



The one-hundred-and-tenth meeting of the
Joint Nature Conservation Committee to be held at 08.45 on 2 March 2017,
at Defra, Nobel House, Smith Square, London SW1P 3JR

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Joint Nature Conservation Committee

Delivering fisheries advice in a shifting seascape

Paper by Rachel Bower and Declan Tobin

1. Introduction

1.1. This paper provides a background to fishing in the UK and briefly introduces fisheries governance through the Common Fisheries Policy (CFP) and how that relates to wider obligations under international law (United Nations Convention on the law of the sea: UNCLOS). It discusses the current process for delivering fisheries measures to meet environmental obligations and the role JNCC has played in the process of developing fisheries measures for Marine Protected Areas in UK offshore waters. We also introduce the future direction of work in assessing the effectiveness of management and providing advice to governments in the UK on issues such as gear modification and activity displacement. Finally, we touch on some basic fishery facts regarding EU exit and outline potential opportunities to maximise conservation outcomes in an EU exit context.

2. Background to fishing in UK offshore waters

2.1. The UK is one of the largest and most industrialised fleets in Europe (Figure 1) comprising approximately 6,000 vessels and 12,000 fishermen. Most are based in England (46%) and Scotland (40%), with a much smaller proportion operating from Northern Ireland (7%) and Wales (7%). The vast majority (80% by number) of the UK fleet is made up of small “inshore” (<10m) vessels, although the composition of the fleet can vary substantially from region to region (Figure 2a). For example, the proportion of large vessels in Scotland and Northern Ireland is much higher than in either England or Wales (Figure 2b), which largely reflects the fisheries prosecuted in each area.

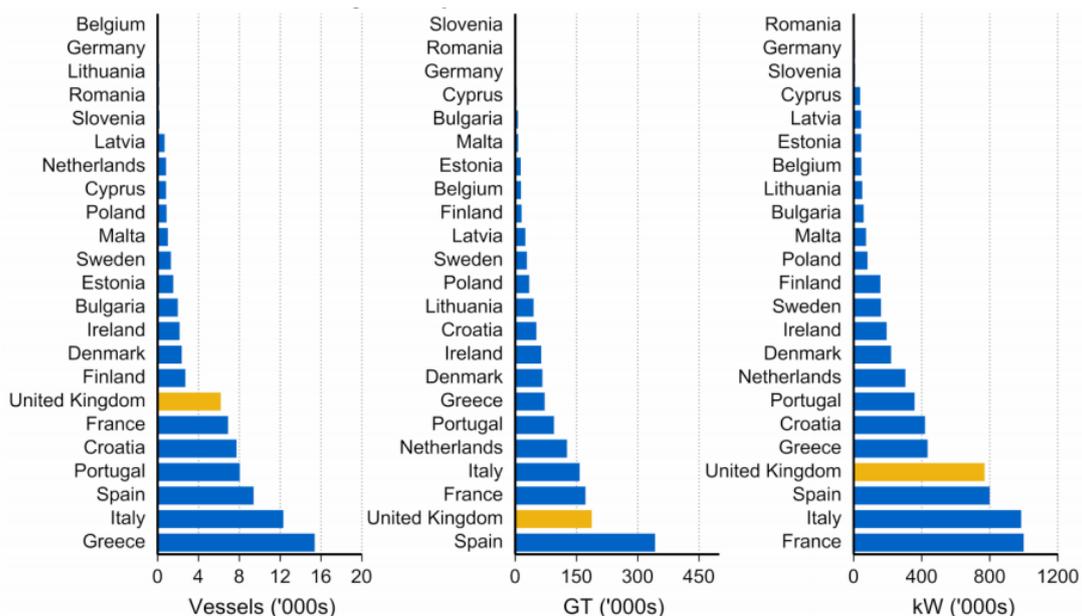


Figure 1. Size of EU fishing fleet by number of vessels, gross tonnage (GT) and power (kW). Diagram from MMO sea fisheries statistics, 2016.

- 2.3. Apart from the UK, there are currently in excess of ten states that routinely fish in UK waters (Figure 4), the majority of whom are Member States of the EU). Over the years 2012-2014, more than half of all landings (by weight) in the UK Economic Exclusion Zone (EEZ) were from non-UK Member States (Napier, 2016a), although this figure is heavily biased by the Danish industrial fleet targeting sandeel and Norway pout. Over the same period the value of those landings was approximately £300 million annually. By contrast, UK vessel landings from other Member State EEZ waters was estimated at £103 million (Napier, 2016b).

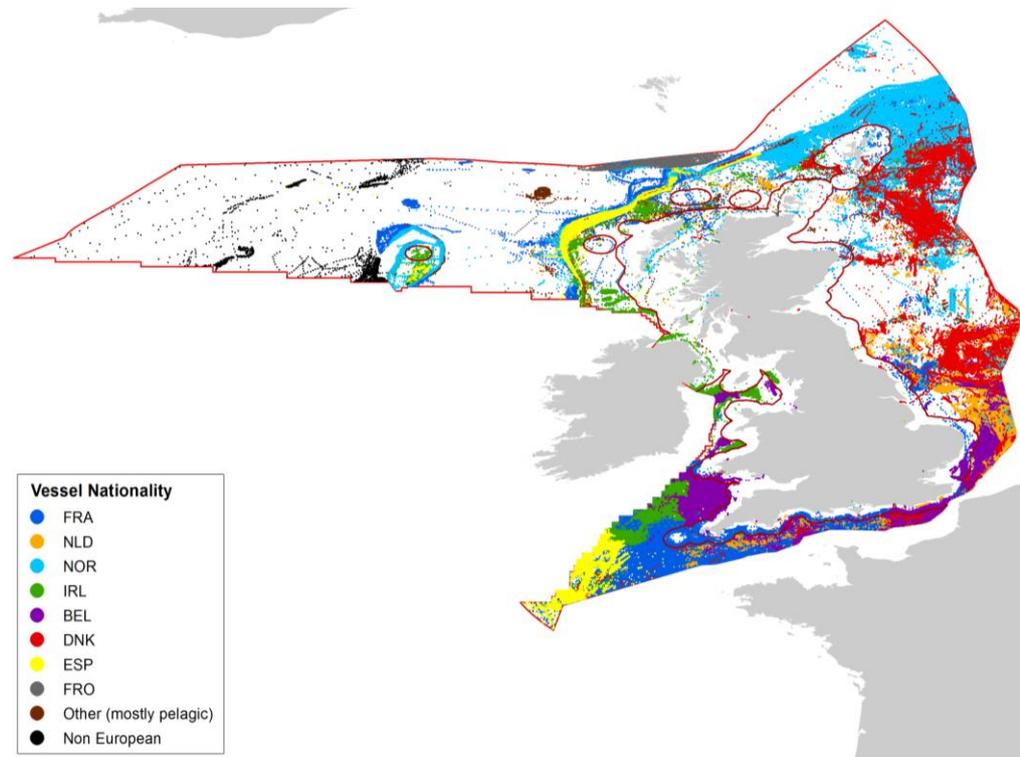


Figure 4. Non-UK vessels active in UK waters and the distribution of their activities over the period 2009-2013.

- 2.4. There is a wide variety of different gear types used in UK waters that is dictated largely by the species being targeted and the location of the fishery (see Annex 2 for example images). Broadly, gears can be categorised as pelagic (operating mid-water) or demersal (operating on the sea bed), and then further by whether they are mobile, static or encircling. Broadly speaking, conservation advice on benthic (seabed) feature management tends to focus on those demersal gears which interact with the sea bed. Some examples include:
- i. Beam trawl. One of the oldest types of towed gear, principally targeting flatfish and shrimp in UK waters. The net is held open by a rigid beam with trawl shoes which slide over the seabed. When fishing for flatfish, they are often equipped with tickler chains/ chain mat to disturb the target species from the seabed.
 - ii. Demersal otter trawl. The mouth of the net is spread by trawl doors, so the net opening can be much bigger. Doors are attached to the net with bridles or sweeps which can herd fish into the mouth of the net. There is a foot rope along the lower edge of the net which is weighted to maintain contact with the seafloor and may have ground gear that allows the trawl to operate

on harder ground. Target species in the UK typically include demersal fish (e.g. cod, haddock and monkfish) and nephrops.

- iii. Pots and traps. Static gears commonly targeting shellfish, e.g. crabs and lobsters. These gears are typically associated with the smaller inshore fleet, although some larger vessels do operate in the offshore.

3. Fisheries governance

- 3.1. Within the EU, fisheries management is treated as a common policy, meaning that common rules are adopted at EU level and applied in all Member States. When the UK joined the European Economic Community (EEC) in 1973, fisheries played a significant role in the negotiations. As a consequence of membership, the UK adopted the Common Fisheries Policy (CFP) as the primary instrument to manage fish stocks and also to protect the economic viability of its fleet. In 1983, after several years of negotiations, the European Council adopted the new-generation CFP which established the principle of “relative stability” which enshrined access of Member States to quota-share based on established fishing patterns rather than as a proportion of sea area. Subsequent reforms of the CFP have focused on issues such as fleet capacity and catch potential with the most recent reform in 2013¹ moving towards decentralised governance and regionalised decision making as well as establishing a clearer policy on environmental sustainability.
- 3.2. Beyond the CFP, the UK is also bound by international law regarding fisheries exploitation/management and conservation of marine resources: UNCLOS is the key international legal framework for all activities in the oceans. Its 320 articles and nine annexes cover almost all aspects of international law relating to the oceans including those pertaining to management of the marine environment and use of marine natural resources. Under the Convention, the EU participates as a contracting party and has rights and obligations associated with its status; each relevant EU Member State (including the UK) is also party to the Convention in their own right. Although negotiations continued for ten years (1973-1982) UNCLOS only officially came into force in 1994 with the UK becoming a signatory in 1996. Under the agreement three marine zones were recognised and the rights that coastal states have to these zones was established:
 - i. the twelve mile or territorial seas limit – full sovereignty;
 - ii. the two-hundred-mile limit (Exclusive Economic Zone) – sovereign rights over exploitation of natural resources;
 - iii. the High Seas (beyond 200 nautical miles) – administrative jurisdiction of states over their own flagged vessels. UNCLOS establishes rights to fish but subject to international agreement (articles 116-119).
- 3.3. When the UK joined the EEC in 1973, Member States agreed to maintain exclusive national fishing rights out to 12 nautical miles excepting instances where states could establish historic fishing activity between 6 to 12 nm. This was broadly in line with international law at the time. As a result, the UK maintained exclusive access rights in the 0-6 nm region with limited access

¹ Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy.

granted in the 6-12 nm zone to five EU nations with proven historic activity (Figure 5). Similarly, UK vessels secured access to fishing grounds in the 6-12 nm zone of four other Member States. At the time, the seas beyond 12 nm were considered 'high seas' under international law, and hence not under the control of any nation. However, this changed during UNCLOS discussions in the 1970s and 1980s when it was finally agreed that countries had sovereign rights up to 200 nm. When these new Exclusive Economic Zones (EEZ) were introduced, EU competence for fisheries was extended to 200 nm and the principle of equal access was applied to this new area.

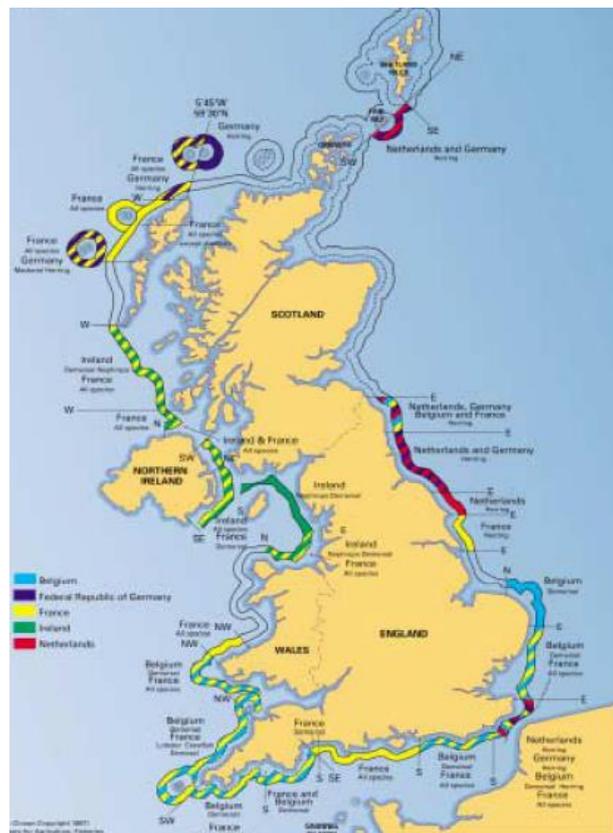


Figure 5. Historical access rights for Member States in UK 6-12nm zone.

- 3.4. UNCLOS articles 61 to 64 provide the greatest indication of the rights and responsibilities of contracting parties regarding management of fisheries resources. Article 61 (regarding the conservation of living resources) lays down rules relating to allowable catch, and setting of conservation and management measures including recognition of Maximum Sustainable Yield (MSY) as a guiding principle. Article 62 (regarding the utilisation of living resources) promotes the objective of optimum utilisation and notes that where coastal states do not have the capacity to harvest the entire allowable catch, they shall, through agreement, give other states access to the surplus of the allowable catch. It also stipulates that other states are required to comply with any conservation measures that are established by the coastal state, although due notice of such regulations is required. Articles 63 and 64 lay out principles of agreeing management for shared or highly mobile stocks. However, while UNCLOS sets out a high-level framework for fisheries management, it is less prescriptive on the process of meeting obligations established under the Convention. By contrast, while the CFP ensures that Member States fulfil their fisheries management obligations under UNCLOS, it also goes further in prescribing the rules and process for meeting such obligations.

- 3.5. In the high seas beyond 200nm, management of fisheries (including those exploited by UK vessels) falls largely to the Regional Fisheries Management Organisations (RFMOs). They play an important role in managing straddling and migratory stocks in the high seas and they are pivotal in facilitating intergovernmental cooperation in fisheries management. Most RFMOs have management powers to set catch and fishing effort limits, technical measures, and control obligations. Such organisations are open both to coastal states and countries with interests in the fisheries concerned. However, currently it is the EU that acts as contracting party on behalf of Member States in such organisations.

4. Developing conservation measures: MPA management and JNCC

- 4.1. Under the revised CFP, regionalisation of decision making is central to the introduction of conservation measures necessary for compliance with obligations under EU (and domestic) environmental legislation, e.g. EU Nature Directives. In such situations, EU countries with a direct fisheries management interest may agree to submit joint recommendations for achieving the objectives of the conservation measure. The proposing countries have to consult the relevant Advisory Council(s) on the joint recommendations before submitting them to the European Commission. If all these conditions are met, the Commission can then adopt an Act to transform these joint recommendations into EU law.
- 4.2. As part of UK Government's vision for clean, healthy, safe, productive and biologically diverse oceans and seas, the UK is subject to various commitments to create a network of Marine Protected Areas, from the global (e.g. Convention on Biological Diversity), to the regional (e.g. EU Directives and OSPAR), to the national (e.g. Marine and Coastal Access Act and Marine Scotland Act). The current UK Marine Protected Areas network comprises 288 sites which equates to approximately 18.7% of UK waters (165,000 km²). Of the total number, 48 sites occur partly or exclusively in offshore waters and are typically large sites which cover a relatively high proportion of the total area of the network. In offshore waters only four of the 48 sites are currently subject to fisheries management.
- 4.3. JNCC has been involved at several stages in the process of developing MPA fisheries measures proposals (Figure 6). We first examine whether particular fishing activities are capable of affecting the features for which the site has been designated. To do this we conduct a review of available literature focusing on evidence of direct impact of fishing gears on the features to be protected. In the absence of such evidence, information on the impacts of similar gears or comparable features is used. Through working with the country nature conservation bodies, guidance documents have been published, setting out the potential impacts of gear types on protected features². These include assessment of the degree of confidence in the outputs.
- 4.4. Advice is only provided for gear types which are considered capable of impacting a designated feature, so gears which are not thought to have an impact on features are not considered further (e.g. mid water-column pelagic fishing over

² <http://jncc.defra.gov.uk/page-6498>
<http://jncc.defra.gov.uk/pdf/1105%20MARINE%20CONSERVATION%20ZONES%20AND%20FISHERIES-FINAL.pdf>

benthic habitats) as management of these activities is not thought necessary to achieve the conservation objectives for the site. For those mobile and static fishing activities which have the potential to affect the site's features, JNCC advice is framed in terms of the risk that individual fishing gears pose to achieving the conservation objectives. This is presented to governments in a series of risk-based management options ranging from "no additional management" necessary through to "removal" of all fishing activities to which the feature may be sensitive. Although, typically, it has not been possible to quantify the degree of risk to achieving the conservation objectives posed by each option, it has been possible to identify where such risks exist, and where they could be reduced through the introduction of management measures. This has enabled governments to consider the risks and to make informed decisions by balancing the degree of precaution against other factors, including socio-economic implications of introducing measures. JNCC have drafted Management Options Papers for each offshore MPA to aid governments in formulating bespoke management proposals in discussion with UK and EU stakeholders representing both the fishing industry and environmental NGOs. Compromise and negotiation between stakeholders and governments is key to the process of developing options for management in each site.

- 4.5. The design of fisheries management measures in offshore MPAs is the responsibility of the relevant competent authority. However, feedback on proposals has been provided by JNCC on the extent to which the measures being proposed would enable the site to achieve its conservation objectives and also the extent to which it is possible to assess the effectiveness of any measures. Where knowledge concerning the impacts of human activities on protected features is limited, a precautionary but adaptive zoned approach to management has been favoured. Under this approach, proposed restrictions of potentially impacting activities would only be applied to a representative proportion of the feature within the site. This management approach requires an iterative process whereby management strategies are progressively changed or adjusted in response to new information acquired through active site monitoring. This concept is particularly appropriate in situations where proposals for management are based on relatively poor data including but not exclusive to:
- i. limited data on extent and/or distribution of features within sites;
 - ii. limited data on sensitivity of features to pressures/activities;
 - iii. lack of information on baseline reference state against which to judge condition;
 - iv. poor understanding of exposure of features to pressures.
- 4.6. Where there is a lack of underlying data, the risk of not achieving the conservation objective as a result of adopting a zoned approach to management is unquantifiable. As such, it has not been possible to determine with any confidence the exact proportion of a feature to include within proposed zones. Rather, in developing advice on the location of zones, a number of high-level criteria have been considered:
- i. where possible, include a full representative suite of biological communities associated with the protected feature;

- ii. where possible, areas of activity restriction should be weighted according to prevailing conditions, e.g. relationship between hydrodynamic conditions and community resilience;
 - iii. ensure maximal protection of features/sub-features where we have confidence that the sensitivity to bottom contact pressure is high, e.g. biogenic reef and mobile bottom contacting gears;
 - iv. fishing restriction zones are located in areas where we have greatest survey effort;
 - v. where possible, avoid areas of highest activity, to minimise any potentially harmful displacement effects;
 - vi. for mobile features (e.g. sandbanks), restriction zones must be sufficient to capture potential changes in spatial distribution patterns;
 - vii. for monitoring purposes, the scale of any individual restriction zone must be large enough to allow for potential edge effects.
- 4.7. Following rules laid down under article 11 of the revised CFP (2013), management proposals developed by the initiating Member State must be agreed by all other Member States having a direct fisheries management interest. Having provided sufficient information, a “Joint Recommendation” may be submitted to the European Commission within six months. The Commission is obliged to adopt the measures, subject to scientific scrutiny, within three months from receipt of the request. If a joint recommendation cannot be agreed within the deadline, the Commission can submit proposals independently. Such proposals would be subject to co-decision through both the European Council and the European Parliament. Seeking agreement with other Member States through the Joint Recommendation process is the preferred route for both UK Government and devolved administrations.

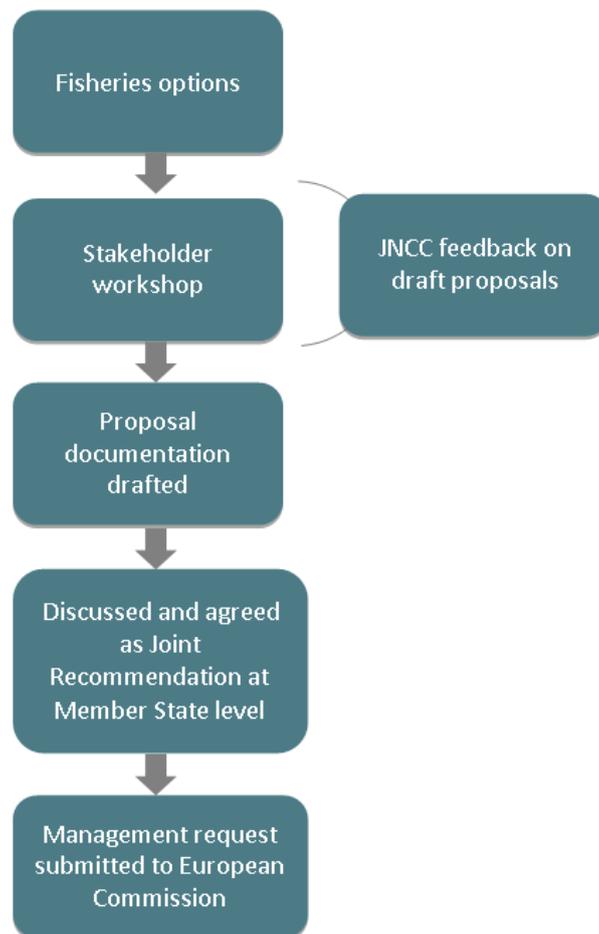


Figure 6. Schematic of process for developing fisheries management advice for offshore UK MPAs.

5. Where are we now?

5.1. Of the 48 offshore sites designated, four have existing measures in place and measures are not currently considered necessary for a further two. As such, the process for developing management measures is ongoing for 42 sites (Figure 7), with proposals for the majority of these sites to be submitted to the European Commission in 2017.

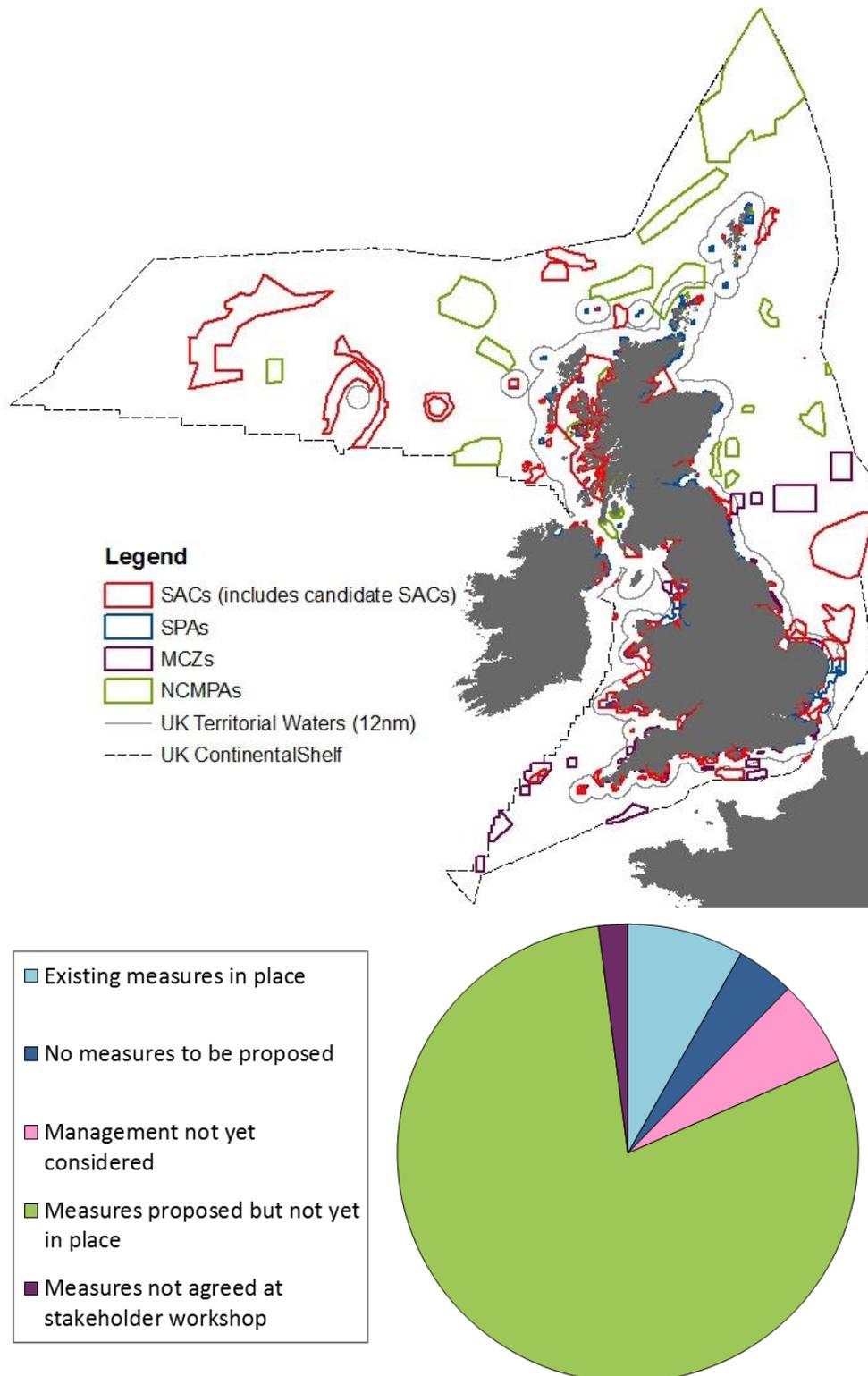


Figure 7. UK MPA network as of January 2017 and stage in the process for fisheries management measures for offshore UK MPAs.

6. What next?

- 6.1. JNCC and the country nature conservation bodies have been asked by the governments of the UK for advice on options for marine biodiversity monitoring for the waters of the UK. This work forms part of the UK Marine Monitoring and

Assessment Strategy and is being undertaken in partnership with the UK's Healthy and Biologically Diverse Seas Evidence Group. The advice aims to cost-effectively encompass the UK's significant policy and statutory obligations, such as:

- i. Marine and Coastal Access Act, Marine (Scotland) Act, Marine Act (Northern Ireland)
 - ii. OSPAR Convention;
 - iii. EU Habitats Directive;
 - iv. EU Marine Strategy Framework Directive (MSFD).
- 6.2. For benthic marine habitats, the task of developing monitoring options is extremely complex due to the diversity of benthic habitats occurring in UK waters and the number, size and geographic spread of offshore MPAs, the paucity of data on the range, extent and condition of many habitat types (especially in the offshore environment) and the underdeveloped nature of suitable state and pressure indicators for monitoring. The draft offshore habitats monitoring options developed by JNCC and the country nature conservation bodies aim to evaluate the risk of damage to habitats in UK offshore MPAs, assess the type of monitoring required for each MPA and estimate the indicators, equipment and number of samples required to assess change in the condition of the habitats within MPAs. Due to the number of UK offshore MPAs, the area of seabed encompassed within the offshore MPAs, the diversity of offshore habitats and the cost of offshore monitoring surveys, it will not be possible to monitor every MPA within a single reporting cycle. In certain cases, monitoring studies to assess the effectiveness of management measures in one MPA may be used as a proxy for assessing the effectiveness of management measures in MPAs with similar features and management measures in the same regional sea.

7. Key challenges

- 7.1. Key challenges remain in providing advice on the effectiveness of management and how assessments feed into the "adaptive" risk management cycle favoured by governments in the offshore zone to help refine site-level fisheries measures:
- i. appropriate indicator development (i.e. asking the right question);
 - ii. appropriate survey design with suitable power to enable assessment;
 - iii. providing advice on modification of gears to reduce impacts on features;
 - iv. developing a better understanding of the conservation implications of fishing effort displacement.

8. EU exit (official sensitive)

Annex 1. Literature cited

MMO, 2016. UK Sea Fisheries Statistics 2015.

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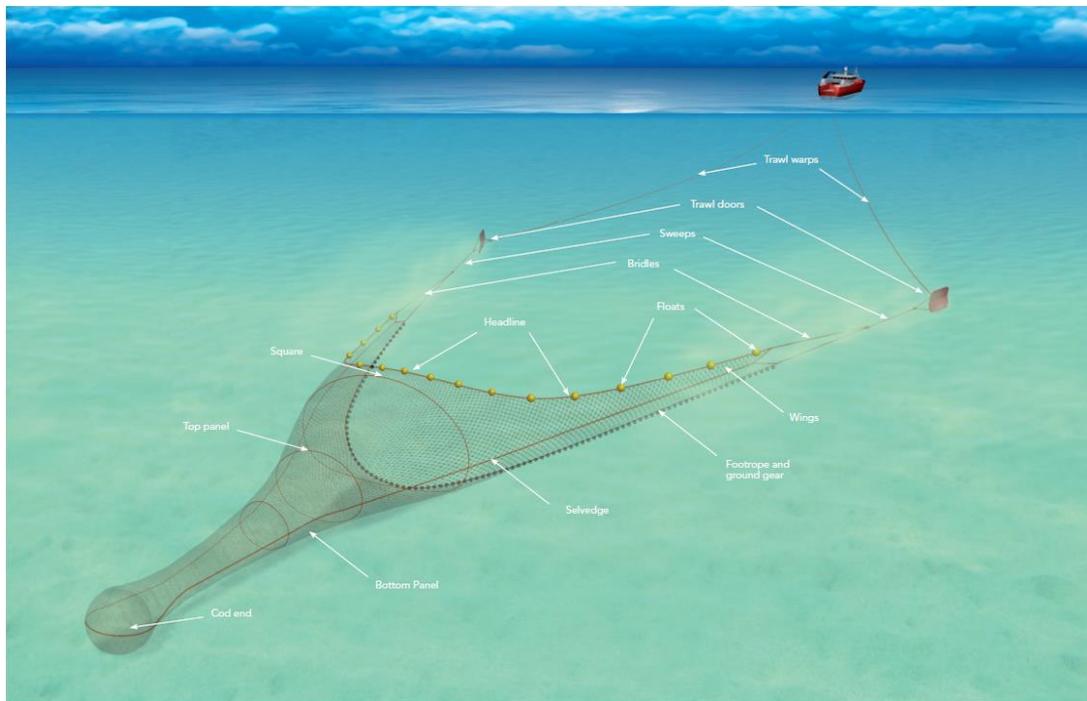
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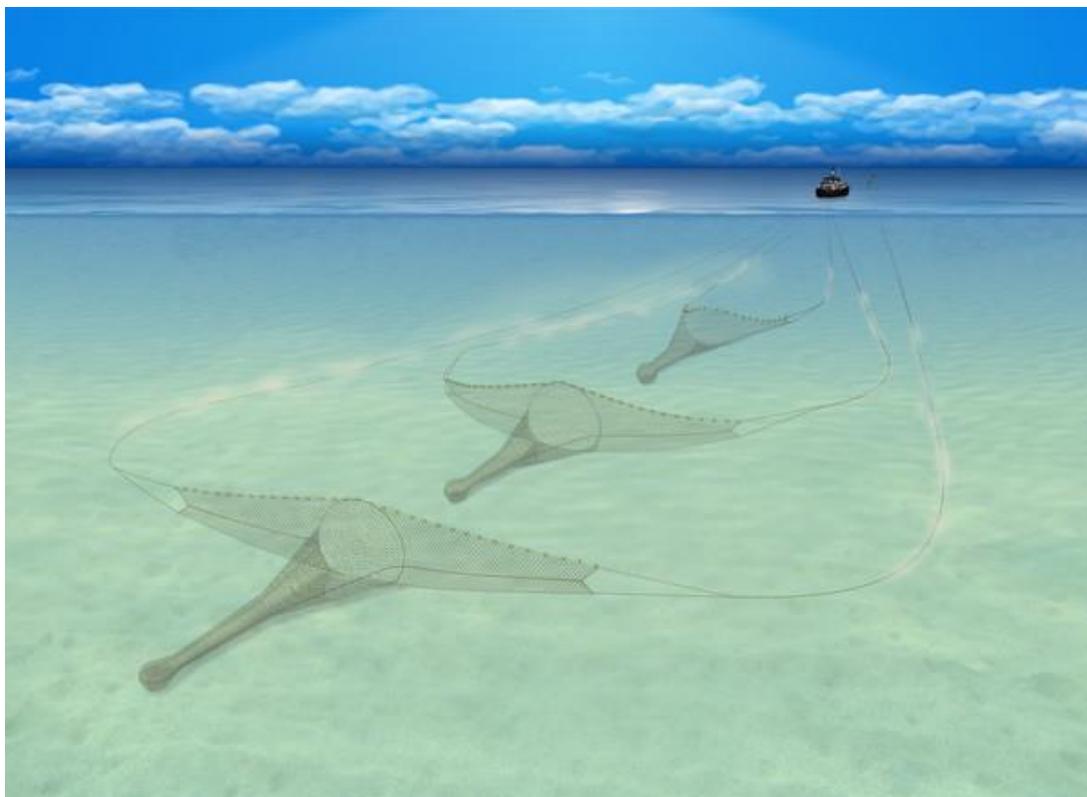
http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

Annex 2. Fishing gears in the UK (images Courtesy of SeaFish)

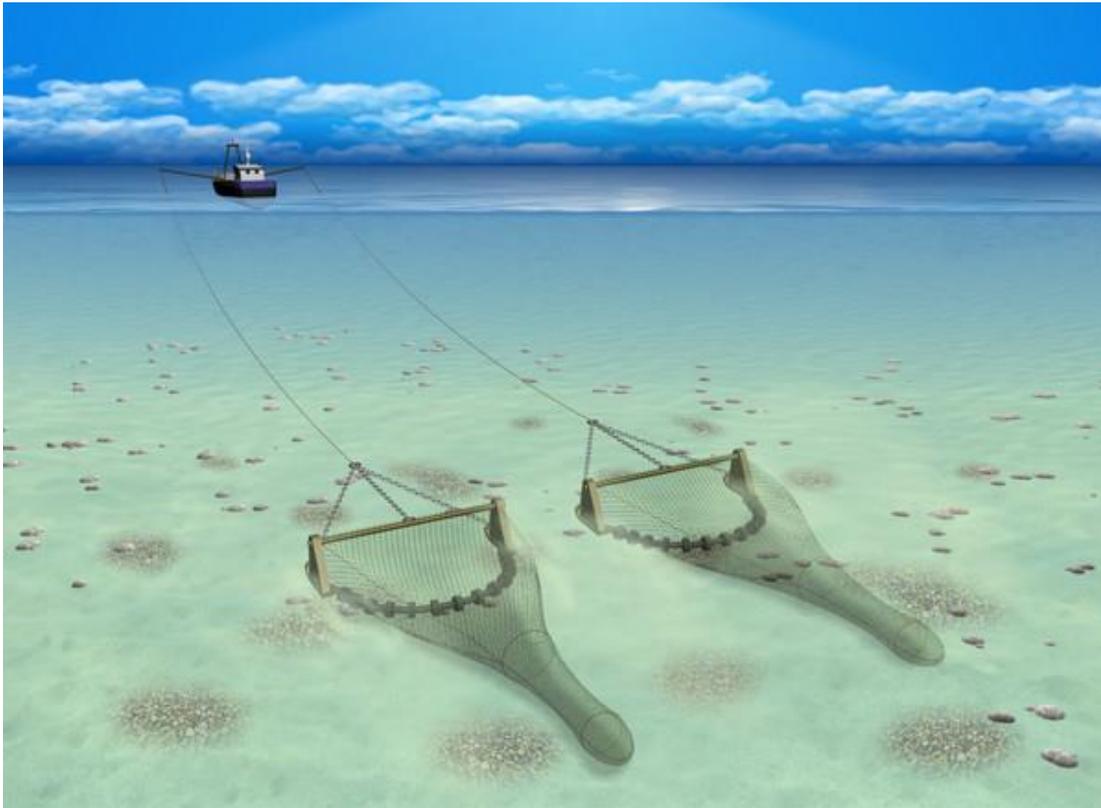
Demersal otter trawl



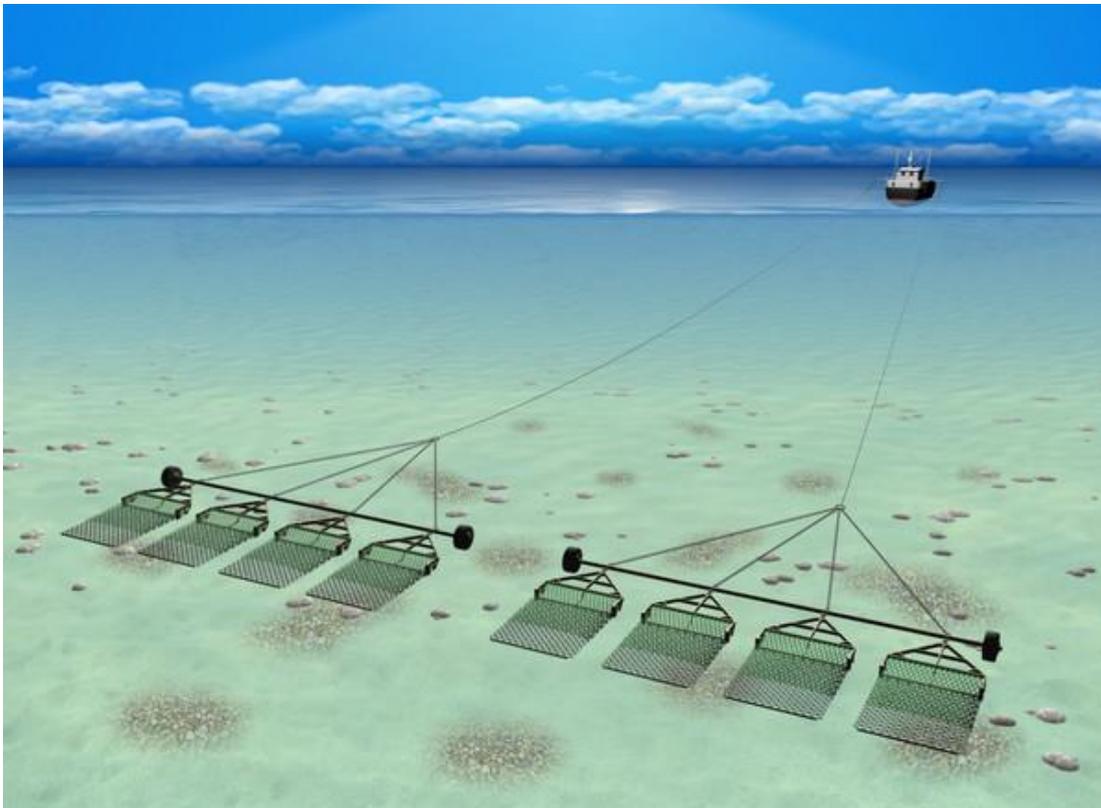
Demersal Seine



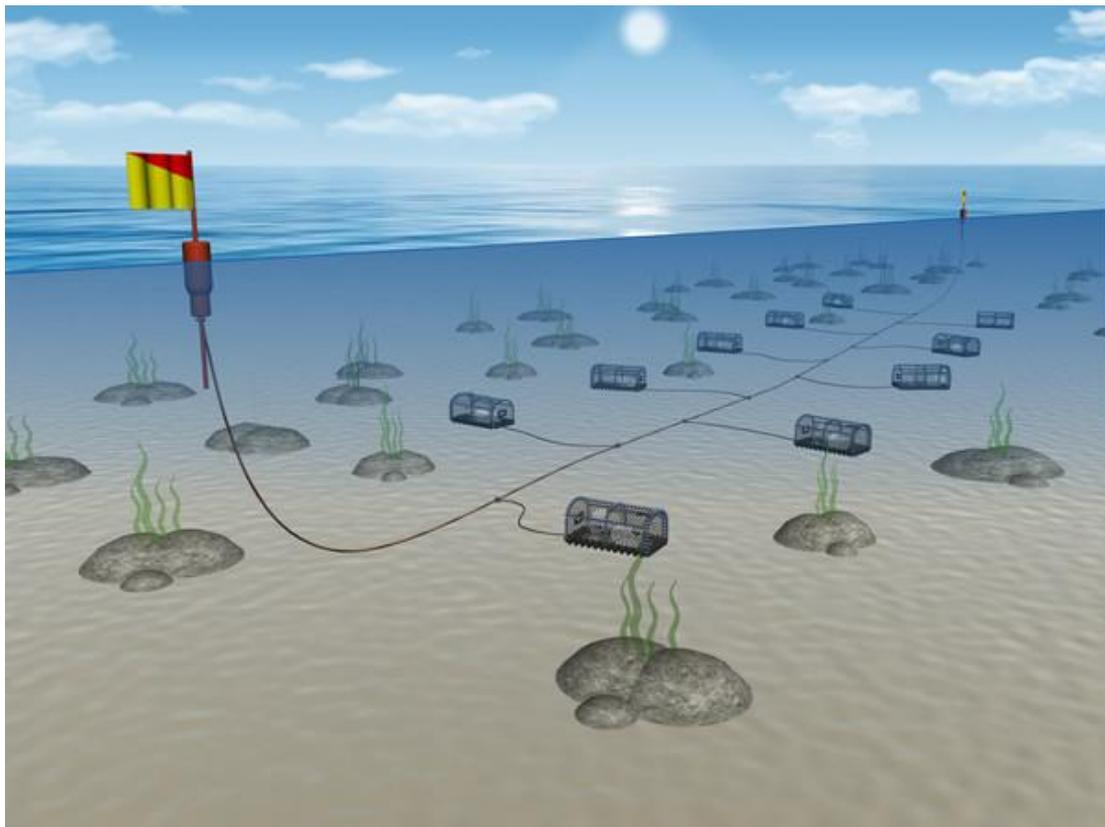
Beam trawl



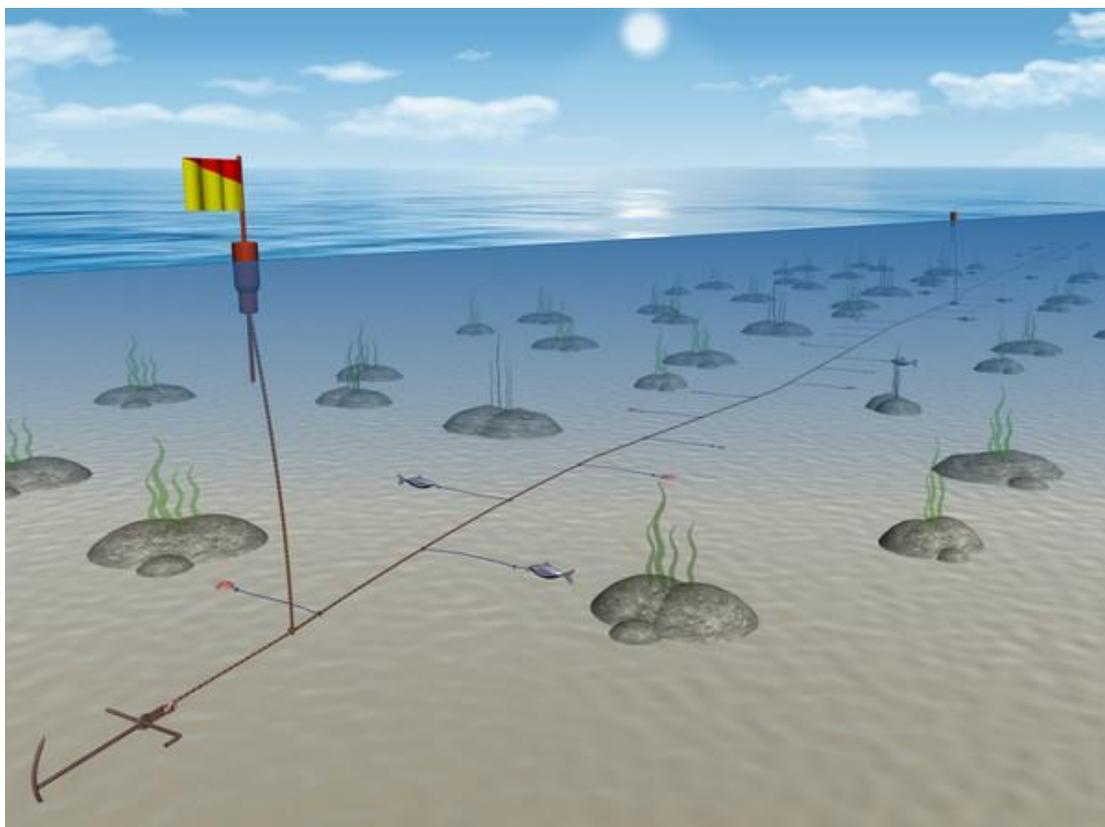
Scallop dredge



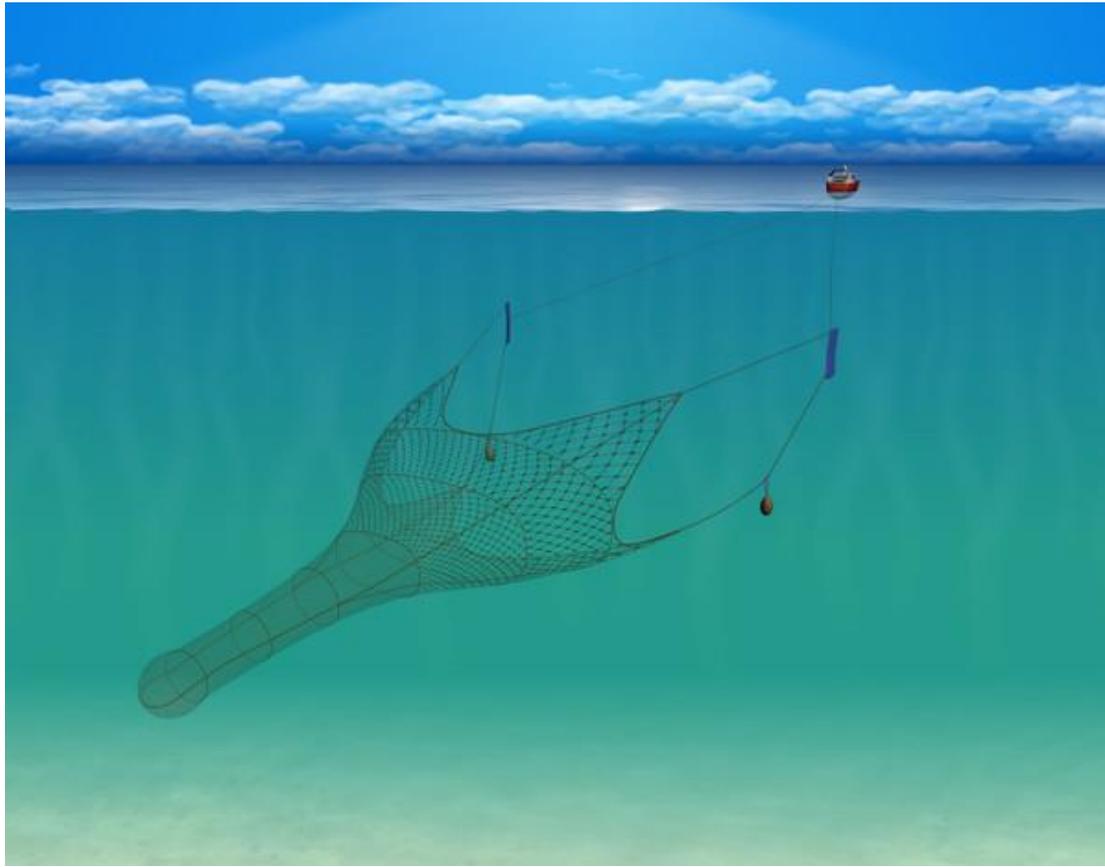
Pots and traps



Longlines and Gillnets



Pelagic trawl



Purse Seine

