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Isle of Man crab and lobster fishery consultation evidence document (1)

An overview of the crab and lobster fishery in the Isle of Man territorial sea; catch & effort trends, licencing, and latency.

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Report IOM 1 – October 2020

To cite this report: Emmerson, J. A., Bloor, I.S.M, Jenkins, S.R. (2020) An overview of the crab and lobster fishery in the Isle of Man territorial sea; catch & effort trends, licencing, and latency. Sustainable Fisheries & Aquaculture Group No. IOM 1, Bangor University. pp. 1 – 9.

Introduction

Edible crab (*Cancer pagurus*) and European lobster (*Homarus gammarus*) are decapod crustaceans found throughout the continental waters of northwestern Europe, from the Norwegian Sea to northern Africa and the Mediterranean.

Both species are exploited commercially throughout their geographical range and support small (<10 m), medium (10 – 15 m) and large (> 15 m) fishing vessels that use baited traps to capture the target species. The largest fishery for both species occurs around the British Isles. Whilst fisheries managers have historically considered them to be caught in a mixed fishery, probability of capture for each species shifts according to habitat, depth, bait-type and abiotic drivers such as sea-water temperature and season. Although fishers may target one species in particular, incidental capture of both frequently occur in the same trap (also known as a ‘pot, or ‘creel’).

Within an Isle of Man context, the value of crab and lobster fisheries have both remained around £0.5 mil per annum each in terms of first-point-of-sale (‘value’) during the period 2005-2017 (DEFA, 2020). However in recent years, from 2018 onwards, more fishing effort has led to increased landings for edible crab in particular. The greatest recorded quantity of edible crab was landed into the Isle of Man in 2018 (629 t; Figure 1), which was worth c. £1.2 mil in value. The quantity of landings increased by 38% from 2017 (456 t) and represented a 58% increase from the mean average of quantity landed 2005-2017 (398 t) (Figure 1).

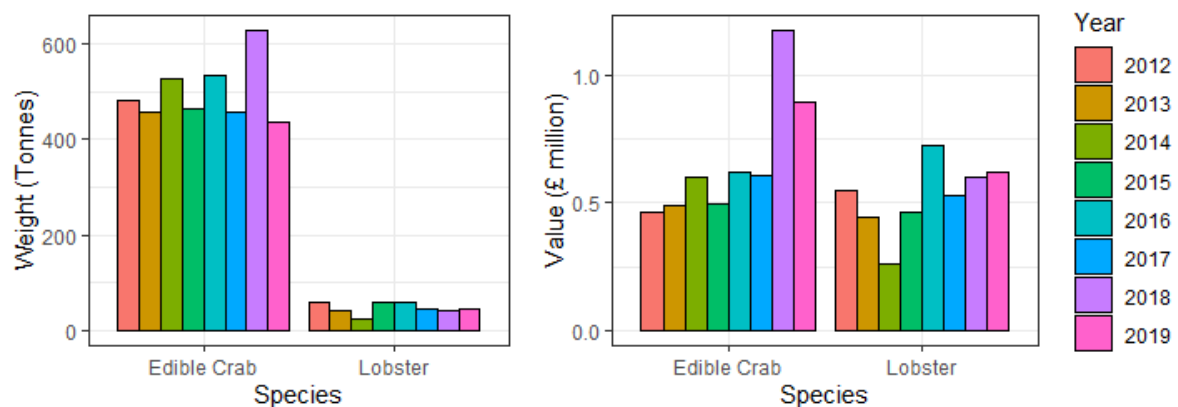


Figure 1. Weight (kg) and landed value (£ million) and quantity of Edible crab and Lobster on the Isle of Man, by year 2015 – 2019. Source: DEFA

The majority of vessels fishing for these species in Isle of Man waters are under 12 m length, and are required to submit landings and effort data to DEFA that allows for analysis of landings-per-unit-effort (LPUE) data. Over-12 m vessels submit e-logbook records, which does not require an assignment of effort to each landings records. Over-12 m vessels are therefore assigned ‘default effort’ in association with crab and lobster landings, which is the maximum number of pots on each individual vessels license. Effort (number of pot lifts per day) and landings (kg retained) are therefore available for both edible crab (Figure 2) and European lobster (Figure 3), which can be used to estimate LPUE.

Recently the edible crab fishery has expanded in terms of effort (2018 and 2019) after a period of relative stability (2012-2017). Effort has increased from approximately c.300,000 pot lifts per year (2012-2017 average) to almost 400,000 pot lifts in 2019. Landings data for edible crab does not correlate with this effort expansion in recent years. Although landings in 2018 were the highest recorded at 629 t, there was a subsequent decrease in landings in 2019 despite the continued high effort.

The autumn fishery (typically September and October) coincides with sea bottom temperature thresholds and is associated with the ‘peak’ in landings and LPUE (Figure 2, left). LPUE has decreased

overall since 2013. Peak LPUE was consistently observed at under 3.0 kg per pot from 2015-2018 compared to 3.0 – 3.5 kg per pot previously (2009-2014, with the exception of 2012). More recently in 2019 the catch data from the autumn fishery showed an LPUE below 1.75 kg per pot, which is a 10-year-low according to logbook data.

These observations have to be caveated with the acknowledgement that the accuracy and precision of logbook records decline for the years prior to 2016 due to IOM legislation changes, and further again for data prior to 2012 reflecting UK legislation changes. Moreover, the use of commercial LPUE in baited pot fisheries as a proxy for stock health is methodologically contentious since trap efficiency can be significantly affected by other biotic and abiotic variables. Nonetheless in the absence of scientific abundance estimates, commercial LPUE is the most useful index available.

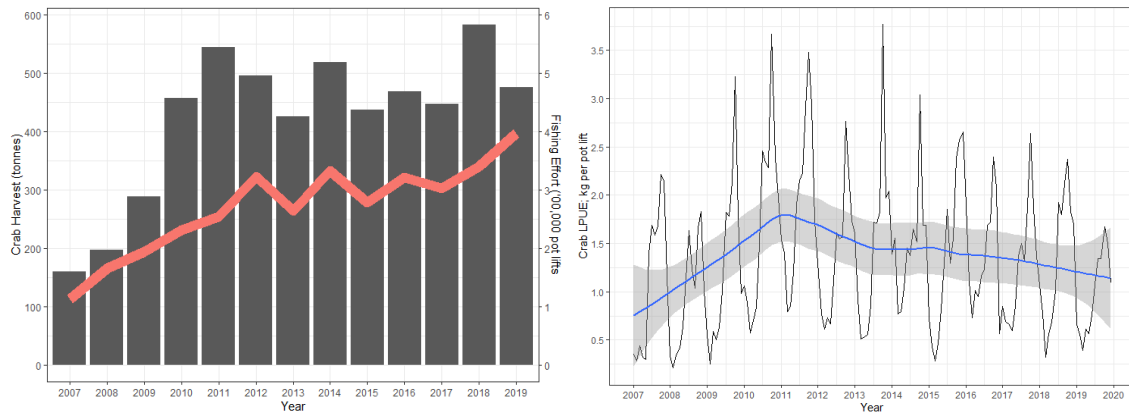


Figure 2. The landings and effort (bar and line respectively: left), and landings-per-unit-effort (LPUE; kg per pot lift: right) in the edible crab fishery from 2007-2019. Source: DEFA MSAL Logbooks (<10 m landings and effort) and iFISH (>10 m landings and default effort)

In the 2019 European lobster fishery, fishing effort has increased to pre-2016 levels at approximately ~270,000 pot lifts annually following declining effort in 2017 and 2018. The Isle of Man European lobster fishery only occasionally exceeds 50 t (in 2012, 2014 and 2016), with harvests typically recording around 45 t per annum since 2010. The fishery has shown a more variable overall trend in LPUE since 2007, which may reflect a cyclical and natural stock dynamic to an extent (Figure 3). However, overall LPUE has declined since 2015 (Figure 3, right). The overall average annual LPUE ranges between 0.15 and 0.25 kg per pot, although monthly average LPUE has been as low as ~0.1 kg per pot (during severe winter storms and low temperatures in early 2013 and 2018) and as high as ~0.3 kg per pot during late summer in 2009 and 2011.

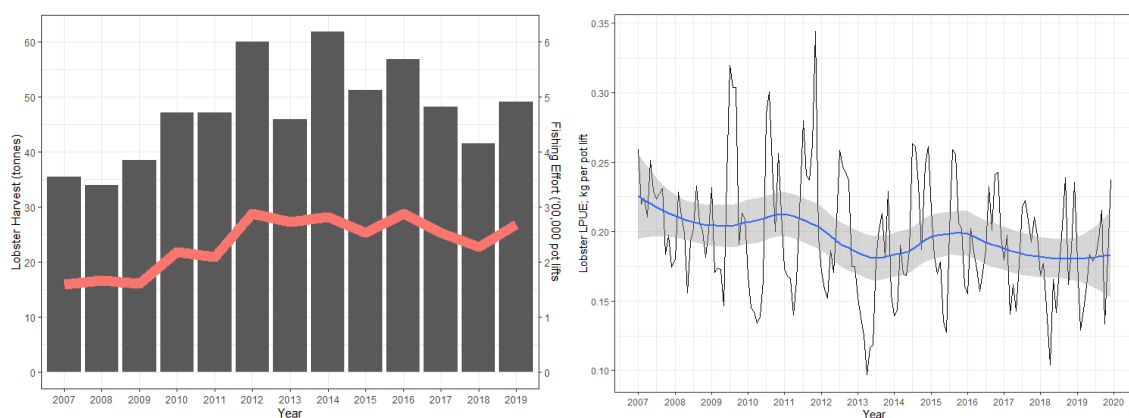


Figure 3. Landings and effort (bar and line respectively: left) and landings-per-unit-effort (LPUE; kg per pot lift: right) in the European lobster fishery from 2007-2019. Source: DEFA (MSAL and iFISH2).

The recent trends in fishing effort and landings in the edible crab and European lobster fisheries led to the formation of an industry working group with representatives from processors as well as Manx and UK catching sectors along with DEFA officers and Bangor University scientists. Within the group, a series of themed discussions led to the development of the consultation paper that highlights the numerous issues and opportunities evident within the fishery. The process has aimed to align the exploitation of crab and lobster fisheries with the ‘Sea Fisheries Strategy, 2016-2021’ (DEFA, 2015), which includes an overall aim to:

- Obtain and apply basic fisheries science data to enable sustainable management.
- Apply an effective range of fisheries management measures within the territorial sea, supported by robust enforcement.
- Develop sustainable fisheries to ensure reliable seafood production.
- Safeguard the long-term viability of the Manx sea fisheries industry with regionally-relevant management

Given the recent trends in catch and effort data in the Isle of Man edible crab and European lobster fishery, a review of license uptake was undertaken to assess the potential of further increases in effort from unused licences and licences that do not fish their full pot allocations (‘licence latency’ and ‘intra-licence latency’ respectively).

Licences

There has been a moratorium on the allocation of additional crab and lobster licences by the Isle of Man Governments Department for Environment, Food & Agriculture (DEFA) since 2016 in order to reduce the potential displacement of effort resulting from the Isle of Man King Scallop consultation (2016). Currently (2020/21 fishing season) there are a total of 51 IOM crab and lobster licences existing. The number of current active licences is 49 (Table 1).

Table 1. The number of licenses and allocated fishing pots (effort capacity) to fish for crab (*C. pagurus*) and European lobster (*H. gammarus*) within the Isle of Man territorial sea in 2020/2021. Data source: DEFA, 2020.

	Total
Active Licenses	49
with Inshore Access (0-3)	49
Total 0 – 12 NM capacity (pots)	20,400
of which no more in 0 – 3 NM	12,300

Commercially licenced vessels range in size, from 3.9 m to 15.7 m overall length (LOA). The mean vessel size is 9.11 m LOA. The majority of vessels are under 10 m (U10) with the most licenced length-metier being the under-8 m category (Figure 4).

There are 11 vessels licenced to fish for crab and lobster that are over 10 m in length, which are subject to different catch-reporting requirements to under-10 m vessels. U10 m vessels are required to submit a ‘monthly shellfish activity logbook’ (MSAL) within 48 hours of the end of the month (Isle of Man Sea Fisheries (Logbooks) Regulations, 2015), which report the daily fishing effort and landings of static-gear fisheries as well as additional information on soak time, fishing ground and time-at-sea. Over 10 m vessels are required to submit a daily logbook, which is in paper form for 10-12 m and e-logbook form for over-12 m. Over-12 m static-gear vessels are also required to carry VMS systems in line with EU/UK regulations. Landings data for all size vessels are uploaded to a central database (iFISH2). However any additional information (such as the spatial data and soak time etc. in the MSAL) is not uploaded to that data base and is stored in a database held by DEFA.

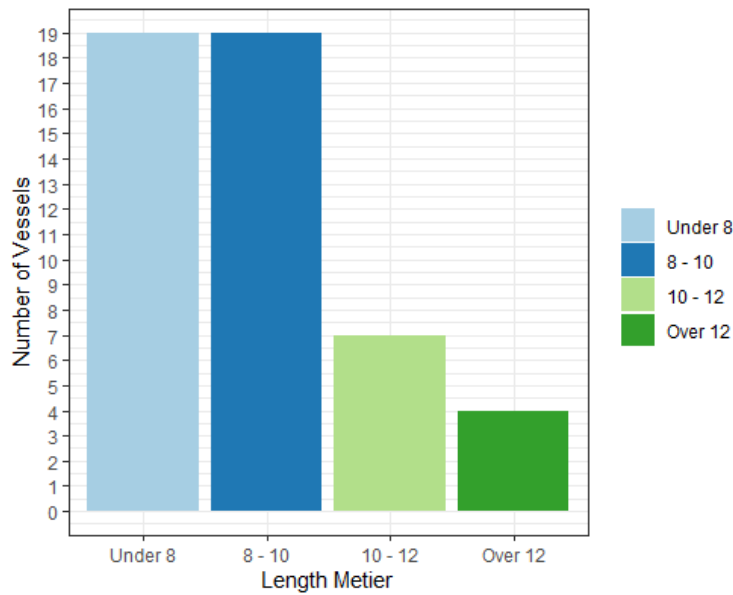


Figure 4. The fleet structure of vessels licenced to fish for crab and lobster in the Isle of Man territorial sea (Data: DEFA, 2019).

The total effort allocated to the fishery varies by length category (Figure 5). Most of the allocated potting effort in the Isle of Man territorial sea is attached to licensed U10 vessels, where 8-10 m and under-8 m have 8,600 and 6,750 respectively (75% of total allocated effort in the fishery). The 10 – 12 m category has 3,400 pots allocated to 6 licenses and the > 12 m category has 2,000 pots allocated to 4 licenses.

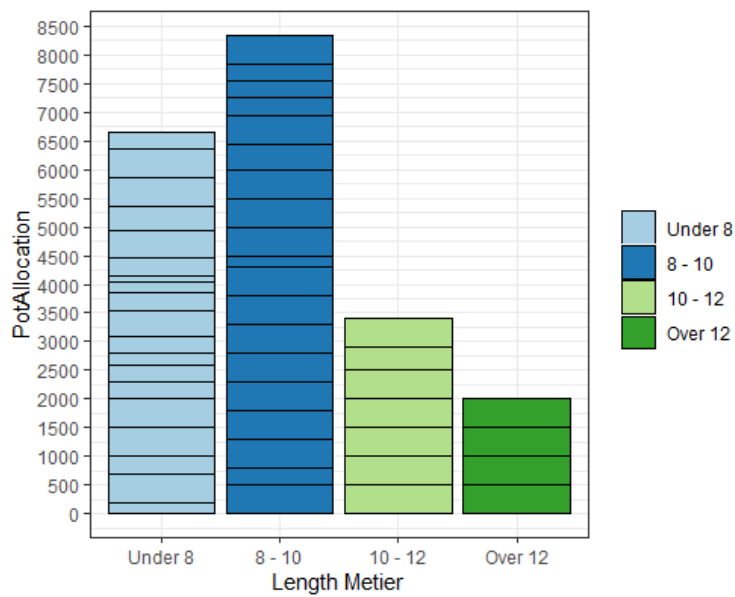


Figure 5. The allocation of fishing effort (pots) to Isle of Man crab and lobster licences by length metier (Data: DEFA, 2019). Individual blocks represent individual licence allocations.

Latency

Latent licenses, defined as those vessels that do not meet the eligibility criteria set out in the consultation (a single days fishing reported in the ICES Rectangles 35E5, 37E5 and 38E5 between 01/01/2016 and 30/06/2018, using fishing pots (FPO) and landing either *Cancer pagurus* and/or *Homarus gammarus*) in compliance with licence conditions and Isle of Man Sea Fisheries Regulations is significant in the fishery.

In total, 14 of the 49 active licences (28%) have not been associated with any edible crab or European lobster landings using baited pots (bycatch in other fisheries using mobile gear is not considered valid use of the licence) in this period and are considered latent. These 14 latent licences have 6,150 pots allocated to them, or 30% of the total number of allocated pots actively licenced in the territorial sea.

Table 2. The uptake of currently licensed vessels with an IOM crab and lobster license in ICES rectangles 36E5, 37E5 and 38E5, 01/01/2016 – 30/06/2018. Data source: iFISH2 and DEFA MSAL.

Mixed CRE & LBE	Licences	Used	Latent
2016 - 2018	49	35	14

Removing recent latency, as defined above, would change the distribution of fishing effort (allocated pots) between fleet meters by varying amounts shown in Figure 6.

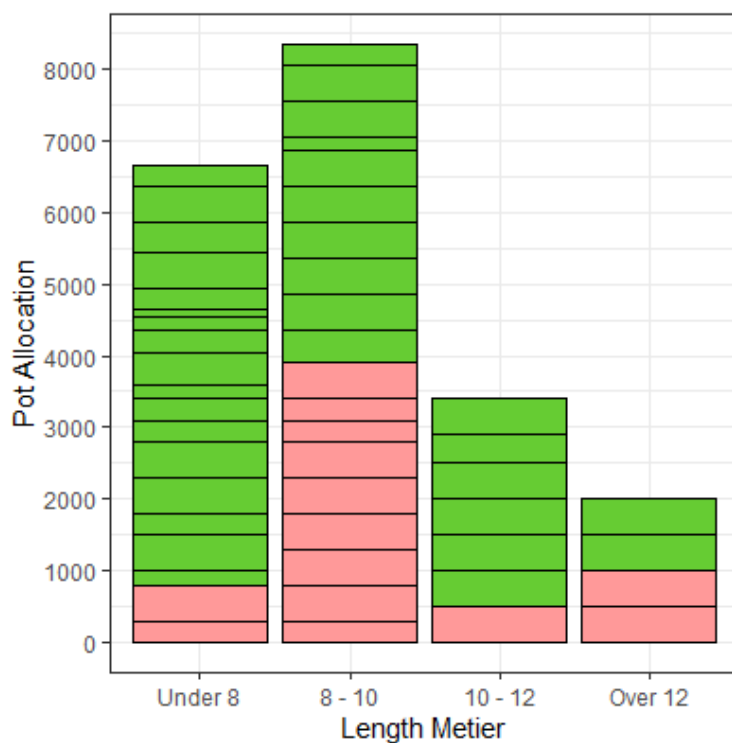


Figure 6. Eligibility of currently active licences according to DEFA’s preferred track-record period. Green = eligible, Red = ineligible.

The allocated fishing effort (number of pots per licence) varies between individual licences. Many vessels are allocated with the full 500 pot limit on their licence irrespective of the individual vessels capacity to deploy and manage that quantity of pots (Figure 7). The minimum number of pots allocated to an active licence is 100 pots.

Pot allocations to individual licences is an important consideration for fisheries management since under-utilised licences also represent latency (and risk) within the fishery (‘intra-licence latency’). This latency, if reallocated via licence-transfer to larger or more capable vessels, could result in instantaneous increases in fishing effort that may not be well matched to current stock status. For example, of the 35 vessels that would be eligible under the proposed track-record criteria, 18 did not fully utilise their pot-allocation according to logbook returns during 2016-2018, with 8 using less than 50% of their maximum pot allocation at any time during the track-record period. All of these vessels with intra-licence latency were <10 m LOA, meaning no eligible over-10 m vessels showed latency in

the pot allocation. An estimate of total allocated pot latency among eligible under-10s is $\approx 3,000$ pots (equivalent to 6 fully entitled 500 crab/lobster licences) based on data submitted in the monthly shellfish activity logbooks (MSAL).

The distribution of pot allocation per licence is shown in figure 7 and is shown against a number of vessel metrics, including overall length, deck area, engine power and vessel capacity units (VCUs). The data shows that there has not been a consistent approach in allocating pots to licenses vessels based on a specific policy that relates the allocation of effort against a metric of the vessel being licensed.

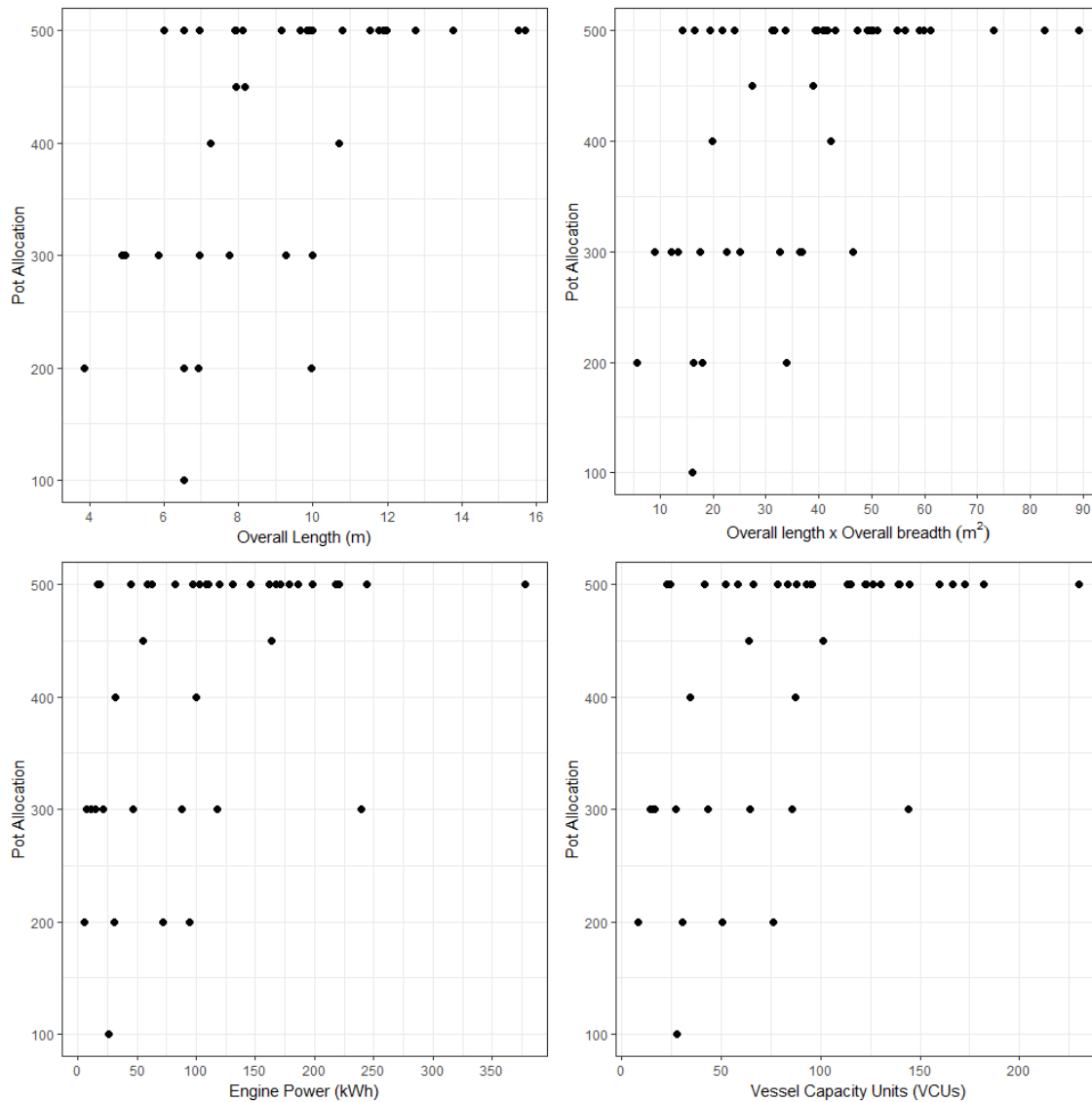


Figure 7. The distribution of effort (pot allocation) per licence as a function of vessel description (overall length, deck area, engine power or VCUs).

Conclusion

There is significant latency within the Isle of Man crab and lobster fishery, both in unused licences and within spare capacity of licences that are used. This presents a risk to the stock and the fishery. Current effort, harvest and LPUE data show relative long-term stability but latency presents the potential for significant increases in effort with unknown consequences to the stock and fishery sustainability.