appropriate existing collaborative framework to deal with future requests in relation to stock assessment.

STECF notes that the environmental impact of the fishery can only be assessed in a limited way. While there is information on the benthic impact of scallop dredges (Eigaard et al., 2016, Løkkeborg, 2005), there is a general lack of bycatch data regarding catch and discards of non-target species.

Sorting grids and sorting panels

Is this applicable? No

Spatial and Temporal Measures

Temporal closures are enshrined into French law for French fishers regardless of the fishing grounds. The closure covers the summer period (15th of May to 1st of October) allowing the scallops to at least spawn once before being recruited into the fishery. This closure was implemented to avoid recruitment overfishing and proved favourable for stock development. At the moment, no other closure periods exist in scallop fisheries in the English Channel. However, a bilateral and voluntary agreement between the UK and France introduced a fishing restrained covering the same closure periods as imposed on the French fishers. This agreement exists for stocks straddling the 12nm limit of the French territorial waters, this means that the fisheries for the Eastern Channel stock, situated in deeper waters is not affected by the agreement.

The timing of the closures are based on traditional French fresh scallop markets, which are at their height around the Christmas season. Agreeably, the closures have proven to be useful from an ecological and economic point of view; keeping in mind the operational realities of the French fleet. Especially, since the French fleets are not specialised fleets and have other fishing activities to fall back on during the closed periods (half are trawling for sole, and the other half are netting for turbot, or squid and cuttlefish (Ifremer, 2022; Foucher et al. 2019). Highly specialised fleets, such as the Irish could be highly impacted by temporary closures, as they do not have any fishing activity

to fall back on. Buy-in by the French fishers was generated by the derogation of management to the fisheries stakeholder within France; they are able to regulate themselves within the legal framework that was setup. That means some regional fisheries associations have more stringent closure periods (eg Bay of Seine 1st of November until 15th of May). Other positive side effects of these closures include reduction of dredging incidence which will positively influence MSFD indicator D6.

Some closures are due operational circumstances such as the occurrence of harmful algal blooms (HABs) or high accumulations of bio-toxins in scallops. In the French fishery, testing of scallops for bio-toxin concentrations is ongoing, as is the monitoring for HABs. This allows the suspension (closure) of the fisheries and leaves valuable scallops in the sea, rather than forcing a disposal of dead individuals once a large catch is being landed (such as it occurs in the international fishing fleet).

It is important to note that the nature of closures is such that once imposed it is rare that they are lifted, so it is imperative that they make sense from an ecological and economical point of view.

Permanent Spatial Measures

Although no permanently closed areas exists to aid the management of king scallops within the Channel, there are areas that can have an impact on the fisheries. These are MPAs and wind farms within the fishing areas (figure 4, 5 and 6). The MPAs underlie different management regimes which are implemented locally. The catalogue of measures that impact the king scallops fisheries are outwith of this report. One particularly important aspect is the planned banning of bottom contacting towed gear within MPAs as the laid out by the European Commissions and already implemented (within 4 MPAs) of the UK. As the foot-print of dredging for king scallops is particularly large, any ban would have a big effect on the fisheries.

Another development within the channel that can have a large effect on the fisheries is the expansion of wind farms and their associated restriction to fishing activities. A notable example of such a development would be the find farm in the Bay of Brieuc. The development is 16.3 km of the coast and will become operational at the end 2023 (https://www.iberdrola.com/about-us/what-we-do/offshore-wind-energy/saint-brieuc-offshore-wind-farm).

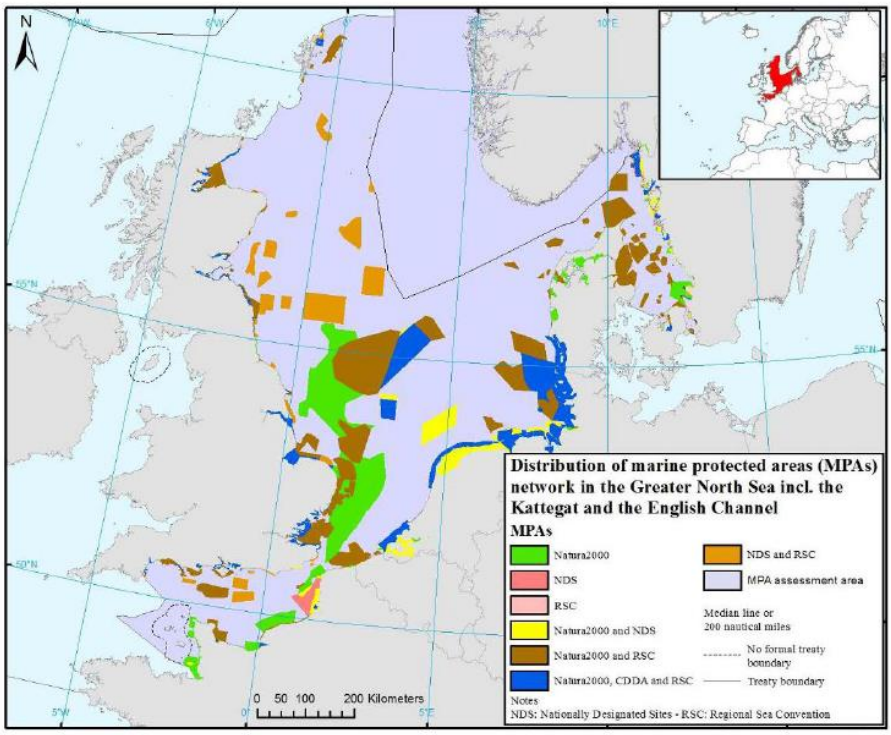

Figure 0-3: Map of MPAs. Taken from "ETC/ICM Technical Report 4/2017" (Ahnesi et. al. 2017).

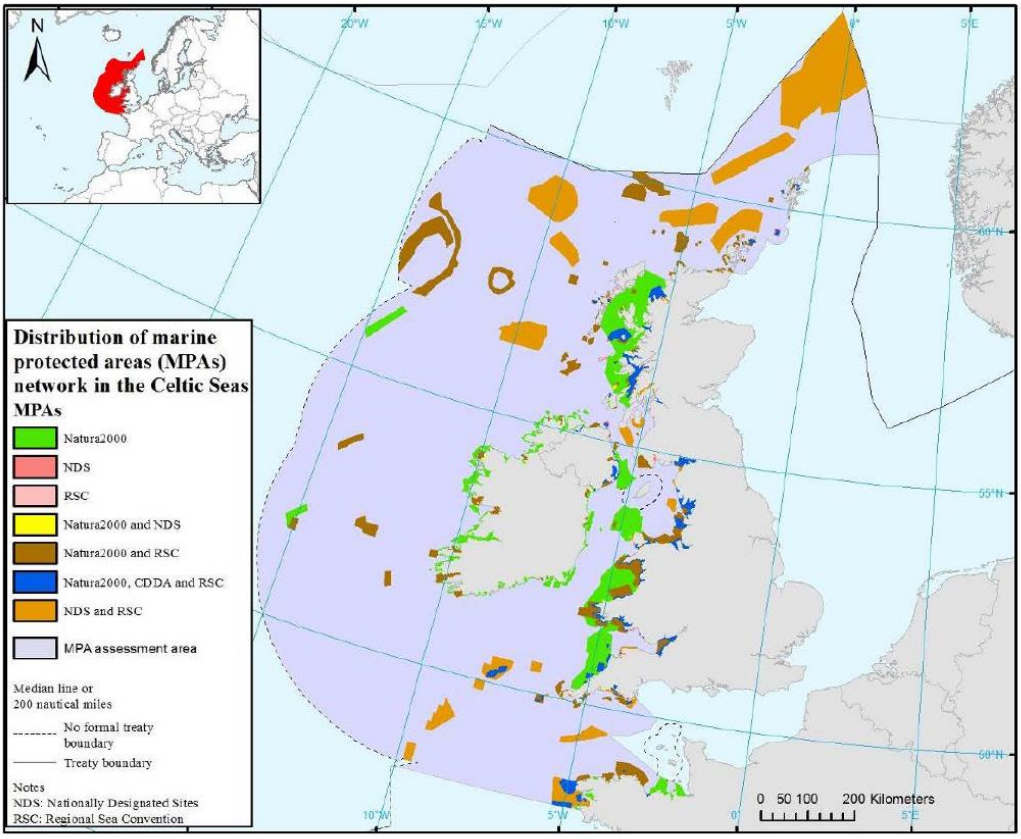

Figure 0-4: Map of MPAs. Taken from "ETC/ICM Technical Report 4/2017" (Ahnesi et. al. 2017).

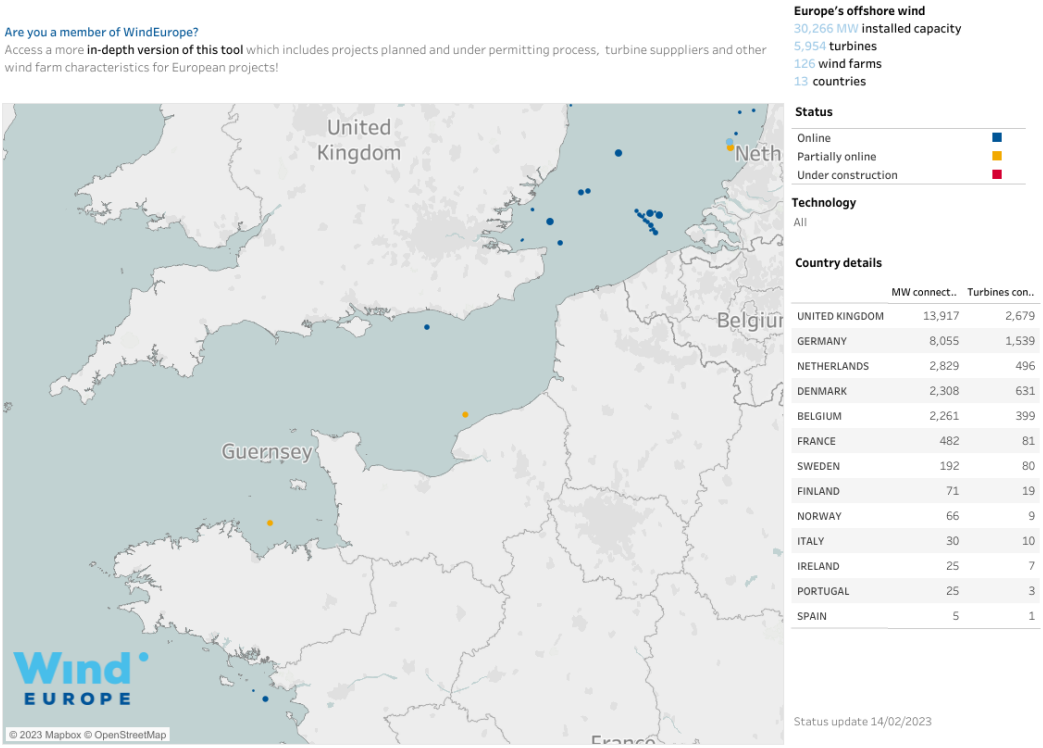

Figure 0-5: Distribution of Wind farms within the Channel. (https://windeurope.org/intelligence-platform/product/european-offshore-wind-farms-map-public/)

Territorial User Rights

In the king scallops fisheries of the English Channel, there are numerous exclusive territorial user rights. By the nature of the French fisheries, most fishing areas are within the 12mile zone and thus remain exclusive to French fishers. There are very few exceptions due to historical user rights, for example Belgium. Currently, only one Belgian boat is known to operate within the French fishery and the fisher complies completely to the French license rules and regulations, ie behaves like a French fisher. No UK vessels are known to have historic access rights to the French 12 mile zone, whether French dredgers have access to the UK 6 to 12 mile zone is not known.

The rules of the French scallops fisheries are legislated nationally and are enshrined in the licenses bequeathed upon fishers. The rules do allow regional fishermen association have derogation to manage the resources as they see fit, as long the restrictions are not looser than the national legislation.

Capacity control measures

There is already a capacity control measure in place for the area of the English Channel, which is governed by Regulation (EC) 1415/2004 and subsequent regulations. They are a blanket cover of capacity maxima in diverse ICES areas. Of interest to the king scallop fisheries is the capacity maximum in area VII as set out in table B of Annex 1 and updated on an annual basis. France is

currently not limited by the maximum number of allowed kW days, where-as the UK is limited by the total (Lawler A. and Nawri N., 2022).

Fishing effort/time

Constraining fishing effort can be done by restricting the fishing time per week, month or per season. The guiding principal is to limit the catches over a period of time. This can be an effective conservation tool, when a resource passes through an area and then moves on. In stationary resources, such as king scallops, the conservation benefits are a result of market control mechanisms: as the market is not swamped by overly large numbers of scallops the prices remain high and fishers do not require to land larger and larger amounts (due to falling prices) in order to receive the same amount of recompense.

In French king scallop fisheries, very stringent fishing effort restrictions are in place. In the Bay of Seine effort is constraint to 3 days per week with a possible increase towards the end of the season. Fishing activities are restricted to 2 hours per day (at the moment). In the Bay of St Brieuc, fishing time is even more restricted: max 2 days per week and 45 minutes per fishing day. Lost fishing days due to bad weather or other reasons can be compensated for. This short fishing windows can lead to safety concerns as a high number of vessel will be operating at the same time on a spatially very restricted area (250 boats in the bay). Bigger boats are switching gears between the scallop dredging opportunities and go netting for fish, whilst smaller boats wait for the next fishing opportunity in the harbour. The fishing opportunities are announced two weeks in advance based on tidal information and other factors. Monitoring of these restrictions is done three ways: by sight, by VMS and EMS data. Further limitations of effort are the number of licenses issued, thus controlling over all effort. The monitoring aspect is considered crucial and questions on how off-shore monitoring will be conducted, should effort limitation be a considered option, need to be answered.

Catch fishing limits/TAC

Some considerations need to be given to the nature of the fisheries to ascertain what precautions are necessary to introduce Catch limits. In order to be able to set a catch limit, it is important to ascertain the stock status. This status needs to be condition on reference points that are quantified by an assessment model. In the absence of reference points, trajectories of survey indices can be used, but only with caution. To introduce catch limits or a TAC in the fisheries in the Channel would require a good survey(s) just prefacing the fishing season. The survey with other technical innovations should allow for real time management as the fisheries can be exploit to heavily local scallop beds which could impede the production of juveniles.

The stock complex in the English channel is not very interconnected but does have some source/sink relationships, understanding these is pivotal when introducing any kind of catch limits. Ephemeral local hotspots, areas of high scallop densities, exist and their occurrence and disappearance are poorly understood processes. However, the prediction of hotspot occurrence as well as depletion is important in order to avoid recruitment depensation. Due to this heterogeneity, the classical

stratified random survey design is not very suited to the quantification of king scallops in the channel. Survey designs taking into account the patchiness could be based on VMS data of fishers. Additional, it is thought to be highly desirable to ensure that the survey does target the juveniles that will recruit at a later point into the fishery, as that would allow for more sustainable management. As at least one stock within the French 12nm zone acts as a source towards the Eastern Channel stock, risk assessments should be carried out what local management changes could mean for the sink stock of the Eastern Channel.

In the case of king scallops, one of the most important factors to take into account is that the stocks exhibit a very high variability in recruitment to the fisheries and that the correlation between the spawning stock biomass and recruitment is spurious. For this reason, the French TAC is set straight after the survey and the survey is conducted just weeks before the opening of the season. As scallops are fairly sessile, the survey will provide a good understanding what the current level of SSB and vulnerable biomass will be available to the fishers for the coming season. It is important to identify the source areas, as the sink areas do depend on these for the replenishment of their juveniles, and most importantly, should they disappear, the entire stock will be in jeopardy. The stock in the Eastern Channel has more age classes which can act buffers against variability.

TOR 2: THE EWG SHALL DESCRIBE THE AVAILABILITY AND QUALITY OF DATA TO SUPPORT STOCK ASSESSMENTS AND INVESTIGATE MANAGEMENT SCENARIOS. DISCUSS AND PROPOSE WAYS TO ADDRESS ANY ISSUES ARISING.

Testing proposed management plans quantitatively can be done in either of two ways: by conditioning a simulation on an existing assessment model or by building a population model that mimics the population dynamics by using biological knowledge to guestimate the required parameters. In the case of the king scallops in the English channel, no sea basin wide stock assessment model exists; however, some effort was made to assess local populations by using local surveys (Figure 6 and 7). As there is a lot of plasticity and heterogeneity of density between the different populations within the channel, stock specific data are required.

Currently the types of data being collected for these stocks are of two types: fisheries dependent and fisheries independent (surveys) (Figure 6 and 7). Some of the fisheries dependent data are being shared through the ICES working group (WGSCALLOP ICES 2023), namely landings and effort. However, most data are kept locally as they are not covered by the DCF or similar sharing mechanisms. The fisheries independent data are not shared at all, as they are collected by national entities, although results of the analysis are being shared within WGSCALLOP (sometimes only in graphical format). To be clear: currently there is no way of easily getting access to these data.

The data collected include to the best of our knowledge:

- Landings and Effort (EU and UK)
- Scientific survey time series (UK and France),
- Port sampling of landings (EU and UK) for size and age,
- VMS and logbook data (EU and UK)). Potential for development indices of abundance (IRL, UK, and FRA)

The absence of data sharing agreements severely limits the capacity of any EWG under the hospices of STECF to carry out quantitative assessments of the stock and/or any proposed management plans. The UK is the only country that carries out a survey in the eastern channel and thus an evaluation of the data obtained during their survey would need to be carried out. This sort of activity

is routine during an Management Strategy Evaluation (MSE) or a benchmark for stock assessment. The suitability evaluation will be covering aspects of the survey design such as gear specifications, selectivity, spatial distribution, effort etc. It is already known that the survey is based on some consideration of environmental data as well as EMODnet. The results of the evaluation could influence the assumptions that underpin the resulting assessment model. A possible improvement of the survey could be to increase the coverage, based on the analysis of the VMS data, to include that all scallop beds and fishing areas are covered (should the survey be increased and run jointly by UK/EU). In particular care should be given to carry out a juvenile survey, in order to predict the potential recruitment to the fishery, as there is no information available for the offshore king scallop beds.

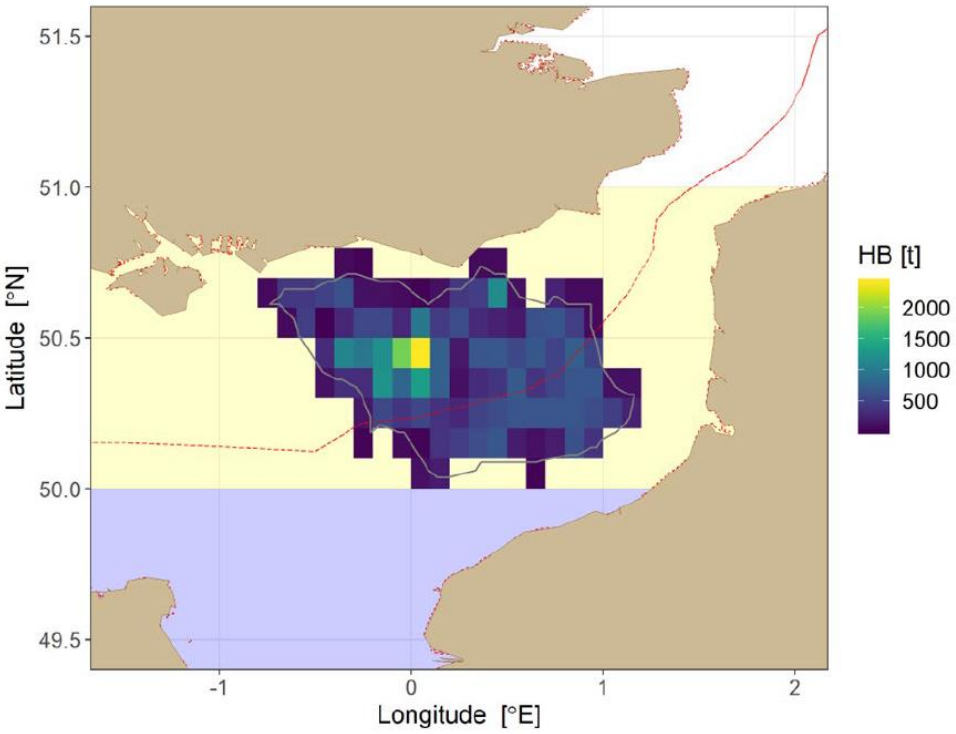

Figure 0-6: Harvestable biomass - Eastern English Channel (September 2021 dredge). From: ICES. 2023. Scallop Assessment Working Group

France is carrying out surveys on the king scallop stocks within their waters for a long time. Their survey area extends beyond the 12nm mark up to 20nm. In the Bay of Seine the survey has been carried out for over 40 years.

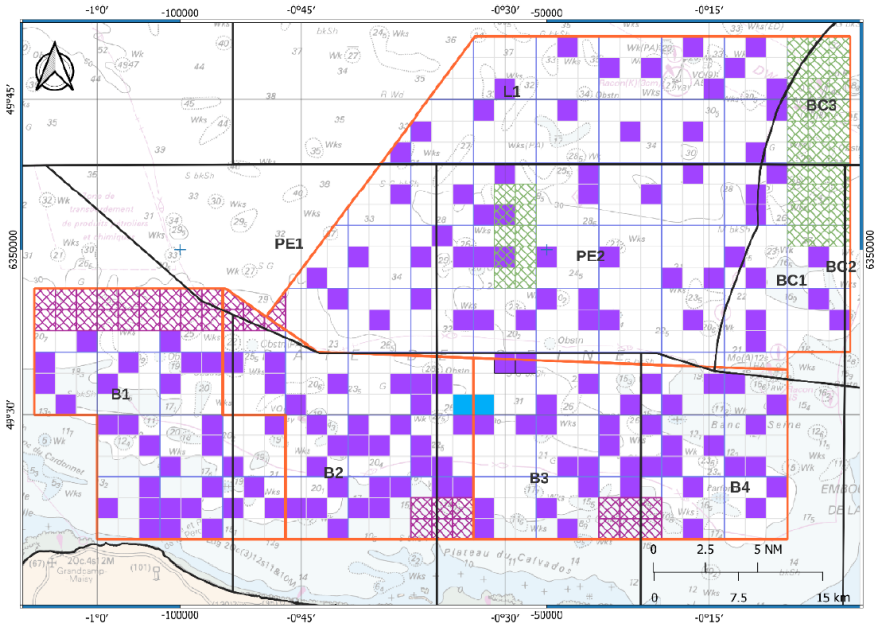

Figure 0-7: Distribution of sampling stations during COMOR2022 (5 strata, 152 stations). A ¼ nm tow is done in each 1nm square. (from Foucher & Tully 2023)

As mentioned before, there is an existing collaborative framework in place that includes EU as well as UK scientists under the hospices of ICES (WGSCALLOP ICES 2023). This framework could be activated upon request. It should be noted that until today, no advice has been requested to WGSCALLOP, most likely due to the delegation of the responsibility of management of the stocks to member states. Making use of this collaborative framework (or a different framework as long it is collaborative) has advantages against performing evaluations separately by each party; as the scientists that do the data collection have a greater understanding of the data. This knowledge is invaluable when assessment models are built or management plans are evaluated. External quantitative expertise in terms of Stock assessment and particularly MSE development might be required as it is unknown how much of that expertise is present in WGSCALLOP. If an MSE were to be developed clear management objective should be defined in first instance. Furthermore, it is important to maintain very short response time between survey, updated assessment and catch advice to insure that no undue loss of yield occurs and the stocks are managed sustainably; these short response times have been used in France successfully for the last ten years. Other species under the hospices of ICES do also enjoy the sort of response times thought to be necessary for king scallops, such as sprat and sandeels. As it has proven successful in France, it is recommended to also include the stakeholders throughout the evaluation and adaptation of any management plan.

Suitable assessment models could follow similar approaches as in French cases (harvestable biomass projection from annual surveys) but also ICES data-limited guidelines (SPiCT, Cmsy+ or length based-assessment) as a first start. However, there is scope for more complex modelling approaches (catch at age), if data sources are integrated. Bycatch reporting would be beneficial for the MSFD requirements for larger offshore vessels. French vessels have very little bycatch (reference Façade Mer du Nord – Manche Flottille des Dragueurs).

TOR 3: PROVIDE A DETAILED OVERVIEW OF THE SOCIO-ECONOMIC IMPORTANCE OF THE KING SCALLOPS FISHERY IN THE ENGLISH CHANNEL (FLEET SIZE AND SEGMENTS, CREW, EMPLOYMENT, ETC.) BASED ON AER DATA.

Socio-economic importance of the king scallops fishery

This section investigates the socio-economic importance of the king scallops (Great Atlantic scallops, *Pecten maximus*) fishery in the English Channel (areas 27.7.d and e) for the EU Member States (MS) (Table 1).

The EU MS involved on the king scallops fishery in the English Channel are identified in this section by looking at landings of Atlantic scallops from the English Channel reported in the 2022 Fleet economics data call[1]. The latest year of available economic data in the 2022 Fleet economics data call is 2020.

Table 1: King scallops landings in weight (kg), value (euro) and price (euro/kg) from the English Channel and from all areas by the EU fishing fleet and the United Kingdom in 2020

	Live weight of landings		**Value of landings**		**Price**	
Country	**English channel**	**All areas**	**English channel**	**All areas**	**English channel**	**All areas**
Belgium	392,029	511,156	748,937	866,905	1.9	1.7
France	32,896,331	33,694,870	89,264,615	92,282,547	2.7	2.7
Greece		40		1,126	-	28.2
Ireland	285,640	1,930,057	3,544,180	21,543,932	12.4	11.2
Netherlands	52	20,448	65	25,559	1.3	1.2
Portugal		20		121	-	6.1
Spain		48,329		272,850	-	5.6
Sweden		3		29	-	9.7
Total EU	**33,574,052**	**36,204,923**	**93,557,797**	**114,993,070**	**2.8**	**3.2**
United Kingdom*	9,843,693	22,840,042	18,452,879	47,889,054	1.9	2.1
Total	43,417,744	59,044,965	112,010,676	162,882,124	2.6	2.8

Source: own elaboration from 2022 AER data (STECF, 2022)

*Note the United Kingdom landings of Atlantic scallops landings refer to preliminary data submitted in the 2021 data call.

[1] Data submitted in the 2022 Fleet economics data call was reviewed by STECF and the basis of the 2022 Annual Economic Report of the EU Fishing Fleet (AER). The report and the data are publicly available at: https://stecf.jrc.ec.europa.eu/reports/economic.

According to 2022 AER data, the EU landed 33.6 thousand tonnes worth €93.6 million of king scallops from the English Channel in 2020.

These EU landings of king scallops from the English Channel represent 93% of the weight of the EU landings of king scallops from all areas. In value terms, the EU landings of king scallops from the English Channel represent the 81% of the EU landings of king scallops from all areas.

France generated 98% of the EU landings of king scallops from the English Channel in terms of weight and 95% of value. It is followed by Ireland in value and Belgium in weight. Finally, there are some minor landings from the Netherlands (just 52 kg and €65 in 2020).

Only Ireland lands a significant amount of king scallops - worth about €18 million - originated from outside the English Channel.

Next, the EU fleet segments involved on the king scallops fishery in the English Channel are identified by looking at the fleets that in the 2022 Fleet economics data call[2] reported landings of Atlantic scallops in the English Channel for 2020 (see Table 3.2).

The contribution (share) of the king scallops landings from the English Channel to the overall landings from all areas for each EU fishing fleet segment is investigated in weight and value terms, also in Table 2.

The contribution of the king scallops from the English Channel to the overall value of landings in 2020 ranges from 78% for the French dredge fleet between 12 and 18 meters (FRA NAO DRB1218 NGI*) to almost 0% for the Dutch fleet (NLD NAO DTS2440 NGI*).

Table 2: King scallops landings in weight (kg) and value (euro) from the English Channel and all landings from all areas by the EU fishing fleet segment in 2020

		Live weight of landings (kg)			**Value of landings (euro)**		
Country	**Fleet segment**	**King scallops in English Channel**	**All landings in all areas**	**Share**	**King scallops in English Channel**	**All landings in all areas**	**Share**
Belgium	BEL NAO DTS2440 NGI*	14,662	4,613,051	0%	21,487	15,474,647	0%
	BEL NAO PMP1824 NGI*	87,188	679,285	13%	238,317	1,385,381	17%
	BEL NAO TBB1824 NGI*	104,723	2,034,677	5%	192,979	7,865,301	2%
	BEL NAO TBB2440 NGI	185,456	12,638,828	1%	296,154	49,473,571	1%
France	FRA NAO DFN0010 NGI	89,281	3,413,938	3%	266,952	21,205,916	1%
	FRA NAO DFN1012 NGI	412,452	7,680,636	5%	1,059,226	38,375,250	3%
	FRA NAO DFN1218 NGI*	81,051	7,024,524	1%	230,048	33,900,203	1%

[2] Data submitted in the 2022 Fleet economics data call was reviewed by STECF and the basis of the 2022 Annual Economic Report of the EU Fishing Fleet (AER). The report and the data are publicly available at: https://stecf.jrc.ec.europa.eu/reports/economic.

	FRA NAO DRB0010 NGI	1,159,987	3,505,298	33%	2,830,609	4,262,281	66%
	FRA NAO DRB1012 NGI	3,810,563	12,505,871	30%	9,717,866	13,466,700	72%
	FRA NAO DRB1218 NGI*	10,116,310	16,473,679	61%	27,975,672	35,826,407	78%
	FRA NAO DTS0010 NGI	214,782	1,185,942	18%	542,674	6,710,884	8%
	FRA NAO DTS1012 NGI*	2,270,763	8,725,802	26%	5,655,481	34,090,788	17%
	FRA NAO DTS1218 NGI	2,885,191	15,475,467	19%	8,223,464	67,429,041	12%
	FRA NAO DTS1824 NGI*	306,740	39,101,870	1%	1,088,124	110,282,445	1%
	FRA NAO FPO0010 NGI	89,127	7,338,075	1%	236,590	26,329,398	1%
	FRA NAO FPO1012 NGI	610,877	8,924,595	7%	1,495,928	21,421,376	7%
	FRA NAO FPO1824 NGI*	72,990	2,325,083	3%	219,100	6,996,411	3%
	FRA NAO HOK0010 NGI	59,055	2,370,847	2%	179,567	20,906,254	1%
	FRA NAO MGP0010 NGI*	119,820	1,861,982	6%	327,593	1,289,661	25%
	FRA NAO MGP1012 NGI*	3,225,913	11,976,750	27%	9,035,490	17,597,412	51%
	FRA NAO MGP1218 NGI*	4,955,755	8,056,889	62%	14,187,047	22,321,520	64%
	FRA NAO PGO0010 NGI*	183,439	2,542,365	7%	435,456	1,978,297	22%
	FRA NAO PGP1012 NGI	25	612,249	0%	64	3,307,393	0%
	FRA NAO PMP0010 NGI	704,787	8,047,630	9%	1,789,591	5,274,131	34%
	FRA NAO PMP1012 NGI*	1,527,422	26,675,329	6%	3,768,076	10,903,864	35%
Ireland	IRL NAO DRB2440 *	285,640	2,249,808	13%	3,544,180	21,471,015	17%
Netherlands	NLD NAO DTS2440 NGI*	52	12,303,506	0%	65	35,273,212	0%
TOTAL		**33,574,052**	**230,343,975**	**15%**	**93,557,797**	**634,818,757**	**15%**

Source: own elaboration from 2022 AER data (STECF, 2022)

Please note that fleet segments are defined in the AER as the group of vessels with the same combination of main fishing technique and vessel length group, by country, supra region (all being NAO - North Atlantic Ocean in this analysis), and geographic indicator (e.g. to identify outermost regions, in this analysis, NGI - No Geographic Indicator)[3].

Therefore, vessels belong to a fleet segment depending on their main fishing technique along the year. Thus, in a fleet segment, there could be vessels that use different fishing techniques along the year. This is especially significant for the scallops fishery because it has a very important stationarity, with the fishery being closed for several months.

In France, only vessels with dredges can land scallops. Hence, even if a large range of fleet segments and fishing techniques (e.g. DFN, DTS, FPO, HOK, MGP, PGO, PGP and PMP) appear on Table 2 for France, scallops were caught using dredges (DRB).

[3] See for more detailed information: https://datacollection.jrc.ec.europa.eu/web/dcf/wordef/fleet-segment-dcf.

So, it is possible that under DFN, DTS or another fleet segment, there are included vessels that used dredges to catch king scallops in the English Channel, together with vessels that did not catch any scallops.

Relevant socio-economic variables and indicators for the EU fleet segments that participate in the king scallops fishery in the English Channel are then obtained and estimated from the 2022 AER data (see Table A1 in the Annex).

Revenues are composed of the value of landings plus other income.

Other key performance indicators are estimated as follows:

- GVA = Gross value of landings + Other income - Energy costs - Repair & maintenance costs - Other variable costs - Other non-variable costs.
- Gross profits = Gross value of landings + Other income - Personnel costs - Value of unpaid labour - Energy costs - Repair & maintenance costs - Other variable costs - Other non-variable costs.
- Operational profits = Gross value of landings + Other income - Personnel costs - Value of unpaid labour - Energy costs - Repair & maintenance costs - Other variable costs - Other non-variable costs - Consumption of fixed capital (=depreciation).

While the GVA margin, Gross profit margin, and Operating profit margin are estimated by dividing the GVA, gross profit and operational profit by the revenues.

Here appear two potential approaches to approximate the socio-economic importance of the king scallops in the English Channel by fleet segment, in particular regarding the French fleet segments:

CONSIDER THE WHOLE LIST OF FLEETS REPORTED IN TABLE 2 (SEE THE ANNEX TO SEE THE RESULTS OF THIS APPROACH);

1. Consider just the operational and cost structures of the three "pure" dredge fleet segments for France in Table 2, and raise their scallops' landings and revenues with the scallops' landings of the other French segments of similar vessel length groups.

Here it is followed the second approach. To the scallops' landings value of the three "pure" dredge fleet segments for France from Table 2, it is added the scallops' landings value of the other French segments of similar vessel length groups, as shown in Table 3.

The reasoning behind is that since those scallops were caught using dredges, the more "pure" dredge segments will have average operational and cost structures that will be more realistic than the other segments that had other main fishing techniques in order to capture the specificities of the scallops fisheries.

Table 3: Value of landings (euro) of king scallops from the English Channel for the French dredge segments and the allocated value of landings from the other French segments (2020)

Fleet segment	DRB segment	Others segments	Total
FRA NAO DRB0010 NGI	2,830,609	3,778,422	6,609,030
FRA NAO DRB1012 NGI	9,717,866	21,014,264	30,732,130
FRA NAO DRB1218 NGI*	27,975,672	23,947,783[4]	51,923,455
TOTAL	**40,524,147**	**48,740,468**	**89,264,615**

Source: own elaboration from 2022 AER data (STECF, 2022)

By multiplying for each fleet segment the proportion of the value of landings of king scallops from the English Channel[5] as a share of their total value of landings, it is then possible to approximate the socio-economic importance of the king scallops in the English Channel by fleet segment.

The socio-economic importance of the king scallops fishery in the English Channel by fleet segment is reported in Table A4 in the annex, while Table 4 reports the results aggregated by country.

Table 4: Socio-economic importance of the king scallops fishery in the English Channel by EU MS (2020) following approach 2

	Belgium	France	Ireland	Netherlands	Total
Number of vessels	1	414	1	0	416
Employment	5	1,159	6	0	1,170
Employment (FTE)	2	452	6	0	461
Fishing days	214	36,299	186	0	36,699
Energy consumption	276,876	14,247,771	203,587	29	14,728,263
Revenues	785,555	100,510,803	2,991,009	70	104,287,437
Average remuneration	96,164	92,979	24,226	64,646	92,059
GVA	489,128	60,609,955	2,797,232	29	63,896,344

[4] The allocated value of landings from the other French segments also contains €1.3 million from the two fleet segments with vessels between 18 and 24 meters.

[5] For France, just for the three "pure" dredge fleet segments with their scallops' value of landings plus the allocated scallops' value of landings from the other French segments, as shown in Table 3.3.

Gross profit	268,656	18,556,482	2,645,273	6	21,470,418
Operating profit	193,337	7,237,018	2,641,725	-2	10,072,078
GVA margin	62%	60%	94%	41%	61%
Gross profit margin	34%	18%	88%	9%	21%
Operating profit margin	25%	7%	88%	-2%	10%

Source: own elaboration from 2022 AER data (STECF, 2022)

Results from this analysis estimate that the king scallops fishery in the English Channel employs 461 persons in full time equivalents, with an average annual gross remuneration of about €92 thousand. It generates almost €64 million in GVA, €21.5 million in gross profits and €10 million in operational profits (after discounting for depreciation of the capital assets, i.e., vessels and gears).

The GVA margin, Gross profit margin, and Operating profit margin at 61%, 21% and 10% mean that for every €100 of revenue from the scallops fishery, €61 are converted into GVA, €21 into gross profit and €10 into operational profit.

The value of king scallops landings represents close to the 90% of the total value of the revenues analysed for this fishery. The total revenues of €104.7 million would be composed of the €93.6 million of the value of landings of king scallops from the English Channel and €11.1 million from the proportional part of the other income.

Results also confirm the importance of the king scallops fishery in the English Channel for France.

Following this methodology, it could be estimated the socio-economic importance of more specific scallop fisheries (i.e., at a more detailed geographic level), especially if the value of landings is provided by fleet segment or even vessel length.

Additional information on market trends – price evolution

There are seasonal differences regarding prices of king scallops in the EU (Figure 9). King scallops are harvested in different regions at different times of the year, and this can affect the supply and demand of the product, which in turn affects the price.

In general, the price of king scallops tends to be higher during the winter months, as this is when demand is highest due to the holiday season and the popularity of seafood dishes for festive meals. The supply of scallops during this time can also be affected by weather conditions, which can impact fishing activities and the availability of the product.

During the summer months, the price of king scallops tends to be lower as demand is typically lower, and there is generally a larger supply of scallops available. However, there can be regional differences in pricing based on local demand and supply factors.

It's worth noting that other factors, such as market fluctuations and currency exchange rates, can also impact the price of king scallops in the EU.

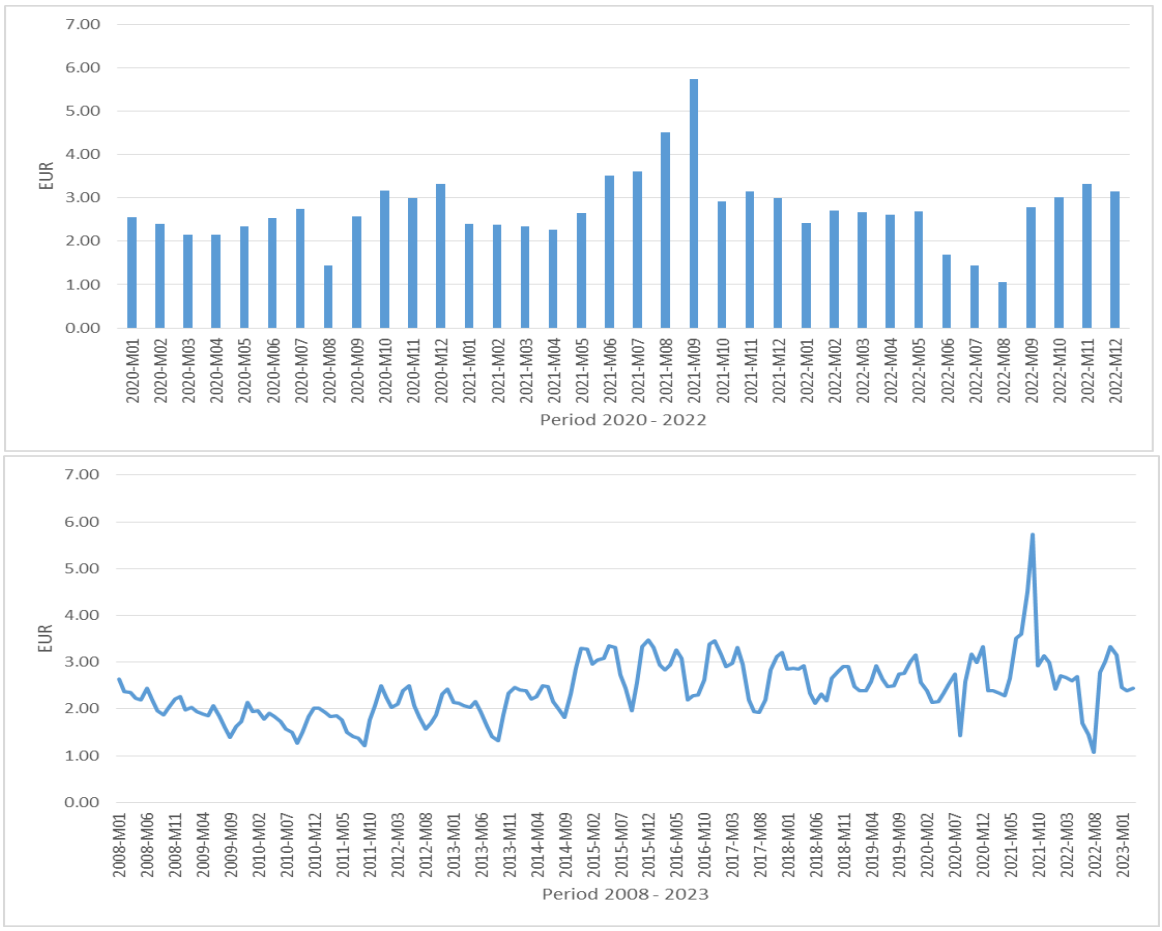

Figure 0-8: Monthly trends in average first sale price of scallops (EUR/kg)

There is a correlation between landings and price for scallops in the EU, but it can vary depending on a variety of factors such as supply and demand, market conditions, and the quality of the scallops.

Generally speaking, when landings (i.e., the amount of scallops caught) are high, there is often an increase in the supply of scallops in the market. This can lead to a decrease in the price of scallops as more product is available to meet the demand. Conversely, when landings are low, there may be a decrease in the supply of scallops, leading to an increase in price as demand outstrips supply.

However, other factors can also impact the price of scallops. For example, if the scallops are of high quality and in demand, the price may remain high even if landings are high. Similarly, if there is an increase in demand for scallops due to a holiday or special occasion, the price may increase even if landings are normal or even increased.

Additionally, the price of scallops can be influenced by factors such as market competition, trade policies, and the overall economic situation. Therefore, while there is a correlation between landings and price for scallops in the EU, it is important to consider all the various factors that can impact the price of this valuable seafood product.

Furthermore, the closure of scallop fisheries can have a significant impact on landings, as it restricts the ability of fishermen to harvest scallops during the closure period. The figure 10 clearly shows the reduced landing of scallops in the summer months, which is the result of closure during this period.

It is also worth noting that closures can also have effects on the scallop industry, such as affecting the price of scallops due to changes in supply and demand. The impact on the industry will depend on the size and duration of the closure and how it affects the overall supply of scallops.

Overall, the influence of closure for scallops on landings and socio-economic status of fishermen depends on a variety of factors, including the duration and extent of the closure, the availability of alternative fisheries, and the resilience of the fishing community. It is important for policymakers and stakeholders to carefully consider the potential impacts of closures and to work together to develop strategies that support both the environment and the fishing industry.

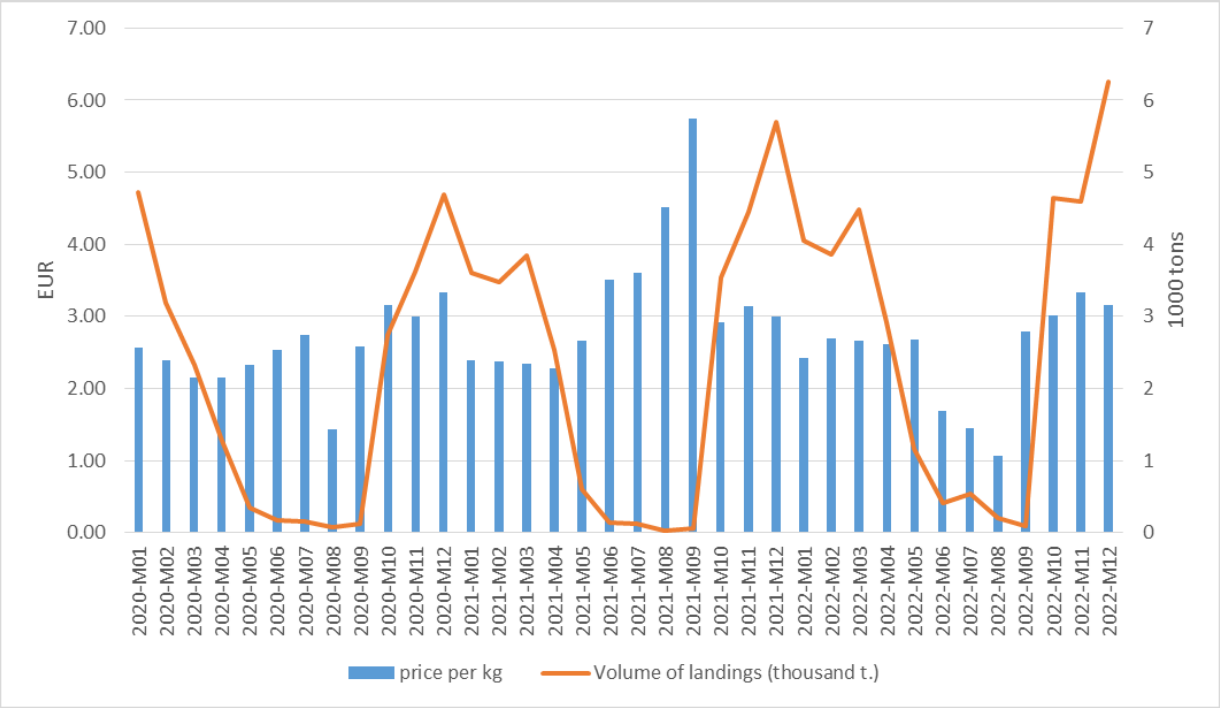

Figure 0-9: Monthly trends in average first sale price of scallops (EUR/kg) and landing volume in period 2020 - 2022

Possible impact assessment of a UK proposal

EWG 23-02 were not able to discuss in detail the possibilities of a limited socio-economic impact assessment of a proposal of the UK for new management measures. In the past STECF had issued background information especially for IAs of long-term management plans but also for a few other management measures. STECF developed a general protocol (STECF 2010) for those requests including a three-step process:

1) Scoping exercise: In a first meeting experts together with stakeholders and DG Mare representatives define what information should be provided for an IA
2) Run of the analysis: Experts run the analysis by applying bio-economic models to assess possible impacts. This may also include a data collection exercise or a check of background documents with information on possible impacts.
3) IA meeting: In a second meeting experts prepare the final report for the IA information.

The problem of an EWG on a possible proposal of the UK for new/aligned management measures would be that there is not much time for steps 1 and 2. Another problem is that there is no bio-economic model to assess socio-economic impacts of a proposal. An IA needs to be based, therefore, only on available information regarding impacted fleet segments, effort distribution (in case of spatial management measures with e.g. additional seasonal or area closures) and market information.

In case the UK proposes management measures the EWG would be organized at the first date possible which is approximately after 6-8 weeks. As we are already basically 8 weeks before the July plenary meeting it could also mean that some of the work on scallops needs to be done during the plenary meeting by inviting additional experts to the plenary.

In case DG MARE wants to request the EWG or the STECF plenary to do a limited IA for possible management measures, the EWG 23-02 proposes the following approach:

1) Ad hoc contract to collect available social and economic information regarding the fleet segments impacted by limiting access compared to today. This contract should be issued for June 2023 and should be given primarily/partly to French fisheries economists with knowledge of the scallop fishery if possible.
2) Organising a meeting between the chair(s) of the EWG with the scallop focus group of the NWWAC to discuss their position on the scallop fishery. This can be helpful to judge on which parts of the fleet the EWG should concentrate its efforts.
3) Invite specifically some French fisheries economists familiar with the scallop fishery to the next EWG meeting.

EWG 23-02 concludes that such an approach could be the best way to be able to do a limited IA exercise at the second EWG meeting on scallops or during the July plenary.

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List of Annexes

Annex 1

Annex

Table A1: Key socio-economic variables and indicators for the EU fleet segments that participate in the king scallops fishery in the English Channel (2020)

Fleet segment	Number of vessels	Employment	Employment (FTE)	Fishing days	Energy consumption	Revenues	GVA	Gross profit	Operating profit
BEL NAO DTS2440 NGI*	16	85	50	2,710	6,852,006	15,981,237	7,835,379	2,501,996	-135,546
BEL NAO PMP1824 NGI*	3	12	3	466	130,905	1,470,686	1,205,362	998,086	871,829
BEL NAO TBB1824 NGI*	19	64	37	3,773	3,801,775	8,146,661	4,138,453	1,204,892	246,737
BEL NAO TBB2440 NGI	25	161	135	6,208	25,319,506	51,868,664	28,292,254	10,679,121	6,263,946
FRA NAO DFN0010 NGI	306	413	147	26,603	1,968,425	23,310,543	14,743,312	4,500,803	2,695,845

FRA NAO DFN1012 NGI	138	417	231	18,804	4,153,558	34,872,832	21,162,816	5,732,708	2,480,670
FRA NAO DFN1218 NGI*	62	281	191	9,282	3,959,606	37,833,580	23,086,691	6,823,757	4,324,186
FRA NAO DRB0010 NGI	59	104	28	3,837	510,273	5,823,513	3,823,367	1,579,932	1,144,399
FRA NAO DRB1012 NGI	84	205	72	7,356	1,639,316	14,661,357	8,862,614	2,829,669	921,048
FRA NAO DRB1218 NGI*	90	366	170	9,358	6,703,544	40,034,665	23,774,313	6,657,750	2,318,779
FRA NAO DTS0010 NGI	80	119	47	7,869	1,541,858	8,192,570	4,386,408	1,217,509	469,451
FRA NAO DTS1012 NGI*	154	357	205	23,063	8,003,107	36,324,753	20,463,459	5,645,603	2,010,837
FRA NAO DTS1218 NGI	141	463	366	24,541	19,107,333	65,437,809	36,011,106	9,543,515	2,305,816
FRA NAO DTS1824 NGI*	131	647	579	24,200	46,418,615	119,108,985	51,494,932	10,013,823	-3,199,918

FRA NAO FPO0010 NGI	280	442	193	29,376	2,611,801	23,567,871	13,350,382	2,417,005	661,490
FRA NAO FPO1012 NGI	88	274	171	13,705	3,118,207	24,704,195	14,122,628	2,887,029	727,265
FRA NAO FPO1824 NGI*	21	107	53	2,343	1,264,161	8,088,441	4,087,344	416,983	-1,123,619
FRA NAO HOK0010 NGI	221	282	104	20,454	2,244,294	20,032,380	12,536,318	3,875,407	2,417,374
FRA NAO MGP0010 NGI*	13	22	8	1,107	324,259	1,344,103	630,151	87,252	-27,051
FRA NAO MGP1012 NGI*	62	165	91	8,939	2,254,085	18,548,829	11,700,759	3,560,215	1,953,698
FRA NAO MGP1218 NGI*	50	207	128	7,217	4,541,047	28,923,232	17,919,382	6,131,390	3,494,962
FRA NAO PGO0010 NGI*	104	145	26	2,863	253,238	6,311,196	4,647,517	1,118,234	417,590
FRA NAO PGP1012 NGI	14	45	29	2,081	356,139	3,041,320	1,772,588	289,821	-135,390

FRA NAO PMP0010 NGI	55	89	37	5,708	623,519	5,652,940	3,280,027	1,177,622	612,980
FRA NAO PMP1012 NGI*	56	132	73	7,736	1,653,473	13,312,288	7,907,982	2,824,744	1,475,909
IRL NAO DRB2440 *	7	38	38	1,126	1,233,352	18,119,846	16,945,923	16,025,341	16,003,847
NLD NAO DTS2440 NGI*	34	192	187	5,372	15,470,548	37,732,389	15,583,251	3,483,705	-914,086
TOTAL	**2,313**	**5,834**	**3,397**	**276,096**	**166,057,952**	**672,446,883**	**373,764,718**	**114,223,911**	**48,283,047**

Source: own elaboration from 2022 AER data (STECF, 2022)

Approach 1 to approximate the socio-economic importance of the king scallops in the English Channel by fleet segment, considers the whole list of fleets reported in Table XXX.

By multiplying for each fleet segment the proportion of the value of landings of king scallops from the English Channel as a share of their total value of landings, it is possible to approximate the socio-economic importance of the king scallops in the English Channel by fleet segment (see Table A2).

Table A2: Socio-economic importance of the king scallops in the English Channel by fleet segment (2020), approach 1

Fleet segment	Number of vessels	Employment	Employment (FTE)	Fishing days	Energy consumption	Revenues	GVA	Gross profit	Operating profit

BEL NAO DTS2440 NGI*	0	0	0	4	9,514	22,190	10,880	3,474	-188
BEL NAO PMP1824 NGI*	1	2	1	80	22,519	252,991	207,350	171,693	149,974
BEL NAO TBB1824 NGI*	0	2	1	93	93,278	199,882	101,539	29,563	6,054
BEL NAO TBB2440 NGI	0	1	1	37	151,565	310,491	169,360	63,926	37,497
FRA NAO DFN0010 NGI	4	5	2	335	24,780	293,446	185,597	56,659	33,937
FRA NAO DFN1012 NGI	4	12	6	519	114,646	962,553	584,132	158,233	68,471
FRA NAO DFN1218 NGI*	0	2	1	63	26,870	256,740	156,667	46,306	29,344
FRA NAO DRB0010 NGI	39	69	18	2,548	338,876	3,867,433	2,539,123	1,049,243	760,003
FRA NAO DRB1012 NGI	61	148	52	5,308	1,182,967	10,579,957	6,395,457	2,041,951	664,648

FRA NAO DRB1218 NGI*	70	286	132	7,307	5,234,579	31,261,764	18,564,586	5,198,820	1,810,659
FRA NAO DTS0010 NGI	6	10	4	636	124,682	662,490	354,706	98,454	37,962
FRA NAO DTS1012 NGI*	26	59	34	3,826	1,327,673	6,026,084	3,394,779	936,576	333,587
FRA NAO DTS1218 NGI	17	56	45	2,993	2,330,279	7,980,619	4,391,817	1,163,901	281,211
FRA NAO DTS1824 NGI*	1	6	6	239	457,998	1,175,212	508,085	98,803	-31,573
FRA NAO FPO0010 NGI	3	4	2	264	23,469	211,775	119,963	21,719	5,944
FRA NAO FPO1012 NGI	6	19	12	957	217,755	1,725,179	986,232	201,611	50,787
FRA NAO FPO1824 NGI*	1	3	2	73	39,589	253,298	127,999	13,058	-35,187
FRA NAO HOK0010 NGI	2	2	1	176	19,277	172,062	107,677	33,287	20,763

FRA NAO MGP0010 NGI*	3	6	2	281	82,367	341,422	160,067	22,163	-6,871
FRA NAO MGP1012 NGI*	32	85	47	4,590	1,157,373	9,524,000	6,007,821	1,828,012	1,003,137
FRA NAO MGP1218 NGI*	32	131	81	4,587	2,886,185	18,382,945	11,389,149	3,896,971	2,221,318
FRA NAO PGO0010 NGI*	23	32	6	630	55,742	1,389,198	1,022,995	246,142	91,918
FRA NAO PGP1012 NGI	0	0	0	0	7	59	34	6	-3
FRA NAO PMP0010 NGI	19	30	13	1,937	211,569	1,918,126	1,112,962	399,584	207,993
FRA NAO PMP1012 NGI*	19	45	25	2,673	571,395	4,600,361	2,732,781	976,154	510,033
IRL NAO DRB2440 *	1	6	6	186	203,587	2,991,009	2,797,232	2,645,273	2,641,725
NLD NAO DTS2440 NGI*	0	0	0	0	29	70	29	6	-2
TOTAL	**370**	**1,022**	**498**	**40,343**	**16,908,567**	**105,361,354**	**64,129,018**	**21,401,589**	**10,893,143**

Source: own elaboration from 2022 AER data (STECF, 2022)

The socio-economic importance of the king scallops in the English Channel by fleet segment in Table A2 is reported aggregated by country in Table A3.

Table A3: Socio-economic importance of the king scallops in the English Channel by EU MS (2020) following Approach 1

	Belgium	**France**	**Ireland**	**Netherlands**	**Total**
Number of vessels	1	368	1	0	370
Employment	5	1,011	6	0	1,022
Employment (FTE)	2	490	6	0	498
Fishing days	214	39,943	186	0	40,343
Energy consumption	276,876	16,428,076	203,587	29	16,908,567
Revenues	785,555	101,584,720	2,991,009	70	105,361,354
Average remuneration	96,164	86,525	24,226	64,646	85,785
GVA	489,128	60,842,629	2,797,232	29	64,129,018
Gross profit	268,656	18,487,653	2,645,273	6	21,401,589
Operating profit	193,337	8,058,083	2,641,725	-2	10,893,143
GVA margin	62%	60%	94%	41%	61%
Gross profit margin	34%	18%	88%	9%	20%
Operating profit margin	25%	8%	88%	-2%	10%

Source: own elaboration from 2022 AER data (STECF, 2022)

Results regarding the economic performance from both approaches are rather similar. Slight differences occur on the estimation of equivalent vessels and employment "fully" participating on the king scallops fishery in the English Channel. The first approach estimates a lower number of vessels, higher employment and higher fuel consumption, partly due to the being able to better account for larger vessels. This larger number of vessels also leads to have higher depreciation costs in the second approach, which brings the operational profits 10% below the ones estimated under the first approach.

The total revenues of €105.4 million would be composed of the €93.6 million of the value of landings of king scallops from the English Channel and €11.8 million from the proportional part of the other income.

Table A4: Socio-economic importance of the king scallops in the English Channel by fleet segment (2020), approach 2

Fleet segment	Number of vessels	Employment	Employment (FTE)	Fishing days	Energy consum	Revenues	GVA	Gross profit	Operating profit
BEL NAO DTS2440 NGI*	0	0	0	4	9,514	22,190	10,880	3,474	-188
BEL NAO PMP1824 NGI*	1	2	1	80	22,519	252,991	207,350	171,693	149,974
BEL NAO TBB1824 NGI*	0	2	1	93	93,278	199,882	101,539	29,563	6,054
BEL NAO TBB2440 NGI	0	1	1	37	151,565	310,491	169,360	63,926	37,497

FRA NAO DRB0010 NGI	91	161	43	5,950	791,222	9,029,854	5,928,457	2,449,819	1,774,489
FRA NAO DRB1012 NGI	192	467	164	16,786	3,741,057	33,458,437	20,225,224	6,457,540	2,101,907
FRA NAO DRB1218 NGI*	130	530	246	13,563	9,715,492	58,022,512	34,456,274	9,649,122	3,360,622
IRL NAO DRB2440 *	1	6	6	186	203,587	2,991,009	2,797,232	2,645,273	2,641,725
NLD NAO DTS2440 NGI*	0	0	0	0	29	70	29	6	-2
TOTAL	**416**	**1,170**	**461**	**36,699**	**14,728,263**	**104,287,437**	**63,896,344**	**21,470,418**	**10,072,078**

List of Background Documents

Background documents are published on the meeting's web site on:
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List of background documents:

- WG-23-02 – Doc 1 - Declarations of invited and JRC experts (see also section 10 of this report – List of participants)

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