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Response to the Marine Conservation Society Good Fish Guide consultation

February 2022

Seafish response to MCS consultation Feb 2022

The purpose of this document is to outline Seafish's response to the winter 2022 MCS Good Fish Guide consultation. Following a review of the proposed scoring, Seafish colleagues have provided commentary for the following species:

1. Brown crab (*Cancer pagurus*)
2. European lobster (*Homarus gammarus*)
3. Dover Sole
4. (Black-bellied and White) Anglerfish
5. Spotted ray

There are also some notes on the spreadsheet

Contributors:

William Lart (Sustainability and Data Advisor)

Ella Brock (Fisheries Project Officer)

Lewis Tattersall (Marine Sustainability Manager)

Gus Caslake (Regional Manager – Southwest England)

Foreword

Whilst we acknowledge that the ratings proposed in this consultation are generally consistent with the published MCS methodology, we would like to highlight areas where that the adjoining narrative could be modified to more accurately reflect the management measures already in place designed to improve the sustainability status of these fisheries. We also outline some of the research and development being undertaken

Crustacean fisheries

The management of these fisheries has been subject to improvement over the past 20 years through the implementation of science-based management measures, mostly relating to minimum and maximum landing sizes and v-notching. There is an extensive research and development programme designed to improve the assessment and management of these fisheries, under the auspices of the crab and lobster Fisheries Management Plans (FMPs).

Although the fisheries are not in formal FIPs these FMPs, and their research and development programmes are aiming at developing sustainable management for these fisheries. Additionally, it is clear that bycatch through large animal entanglement in creel fisheries is being taken seriously in Scotland, with a major partnership report having recently been published.

However, the MCS scoring does not allow scope for giving weight to these activities. This is particularly because the assessments are so reliant on the length based LCA assessments. There is no mention in the narrative of the current size and recently introduced size regulations, which are scientifically based, and the research and development sponsored by the FMPs.

Finfish fisheries

Analysis of the sole in Eastern English Channel scoring indicates that management scoring is not independent of stock status scoring. So effectively the stock status scoring is weighted higher than 6X, because there is a component from management scoring as well. This means that measures taken to encourage recovery of stocks are only fully weighted when those stocks are recovered.

1 Brown crab

Stock Area	Management Area	Method	CURRENT RATING	PROPOSED NEW RATING	Criterion 1	Criterion 2	Criterion 3
Isle of Man	Isle of Man (0-12nm)	Pot, trap or creel	NEW	3	0.5	0.5	0
Northern Ireland	All areas	Pot, trap or creel	NEW	4	0.75	0.75	0
Scotland	Orkney	Pot, trap or creel	3	4	0.75	0.75	0.25
Scotland	Scotland east coast	Pot, trap or creel	NEW	4	0.75	0.75	0.25
Scotland	Scotland west coast	Pot, trap or creel	NEW	5	0.75	0.75	0.5
Scotland	Shetland	Pot, trap or creel	2	2	0.25	0.25	0.25
UK	UK EEZ (outside 6nm)	Pot, trap or creel	3	4	0.75	0.75	0

Criterion 1: Stock or Species Status

For most management areas reviewed (except IOM and Shetland), brown crab has been scored 0.75 for 'Stock or Species Status'. Given the 'Low' vulnerability score accredited to brown crab (0.10), this translates to the following:

Concern for F: Fishing mortality is unknown in relation to reference points but catch index is stable or increasing but at a high level or increasing above long-term average or there is concern for the fishing level or information is conflicting or no information available.

Concern for B: Biomass is unknown in relation to reference points, is stable at low levels or is declining below long-term average or there is concern for the biomass level or information is conflicting or no information available.

The following is a summary of our response:

There is currently a heavy reliance on the Length Cohort Analysis (LCA) assessments carried out by Cefas and Marine Scotland. It should be noted that:

- These assessments mainly consider growth overfishing and rely heavily on the assumed rate of natural mortality;
- The method is felt to be reasonably accurate for estimating temporal trends in the relative level of exploitation (i.e., harvest rate, or fishing mortality), which do not appear to have changed very much over the years, but rather less reliable for estimating population abundance;
- That there is no independent estimate of abundance either through research surveys or good time series of commercial catch per unit effort.

Therefore trends in catch data provide a general overview of the scale of fishing activity and catches over time.

Catch trends

ICES data (see Appendix) shows that brown crab landings by UK vessels are relatively stable in division 6.a. (west coast of Scotland), and division 4.a. (encompassing Orkney, Shetland, the east coast of Scotland, the northern North Sea) between 2006 and 2019 (Fig. 1 and 2). A slight downward trend can be observed from around 2016, however the significance and cause is unclear as this could be related to either trends in biomass or fishing activity.

With respect to brown crab catches in the Isle of Man (IOM), the scoring spreadsheet states that “there is concern for fishing pressure as the amount of crab caught tripled from 2008 - 2018”. Figure 3 shows that landings recorded in 2008 were the lowest of the timeseries presented here, whilst landings recorded in 2018 were above. The comparison of these two particular years is therefore not necessarily representative of trends in brown crab landings in this region. As Fig. 3 also shows, landings significantly decreased in 2019 and so some consideration should be given to how the proposed scoring describes and accounts for fluctuations in this fishery.

Criterion 2: Management

For most management areas reviewed (except IOM and Shetland), brown crab has been scored 0.75 for ‘Management’. This translates to the following:

“Poorly managed and requires considerable improvement or specific management measures implemented”

The following is a summary of our response:

In accordance with the Fisheries Act 2020, Fisheries Management Plans (FMPs) are currently being developed for UK crab stocks, with English crab stocks included in Defra’s FMP ‘frontrunner programme’ owing to their vast socio-economic value and data limited nature. As part of this FMP programme, research and development is in progress to improve assessment and management.

Research and development implementation:

Although there are limitations to the assessment methods used there have been there has been active research on crab and lobster biology and stock assessment over recent years. There has been implementation of published research to improve management of these species;

- Mesquita et al., (2021) have published size at maturity data for brown crabs in Scottish waters [Size-at-maturity of Brown Crab \(Cancer pagurus\) in Scottish waters based on gonadal and morphometric traits - ScienceDirect](#) indicating that the minimum size at maturity in [Scottish waters of 150 mm](#) carapace width should result in this species being able to breed at least once. MLS has been recently increased to 150mm CW in [Northern Irish](#) waters and 140mm in [Isle of Man](#) waters, and [Cefas](#) detail the MLS for other areas which indicates that these result in most of the crabs landed are mature.

Research and development in progress:

According to Table 11 (*User guidance on management measures appropriate to a well-managed fishery*) included in the MCS Wild Capture Ratings Methodology document, relevant R&D projects are accounted for in the scoring of criterion two.

We would therefore like to draw attention to a number of R&D projects, some of which have been completed and published and implemented, others which are underway, which directly address deficiencies in the stock assessment process outlined above with the aim of providing sufficiently robust stock status data to facilitate evidence-based management.

As discussed above, there is an imperative to be able to measure trends in biomass. To this end Mesquita et al., (2021) have published independent timeseries of brown crab abundance for Scottish North Sea waters¹. We understand that there is ongoing work in this area (Coleman, pers.com) using data from trawl surveys around the UK.

The table below describes four innovative research projects awarded funding in round one of the Fisheries Industry Science Partnership (FISP) fund. These projects target key data gaps and feed into the objectives and research needs laid out in crab and lobster FMPs.

Table 1. Summary of FISP funded R&D projects addressing gaps in our understanding of Brown crab (*Cancer pagurus*) and European lobster (*Homarus gammarus*) stock status in UK waters.

Lead partner	Name of project	Project aims
Seafish	Shellfish research	Development of two research proposals to address data deficiencies across brown crab, lobster and whelk fisheries in order to support evidence-based management.
Holderness Fishing Industry Group	Use of new technology to address data deficiencies in assessment of static	Development of an effective abundance index by recording crustacean presence within and in the vicinity of creels using fisheries-dependent monitoring with dedicated in-creel imaging systems. This will aid stock

¹ [Abundance and spatial distribution of brown crab \(Cancer pagurus\) from fishery-independent dredge and trawl surveys in the North Sea | ICES Journal of Marine Science | Oxford Academic \(oup.com\)](#)

	gear crustacean fisheries	assessments by providing better estimates of abundance.
Seafish (Bangor University, Heriot-Watt University)	Improved Shellfish Data Collection Project*	Use innovative artificial intelligence technology and on-board camera systems to increase the spatial and temporal coverage of catch composition data.
North-eastern IFCA	European Lobster Settlement Index	Development of a predictive stock indicator to facilitate the implementation of adaptive fisheries management measures

*This project links to on-going Cefas research (“Lobstercam”) which aims to develop an index of stock abundance for potting fisheries using automated pot-mounted camera systems.

Other brown crab management measures to consider:

Other appropriate management measures are in place, enforced and largely effective:

- In the MCS scoring and narrative there is no credit given for the minimum landing sizes in force, and in some cases recently increased in these fisheries, for which there is evidence base indicating that they allow the stock to maintain breeding potential (see above)
- It is not accurate to state that “no effort controls are in place” for brown crab fisheries operating in UK EEZ (outside 6nm) or Northern Ireland as the [Western Waters effort regime](#) sets the maximum number of days a UK fishing vessel over 15 metres in length can fish for crabs in waters to the west of Scotland, Wales, England including the Channel and south west towards France and Spain (ICES Sub areas 6, 7 and 8)
- Pot limits are implemented in Isle of Man (500 pots per vessel)
- Restrictions on the landing of berried crab e.g. in English waters the [Sea Fisheries \(Shellfish\) Act 1967 \(section 17\)](#) prohibits the taking of berried crabs and lobsters (permitted for scientific purposes only)
- The [Fisheries Act 1981](#) also prohibits the removal of soft-shelled crabs, protecting individuals at this vulnerable stage in their life cycle when they are most likely to reproduce.

There is also the overarching requirement for a shellfish entitlement attached to UK fishing licences for commercial fishing of crab, lobsters and crawfish. These enable the Government to set conditions, such as requirements for reporting and other compliance with management. Also most of the IFCA have commercial shellfish permit schemes and rules to control hobby fishers.

Criterion 3: Capture method and ecological effects

Brown crab fisheries located in the west coast of Scotland have been scored 0.5 for ‘Capture method and ecological effects’. From the explanation provided, it seems that this score can largely be attributed to the following statement:

“Entanglement rates in creel fisheries on the west coast are possibly contributing to the decline or preventing the recovery of minke whales.”

Bycatch of minke whales around Scotland:

Bycatch of minke whales (and other large animals) through entanglement in creel fisheries is a serious issue, concerning conservation, biodiversity, animal welfare and fishers' safety. The Scottish Entanglement Alliance has recently published an important [study](#) of this effect and mitigation measures. This report indicates a willingness of the creeling industry to find means to reduce the effects of entanglement.

Whilst it is recognised that marine mammal entanglements in creel fisheries is a significant issue, the population of minke whales in the Northeast and central North Atlantic and off West Greenland is considered to be in a healthy state, with an estimated population of around [180,000 animals](#). This compares with an estimate of around 30 per annum caught in Scottish waters i.e. 0.017% of the total population. Whether this level of mortality “contributes to the decline or prevent the recovery of minke whales” will likely be dependent on whether this is considered is a small isolated population or a broader ranging population inhabiting waters across the North Atlantic.

2 European lobster

Stock Area	Management Area	Method	CURRENT RATING	PROPOSED NEW RATING	Criterion 1	Criterion 2	Criterion 3
Isle of Man	Isle of Man (0-12nm)	Pot, trap or creel	NEW	3	0.5	0.5	0
Northern Ireland	All areas	Pot, trap or creel	NEW	4	1	0.75	0
Scotland	Orkney	Pot, trap or creel	NEW	4	0.5	0.75	0.25
Scotland	Scotland east coast	Pot, trap or creel	4	5	1	0.75	0.25
Scotland	Scotland west coast	Pot, trap or creel	NEW	5	1	0.75	0.5
Scotland	Shetland	Pot, trap or creel	NEW	4	1	0.5	0.25
UK	UK EEZ (outside 6nm)	Pot, trap or creel	NEW	4	1	0.75	0

Criterion 1: Stock or Species Status

For most management areas reviewed (except IOM and Shetland), lobster has been scored 1 for 'Stock or Species Status'. Given the 'Moderate to high' vulnerability score accredited to European lobster (0.46), this translates to the following:

Concern for F: Fishing mortality is unknown in relation to reference points but catch index is stable or increasing but at a high level or increasing above long-term average or there is concern for the fishing level or information is conflicting or no information available.

Concern for B: Biomass is unknown in relation to reference points, is stable at low levels or is declining below long-term average or there is concern for the biomass level or information is conflicting or no information available.

The following is a summary of our response:

Stock assessment methodology:

For our comments on the heavy reliance on the Length Cohort Analysis (LCA) assessments please see the section above where this is discussed with respect to brown crab.

Catch trends

ICES data shows that lobster landings by UK vessels have increased slightly in division 6.a. (west coast of Scotland), but not above the long term average recorded between 2006 and 2019 (Fig. 4). In division 4.a. (encompassing Orkney, Shetland, the east coast of Scotland, and the northern North Sea) landings have decreased

since about 2011 and stabilised since about 2015 at a level compatible with the 14 year (2006-2019) average (Fig. 5). There is therefore limited evidence that lobster harvest rates in these areas are “at a high level or increasing above long-term average”.

Criterion 2: Management

For most management areas reviewed (except IOM and Shetland), lobster has been scored 0.75 for ‘Management’. This translates to the following:

“Poorly managed and requires considerable improvement or specific management measures implemented”

The following is a summary of our response:

All the UK lobster are under the frontrunner phase of the UK Fisheries Management Plans (FMPs), and research and development is in progress to improve assessment and management.

Research and development implementation:

- [Lobster minimum landing sizes](#) have been increased from 87 mm to 90 mm carapace length in Shetland, Orkney, outer Hebrides, [Devon, Cornwall and the Isle of Scilly waters](#). To set this in context the [Cefas estimate](#) that around 100% of males and 80- 92% (varies by region; English stocks only) of females are mature when the MLS is set at 87 mm.
- There is a [maximum landing size of 155 mm](#) in the Shetland and Orkney islands with 145 mm elsewhere in Scottish waters
- Spawning stock is protected by a ban on landing of all berried or v notched lobsters in Scottish waters ([The Lobsters and Crawfish \(Prohibition of Fishing and Landing\) \(Scotland\) Order 1999 \(legislation.gov.uk\)](#) some IFCAS have their own legislation
- AFBI (2020) report, using genetic analysis of v-notched lobsters and their off spring’s contribution to the landings of lobsters [in Northern Irish waters](#), of around 13% over 13 years (2007-20) demonstrating the value of this measure which is widespread around the UK.

Research and development in progress:

For a summary of lobster-focused research projects awarded funding in the most recent round of FISP funding, please see Table 1 included in the section above. These R&D projects address key data deficiencies such as:

- Development of an effective abundance index by using in-creel imaging systems to provide better estimates of lobster abundance and improve the linkage between on-the-ground population and lobster catches;
- Increasing the spatial and temporal coverage of catch composition data using artificial intelligence technology and on-board camera systems;
- Development of a predictive stock indicator via studies of settlement index.

Other lobster management measures to consider:

Other appropriate management measures are in place, enforced and largely effective:

- In the MCS scoring and narrative there is no credit given for the minimum and maximum landing sizes in force, and in some cases recently increased in these fisheries, for which there is evidence base indicating that they allow the stock to maintain breeding potential (see above);
- Pot limits implemented in Isle of Man (500 pots per vessel).

Criterion 3: Capture method and ecological effects

See above section discussing brown crab scoring for comments on the capture methods scoring for creel fisheries.

3 Sole (*Solea solea*) in Division 7.d (eastern English Channel)

Stock Area	Management Area	Method	CURRENT RATING	PROPOSED NEW RATING	Criterion 1	Criterion 2	Criterion 3
English Channel (East)	All Areas	Bottom trawl (beam)	3	5	0.75	0.5	0.75
English Channel (East)	All Areas	Bottom trawl (otter)	2	4	0.75	0.5	0.5
English Channel (East)	All Areas	Net (demersal seine)	2	4	0.75	0.5	0.25
English Channel (East)	All Areas	Net (gill or fixed)	2	4	0.75	0.5	0.5

Criterion 1: Stock or Species Status

This Dover sole stock has been scored 0.75 for 'Stock or Species Status'. This translates into the following:

“Concern for stock and fishing level or stock at increased risk”

The following is a summary of our response:

This stock is subject to a full assessment by ICES. It is worth noting that the assessment methodology has been recently benchmarked hence there has been some recalibration. Although the stock is in a similar location to where it was when it was last assessed in 2017

Spawning Stock Biomass is just below B_{pa} and $MSY B_{trigger}$, same location as in previous full assessment 2017, with an upward trend in biomass.

Fishing mortality is on a downward trend between F_{pa} and F_{MSY} . as it was in the previous assessment

Criterion 2: Management

This stock is being managed using annual TACs and catches have been at or below those advised by ICES since 2018. Current TAC (2022) of 2380 tonnes is at level advised for MSY. Recovering trend is evident in the SSB, though just below $MSY B_{trigger}$,

The response by management has been in line with advice. The use of TACs within the European fishery management framework has been successful in recovering other sole stocks. This would indicate that the management should be;

“Some measures and/or Plan in place, enforced and having a measurable effect”

That is a score of 0.25. However, the score given is 0.5, presumably because the stock is below the target or defined range ($MSY B_{trigger}$) but F is within F_{pa} limits). So the scoring of management is not independent of stock status.

4 (Black-bellied and White) Anglerfish

Black-bellied anglerfish:

Stock Area	Management Area	Method	CURRENT RATING	PROPOSED NEW RATING	Criterion 1	Criterion 2	Criterion 3
North Sea, Rockall and west of Scotland, Kattegat and Skagerrak	All Areas	Bottom trawl (otter)	New	5	1	0.5	0.5
North Sea, Rockall and west of Scotland, Kattegat and Skagerrak	All Areas	Net (gill or fixed)	New	5	1	0.5	0.5

White anglerfish:

Stock Area	Management Area	Method	CURRENT RATING	PROPOSED NEW RATING	Criterion 1	Criterion 2	Criterion 3
North Sea, Rockall and west of Scotland, Kattegat and Skagerrak	All Areas	Bottom trawl (otter)	4	5	1	0.5	0.5
North Sea, Rockall and west of Scotland, Kattegat and Skagerrak	All Areas	Net (gill or fixed)	4	5	1	0.5	0.5

Criterion 1: Stock or Species Status

DLS assessment

Biomass falling fishing mortality index rising score =1.0 for both species

Criterion 2: Management

Management response, TACs in line with advice since around 2016 and catches including discards lower than TAC (significantly lower in 2019). Current TAC (2022) 14,116 which is close to the advised TAC at least for the UK and EU EZZs.

This stock will be subject to a SFSAG Fisheries Improvement Project in the near future, so expect a score of 4.5. Documents are being prepared for uploading onto FisheryProgress.org, we will let you know when they are up there.

5 Spotted Ray

Stock Area	Management Area	Method	CURRENT RATING	PROPOSED NEW RATING	Criterion 1	Criterion 2	Criterion 3
North Sea, Skagerrak & Kattegat, eastern English Channel	All Areas	Bottom trawl (beam)	4	5	0.75	0.75	0.75
North Sea, Skagerrak & Kattegat, eastern English Channel	All Areas	Bottom trawl (otter)	4	5	0.75	0.75	0.5

Criterion 1: Stock or Species Status

Stock size indicator indicates stability, with only a decrease in the final year. The biomass abundance index calculations only results in a decrease of 4% when comparing the past two years with the previous 5. Landings have decreased by around 50% from 2019 and 2020 and were at a lower level in 2020 than the advised catch in 2022. NB the species is incorrectly described as blonde ray in the narrative.

Appendix

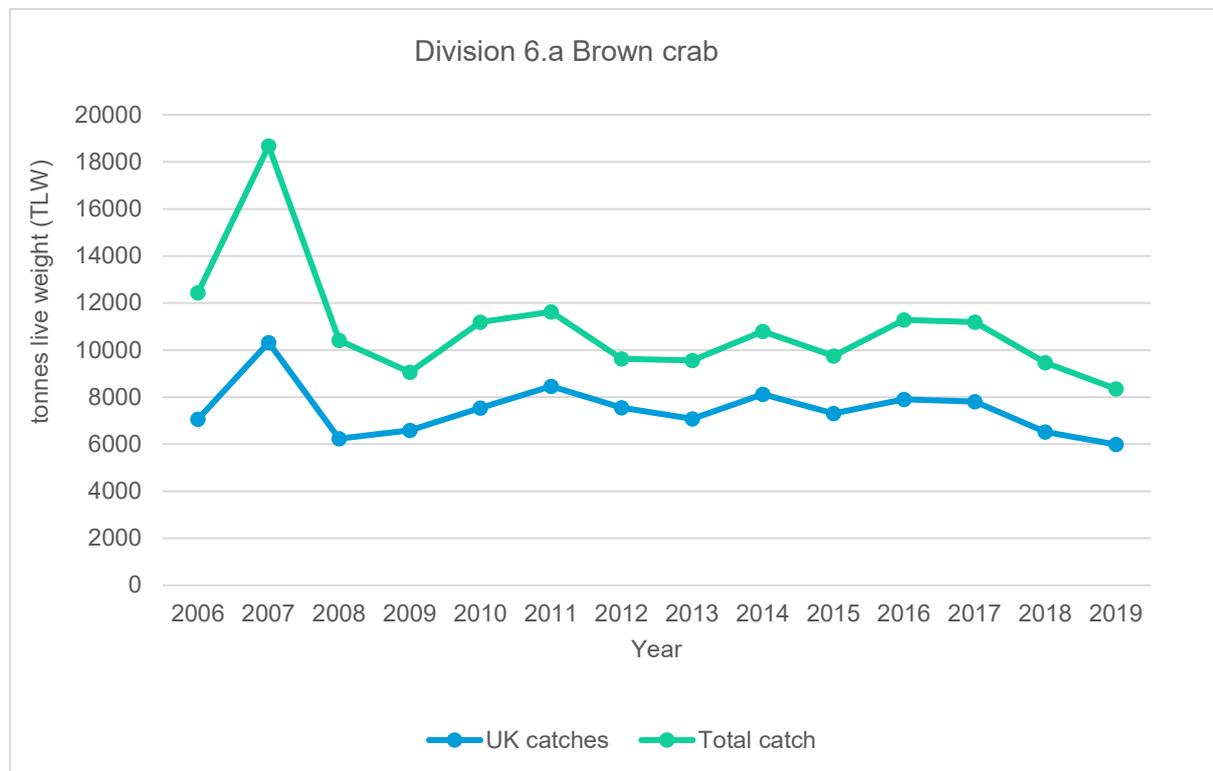


Figure 1. ICES data on brown crab (*C. pagurus*) landings in division 6.a. by UK (blue) and all (green) vessels (West coast of Scotland).

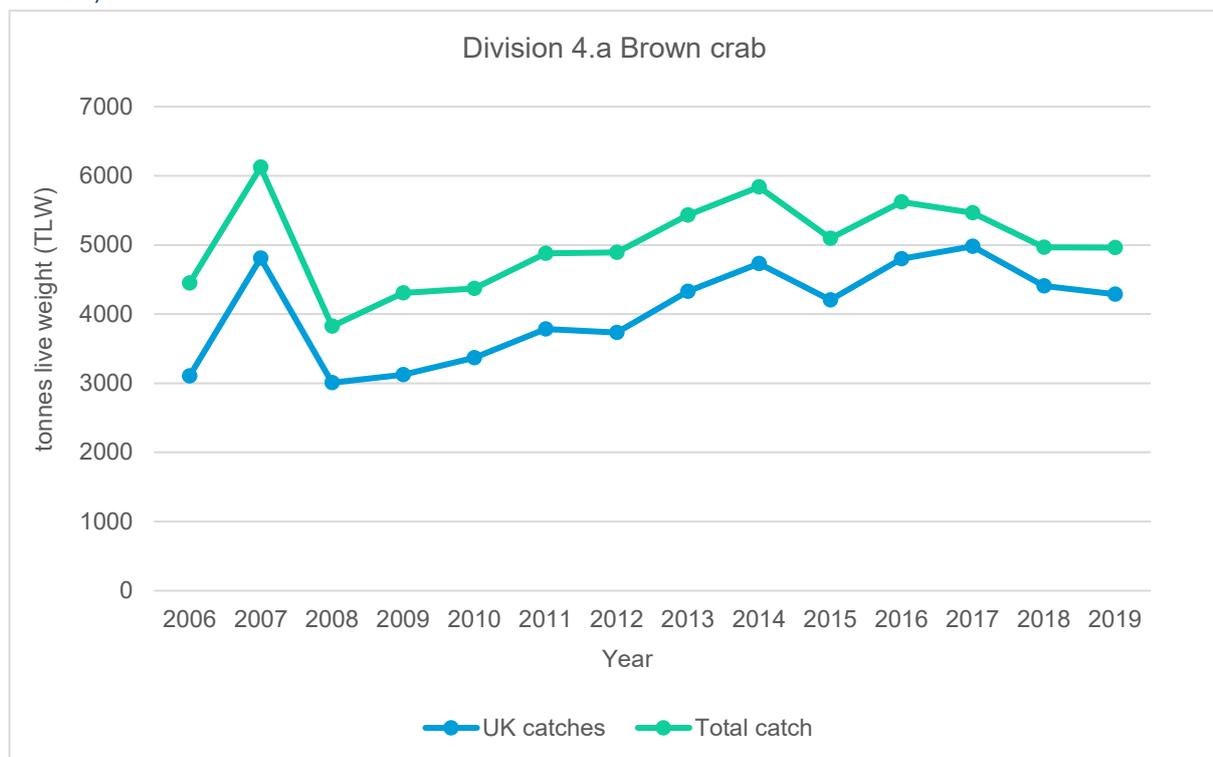


Figure 2. ICES data on brown crab (*C. pagurus*) landings in division 4.a. by UK (blue) and all (green) vessels (Northern North Sea / Orkney / Shetland / East coast of Scotland).

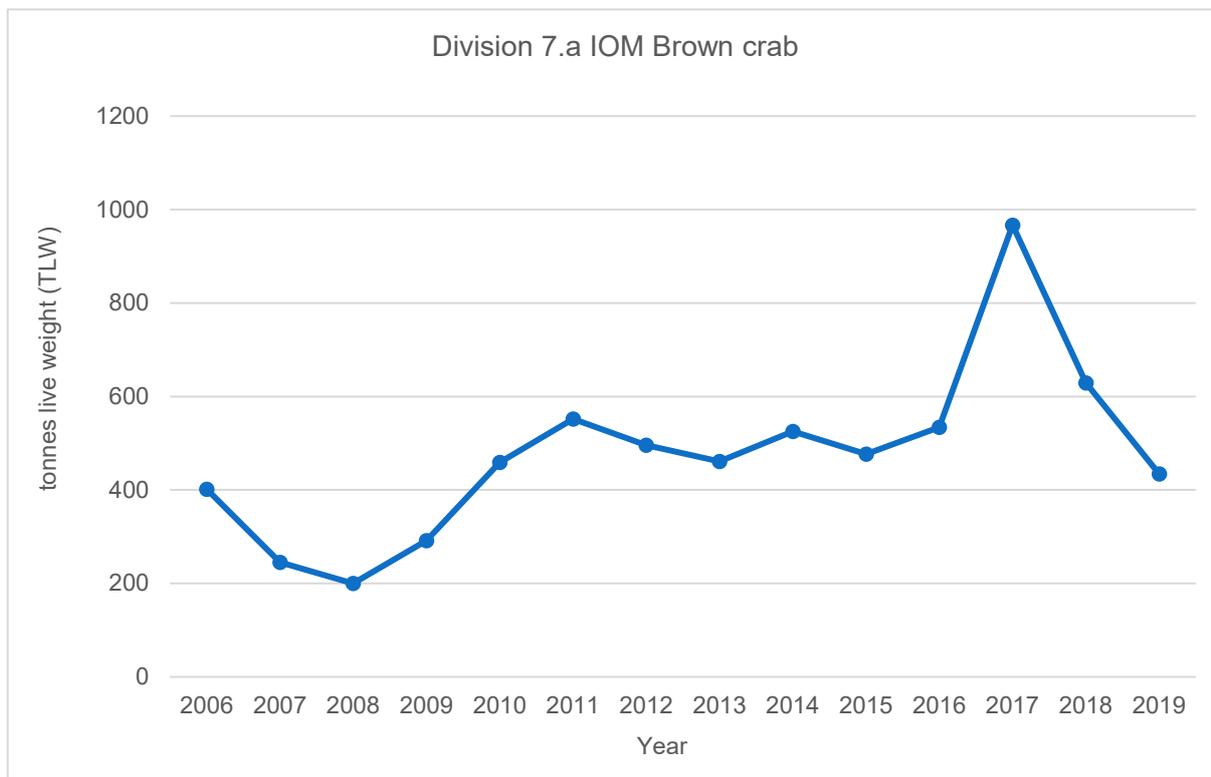


Figure 3. ICES data on brown crab (*C. pagurus*) landings in division 7.a. by Isle of Man (IOM) vessels.

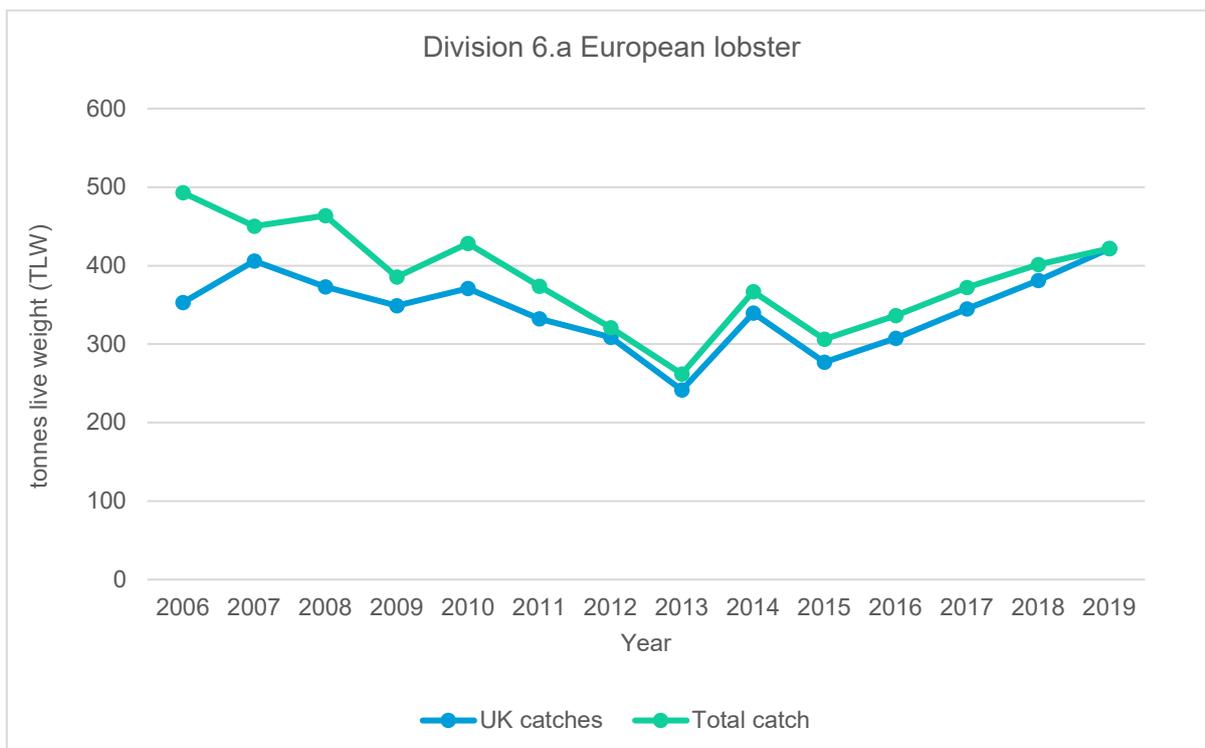


Figure 4. ICES data on European lobster (*H. gammarus*) landings in division 6.a. by UK (blue) and all (green) vessels (West coast of Scotland).

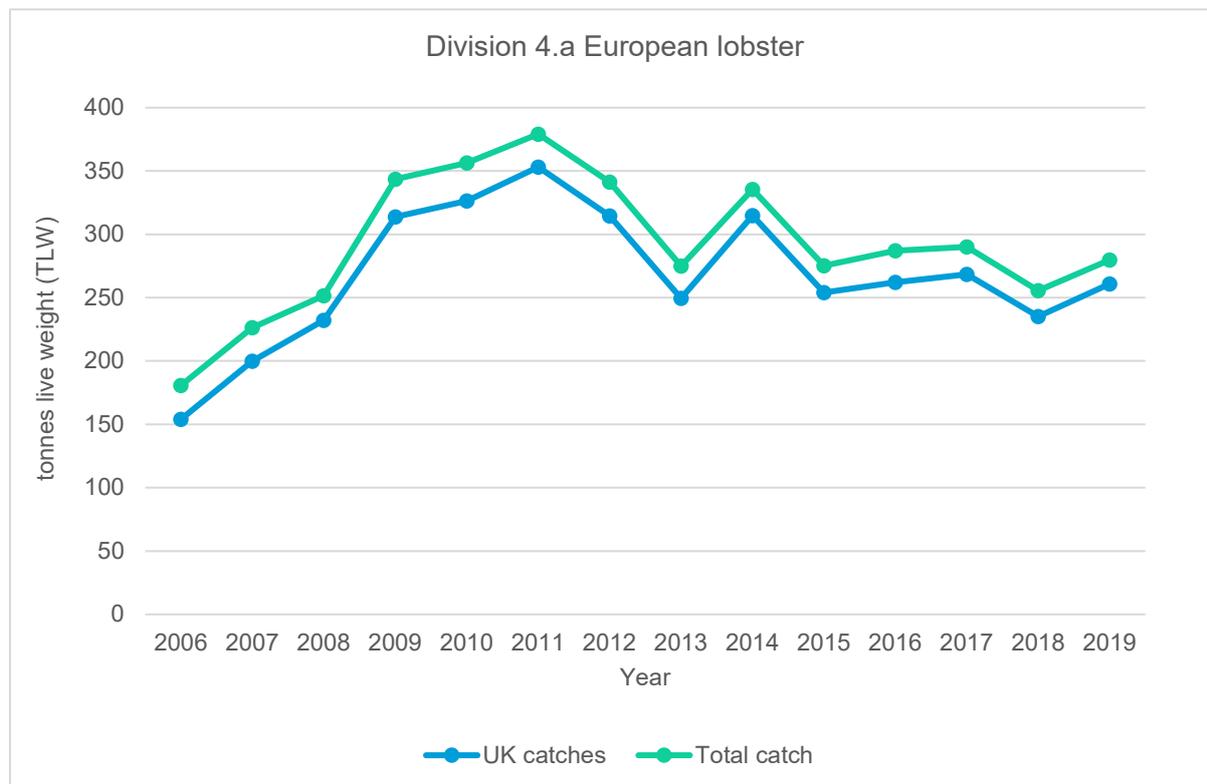


Figure 5. ICES data on European lobster (*H. gammarus*) landings in division 4.a. by UK (blue) and all (green) vessels (Northern North Sea / Orkney / Shetland / East coast of Scotland).

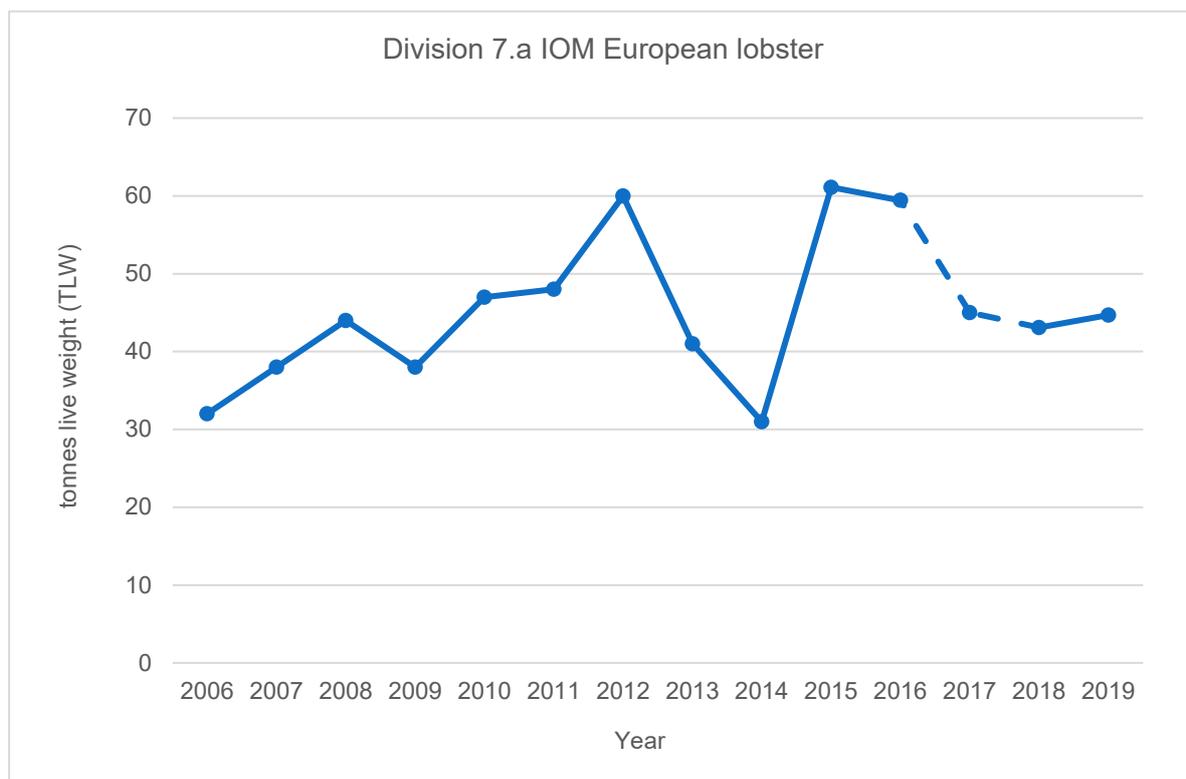


Figure 6. ICES data on European lobster (*H. gammarus*) landings in division 7.a. by Isle of Man (IOM) vessels. The data point for 2017 was taken directly from gov.im landings records as the tonnage recorded in the ICES data base was an order of magnitude higher than the previous years, thus likely erroneous.