



Risk Assessment for Sourcing Seafood (RASS) profile; European lobster (*Homarus gammarus*) landed in Newlyn

Introduction

This document is a summary of information on European lobster (*Homarus gammarus*) targeted using pots/traps by vessels which land into Newlyn Harbour, Cornwall. Scoring draws on the recently concluded UK brown crab and European lobster pot/trap fishery improvement project (FIP)¹ and is risk assessed using Seafish's [RASS scoring Guidance version 2](#).

RASS scoring guidance

RASS applies a framework which scores risk levels for stocks and fisheries on a five-point scale; from 1 very low risk to 5 very high risk, as indicated by the number of solid blue circles shown on the profiles below.

Four aspects are assessed for each fishery;

1. The stock status as advised by Cefas with additional information from Cornwall Inshore Fisheries Conservation Authority (CIFCA).
2. Stock management using information from UK government websites, CIFCA, Cefas, the Fishery Improvement Project (FIP) and other sources.
3. Bycatch of vulnerable resource and Endangered, Threatened or Protected (ETP) species and mitigation measures using FIP documentation, scientific literature and other sources.
4. Habitat impacts of the fishery and mitigation measures using scientific literature and other sources.

Scores should not be used in isolation to decide on a purchase of seafood from a stock. Profiles are designed to:

- Enable the main features of a stock and fishery to be examined within a structured format
- Inform buyers of questions they might ask about a stock and fishery and where sustainability improvements could be made

¹ Fishery Progress.(2024) [INACTIVE UK brown crab and European lobster - pot/trap](#).



Inevitably there are several technical terms used. Please see the Glossary at the end of the document, where there are also links to further reading.

Overview of the European lobster

The European lobster (*Homarus gammarus*) is a slow growing, long lived decapod crustacean commonly found across the eastern Atlantic Ocean, Mediterranean Sea, and parts of the Black Sea. Lobsters are opportunistic scavengers which also hunt nocturnally for small crustaceans, molluscs, and polychaetes. Although lobsters are typically sedentary and spend much of their time in shelters created by rocky substrata, they will move in order to locate food. Their typical home range is around four km from their burrows, however larger individuals may stray much further.²

Lobsters begin life as larvae which exist in the plankton for a period of ~3-4 weeks to facilitate the dispersal of offspring, through which the survival rate is estimated to be incredibly low.^{3,4} Lobsters grow by moulting their hard exoskeleton, often consuming it if possible, to retain nutrients. From the third to fifth moult, the body will change shape and begin to take on more of a recognisable lobster form as it prepares for settlement on the seafloor. Little is known about juvenile lobsters from the moment of settlement to almost adult size, since to increase survival they will seek shelter and seldom move until they are larger and more protected from predation.^{5,6}

Moulting slows the larger the lobster gets, to a frequency of once every 1 – 2 years as adults. Size at which 50% of the female population reaches maturity (CL₅₀) varies between 82 to 92.5mm carapace length (CL) across its range. The Newlyn population has not been specifically sampled for this, and the closest estimate is 88.8 CL₅₀ (mm) at Ilfracombe, Devon.⁷ Mating occurs between a recently moulted, soft female and a hard-shelled male during the summer. Spawning shall then usually occur once the female has hardened her shell a matter of months after mating in the autumn/early winter. Spawning refers to the fertilization of eggs as they are extruded and glued to the pleopods on the underside of the tail, which is what the term ‘berried female’ refers to. Most females are expected to have a

² Smith, I.P., Jensen, A.C., Collins, K.J., & Matthey, E.L. (2001). Movement of wild European lobsters *Homarus gammarus* in natural habitat. *Marine Ecology Progress Series*, 222: 177-186

³ Cefas (2023). Lobster (*Homarus gammarus*). Cefas Stock Status Report 2023.

⁴ National Lobster Hatchery (2024) ‘Biology of the European lobster, *Homarus gammarus*’. Available at: <https://www.nationallobsterhatchery.co.uk/lobster-biology/> (accessed on 20/05/2024).

⁵ Linnane, A. & Mazzoni, D. & Mercer, J. (2000). A long-term mesocosm study on the settlement and survival of juvenile European lobster *Homarus gammarus* L. in four natural sub strata. *Journal of experimental marine biology and ecology*. 249. 51-64.

⁶ Linnane, A., Ball, B., Mercer, J.P. et al. (2001) Searching for the early benthic phase (EBP) of the European lobster: a trans-European study of cobble fauna. *Hydrobiologia* 465, 63–72.

⁷ Coleman, M. T., Garratt, M., Hold, N., Bloor, I. S. M., Jenkins, S. R., Porter, J. S., Tully, O. & Bell, M. C. (2023) A standardized assessment of geographic variation in size at maturity of European lobster (*Homarus gammarus* L.) in the North East Atlantic. *ICES Journal of Marine Science*, 80:4, pp 911–922.



two-year breeding cycle, however one mating season (i.e. the period when she is soft) can provide enough sperm for multiple cycles of spawning.⁸ The female shall carry the eggs for around nine months until water temperatures increase in the spring/early summer, which speeds up development and triggers hatching.

In terms of stock structure, European lobsters do not exhibit a spatial genetic structure throughout large areas of the species' range, likely due to larval dispersal.⁹ Stock boundaries have therefore not been defined to date.

Overview of the pot fishery in Newlyn

Newlyn is incredibly significant to England's fishing industry, contributing the greatest quantity of landings of any English port.¹⁰ Whilst shellfish constitutes only 15% of the landed weight of catches for Newlyn, it is of great economic value to the port at 24% of the income at first point of sale (2022).¹⁰

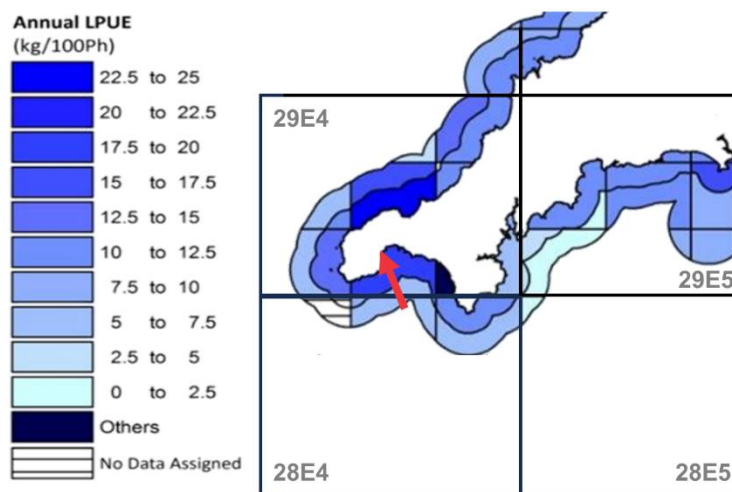


Figure 1. CIFCA district 2022 annual potting landings per unit effort (LPUE kg of landings/100 pot hauls) of lobster (*Homarus gammarus*) in belted statistical areas. The band closest to shore represents the inshore IFCA region (out to 3nm) and the offshore IFCA region (to 6nm). 'Others' regarding the west coast of the Lizard refers to a value of 41.1kg/100Ph.¹¹ NOTE: This graph has been edited to show the location of Newlyn (red arrow) and give context between IFCA regions and the ICES statistical rectangles.

The Newlyn crustacean pot fishery targets edible crab (*Cancer pagurus*), European lobster and spider crab (*Maja squinado*) using baited inkwell and parlour pots. Majority of catches in

⁸ Agnalt, A. L., Kristiansen T. S. & Jorstad K. E (2007). Growth, reproductive cycle, and movement of berried European lobsters (*Homarus gammarus*) in a local stock off southwestern Norway. *ICES Journal of Marine Science*, 64: 288–297

⁹ Ellis, C., Hodgson, D., Daniels, C., Collins, M. & Griffiths, A. (2017). Population genetic structure in European lobsters: Implications for connectivity, diversity and hatchery stocking. *Marine Ecology Progress Series*. 563. 123-137.

¹⁰ MMO (2022) UK Sea Fisheries Statistics 2022. P33 of report and accompanying dataset.

¹¹ Street, K., Sturgeon, S., Jenkin, A., Daniels, C., & Trundle, C. (2023). Cornwall IFCA Monthly Shellfish Permit Statistics Analysis, Summary Statistics 2022. Cornwall Inshore Fisheries and Conservation Authority (Cornwall IFCA), Hayle.



this fishery are edible crabs (90% in 2022)¹⁰, however lobster command a much higher price per kilogram and hence are still greatly important to fishers for their income. These species are often fished for by the same fishermen with the same style pots, however lobster can be targeted by shooting pots on reefs and baiting the pots with strong-smelling, aged bait (salted mackerel or herring), whereas crab are more attracted to fresh bait (such fish frames and parts of fish) and are in higher abundance on softer substrates.¹² There is a small amount of lobster bycatch from drift nets and fixed nets, however for Newlyn this accounts for only ~1-3 tonnes a year. Catches of lobster occur both within the CIFCA district and further offshore (>6nm). Majority of landings into Newlyn are caught within ICES statistical rectangles 28E4 and 29E4 (Fig.1).

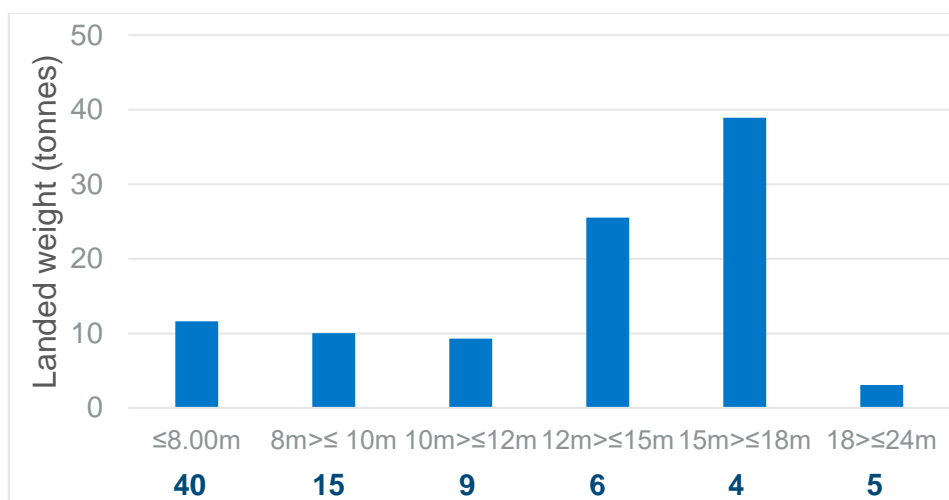


Figure 2. MMO statistics on lobster landings into Newlyn for 2022 by vessel size.¹⁰ Number of vessels registered with Newlyn as their home port and which held a national shellfish permit for 2022 is given per size category below the graph.¹³

The Newlyn crab and lobster pot fishery was within the scope of the Project UK Southwest crab and lobster Fishery Improvement Project (FIP). A FIP is a step-wise, multi-stakeholder effort to improve fishing practices and management, which can also prepare the fishery for entering assessment to achieve certification from the Marine Stewardship Council (MSC), the leading global standard for environmental performance of wild-caught seafood.

The Southwest Crab and Lobster FIP ended 2023, with most objectives completed to the level suitable for MSC certification. Within the FIP closing report, three further actions have been highlighted to address following it: Harvest strategy, harvest control rules and tools, and ETP species management and information. This was due to a more precautionary

¹² Project UK Fisheries Improvements (2016) MSC Pre-assessment for UK Southwest lobster.p5.

¹³ MMO (2022) UK Fishing Vessel Lists. Available at: <https://www.gov.uk/government/collections/uk-vessel-lists>



scoring approach towards the end of the FIP. Multiple organisations closely associated with the port of Newlyn were named as participators in the FIP.

The National lobster hatchery has an operational facility in Newlyn harbour. This facility enables the hatching and development of lobster larvae to occur within a controlled aquaculture system. It is believed that this process may improve recruitment by increasing the survival rate of offspring through the larval stage and releasing juveniles back to the sea once they are less vulnerable to predation and more capable of sourcing food and controlling their movement.¹⁴ The benefits of this effort have not been able to be completely quantified to date due to constraints in tagging methods.

Stock assessments and reference points

There are no distinctive boundaries between lobster stocks around the coast due to the high genetic connectivity created through larval dispersal, but for the purpose of assessment, lobster in English waters is divided into six lobster fishery units (LFUs) based upon the distribution of the fisheries, hydrographic conditions and what is known of larval distributions. The last full stock assessment for lobster in England was published in 2024 using data up to 2022 (Cefas, 2024)³. The Southwest LFU encompasses the grounds fished by the Newlyn fleet.

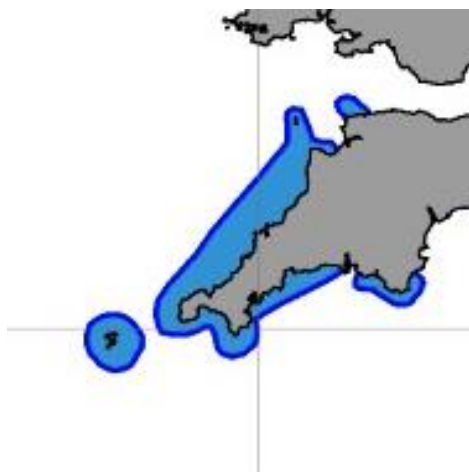


Figure 3. Cefas Southwest Lobster Fishing Unit – The shaded blue areas are the main fishing grounds within this functional unit.

Cefas lobster stock assessments incorporate information from MMO landings records, electronic logbooks, monthly shellfish activity return forms, the Catchapp, and IFCA and Cefas length samples taken from landings in ports. The length cohort analysis methodology used in this assessment follows the change in shape of the length frequency (numbers-at-

¹⁴ The National Lobster Hatchery (2024) [Journey of a Hatchery-reared Lobster - National Lobster Hatchery](#). (Accessed 17/05/2024)



length) from one year to the next, which is combined with estimates of growth and natural death rates to infer the rate at which the fishery is removing individuals.

Restoring and maintaining stocks at levels above those associated with Maximum Sustainable Yield (MSY), is the aim of the UK Joint Fisheries Statement (JFS). Reference points are expressed in terms of spawning biomass per recruited lobster compared with that of a virgin population. The biomass associated with MSY is 35% of virgin Spawner per Recruit (35%SpR). The safe biological limit reference point, below which the reproduction of the stock is considered impaired is 15% of virgin Spawner per Recruit (15%SpR). Fishing mortality reference points are rates of fishing mortality, which at long term equilibrium, will produce stock biomass at 35%SpR for FMSY and 15%SpR for the limit reference point. These are known as proxy reference points because it is difficult to routinely age crustaceans and enable calculation of MSY.

RASS Scoring

Stock status of European lobster (*Homarus gammarus*) in the South West of England



Exploitation has remained relatively stable in recent years with an improvement in stock size and status since the last assessment.

The rates of fishing mortality and spawning stock biomass are assessed separately for the two sexes. The rate of fishing mortality for both sexes is assessed as within safe biological limits but greater than the level associated with MSY and has remained relatively stable for both sexes in recent years. Biomass of both sexes has increased over recent years, with the female lobster stock biomass assessed as consistent with the biomass that would be required to produce maximum sustainable yield (MSY), which would imply a low risk. However, male biomass is lower than the target level associated with MSY, which would imply a moderate risk.

In summary, whilst exploitation rate for both sexes and spawning stock biomass could be better (i.e. closer to MSY for males), the proximity to MSY targets means that the Southwest LFU is in a relatively healthy state.

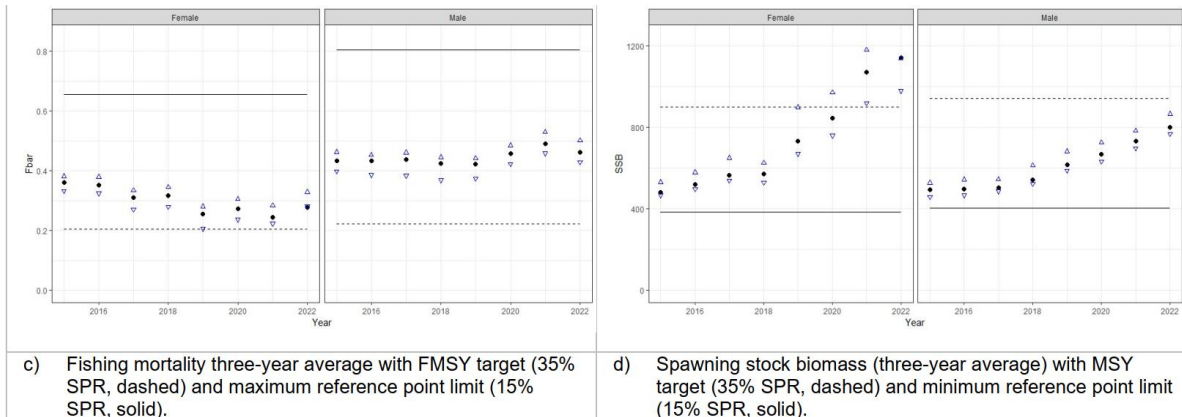


Figure 4. Cefas estimations of fishing mortality (c) and spawning stock biomass (d) relative to the MSY target from 2015 to 2022.³ Left hand side is female and right-hand side is male.

CIFCA’s shellfish summary statistics support the Cefas observation of an increase in spawning stock biomass, reporting a general increase in landings per unit effort (kg of shellfish per 100 pot hauls) in Cornwall since 2018.¹¹ Landings for the overall Cefas Southwest LFU have steadily increased since the last assessment in 2019 across the entire fleet, most notably within the <10m fleet in conjunction with an increased number of days fished by this fleet segment.

Stock management of lobster affecting the Newlyn fleet

●●○○○ **Low risk**

Management controls are based on knowledge of the fishery and the biology of the stock, and these are consistent with science advice in relation to the reproductive potential of the population. However, a better developed harvest strategy consistent with moving stocks closer to MSY targets (as in the JFS see above) is a key area for improvement and this will likely be undertaken following the recent publication of the FMP. There have been successful prosecutions and therefore there is evidence to show that regulations are being enforced.

Current regulations

At a national level (i.e. affecting all territorial waters), lobster is managed by Defra and the MMO. National legislation requires a shellfish licence to fish for lobsters in UK waters and



prohibits the landing of berried females and lobsters with a v-notch in their tail fin.^{15,16,17,18} The Minimum Conservation Reference Size (MCRS) is 87mm carapace length within the UK and EU EEZs.¹⁹

Within 6nm of the coast, additional regional measures are in force under the Cornwall Inshore Fisheries Conservation Authority (CIFCA). An additional permit is required to fish for lobster within this district: without it, you can only take two lobster per day.²⁰ The maximum overall length for a boat which can fish for shellfish within the district is 16.46m.²¹ The Minimum Conservation Reference Size (MCRS) is 90mm carapace length within the district.²²

Lobsters are managed through an MCRS with the aim of ensuring that at least 50% of individuals have a chance to reproduce at least once before they are removed by the fishery, (referred to as L_{50} , see introduction). At the MCRSs applied in this region, Cefas estimates that around 100% of the males and 96% of the females should be mature, therefore first-time spawners are well protected.³

Harvesting strategy development

The FIP highlighted the need for an improved harvest strategy and improved harvest control rules. The national fisheries management plan (FMP) for crab and lobster in English waters has since been published in December 2023, which is expected to deliver on these actions especially.²³

Relevant proposed initial measures in the FMP are:

- Harmonisation of lobster MCRS (90mm CL) within all national waters
- Pilot finer scale management for crab and lobster in selected fishery units (The southwest Cefas lobster Functional Unit is a likely candidate)
- Progress work to develop an effort management strategy for crab and lobster
- Implement measures to improve the information base on recreational crab and lobster fishing

¹⁵ MMO (2024) [Fishing vessel licence types - GOV.UK](#)

¹⁶ Sea Fisheries (Shellfish) Act 1967: Section 17. [Link](#)

¹⁷ The Lobsters and Crawfish (Prohibition of Fishing and Landing) Order 2000. [Link](#)

¹⁸ V-notching is a voluntary activity carried out by fishers where they notch the female lobsters tail. These females shall bear the mark for around one extra moult after their eggs have hatched. This provides added protection to returned mature females since the fishers cannot legally land her, it prevents other fishers retaining her on their grounds as she contributes to stock replenishment.

¹⁹ MMO (2018) [Minimum Conservation Reference Sizes \(MCRS\) in UK waters - GOV.UK \(www.gov.uk\)](#)

²⁰ Lobster, Crawfish and Crab Fishing Permit Byelaw 2016 [Link](#)

²¹ Cornwall Sea Fisheries District Shellfish Boats Byelaw 2011 [Link](#)

²² Cornwall Sea Fisheries District Lobster Byelaw 2011 [Link](#)

²³ Defra (2023) [Crab and lobster fisheries management plan.](#)



Work on implementing the proposed measures within the FMP is now underway. As these measures become implemented, there would be the potential for reducing risks and hence improving the management score. Additionally IFCA have highlighted that during FMP development, management development within their jurisdiction has been put on hold whilst awaiting direction from this national level work.

Overall surveillance and enforcement

All landings are required to be reported. Officers from both the MMO and CIFCA undertake shore inspections as well as inspections at sea using patrol vessels. In the event of an infringement within their district, CIFCA will post a news update on their website and on social media which names the vessel and skipper that has been prosecuted: this serves as an additional deterrent to non-compliance since reputation is so important for business and within a small community. During 2023 Cornwall IFCA successfully prosecuted four vessels for retaining berried hens and lobsters with mutilated tails, i.e. to obscure a v-notch.²⁴ A difference in MCRS between the IFCA district and national waters may cause difficulties in enforcing this measure.

During engagement in Newlyn for the FIP, the consultation group said they'd welcome more effective enforcement, so within the fleet there are fishers who welcome and obey the current regulations. The fact that prosecutions have occurred indicates enforcement activity, but stakeholders highlighted under resourcing within the IFCA and a limited ability of the IFCA to enforce regulations from landings outside the 6 nm limit, compared with the MMO.²⁵

Bycatch in the Southwest pot fishery

 Low risk

Incidence of bycatch is low, with the commercially valuable spider crab constituting the only significant amount (6.4%). Although not formally assessed, there is management in place to control the take of this species through a MCRS.¹⁹

Undersize crustacea and most fish species are discarded with a high chance of survival. Most bait species are managed to some extent. Entanglement and threat to ETP species is low.

²⁴ CIFCA (2024) [News | Page 2.](#)

²⁵ Pollett, J. & Keay, K. (2022) Project UK - SW crab management report V2.3. [Link](#)



Gear effects

Baiting pots does inevitably lead to some bycatch, as other species are attracted to the pots. Potting is a relatively selective fishing method with high survival rates of most discards, including undersize crustacea and fish^{26,27}. The only exception to this noted in the UK crustacean pot fishery are some gadoid species (particularly pouting *Trisopterus luscus*) which have been recorded with obvious signs of barotrauma (e.g., exophthalmia 'pop eye' and eversion of oesophagus).²⁷

Evidence of risk - Secondary species

Edible crab and lobster are the target species of this fishery. Only one species was considered a main component of bycatch in the FIP and that was spider crab (*Maja squinado*) at 6.4% of the total catch, which is retained to be sold.²⁸ Anecdotally this species is abundant, but there is no stock assessment for spider crab and the only published information on the stock is CIFCA's landings and LPUE statistics.²⁹

Various whitefish species are caught in small quantities ($\leq 2\%$ catch), see Annex 1. Majority of these species are managed by catch limits, so would likely be discarded alive if the fisher doesn't own quota, or would be sold. Research since the FIP has also identified for a similar fishery in Wales retention rates of additional key species as follows: Bullhuss *Scyliorhinus stellaris* (33.4% total fish abundance in catch, 13% of this retained for bait use), smallspotted catshark *Cyliorhinus canicula* (18.4% total fish abundance, 44% of this retained for bait use) and ballan wrasse *Labrus bergylta* with the highest retention (16% total fish abundance, 90% retained equating to an average of 5.5 individuals retained per trip when present).²⁶ Within the CIFCA district, retention of wrasse is controlled through a permit scheme.³⁰

Regarding bycatch through bait use in the remit of the Southwest FIP, four main sources of bait are used: Mackerel *Scomber scombrus*, red gurnard *Aspitrigla cuculus*, mixed dogfish *Scyliorhinus spp* and mixed ray (*Raja* species) backs (carcasses from which the ray wings have been removed). The retention of fish caught within pots to be used for bait is not currently acknowledged in landings data. ICES advice on the stocks are given for mackerel

²⁶ "100% survival of crabs smaller than 140 mm CW" Rodrigues, E., Bell, M. C. & Mesquita, C. (2021) Discard Survival and Condition in Orkney Brown Crabs (*Cancer pagurus*). Marine Scotland.

²⁷ Moore, A. B. M., Heney, C., Lincoln, H., Colvin, C., Newell, H., Turner, R., McCarthy, I. D. & Hold, N. (2023) Bycatch in northeast Atlantic lobster and crab pot fisheries (Irish Sea, Celtic Sea and Bristol Channel). Fisheries Research, Volume 265,

²⁸ Spencer, M., Caslake, G. & Huntington, T. (2021) Crab and lobster FIP: Catch composition, bait use and Endangered, Threatened and Protected species review. Project UK.

²⁹ Cornwall Wildlife Trust (2022) [Increase in spider crab gatherings along Cornwall's coast this summer as extraordinary creatures migrate in their thousands.](#)

³⁰ Live Wrasse Fishing (limited Permit) Byelaw 2018. CIFCA. [Link.](#)



and the dogfish species.^{31,32} Mackerel harvest is controlled with catch limits prior to being obtained for use as bait. Red gurnard however is not assessed and is estimated to have medium resilience to fishing pressure.³³ Mixed ray backs are usually a byproduct of processing from other fisheries, which are managed under a data-limited regime.

Evidence of risk - ETP species

The FIP's ETP interaction risk analysis concluded a low overall risk to entanglement in vertical pot lines, and to bycatch and subsequent mortality of ETP species.³⁴

In terms of entanglement within the vertical lines connecting the pots to marker buoys, three species were identified as at risk of interacting with the fishery: leatherback turtle (*Dermochelys coriacea*), minke whale (*Balaenoptera acutorostrata*) and basking shark (*Cetorhinus maximus*). Occurrences of these interactions are relatively uncommon and suggestions of best practice for these and other ETP species is given in Pool (2019)³⁵.

Mitigation measures

An escape gap is a rigid opening in the pot suited to the minimum landing size of the target or by-catch species, enabling the unhindered escape of individuals that would eventually be discarded anyway. These are not currently compulsory within the areas fished by the Newlyn fleet.

The majority of commercial potters already minimise vertical line slack (to reduce excesses of rope that float on, or near the sea surface which increase risk of entanglement) for reasons of safe navigation; some by using an additional section of leaded rope within the buoyline.⁴³

³¹ [Lesser-spotted dogfish \(*Scyliorhinus canicula*\) in Subarea 6 and divisions 7.a–c and 7.e–j \(West of Scotland, Irish Sea, southern Celtic Seas\) \(figshare.com\)](#)

³² [Greater-spotted dogfish \(*Scyliorhinus stellaris*\) in subareas 6 and 7 \(West of Scotland, southern Celtic Sea, and the English Channel\) \(figshare.com\)](#)

³³ [Chelidonichthys cuculus, Red gurnard : fisheries \(fishbase.se\)](#)

³⁴ Project UK (2023) Annual report 2022 – 2023. [Link](#)

³⁵ Pool, B. (2019). Avoidance of and mitigation against negative interactions between crab and lobster pot fishing gear and endangered, threatened and protected species in South Western Waters. [Link](#)



Habitat



Gear touches the seafloor, though significant interaction with vulnerable habitats is very unlikely.

Seabed impact within the pot fishery is limited to light contact of the pots and minimal penetration of the seabed caused by the weight of the gear. Gear may also be dragged slightly along the seabed, particularly in poor weather. Impacts of pot fishing on the epibenthos of reef habitats, where majority of lobster is targeted, has been found to be negligible.³⁶

It has been shown that pots used in the crab and lobster fishery, if lost at sea, can continue catching animals for up to two years and can cause additional mortality.³⁷ Lost gear is required to be reported to the government.³⁸ The fishery could benefit from the inclusion of biodegradable escape panels: there is no current legislation to enforce such escape measures, however this matter has been noted down for consideration within the FMP.

Glossary

Term	Definition
Cefas	The Centre for Environment, Fisheries, and Aquaculture Science, is an Executive Agency of Defra (the UK Government's Department of Environment, Food and Rural Affairs).
CIFCA	Cornwall IFCA is one of the 10 Inshore Fisheries Conservation Authorities which manage the marine inshore environment around the coast of England.
EEZ	The exclusive economic zone is an area of the sea in which a sovereign state has exclusive rights regarding the exploration and use of marine resources.
Fisheries Management Plan (FMP)	FMPs are evidence-based action plans, developed by UK policy makers in collaboration with the fishing sector and other stakeholders. Their purpose is to deliver sustainable fisheries for current and future generations.

³⁶ Stephenson, F., Mill, A.C., Scott, C.L., Polunin, N.V.C. & Fitzsimmons, C. (2017). Experimental potting impacts on common UK reef habitats in areas of high and low fishing pressure. ICES Journal of Marine Science. 74, 1648–1659.

³⁷ Bullimore, B. A., Newman, P. B., Kaiser, M. J., Gilbert, S. E., & Lock, K. M. (2001). A study of catches in a fleet of "ghost-fishing" pots. Fishery Bulletin, 99(2), 247-253.

³⁸ MMO (2016) [Marking of fishing gear, retrieval and notification of lost gear - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/544443/marking_of_fishing_gear_retrieval_and_notification_of_lost_gear_-_gov_uk.pdf). (Accessed 21/05/2024)



Term	Definition
Fishing Mortality: F	The rate of mortality due to fishing. In some texts it is referred to as "Fishing pressure". The scientists and managers seek to adjust fishing mortality through management measures on a stock to keep the stocks inside safe biological limits and optimise yields at MSY (see below).
Harvest Control Rule (HCR)	A Harvest Control Rule is a set of well-defined management actions that are taken in response to changes in stock status.
Maximum Sustainable Yield: MSY	Catching the maximum quantity that can safely be removed from the stock while maintaining its capacity to produce sustainable yields in the long term.
Spawning stock biomass ('SSB')	This is an estimation of the quantity of breeding adults and hence the reproductive capacity of the stock, measured in tonnes.

Annex 1

Bycatch composition from Pearson 2017, reported within the FIP.³⁶ Any species with a total weight that was greater than 5% of the total catch weight (or 2% if deemed less resilient species) were categorised as 'main', with all other species listed as 'minor'.

Name	Latin	Category	Main vs minor
Retained Edible crab	<i>Cancer pagurus</i>	Target (P1)	N/A
Discarded Edible crab	<i>Cancer pagurus</i>	Target (P1)	N/A
Lobster	<i>Homarus gammarus</i>	Target (P1)	N/A
diseased crab (black crab)	<i>Cancer pagurus</i>	Target (P1)	N/A
Pollock	<i>Pollachius pollachius</i>	Primary	Minor
Pouting	<i>Trisopterus luscus</i>	Primary	Minor
Cod	<i>Gadus morhua</i>	Primary	Minor
dogfish spp	<i>Scyliorhinus spp</i>	Primary	Minor
Hake	<i>Merluccius merluccius</i>	Primary	Minor
Whiting	<i>Merlangius merlangus</i>	Primary	Minor
Haddock	<i>Melanogrammus aeglefinus</i>	Primary	Minor
Spider crab	<i>Maja squinado</i>	Secondary (in-scope)	Main
Velvet crab	<i>Necora puber</i>	Secondary (in-scope)	Minor
Green crab	<i>Carcinus maenas</i>	Secondary (in-scope)	Minor
Hermit crab	<i>Pagurus bernhardus</i>	Secondary (in-scope)	Minor
Mussel	<i>Mytilus edulis</i>	Secondary (in-scope)	Minor
whelk	<i>Buccinum undatum</i>	Secondary (in-scope)	Minor
Squat lobster	<i>Galathea squamifera</i>	Secondary (in-scope)	Minor
Ballan wrasse	<i>Labrus bergylta</i>	Secondary (in-scope)	Minor
Conger eel	<i>Conger conger</i>	Secondary (in-scope)	Minor



Name	Latin	Category	Main vs minor
Trigger fish	<i>Balistes carolinensis</i>	Secondary (in-scope)	Minor
(3) Bearded rockling	<i>Gaidropsarus vulgaris</i>	Secondary (in-scope)	Minor
Bull rout	<i>Myoxocephalus scorpius</i>	Secondary (in-scope)	Minor
Bull huss	<i>Scyliorhinus stellaris</i>	Secondary (in-scope)	Minor
Topknot	<i>Zeugopterus punctatus</i>	Secondary (in-scope)	Minor
Common starfish	<i>Asterias rubens</i>	Secondary (in-scope)	Minor
Brittle stars	<i>Ophiothrix fragilis</i>	Secondary (in-scope)	Minor
Spiny starfish	<i>Marthersterias glacialis</i>	Secondary (in-scope)	Minor
urchin	<i>Echinus esculentus</i>	Secondary (in-scope)	Minor
Common sunstar	<i>Crossaster papposus</i>	Secondary (in-scope)	Minor

Contact

Sophie Bennett
Fisheries Project Officer
Seafish
Sophie.Bennett@seafish.co.uk