Manx Marine Environmental Assessment

Commercial Fisheries & Sea Angling

Fishing vessel in Manx waters. Photo: P.F. Duncan
Bass caught off northern beach, Isle of Man. Photo: B. Walmsley

MMEA Chapter 4.1

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Manx Marine Environmental Assessment

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Disclaimer:
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Introduction

This chapter of the Manx Marine Environmental Assessment provides a summary of current knowledge of Manx fisheries and the marine environment which supports them. A summary of information regarding sea angling is also provided.

The chapter provides baseline information on Isle of Man fisheries and may be used as a basis for monitoring or predicting changes to fisheries and development-related matters in Manx waters.

Links to sources of up-to-date information are provided together with key stakeholder contacts, and further local resources.

The document attempts to identify potential considerations and constraints to offshore developments from fisheries and sea angling perspectives.

Following discussions with local stakeholders an initial and generalised assessment of potential effects from a range of potential future developments in Manx territorial waters is also provided to help guide future discussions between the industry, Government Departments, the local public and potential developers.

Knowledge gaps exist and are identified, as these may need to be considered in relation to future environmental impact assessments for developments in Manx waters.

This chapter represents an overview of the information currently available and it is accepted that there may be gaps and omissions, or that only summary data is provided. As such, the chapter should be considered a working document, and key stakeholders and local experts are welcome to contribute further information for future updates. MMEA chapters are expected to be updated on a regular, but infrequent basis.
Baseline

For commercial Manx fisheries and recreational sea angling to be assessed appropriately, a comprehensive description is required which includes:

- details of the agencies responsible for management, regulation and enforcement
- the species caught and the fishery methods used
- the area fished and details of when it is fished (spatial and temporal considerations)
- related habitat information
- the operators involved; and
- historic and current fishing effort

This chapter therefore brings together such information for the first time and may be updated as new sources of information become available to the Manx Marine Environmental Assessment.

Additional environmental information with relevance to fisheries is also provided in other chapters of the MMEA (see Table 1).

**Table 1 Additional MMEA chapters featuring baseline information relevant to Manx fisheries.**

<table>
<thead>
<tr>
<th>Further baseline information</th>
<th>Chapter</th>
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<tr>
<td>Marine Protected Areas – for fisheries and conservation purposes</td>
<td>See MMEA Chapter 3.7 ‘Marine and Coastal Conservation’</td>
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<tr>
<td>Fisheries Legislation and international agreements and obligations</td>
<td>See MMEA Chapter 1.2 Legislation.</td>
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<tr>
<td>Specific aspects of biodiversity, e.g. rare or threatened species</td>
<td>See MMEA Chapters 3.4 a &amp; b ‘Cetaceans and seals’, 3.5 ‘Basking sharks’, 3.6 ‘Birds’, 3.7 ‘Marine and Coastal Conservation’, 3.8 ‘Sea Turtles’</td>
</tr>
<tr>
<td>Benthic communities - key habitats and commercial species</td>
<td>See MMEA Chapter 3.3 ‘Subtidal Ecology’.</td>
</tr>
<tr>
<td>Other important features such as rocky reefs and estuaries</td>
<td>See MMEA Chapter 3.3 ‘Subtidal Ecology’.  See MMEA Chapter 3.2 ‘Coastal Ecology’</td>
</tr>
<tr>
<td>Other aspects of the physical environment relevant to the operation of the fishery such as water quality, pollution or the presence of cultural heritage assets (e.g. shipwrecks).</td>
<td>See MMEA Chapter 2.4 ‘Marine Pollution’  See MMEA Chapter 5.1 ‘Marine and Coastal Historic Environment’</td>
</tr>
</tbody>
</table>
Isle of Man Fisheries

The Isle of Man and its territorial sea area are situated in the middle of the Irish Sea and for centuries the fishing industry has been central to the Manx economy, intimately bound up with traditional ways of Manx life and its coastal towns. Today, kippers continue to be smoked in the traditional way for worldwide export, despite the fact that the large herring fleets of the past departed Manx waters over 30 years ago and that the fish are now mainly imported from the Baltic and elsewhere.

The current Manx commercial fisheries are dependent on good, local stocks of molluscs and crustaceans including: king and queen scallops, whelk, brown crab, lobster and, to a lesser extent, langoustine (*Nephrops norvegicus*). There is close collaboration between local and visiting fishermen, Isle of Man Government and the on-island processing industry, together with local and visiting marine and fisheries scientists.

The Manx fishing industry currently supports approximately 300 jobs and generated an approximate pre-processing (first sale) value of £11.7 million per annum in 2016. For some time the main fishery has been for the king scallop (*Pecten maximus*), although the queen scallop (*Aequipecten opercularis*) grew in commercial importance in recent decades due to a favourable combination of stock increases on the fishing grounds and the development of new markets. However, the relative successes of both of these species have also brought challenges in recent years including increasing fishing effort, overfishing and poor recruitment. As a result, the queen scallop fishery has declined significantly since 2014, and is currently undergoing a stock-rebuilding process under highly-constrained fishing conditions. The queen scallop fishery was the first in Manx waters to have a formal stock assessment conducted in 2012, with consequent introduction of a recommended Total Allowable Catch (TAC) in 2013.

The king scallop fishery has also shown indications of excessive fishing effort and new, restrictive management measures have been introduced since 2016, including effort reduction and the development of a stock assessment and TAC application in 2017 (Bloor et al. 2017). Precautionary management measures are also expected for other fisheries, including those for whelk and crustaceans, as fishing effort has probably increased in both and stock status is unknown.

The Isle of Man promotes its management policies and achievements towards sustainable fisheries, and the close collaboration between stakeholders and a shared local knowledge have benefitted both fisheries management and marine conservation initiatives. The island was one of the first places in the world to have a successful Marine Protected Area for fisheries purposes, established at Port Erin in 1989 with a robust evidence base derived from research conducted at the now-closed Port Erin Marine Laboratory. As of 2016 there are 10 long-term marine protected areas in Manx waters (within 3 nautical miles) supported by the Manx fishers, and several offshore annual closures/restricted areas for scallop (*Aequipecten opercularis*) stock protection and recovery. One of the more recent developments; the Ramsey Bay Marine Nature Reserve, was designated in 2011 as a joint initiative between the
local fishing industry and the Isle of Man Government, with the intention of benefitting both fisheries stocks and biodiversity conservation in Manx waters.

In 2011, the Manx trawl-caught queen scallop fishery was certified as sustainable by the Marine Stewardship Council (MSC) Accreditation, although events since that time have seen it suspended, and eventually cancelled.

The last decade has seen significant growth in scallop and crustacean fisheries throughout the Irish Sea region, resulting in some significant challenges for fisheries and their management, particularly around the Isle of Man where these are the most important species. As a result, in 2015, a five-year ‘Future Fisheries’ strategy for the sustainable development of Manx fisheries and the marine environment was developed and is currently being implemented. This strategy is covered in more detail later in this chapter.

**Species of Commercial or Ecological importance, and Sea Angling Interest**

A summary of the main species of actual or potential commercial value in Manx waters is shown in Table 2.

<table>
<thead>
<tr>
<th>Species name (common &amp; scientific)</th>
<th>Fishery summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOLLUSCS</strong></td>
<td></td>
</tr>
<tr>
<td>King scallop (<em>Pecten maximus</em>)</td>
<td>Most important fishery species by first sale value at £7.4m from landings into the island of 2137 t (2017). Fished by Manx and UK vessels. Processing facilities on island. Markets are predominantly European.</td>
</tr>
<tr>
<td>Queen scallop (<em>Aequipecten opercularis</em>)</td>
<td>The second most important fishery species by first sale value at £1.55m from landings into the island of 1365 t (2017). Fishery under restricted quota regime within the territorial sea. Fished by Manx and UK vessels predominantly via otter trawl. Processing facilities on island. Markets are predominantly European.</td>
</tr>
<tr>
<td>Common whelk (<em>Buccinum undatum</em>)</td>
<td>As of 2017, the third most important fishery species by quantity (810 t) and value (£816,462). A recent fishery, developed over the last 5 years or so. Processing does occur on island, but much is exported without. Fishery requires improved management outside 3 mile limit. Markets are predominantly Asian and European, but exported via 3rd parties in the UK.</td>
</tr>
<tr>
<td>Squid (<em>Loligo forbesi</em>)</td>
<td>Small quantities landed in September-October, some targetted using jig, but also as trawl bycatch. Viewed as potential for future development. Estimated quantity of 0.985 t landed in 2016.</td>
</tr>
<tr>
<td><strong>CRUSTACEANS</strong></td>
<td></td>
</tr>
<tr>
<td>Brown crab (<em>Cancer pagurus</em>)</td>
<td>The fourth most important fishery by quantity, with 456 t worth £604,005. Predominantly exported to the UK, but perhaps up to 30% retained and sold on island.</td>
</tr>
<tr>
<td>Lobster (<em>Homarus gammarus</em>)</td>
<td>The fifth most important fishery by quantity (45 t) and value (£528,714) in 2017. Predominantly exported live to the UK for sale in the UK and Europe.</td>
</tr>
<tr>
<td>Langouste (<em>Nephrops norvegicus</em>)</td>
<td>Approximately 25 t of langouste, worth £127,358, was landed in the Isle of Man in 2017. Relatively small quantities are landed seasonally</td>
</tr>
</tbody>
</table>
by local boats using creels, but most are fished by UK vessels using trawls. The soft muddy grounds for this species occur to the south-west of the island. EU quota species.

**Velvet swimming crab** *(Necora puber)* Not currently fished, but considered potential species for development. Anecdotally may be a relatively smaller size around the island than elsewhere (e.g. western Scotland).

**Spider crab** *(Maja squinado)* Not currently fished, but considered potential species for development if abundance increases. An annual spider crab fishery has developed in west Wales after spring, when numbers increase due to inshore migration.

### FINFISH

**Callig or Pollack** *(Pollachius pollachius)* An artisanal line fishery, with 3 t worth £6,251 in 2016. Commonly available smoked or fillets in Manx restaurants. EU quota species.

**Coley/Saithe** *(Pollachius virens)* Small artisanal line fishery, with 0.37 t landed in 2016. Uncommon. EU quota species.

**Herring** *(Clupea harengus)* Small artisanal line fishery of 0.11 t in 2016. Fairly commonly available in retail outlets. Manx kippers are made using imported herring. Commercial quantities are taken by UK and Irish pelagic trawl vessels in Manx waters, but significant quota is not held on the island and they are not landed locally. EU quota species.

**Lemon sole** *(Microstomus kitt)* Fairly common as a bycatch from queen scallop trawl fishery. Commercial potential, but typically discarded. EU quota species.

**Brill** *(Scophthalmus rhombus)* Small artisanal net fishery (0.1 t), with limited production. Seldom available in local retail outlets. EU quota species with Turbot.

**Turbot** *(Scophthalmus maximus)* Small artisanal net fishery, with very limited production. Seldom available in local retail outlets. EU quota species with Brill.

**Flounder** *(Platichthys flesus)* Moderately common as a bycatch from queen scallop trawl fishery. Commercial potential, but typically discarded. EU quota species.

**Dab** *(Limanda limanda)* Fairly common as a bycatch from queen scallop trawl fishery. Commercial potential, but typically discarded. EU quota species.

**Monk (Angler) fish** *(Lophius piscatorius)* Moderately common as a bycatch from queen scallop trawl fishery and scallop dredge fishery. Approximately 0.95 t, worth £2082 were landed in 2016. Commercial potential, but often discarded. EU quota species, but data deficient.

**Cod** *(Gadus morhua)* Fairly common, but in small quantities as a bycatch from queen scallop trawl fishery. Commercial potential, but typically discarded, mostly due to quota status which is limited for Manx fishermen. 0.16 t landed in 2016. Importantly, species is still considered overexploited in Area VIIa (Irish Sea) and so stocks need to recover before exploitation is feasible¹. EU quota species.

**Haddock** *(Melanogrammus aeglefinus)* Fairly common in moderate quantities as a bycatch from queen scallop trawl fishery. Commercial potential, but typically discarded, mostly due to quota status which is limited for Manx fishermen. 0.64 t landed in 2016. Stock status has improved in Area VIIa (Irish Sea) but additional exploitation would require planning². EU quota species.

**Whiting** *(Merlangius merlangus)* Fairly common in bycatch from queen scallop trawl fishery. Commercial potential, but typically discarded, mostly due to quota status which is limited for Manx fishermen. 0.06 t landed in 2016. Importantly, species

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¹ [http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/cod-iris.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/cod-iris.pdf)

² [http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/had-iris.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/had-iris.pdf)
is still considered overexploited in Area VIIa (Irish Sea) and so stocks need to recover before exploitation is feasible³. EU quota species.

<table>
<thead>
<tr>
<th>Species</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ling (Molva molva)</td>
<td>Uncommon as a bycatch from queen scallop trawl fishery. Typically discarded, available quota to Isle of Man would limit commercialisation. EU quota species.</td>
</tr>
<tr>
<td>Pouting (Trisopterus luscus)</td>
<td>Uncommon as a bycatch from queen scallop trawl fishery. Typically discarded. Not quota species.</td>
</tr>
<tr>
<td>Poor cod (Trisopterus minutus)</td>
<td>Uncommon as a bycatch from queen scallop trawl fishery. Typically discarded. Not quota species.</td>
</tr>
<tr>
<td>Hake (Merluccius merluccius)</td>
<td>Uncommon as a bycatch from queen scallop trawl fishery. Typically discarded, available EU quota limits commercialisation.</td>
</tr>
<tr>
<td>Mackerel (Scomber scombrus)</td>
<td>Small artisanal fishery at 2.8 t in 2016. Fairly commonly available in retail outlets, often as smoked or value-added product. Used for pot bait. Not commercially exploited on a large scale in Manx waters. EU quota species.</td>
</tr>
<tr>
<td>John Dory (Zeus faber)</td>
<td>Uncommon as a bycatch from queen scallop trawl fishery. Typically discarded, available quota limits commercialisation. EU quota species.</td>
</tr>
<tr>
<td>Gurnard (Chelidonichthys cuculus, C. lucerna, Eutrigla gurnardus)</td>
<td>Common as a bycatch from queen scallop trawl fishery. Often landed as bait for pot fisheries. Around 0.8 t landed in 2016, low commercial value. Species are not differentiated. Potential development as edible fish.</td>
</tr>
<tr>
<td>Ray (thornback, blonde, spotted and cuckoo) (Raja clavata, R. brachyura, R. montagui, Leucoraja naevus)</td>
<td>Moderately common as a bycatch from queen scallop trawl fishery. Around 0.3 t landed of low commercial value in 2016. Species typically discarded and show good survival, so targeted fisheries would require careful planning due to biological characteristics. EU quota species.</td>
</tr>
<tr>
<td>Small spotted catshark (Scyliorhinus canicula)</td>
<td>Common as a bycatch from queen scallop trawl fishery. Often landed as bait for pot fisheries. Around 10 t landed in 2015, low commercial value. Not quota species. A further 6.3 t of ‘unidentified dogfish’ was recorded in 2015. Targeted elasmobranch fisheries are unlikely to be sustainable due to biological characteristics.</td>
</tr>
<tr>
<td>Edible sea urchin (Echinus esculentus)</td>
<td>Not currently fished. Potential for development, but would require careful management.</td>
</tr>
</tbody>
</table>

**Sources:**
Values and quantities are derived from DEFA annual fishery summary which records landings and value of sea fisheries into the Isle of Man. They do not represent all landings taken within the territorial sea, and may include catches taken outside, but landed into the island. They indicate the economic value of the fishery to the island, but not the actual resource harvest from the Manx sea area. This is an acknowledged information gap which requires future attention.

Several reports which describe the bycatch from the queen scallop fishery are available; Duncan (2009), Boyle and Thompson (2012) and Bloor et al. (2015).

Latest ICES information on commercial quota species can be found at: http://www.ices.dk/community/advisory-process/Pages/Latest-Advice.aspx

**Minimum Landing Sizes for Commercial and Recreational Fishing (MLS)**
Minimum landing sizes for commercial fish species are part of the technical measures of the European Union and are described in Council Regulation (EC) No 850/98 Annex XII of 30 March 1998. The UK has adopted these sizes, as has the Isle of Man as part of the fisheries management agreement with the UK. However, these are minimum sizes for the protection

³ http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/whg-iris.pdf
of juvenile organisms, and therefore jurisdictions can impose larger minimum sizes for enhanced conservation if desired. It is also the case that growth rates differ between areas, dependent on environmental or genetic factors, and so a single MLS throughout the EU area may not be appropriate. Scientific research can provide area specific recommendations for local MLS. Please see link for Isle of Man Minimum Landing Sizes which may differ to elsewhere: https://www.gov.im/media/872623/minimum-landing-sizes-upd.pdf

**Scallop Fisheries**

King scallops, *Pecten maximus*, and queen scallops, *Aequipecten opercularis*, have been fished around the Isle of Man since the late 1930s and late 1960s respectively and are currently the most valuable fisheries for Manx and visiting vessels.

The Isle of Man fleet for the two scallops is essentially the same but because the two species have very different behaviours; king scallops burying into the sediment whilst queen scallops are active swimmers, fishing techniques differ accordingly. It is important to differentiate between the two species, reflecting the different fishing gears, life histories, fishing methods and timing, since the interaction with the sea floor and associated marine habitats are linked to the fishing methods employed (Table 3).

**King Scallops**

King scallops are fished using toothed Newhaven dredges usually with eight metal teeth approximately 110 mm in length, set vertically along the front edge of the dredge and mounted on a pivot linked to springs. Tension on the springs is adjusted to suit the nature of the seabed substrate. The teeth rake up the scallops which are caught by the mesh and steel bag positioned behind the tooth bar. Groups of dredges (up to a maximum of 7 per side between 3 and 12 nm, and 5 per side within 3 nm) are hung from a tow bar which has wheels on either end so it can move more easily over the seabed. Once dredges are hauled back on deck, the mesh bags are emptied manually, very occasionally automatically, and catches are sorted. The minimum landing size for *P. maximus* around the Isle of Man is 110mm at the widest point, with smaller king scallops returned to the seabed.

**Queen scallops**

Queen scallops tend to swim when disturbed and, although originally fished using toothed dredges, Manx fishermen now almost exclusively use otter trawls. Unlike scallop dredges, there are no teeth or individual metal dredge frames, instead a light tickler chain or footrope disturbs the queen scallops causing them to swim upwards into the water column where they are caught by the single, large net attached behind the tickler chain. *Aequipecten opercularis* are typically fished by Manx otter trawlers from early July until October. There remains a small dredge fishery for queen scallops, although this is mostly conducted by UK vessels towards the end of the year and is limited to a relatively small area of the territorial sea (Figure 1). See also regulation and management section below.
Table 3. Brief summary of the Manx King Scallop and Queen Scallop fishery.

<table>
<thead>
<tr>
<th>Species</th>
<th>King Scallops</th>
<th>Queen Scallops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scientific name: <em>Pecten maximus</em></td>
<td>Scientific name: <em>Aequipecten opercularis</em></td>
</tr>
<tr>
<td>Life History</td>
<td>Generally sedentary. Undisturbed king scallops usually lie recessed into the seabed with their flat valve uppermost. Move to avoid predators. Both species spawn around the same time each year; April-May, sometimes in autumn, sometimes dribble spawning throughout spring/summer.</td>
<td>Active swimmers especially when disturbed. Lie on top of seabed. Both species inhabit similar sediment types, with <em>Pecten</em> tending towards softer, smaller grain size to enable recessing.</td>
</tr>
<tr>
<td>Gear</td>
<td>Toothed dredge</td>
<td>Predominantly otter trawl, limited dredging in defined area.</td>
</tr>
<tr>
<td>Method</td>
<td>Rake to extract from sediment and capture in net behind dredge frame.</td>
<td>‘Tickle’ to disturb seabed, swims then capture in trawl, concentrated in net ‘cod end’.</td>
</tr>
</tbody>
</table>

Figure 1. Queen scallop dredge fishery area (hatched area in 6-12 nm zone) and other closed, restricted or management areas (hatched), correct at October 2018.
Extent and Recent Trends in the King & Queen Scallop Fisheries
The majority of scallop fishing activity (king & queen) by Manx fishing vessels occurs within the territorial sea with fishing activity tending to focus on specific grounds, which vary to some extent depending on species. These include Targets (TAR), Chickens (CHI), Bradda Inshore (BRI) and Bradda Offshore (BRO) (Figure 2). Manx vessels do occasionally fish further afield in UK waters, however this fishing activity is restricted to relatively few boats.

Figure 2. Satellite-based vessel monitoring system (VMS) points (as a proxy for fishing activity) for queen scallop (*Aequipecten opercularis*) and scallop (*Pecten maximus*) in the Manx Territorial Sea between 2007-2013. Red (central) colour indicates highest fishing activity. Note there is annual variation in the precise location of fishing, but these maps indicate the long-term areas of scallop fishing activity.

Fleet Structure and Landings
For the 2016/17 season, 89 vessels were licensed to fish for scallops (king or queen) within the 3-12 nm area of the Isle of Man’s territorial waters, of which 30 were Manx registered and 59 are UK vessels. Of the 89 vessels, 40 may also fish for scallops within 0 to 3 nm area; 28 Manx and 12 UK.

Since 2011 landings of king scallop into the Isle of Man have increased from 1534 t to over 2137 t in 2016, and value over that time has increased from £2.58m to £5.59m (Figure 3).

Landings of queen scallops have been more influenced by market demand, although stock density has also been important. During the period 2010/2011 demand and stocks of queen scallops was extremely high and landings into the Isle of Man increased rapidly from 1473 t in 2009 to 2817 t in 2010, and to 5806 t by 2013 (Figure 4). In the wider territorial sea area (broadly ICES statistical squares, 36E5 and 37E5) exceeded 12,000t between June-May in both 2010/11 and 2011/12. Since 2013, and the introduction of stock-assessment based management measures, Manx landings have decreased significantly, although value has remained relatively good.
The trends in both of these scallop fisheries have been mirrored in many other scallop fisheries around the UK, with increasing numbers of vessels, fishing effort and landings, although decreases in landings per unit effort (e.g. Duncan *et al.* 2016, Curtis *et al.* 2017). These developments are considered to be related to species switching within the fishing industry and the lack of regulation within the scallop fishery, and cannot be seen as desirable or sustainable, especially in the absence of effective management. During this period the Isle of Man has spent considerable time in data acquisition, consultation, and the development and implementation of management measures. It is hoped that these efforts will be successful over the coming years in maintaining sustainable economic production from these two fisheries.

![Figure 3. Reported landings (tonnes) and first-sale value (£) of king scallops, *Pecten maximus* into the Isle of Man between 2005 and 2016.](image)

![Figure 4. Reported landings (tonnes) and first-sale value (£) of queen scallops, *Aequipecten opercularis* into the Isle of Man between 2005 and 2016. Landings after 2013 were lifted by stock reduction and catch limits.](image)
For further information about the king & queen scallop fisheries of the Isle of Man and current research please refer to the webpage below and peer reviewed academic publications therein:

http://fisheries-conservation.bangor.ac.uk/index.php.en?menu=0&catid=0

**Queen Scallop Sustainability Certification**

In 2011 the Manx trawl-caught Queen Scallop fishery was awarded Marine Stewardship Council (MSC) accreditation as a certified sustainable and well-managed fishery. However, the significant stock declines from around 2010 resulted in certificate suspension in 2014 and, despite major stock recovery efforts, the fishery was withdrawal from the process in January 2017. At least part of the problem with the stock recovery programme, and hence the continued certification, was the (stock) assessment unit - i.e. the discrete population of animals in relation to the management regime. It was recognised that the scallops in Manx waters were part of a much wider Irish Sea population, and the lack of regulation in UK waters meant that effective management control over the certification unit could not be achieved. As a result of this, and UK industry requests to improve Irish Sea queen scallop management, an industry and Fisheries Authorities working group was established to progress management planning, see: http://www.gov.scot/Publications/2016/10/2736.

Full details of the MSC assessment of the Manx queen scallop fishery is available at: https://fisheries.msc.org/en/fisheries/isle-of-man-queen-scallop-trawl/@@view, and additional details on the fishery can be found at http://fisheries-conservation.bangor.ac.uk/iom/documents/66.pdf

**Crab & Lobster Fisheries**

The Isle of Man has a long tradition of pot fishing, and currently has important commercial fisheries for brown crab (*Cancer pagurus*) and lobster (*Homarus gammarus*). Although other species of commercial crustaceans are present in Manx waters, such as velvet swimming crab (*Necora puber*), spider crab (*Maja squinado*) and common prawn (*Palaemon serratus*), they are not target species due to apparently lower stocks, smaller body sizes or lower economic value (Senechal 2010). Recreational fishing for crab and lobster also occurs and is noted at the end of this section, however this section primarily relates to the commercial fishery.

Both brown crab and lobster are effectively targeted as part of the same fishery, using the same gear, with fishermen prioritising either species via fishing location or, to a lesser extent bait type. Inshore fishermen that target lobster are known to discard brown crab, despite the fact that the species has commercial value.

Lobster is predominantly a rocky reef species, and tends to occur closer to shore, typically within the 3 nm territorial sea area. Brown crabs occur in offshore (3-12 nm) areas of the territorial sea, particularly on the west and south-west coasts on sandy sediment bottoms. It
is understood that female crabs exhibit migratory behaviour as a result of their reproductive biology, with summer months spent inshore on harder substrate during the mating season and an offshore migration in autumn in order to brood their eggs in softer sediments over winter.

Consequently, pot fishing occurs all around the island within 3 nm (with the possible exception of the NE coast), and out to the territorial sea boundary (12 nm) off the central-west and south-west coasts (Figure 5). However, the spatial footprint of this fishery is dynamic depending on the season.

![Figure 5. Spatial distribution of crab and lobster fishing in the Isle of Man territorial sea, where red indicates a presence of fishing activity between 2011 and 2016 by vessels currently holding an Isle of Man pot-fishing licence.](image)

Other fishing activities, notably the queen scallop trawl and dredge and the king scallop dredge fisheries, limit offshore potting due to the increased risk of gear loss, but also due to the natural reduction of suitable habitat types.

Within the 3 nm limit, pot fishing is organised on a largely territorial and track-record basis, with individual fishermen working recognised and fairly consistent areas based on historic fishing activity. Consequently there is relatively little available or unused potting area for new entrants to the fishery, or for the uptake of existing latent effort. This has potential implications for the future development and viability of the industry relative to its current status.
**Fishing Gear**

The fishing gear used to target both crab and lobster is the same, with no significant specification differences for either species (Figure 6). The industry mostly uses the traditional creel, fitted with ‘soft-eyes’, although ‘hard-eye’, top-mounted entrances are in use. The use of parlour pots is more common in the west and south-west of the island. There is some variation in pot size, largely dependent on the size of the vessel and crew number.

![Figure 6. Typical Manx lobster/crab pots. Photo: DEFA.](image)

Typically pot size ranges from 600 mm (length) x 400 mm (width) x 400 mm (height) to 900 mm x 450 mm x 450 mm.

Pots may be fished individually or in strings of up to 30, dependant on the scale of operation and deployment location. Similarly, the configuration of the strings, i.e. the number of pots per string and the spacing between pots, also varies between vessels: the total length of a string of pots can vary from 5m to over 300m.

A string of pots is typically rigged with a surface marker float, which should include identification marks (vessel registration number (PLN) and the number of attached pots), with a sufficient length of rope to reach the seabed and remain on the surface during the tidal cycle. A weight or small anchor attaches to the rope on the seabed, in order to maintain the float and rope in a near-vertical position and minimise the risk of entanglements, and the rope continues along the seabed with pots attached at regular intervals. The string terminates with an anchor or weight to maintain the end of the string in position (Seafish 2009). However, in some areas of high fishing intensity there may be significant numbers of surface buoys and gear, which can occasionally represent a navigational hazard.
Since September 2011 all commercial pots deployed within the territorial sea (including hobby pots) should be marked with a DEFA (Department of Environment, Food and Agriculture) issued pot tag, which is intended to ensure compliance with the allocated pot limit for each licence (see later section on crab and lobster fishery regulation). Since 2015 recreational potters are no longer required to attach pot tags.

Sample pot tag. Photo: DEFA.

All crab and lobster pots, including recreational gear, must be fitted with an unobstructed escape gap or panel, in the lower part of the pot, the minimum size for this panel is 80 mm (width) x 40 mm (height).

Pots are baited with fish, typically oily species, such as mackerel or herring, although spotted catshark (*Scyliorhinus canicula*), and other finfish species are also used. Most bait is sourced off island, and a cheap, reliable bait supply remains an important industry concern.

Soak time, or the period that the pots are deployed for, ranges between 1 and 7 days, depending on target-species activity and weather conditions, although 24-48 hours is typical.

Within the territorial sea a minimum landing size (MLS) of 87 mm carapace length applies to lobster, and 130 mm carapace width for brown crab, except in *Baie ny Carrickey* MNR (Closed Area), where the MLS are 90 and 135 mm respectively, with an additional maximum landing size of 120 mm for lobster.

**Markets for Crab and Lobster**

For smaller-scale fishermen crab are often processed and sold on the island, as a meat-only, ‘dressed crab’ product. However, larger operations are more likely to have buyers in the UK, and ship live crab at regular intervals, or they may land directly into UK ports.

By contrast, lobsters, which command much higher prices, especially during particular seasonal periods, are almost exclusively shipped off-island as a live product. However, due to transport costs, shipment of lobster is seldom for quantities of less than 1 tonne, and therefore smaller operators typically store lobster for up to several months in inshore stockpots until sufficient quantities have been collected. Alternatively, individual fishermen often collaborate with others, pooling lobster catches and reducing individual transport costs. This strategy also reduces the risk of stock-pot loss, as shipments are more frequent and provide opportunities to maximise value during periods of higher demand and prices.
Fleet and Landings for Crab & Lobster

There is currently a moratorium on the issuance of new licences to fish for crab & lobster within the Isle of Man territorial sea, due to concerns that increased and/or uptake of latent effort may impair stock health for either species. There are currently 47 active licences (2017), of which 13 are issued to UK-registered boats working predominantly out of Northern Ireland. To date these vessels have generally not exercised the right to fish within the Manx territorial sea, and therefore represent latent, rather than actual effort in the fishery.

This situation is highly undesirable from a fisheries management perspective, particularly given the absence of robust stock assessment data for either species. License issuing practices and latent effort have also previously been identified as industry concerns (Whitely 2009).

Crab & Lobster Fisheries Data

The Isle of Man Government, via the Department of Environment, Food and Agriculture (DEFA), collect landings data for major fishery species landed onto the island. Crab and lobster are separated for reporting purposes and have typically represented the 3rd and 4th most important fishery species by value and landing weight. However, the whelk fishery is now the 3rd most important Manx fishery, with lobster and crab 4th and 5th respectively.

In 2017 lobster landings were 45 tonnes, valued at £528,714, (Figure 7) while brown crab landings were 456 tonnes, worth £604,005 (Figure 8). These values are considered to represent the majority of fishery production of these species from the territorial sea, although there is an additional component caught outside Manx waters by Manx–registered vessels and landed off the island, principally in the UK.

Figure 7. First sale landings and value of lobster (*Homarus gammarus*) into the Isle of Man (2005 - 2016). Data from 2013-14 has been excluded due to incomplete reporting. Source: DEFA.
Fisheries data, which includes catch and effort (pot lift frequency), indicates a seasonal peak in brown crab landings between June and September, which is also seen in landings per unit effort (LPUE) data (Figure 9). This is indicative of a higher level of activity in brown crab populations during warming months as well as other seasonal abundance factors, such as reproductive migrations. Anecdotal evidence strongly suggests a seasonal migration pattern on the west coast relating particularly to female mating and spawning behaviour. This may translate to wider-scale crab movements within the Irish Sea.
Although lobster are a less mobile species, as indicated by an ongoing mark-recapture experiment in *Baie ny Carrickey*, a similar trend in landings and LPUE is observed although to a much lesser extent (Figure 10). Such catch trends may be related to factors such as weather and water temperature.

![Figure 10. Catch (red) and effort (blue) data in the Isle of Man lobster fishery. The red line indicates the LPUE trend relative to the 5-year average (2012-2017). Source: DEFA/Bangor U.](image)

Recent research on Manx crab and lobster fisheries have included a study on brown crab including population structure, reproductive ecology and catch characteristics, including bycatch (Ondes 2015). A study on shell disease (black spot) syndrome in brown crab was also undertaken in Manx waters (King et al. 2012)

**Recreational fishing for crab and lobster**
There is a recreational pot fishery for crab and lobster allowing up to 5 pots from either a pleasure craft or from the shore. A licence and annual catch return is required, with a catch limit of 1 lobster and up to 5 crabs per day. The same MLS and MaxLS apply to recreational fishers\(^4\).

**The Whelk Fishery**
In the Irish Sea the common whelk (*Buccinum undatum*) is fished using whelk pots, which are a species-specific design, comprising a perforated cylindrical structure, approximately 70 cm high and 40 cm diameter, weighted with a concrete base and open at the top via a coarse mesh cover (Figure 11). They are typically fished in strings of up to 50 or more pots, therefore a string may extend for more than 1000 m. Pot strings should be clearly marked with surface buoys and flags, but their length, movement and long soak time can make them a potential navigational hazard.

Pots are baited with available fish waste and bycatch, although brown crab (*Cancer pagurus*) waste is considered to be particularly effective in combination with lesser-spotted catshark (*Scyliorhinus canicula*).

Initial work on the development of the fishery in Manx waters was undertaken by Kideys (1991, 1993) and Kideys *et al.* (1993), including an assessment of the viability of a whelk fishery for the island (Duncan *et al.*, 1990). This feasibility study assessed populations of whelk around the island using different gear types. Results indicated that whelks were widely distributed, although less common on scallop dredging areas. The report also highlighted potentially different spatial growth rates around the island, implying that local-scale management may be appropriate. The conclusion was that a whelk fishery for the island was feasible from autumn through to spring, as pot capture in summer months was less effective. The importance of market and price in the development of the fishery were also noted. The development of the current fishery appears to have broadly followed the pattern outlined in this report, whether by intent or independently. Principal markets appear to be European or South-East Asian (e.g. Taiwan, Korea).

More widely the commercial fishery for whelk has expanded significantly in the Irish Sea since 1990 and continues to grow, particularly off Wales and in the Isle of Man territorial sea, with landings throughout the region increasing by 227% between 2011 and 2016 (Figure 12).
Figure 12. Landings of common whelk (*Buccinum undatum*) in 2011 (left) and 2016 (right) by ICES rectangle in the Irish Sea (ICES Area VIIa). Data: iFish2 logbook database.

In 2017 reported landings to the island from the territorial sea was 810 tonnes worth £816,462 (Figure 13). Some UK-registered vessels fish whelk within Manx waters, but land into UK ports, and so their catches are not recorded in the collated statistics.

Figure 13. First sale landings and value of common whelk (*Buccinum undatum*) into the Isle of Man (2011 -2016) from UK and Manx vessels. Source: DEFA.
In 2017, DEFA created a species-specific license for the fishery with 22 licensed vessels, which includes Manx and UK-registered boats. The fishery is currently regulated by a minimum landing size (MLS) of 70 mm total shell length (TSL) as well as an overall pot limit (1000 pots per licence). Furthermore, some vessels have access to fishing grounds within the 0-3 nautical mile zone, which has a pot-limit of 300 pots per licence. See later section on ‘Whelk Fishery Regulation’.

The spatial distribution of the fishery is indicated in Figure 14, according to data submitted via monthly shellfish activity returns (MSARs) and a 12-month stock-sampling programme conducted in 2016 (Emmerson et al., in prep).

Figure 14. Spatial distribution of whelk fishing in the Isle of Man territorial sea, where red indicates a presence of fishing activity between 2011 and 2016 by vessels currently holding an Isle of Man whelk licence.

In response to the expansion of the fishery a 12-month sampling programme was conducted in 2016 in order to better understand the biology of whelk populations around the island. Sampling was conducted at the same time as mark-recapture experiments (Bolger 2016) to investigate movements and connectivity of populations. Highlights from the research include:

- Whelk recruit to the fishery after an average 5 years growth.
- Size-at-maturity varies around the island, indicating discrete population demographics. Functional maturity is achieved at, or just above, the current MLS.
- Spawning occurs in later winter to early spring (December – February).
- Although the movement of adults is very limited according to tagging studies, pre-recruits are found in significantly higher abundance in certain areas, indicating the presence of nursery habitat, particularly in inshore grounds, e.g. Modiolus reefs (Kent et al. 2017).
Langoustine (*Nephrops norvegicus*)

Langoustine (*Nephrops norvegicus*), also known as Dublin Bay prawns, Norway lobster and scampi, are fished principally in the west of Manx territorial waters on soft muddy substrates (Figure 15). The fishing ground extends further west into Irish and UK waters, and the species is also fished to the east of the territorial sea off the Cumbrian coast.

![Figure 15. Langoustine (*Nephrops norvegicus*) and fishery distribution within Manx territorial sea. Source: DEFA.](image)

The majority of *Nephrops* fishing is carried out by benthic trawling which can result in disturbance and damage to the seabed and the removal of non-target species. Manx vessels very rarely target this species with trawl gear, although several Manx boats use pots between February and April, and quantities are relatively small.

Trawling for *Nephrops* in Manx waters (3-12 nm) is conducted by Northern Irish vessels, which also predominantly land into their home ports, although limited landings into the Isle of Man (Peel) do occur. This fishery has shown an increasing landings trend (Figure 16) into the Isle of Man, although it is not clear whether this is related to increasing catches from adjacent grounds landing into the Isle of Man, or generally increasing landings from Northern Irish trawlers and Manx potters.

Total Isle of Man landings of this species was 25 tonnes in 2017, worth approximately £127,358, although very little of this total was caught and landed by Manx-registered vessels.
Finfish – Inshore & Pelagic

There was a targeted whitefish fishery in Manx waters until around 1990, when stock levels, quota or other management restrictions made them commercially unviable. See Table 2 for data on current commercial finfish catches under existing quota / licence arrangements.

The rocky shores of the Manx coast are habitat for small, non-commercial fish which undertake the majority of their life cycle in a limited area (Geffen et al. 1990). Juvenile gadoids, including commercial species such as cod (*Gadhus morhua*), whiting (*Merlangius merlangus*), poor cod (*Trisopterus minutus*), pollack (locally known as callig)(*Pollachius pollachius*), and coley or saithe (*Pollachius virens*), are caught by local anglers, often in their first year of life.

Sand and mud beaches and harbour areas are often habitat for juvenile plaice (*Pleuronectes platessa*) which live in shallow areas before moving offshore to join adult populations. These nursery grounds may also be used by turbot (*Scophthalmus maximus*), brill (*Scophthalmus rhombus*) and common sole (*Solea solea*) with common dab (*Limanda limanda*) inhabiting deeper water.

Juvenile sprat (*Sprattus sprattus*), mackerel (*Scomber scombrus*) and herring (*Clupea harengus*) also inhabit Manx waters as part of the wider Irish Sea population, although the former are not caught in Manx waters. Herring are fished in Manx waters, although by UK (Northern Irish) rather than local vessels.
Herring spawning grounds are found in coastal waters to the west, north and east of the Isle of Man and on the Irish Coast at around 54°N on gravel (ICES 1994, Dickey-Collas et al. 2001). Herring spawning takes place from around September to November in both areas, occurring slightly later on average on the Irish Coast than off the Isle of Man. The fish lay demersal eggs which later hatch and disperse northwards into shoals before they return around July, though not in densities that a mid-water trawl would target. Currently, two boats fish commercially for herring in Manx waters under licence (non-Manx vessels). Catches usually start north-west of Peel, then move south and east. The fishery runs from August to September whilst fat content is rising and the fish start to aggregate prior to spawning. The Isle of Man does have an annual area closure (21st September to 15th November) for herring (the herring box), to the east of the island, aimed at protecting vulnerable stages of the life cycle (Figure 17).

Figure 17. Position and geographical area of herring closures within the Irish Sea, including Douglas Bank, as defined by Council Regulation (EC) No 850/98, amended by EC 2723/1999.

Most beach areas (gravel-sand) also support populations of smaller, non-commercial finfish species which go through their life cycle either in the close vicinity, or within the confines of the nursery areas. The most common species encountered are sand eels (*Ammodytes marinus*), and sand gobies (*Pomatoschistus minutus*). Sandeels have a close association with sandy substrates into which they burrow, for example Wart Bank to the east of the Calf of Man.

Pipefish, *Sygnathus* spp. and the 15-spined stickleback (*Spinachia spinachia*) are found in eelgrass or kelp.

Salmon (*Salmo salar*) frequent the larger rivers of the Isle of Man including the Neb, Douglas and Sulby. Sea trout (*Salmo trutta*) are recorded in rivers throughout the island, and further information on population biology can be found as part of the Celtic Sea Trout Project. There is no spring run of adult salmon; the majority enter freshwater from the sea as *grilse* from August onwards depending on river conditions, although multi sea-winter fish are also present. Adult sea trout will enter Manx rivers from the sea from spring onwards. Evidence suggests that after migrating to the sea as smolts, sea trout tend to remain feeding in Manx coastal waters and some will return to spawn as *whitling* in the same year. In particular adult sea trout are known to congregate in coastal waters around the north of the Island. The exact migration patterns of Manx salmon are not known, although it is believed they migrate to waters further offshore; possibly as far as Greenland for multi-sea winter fish.

Salmon and sea trout smolts migrate from freshwater to the sea from April through to June. *Kelts* (spawned out salmon and sea trout) will move back into the sea from December through to March/April. Sea trout are multi spawners – scale samples have shown Manx sea trout can survive spawning & return to spawn up to 4 times.

Historically there was a drift net fishery for salmon and sea trout in Manx waters under license until stocks were at a level considered commercially unviable. The fishery ceased in the early 1980’s. Further information on Salmonids can be found on the DEFA website, including annual reports.

Bass (*Dicentrarchus labrax*) around the Isle of Man have received greater attention in recent years, resulting in a public consultation in 2015 and the introduction of specific recreational bass fishing regulations. Commercial bass fishing is no longer permitted in Manx waters, with the intention to promote the resource as a recreational sport fish, primarily catch-and-release, with a single fish daily bag limit.

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Preliminary research has shown healthy populations of European eel (*Anguilla anguilla*) present in Manx rivers unlike the UK where there has historically been commercial fishery. Although little information is available on eel migration patterns, recent work on distribution, recruitment and environmental factors has begun to shed light on Manx eel populations (Davies 2007, Barry et al. 2015).

Recent research has shown that primitive, jawless Brook lampreys (*Lampetra planeri*) (non-migratory) are present in Manx rivers. River lamprey (*Lampetra fluviatilis*) have recently (2012) been recorded in the River Neb near Peel. Sea lamprey (*Petromyzon marinus*) have been recorded on mackerel and basking sharks in Manx coastal waters.

Juveniles of flounder (*Platichthys flesus*), bass (*Dicentrarchus labrax*) and grey mullet (*Chelon labrosus*) have been recorded in various freshwater/ estuarine locations, Sulby in particular, and it is likely that estuarine areas are used as nursery areas for these species. Research also lends support that harbour areas support breeding populations e.g. of flounder, in a wider Irish Sea context.

Little is known about the nursery ground function of the inshore areas of the Isle of Man though considerable historic research has been carried out on a variety of fish species around the Island. CEFAS carries out wider Irish Sea population assessments, including an annual beam trawl survey of various stations, conducted since the late 1980s. Two of these stations (primes 424 and 425) are close to the Manx Territorial Sea boundary. Further details of CEFAS surveys are indicated below. Additional inshore fish studies and surveys for Manx waters have been carried out on an *ad hoc* basis.

Catch lists kept by local angling clubs and anecdotal reports (e.g. from fishermen and recreational anglers) can be useful indicators of changes in populations. For example, species such as lemon sole (*Microstomus kitt*) were once caught regularly by recreational anglers off Victoria Pier in Douglas but have been absent in recent years. Monkfish, skates and rays were also more numerous and sizeable in the last 30 years, as were the gadoid fish, including cod.

Species increasingly seen in Manx waters include the typically southerly-distributed, black bream (*Spondyliosoma cantharus*), streaked gurnard (*Trigloporus lastoviza*) and the occasional trigger fish (*Balistes capriscus*). This may relate to warming sea temperatures (see Chapters 2.1, 2.2).

For further information please refer to the following:
  https://www.cefas.co.uk/publications/techrep/TechRep147.pdf
Although the CEFAS research within the Irish Sea would require specific analysis for Manx waters, the following are provided as the initial data sources, which could be assessed further as need arises:

General link to CEFAS fish surveys:  
[http://data.cefas.co.uk/#/Keyword/1/P02::FATX](http://data.cefas.co.uk/#/Keyword/1/P02::FATX)  

Historic (archived) surveys  

Similarly, the following link provides information (report and GIS layers) on spawning and nursery areas for the Irish Sea (including herring):  
[http://data.cefas.co.uk/#/Search/1/spawning%20and%20nursery](http://data.cefas.co.uk/#/Search/1/spawning%20and%20nursery)

CEFAS Data Hub: A useful and comprehensive dataset of CEFAS surveys can be found on the data hub at [http://data.cefas.co.uk/](http://data.cefas.co.uk/)

**Commercial Landings**

A summary of landings and first-sale value for commercially-exploited species in the Isle of Man, from 2005-2016, is shown in Table 4.

**Other Historically Exploited Fishery Species**

**European flat oyster** (*Ostrea edulis*)
Manx waters formerly supported a significant fishery in the late 19th and very early 20th century, with greatest abundances off the east and north-east coasts, particularly between Laxey and Maughold Head. Brand (1995) concluded, on the basis of extensive benthic surveys, that *O. edulis* has been effectively extinct from Manx waters for perhaps 50 years, despite the occasional reports of occurrence, without evidence, from local dredge fishermen.

In 2015 approval was given for a small-scale trial to monitor growth and survival of imported *O. edulis* in Baie ny Carrickey. The possibility of future re-introduction will be informed by trial results.

**Spurdog** (*Squalus acanthias*)
Spurdog were targeted until c1990 when stocks were considered to be at a level that were commercially unviable and concern was being raised about population sustainability. Commercial landing of spurdog is now effectively prohibited by EU regulations because no TAC applies for this species.
Table 4. Landings and value of commercial fishery species into the Isle of Man 2005-2017. Data since 2011 is more accurate as Manx data was included in the CEFAS (FAD) database. Some data, e.g. Isle of Man vessels landings to UK & Ireland, is not included, but may be recorded by those administrations.

<table>
<thead>
<tr>
<th>Year</th>
<th>Queen scallop</th>
<th>King scallop</th>
<th>Whelk</th>
<th>Crab</th>
<th>Lobster</th>
<th>Nephrops</th>
<th>White fish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Landed Weight (tonnes)</td>
<td>Value £</td>
<td>Landed Weight (tonnes)</td>
<td>Value £</td>
<td>Landed Weight (tonnes)</td>
<td>Value £</td>
<td>Landed Weight (tonnes)</td>
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<td>622,949</td>
<td>1,016</td>
<td>1,472,859</td>
<td>333</td>
<td>316,347</td>
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<td>2006</td>
<td>na</td>
<td>803,205</td>
<td>1,522</td>
<td>1,505,919</td>
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<td>na</td>
<td>1,201</td>
<td>na</td>
<td>246</td>
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<td>1,578</td>
<td>na</td>
<td>292</td>
<td>na</td>
<td>38</td>
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<td>985,999</td>
<td>1,316</td>
<td>2,138,574</td>
<td>435</td>
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<td>1,534</td>
<td>2,586,024</td>
<td>135</td>
<td>107,701</td>
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<td>1,727,897</td>
<td>1,837</td>
<td>3,031,767</td>
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<td>261,956</td>
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<td>2013</td>
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<td>2,482,856</td>
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<td>3,176,551</td>
<td>453</td>
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<td>2014</td>
<td>2,666</td>
<td>1,393,854</td>
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<td>4,078,694</td>
<td>589</td>
<td>507,916</td>
<td>526</td>
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<tr>
<td>2015</td>
<td>3,814</td>
<td>2,381,563</td>
<td>2,353</td>
<td>4,524,424</td>
<td>811</td>
<td>756,045</td>
<td>464</td>
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<td>2016</td>
<td>2,488</td>
<td>2,244,925</td>
<td>3,155</td>
<td>7,397,208</td>
<td>783</td>
<td>741,053</td>
<td>534</td>
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<tr>
<td>2017</td>
<td>1,365</td>
<td>1,555,691</td>
<td>2,137</td>
<td>5,591,529</td>
<td>810</td>
<td>816,462</td>
<td>456</td>
</tr>
</tbody>
</table>
Main Areas Fished

Manx waters are prosecuted by fishing vessels from the Isle of Man and elsewhere in the UK. The Manx fleet generally fish within ICES\textsuperscript{12} areas 37E5 and 36E5 for landings to the Isle of Man (Figure 18).

\textbf{Figure 18. ICES fisheries statistical rectangles, showing the Irish Sea and primary Manx squares; 37E5 and 36E5. Fisheries landings are typically reported to this resolution (approx. 30 x 30 M).}

However Manx fishermen also operate outside Manx waters and can land elsewhere within the UK. The principle fishing ports used by the Isle of Man fleet are listed in Table 5.

\textbf{Table 5. Principle fishing ports of the Isle of Man and main species landed.}

<table>
<thead>
<tr>
<th>Fishing Port</th>
<th>Species landed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peel</td>
<td>king scallop, queen scallop, \textit{Nephrops}, lobster, crab</td>
</tr>
<tr>
<td>Port St Mary</td>
<td>king scallop, queen scallop, crab, lobster</td>
</tr>
<tr>
<td>Douglas</td>
<td>king scallop, queen scallop, whelk, crab, lobster</td>
</tr>
<tr>
<td>Ramsey</td>
<td>king scallop, queen scallop, whelk, lobster</td>
</tr>
<tr>
<td>Castletown</td>
<td>lobster, crab</td>
</tr>
</tbody>
</table>

\textsuperscript{12} ICES (International Council for the Exploration of the Sea) coordinates and promotes marine research in the North Atlantic. For ICES Fishing Areas that apply to Manx Waters and Irish Sea [http://marinemanagement.org.uk/fisheries/monitoring/maps.htm](http://marinemanagement.org.uk/fisheries/monitoring/maps.htm).
Table 6. Principle fishing ports in the Irish Sea with species landed from Manx waters.

<table>
<thead>
<tr>
<th>Fishing Port</th>
<th>Species landed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holyhead</td>
<td>queen scallops</td>
</tr>
<tr>
<td>Kirkcudbright</td>
<td>queen scallops, king scallops</td>
</tr>
<tr>
<td>Isle of Whithorn (Dumfries and Galloway)</td>
<td>Some king scallops and queen scallops</td>
</tr>
<tr>
<td>Maryport</td>
<td>queen scallops</td>
</tr>
<tr>
<td>Portavogie</td>
<td><em>Nephrops</em></td>
</tr>
<tr>
<td>Whitehaven</td>
<td>king scallops &amp; some queen scallops</td>
</tr>
<tr>
<td>Ardglass</td>
<td><em>Nephrops</em>, queen scallops</td>
</tr>
</tbody>
</table>

Figure 19. Principal fishing ports in the Irish Sea with species landed from Manx waters.

**Important Fisheries Habitats**

**Marine**

Different habitat types are required for different life stages of marine animals, including commercial species, and it is important that this is acknowledged in marine spatial planning processes and conservation. Marine biodiversity is typically highest and many nursery
habitats are found in the shallow, near-shore areas, hence the majority of the island’s marine protected areas (MPAs) are found within this zone (Figure 22).

These areas have been established for various purposes, ranging from experimental trial areas, enhancement sites, broodstock protection and ‘larval production’ areas (Neill et al. 2008), as well as specific habitat and species protection. The ongoing work to establish an ecologically coherent network of MPAs, coupled with specifically-managed fishery areas, and supported by scientific data is intended to ensure sustainable commercial fisheries in future.

In addition to Hinz et al. (2008) and White (2011), finer scale habitat mapping has since occurred in Baie ny Carrickey (May 2015) Douglas, Niarbyl, Laxey (Allison 2016), Ramsey (Dempster 2016). Analysed camera surveys have also been conducted at Little Ness and recent data also exists for Port Erin awaiting further analysis.

For information regarding critical habitats for fisheries species including maerl, eelgrass, kelp forest and sandbanks please refer to MMEA Chapter 3.3 Subtidal Ecology.

**Rivers**

Salmon and sea trout are anadromous, with smolts migrating from rivers to the sea in the spring of each year and the adults returning from the marine environment to freshwater to reach spawning grounds. The European eel is catadromous, returning to rivers from the sea to complete the adult phase of their life cycle. During these migrations, water quality and flow regimes within estuaries are of critical importance in allowing the safe passage of these species.

Developments or disturbance activities in harbour or estuarine areas are therefore relevant to migratory fish species, and are considered within consenting and licence condition processes, often with temporal restrictions to coincide with peak migratory periods.

**Hobby / Recreational Fishing**

Aquatic species are also collected in Manx waters for recreational purposes by the following methods: hand collection; charter angling; long lining; potting; beach seining; scuba diving; angling (and hand line), angling from kayaks; rod and line from shore; rod and line from boats. There are also several recreational angling competitions throughout the year which are supported by both local and visiting anglers from UK, Ireland and further afield.

**Isle of Man Shark Tagging Programme**

Recreational angling, as a catch and release practice, for small shark species such as tope (Galeorhinus galeus) has become popular. UK-based tagging programmes have enabled information to be gathered on distributions, behaviour and growth rates for a range of small shark species. The Isle of Man has been working closely with the Scottish Shark Tagging

13 [http://fisheries-conservation.bangor.ac.uk/iom/reports.php.en](http://fisheries-conservation.bangor.ac.uk/iom/reports.php.en)
Programme (http://www.tagsharks.com/) since 2013 to establish the Isle of Man Shark Tagging Programme, which is co-ordinated by the Manx Wildlife Trust on behalf of DEFA. The programme was set up to monitor our shark populations in Manx waters and to gain a better understanding of these animals, their biology and movements. Since 2013, 51 anglers have been trained and over 100 sharks have been tagged, including tope, bull huss and spurdog (Table 7).

Table 7. Species and programme tagging rates in the Isle of Man between 2013-2016.

<table>
<thead>
<tr>
<th>Species</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tope</td>
<td>28</td>
<td>22</td>
<td>20</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>Bull Huss</td>
<td>16</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Spurdog</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Total number of sharks tagged</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>104</td>
</tr>
</tbody>
</table>

One tope caught in Manx waters had been previously tagged in Scotland showing they are capable of travelling reasonable distances. So far none of the sharks tagged in Manx waters have been recaptured. As of 2018 the Scottish Shark Tagging Project has been discontinued, although the work may continue under a different format.

**DEFA Fisheries Directorate: Responsible Authority**

As the responsible authority, the Directorate is responsible for the management and protection of fisheries and their supporting ecosystems within the Isle of Man and the Territorial Sea. Working with the Manx fishing industry, anglers, wildlife groups and other stakeholders, the Directorate seeks to develop innovative and dynamic management measures that to balance the social, environmental and economic needs of the Isle of Man and meet the international obligations to which the Island is signatory. The aims of the Directorate are to:

- protect, manage and improve Manx fisheries, and native fish populations, and the habitats that support them, and to establish an international reputation for innovative and sustainable fisheries management
- effectively protect Manx fisheries through use of the Fishery Protection Vessels: FPV. Barrule and FPV. Enbarr, as well as electronic and land-based enforcement measures
- support the economic development and diversification of the Isle of Man catching and processing sectors
- develop and deliver conservation measures for important fisheries as well as nationally and internationally important freshwater and marine habitats and species.
- assist the Manx fish and shellfish industry to increase demand and value for Manx seafoods, based on quality, traceability and sustainability
- develop opportunities for diverse recreational angling on the Isle of Man to contribute to an enhanced quality of life and to promote the Island’s natural environment for the enjoyment of family, community and visitors
Sea Fisheries Strategy

In 2015 DEFA introduced a 5-year development strategy for Manx fisheries – ‘Future Fisheries’. The strategy was developed after a significant consultation process and relates to a number of priority themes. The strategy is used to guide priority areas and policy development to achieve ‘a sustainable, thriving and well-managed fishing industry providing high-quality seafood products, supported by respect for the marine environment’. The respective priority actions within these themes are indicated in Table 8.

Table 8. Priority actions within key themes of the DEFA 'Future Fisheries' strategy.

<table>
<thead>
<tr>
<th>MANAGING SEA FISHERIES</th>
<th>SAFEGUARDING THE MARINE ENVIRONMENT</th>
<th>DEVELOPING OUR SEA FISHERIES</th>
<th>MANAGING RESOURCES</th>
<th>WORKING WITH OUR CUSTOMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate level of fishing effort</td>
<td>An ecosystem approach</td>
<td>Increase economic value of sea fisheries</td>
<td>Integration with Food Matters Strategy</td>
<td>Industry specific training and education programmes</td>
</tr>
<tr>
<td>Science data for all stocks</td>
<td>Marine spatial management</td>
<td>Increase product quality, value &amp; innovation</td>
<td>Restructure and promote existing funds</td>
<td>Greater involvement in decision making</td>
</tr>
<tr>
<td>Achieve sustainable stocks</td>
<td>Integrated marine monitoring programme</td>
<td>Diversified mix of species and seafood businesses</td>
<td>Use whole-of-Government resources for business development</td>
<td>Co-management projects</td>
</tr>
<tr>
<td>Regionally-relevant management</td>
<td>Improve stakeholder involvement</td>
<td>Improve marketing programmes</td>
<td>Investigate alternative external funding sources</td>
<td>Create responsibility for stewardship</td>
</tr>
<tr>
<td>Licensing: good value and a management tool</td>
<td>Marine development and exploitation in harmony with environment</td>
<td>Strategic business/market development</td>
<td>Work with regional partners on common issues</td>
<td></td>
</tr>
<tr>
<td>Effective local enforcement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The full and summary versions of future fisheries can be found here: 

Key fisheries management measures within Manx waters are outlined below and include adherence to conservation measures (e.g. minimum landing size, fishing gear restrictions, seasonal closures) and the management of the network of marine protected areas within Manx waters.

Regulation & Management Measures

For a summary of legislation relating to Isle of Man Fisheries see Legislation Chapter 1.2.

The legal structure for the regulation and management of Manx fisheries is generally consistent with that of UK legislation, and therefore with the EU, and the island has shared a Fisheries Management Agreement (FMA) since 1991 (revised in 2012) with the UK jurisdictions (Wales, Northern Island, England and Scotland). Previously, the Isle of Man had sole jurisdiction out to 3 nm, but required concurrence from the UK jurisdictions to amend local legislation between 3 and 12 nm. However, as a result of the Fisheries Management Agreement revision in 2012, the Isle of Man Government is no longer required to obtain
concurrency, but must only consult on fisheries legislation between 3 and 12 nm. Sole jurisdiction for fisheries within 3 nautical miles remains.

**Fishing Vessels in Manx Waters**

The Manx fishing fleet is considered part of the UK fleet for quota management and licensing purposes and Manx and UK registered vessels have equal access to UK and Ireland waters.

Commercial fishing vessels based in the island are registered in Douglas, Peel, Castletown or Ramsey. The registration administration of the Manx fleet is managed by Isle of Man Ship Registry (https://www.iomshipregistry.com/registration/fishing-vessels/), and at 2018 had 66 commercial fishing vessels registered.

To fish commercially in Manx waters these registered vessels are also required to hold both a UK and IOM Fishing Licence.

Some aspects of access and fishing effort in the Irish Sea area are also managed via the EU, primarily for finfish species, but also for crab and scallops. This is currently undertaken via the Western Waters framework (https://www.efca.europa.eu/en/content/western-waters, see also https://www.gov.uk/guidance/manage-your-fishing-effort-western-waters-crabs).

In addition, some non-UK fishing vessels, notably from France, Belgium and the Republic of Ireland, also have historic access rights, granted under the London Convention 1967, to enable fishing within the territorial sea for particular species and in specific areas. As a consequence of Brexit, the UKs departure from the EU, the UK, and hence the Isle of Man, has withdrawn from the London Convention which will cease to apply from July 2019, or on Brexit. It is unclear how fisheries access or management arrangement will be organised post-Brexit.

For further information on fishing vessel access please contact the Department of Environment, Food and Agriculture, fisheries directorate.
Figure 20. The London Convention 1967 (Rainbow Chart), which will cease to have effect in 2019.

**Licencing**

To fish in Manx waters a vessel needs to be both registered and licensed to go fishing, requiring both a UK commercial fishing licence, and subsequently an Isle of Man fishing licence. UK licences are not readily available and an existing licence would need to be sourced via a broker from the commercial market which is appropriate to the vessel and type of fishing proposed.

For further information please see:  

**King Scallop (Pecten maximus) Fishery Regulation**

**King scallop:** Local fishing regulations dictate that up to 10 Newhaven dredges (maximum aggregate width of 762 cm)(or five per side) per vessel may be used within the 3 nautical mile fisheries zone, while 14 dredges (maximum aggregate width of 1067 cm)(or seven per side) per vessel may be used between 3 and 12 nautical mile zone. The fishing season for
king scallops runs from 1st November to 31st May and fishers targeting the species do not target any other species in Manx waters at this time. Fishing for king scallops is prohibited from the beginning of June until the end of October.

Regulatory mechanisms for the fishery are summarised in Table 9. Substantial changes were made to legislation in 2010 and 2011 which imposed restrictions on engine power and tow bar diameter, reduced the permitted width of dredges, increased curfews and introduced spatial restrictions. In 2016 the number of licences for scallop fishing (for king and queen scallop) was reduced to 89 within the 3-12 nm area of the Isle of Man’s territorial waters, a significant and necessary change to the previously uncapped licence regime. The fishery is now primarily regulated via licence condition, rather than statutory instruments (e.g. byelaws) which enables more flexible and rapid changes to management. Current management arrangements and restrictions are updated at: https://www.gov.im/media/1359733/iomfl-schedule-h10-040118.pdf

In 2017, as a result of a comprehensive stock assessment for the species in Manx waters by Bangor University, a Total Allowable Catch (TAC), with associated daily individual quotas, was introduced. Bangor University reports on various Isle of Man fisheries, including scallops can be found here: http://fisheries-conservation.bangor.ac.uk/iom/reports.php.en

Table 9. Indicative king scallop fisheries regulation measures within the Isle of Man territorial sea. Specific area affected shown in brackets. NB: This list is not comprehensive and may change with alterations to licence condition or legislation.

<table>
<thead>
<tr>
<th>King Scallop Regulation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. total width of dredges 762 cm ~5 dredges per side (0 to 3 nautical mile zone).</td>
</tr>
<tr>
<td>Max. total width of dredges 1067 cm ~7 dredges per side (3 to 12 nautical mile zone).</td>
</tr>
<tr>
<td>French dredge prohibited (territorial sea).</td>
</tr>
<tr>
<td>Curfew: 1800 to 0600 (territorial sea).</td>
</tr>
<tr>
<td>Individual and TAC quotas apply.</td>
</tr>
<tr>
<td>Maximum 15.24 m vessel registered length (0 to 3 nautical mile zone)</td>
</tr>
<tr>
<td>Minimum landing size of king scallops 110 mm (territorial sea)</td>
</tr>
<tr>
<td>Fishing for king scallops prohibited between 1st June and 31st October (territorial sea)</td>
</tr>
<tr>
<td>Closed areas apply (see <a href="https://www.gov.im/media/1359733/iomfl-schedule-h10-040118.pdf">https://www.gov.im/media/1359733/iomfl-schedule-h10-040118.pdf</a>)</td>
</tr>
<tr>
<td>Maximum of 9 teeth per dredge (territorial sea)</td>
</tr>
<tr>
<td>Minimum tooth spacing of 75 mm (territorial sea)</td>
</tr>
<tr>
<td>Minimum mesh size of 100 mm (territorial sea)</td>
</tr>
<tr>
<td>Minimum belly ring internal diameter 75 mm (territorial sea)</td>
</tr>
<tr>
<td>Maximum tow bar diameter 185 mm (territorial sea)</td>
</tr>
<tr>
<td>Vessels &gt;221 kW engine power: only qualifying vessels may fish (territorial sea)</td>
</tr>
<tr>
<td>Satellite tracking device required for all vessels fishing for scallops (territorial sea)</td>
</tr>
</tbody>
</table>

In summary, the king scallop fishery is managed by input and output controls, informed by annual survey information and analysis. Increasingly, the DEFA Fisheries Directorate is seeking to enhance and protect scallop stocks through a network of closed or less-fished closed and restricted zones.
Queen Scallop Fishery Regulation

The queen scallop fishery in Manx waters has been very dynamic since around 2009-10, with the peak of landings in 2011, followed by steep declines as a result of stock depletion and the subsequent introduction of management restrictions (Figure 21). A summary of the recent history is provided by Duncan et al. (2016), and the most recent fishery status and management advice can be found at:

http://fisheries-conservation.bangor.ac.uk/iom/reports.php.en

![Graph showing reported landings for Aequipecten opercularis (queen scallop) for the Manx territorial sea between 1919 and 2016](image)

In summary, current management is based upon input and output controls including a Minimum Landing Size MLS (in excess of the EU minimum), closed area, temporal and gear restrictions (Table 10). To date, these measures have had only partial success and the fishery remains in a depleted state.
Table 10. Indicative queen scallop regulation measures within the Isle of Man's territorial sea. NB: this list is not comprehensive and may change with alterations to licence condition or legislation.

<table>
<thead>
<tr>
<th>Queen Scallop - Regulation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing for queen scallops is prohibited between 1st March and 31st May (territorial sea), and additional annually-variable restrictions apply between June and March, including fishery closures (see <a href="https://www.gov.im/categories/business-and-industries/commercial-fishing/iom-licencing/iom-conditions-and-variations/">https://www.gov.im/categories/business-and-industries/commercial-fishing/iom-licencing/iom-conditions-and-variations/</a>).</td>
</tr>
<tr>
<td>Closed areas apply (see conditions and variations above).</td>
</tr>
<tr>
<td>Curfew: 1800 to 0600 (territorial sea)</td>
</tr>
<tr>
<td>Days at sea restrictions may apply.</td>
</tr>
<tr>
<td>Individual and TAC quotas apply.</td>
</tr>
<tr>
<td>Minimum landing size of queen scallops 55 mm (territorial sea)</td>
</tr>
<tr>
<td>Dredge fishing only in designated area and period.</td>
</tr>
<tr>
<td>Only qualifying, licenced vessels may fish (territorial sea)</td>
</tr>
<tr>
<td>Satellite tracking device required for all vessels fishing for scallops &amp; queen scallop (terr. sea)</td>
</tr>
</tbody>
</table>

Crab & Lobster Fishery Regulation
Details of regulations associated with the crab and lobster fisheries can be found at; [https://www.gov.im/categories/business-and-industries/commercial-fishing/](https://www.gov.im/categories/business-and-industries/commercial-fishing/). Table 11 provides a summary of fishery regulations for crab and lobster that apply in the Isle of Man. It is anticipated that pot fishing management and regulation within the territorial sea will be reviewed shortly.

Table 11. Indicative Crab and Lobster regulation measures within the Isle of Man’s territorial sea. This list is not comprehensive and may change with alterations to licence condition or legislation.

<table>
<thead>
<tr>
<th>Crab &amp; Lobster – Regulation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>To fish for crab and lobster within the Territorial Sea, the following are required:</td>
</tr>
<tr>
<td>• UK fishing licence with shellfish entitlement</td>
</tr>
<tr>
<td>• Isle of Man fishing licence</td>
</tr>
<tr>
<td>• Isle of Man crab and lobster licence</td>
</tr>
<tr>
<td><strong>Minimum landing sizes;</strong> brown crab has a MLS of 130 mm, lobster has a MLS (carapace length) of 87 mm, both concurrent with EU regulations (except where indicated otherwise, e.g. Baie ny Carrickey MNR).</td>
</tr>
<tr>
<td><strong>Berried or soft-shelled animals;</strong> egg-carrying females and recently moulted individuals of both species cannot be retained or landed.</td>
</tr>
<tr>
<td><strong>Mutilated crab or lobster;</strong> detached claws of crab and lobster, or detached tail (abdomen) of lobster cannot be retained or landed.</td>
</tr>
<tr>
<td><strong>V-notching;</strong> although no formal lobster v-notching scheme is currently in operation, DEFA have issued v-notching pliers to all licenced fishermen. Notching occurs on an informal basis. No v-notched lobster may be retained or landed.</td>
</tr>
<tr>
<td><strong>Pot Limits;</strong> there is a maximum number of pots per licence of 500, of which up to 300 can be used within the 3-mile limit.</td>
</tr>
<tr>
<td><strong>Pot tags;</strong> all pots must be tagged with DEFA-issued tags carrying the PLN (vessel registration details) and a consecutive number sequence.</td>
</tr>
<tr>
<td><strong>Escape panels;</strong> of minimum dimensions 78 mm wide x 44 mm high x 100 mm long, must be fitted to all pots.</td>
</tr>
<tr>
<td><strong>Restricted areas;</strong> some restrictions to pot fishing apply in Marine Protected Areas.</td>
</tr>
</tbody>
</table>
**Whelk Fishery Regulation**

As with other commercial fisheries, whelk fishing is managed by the Department of Environment Food and Agriculture, with specific subordinate legislation applied; Sea Fishing Licensing (Amendment) Regulations 2018. A non-transferable licence to fish whelks must be obtained, which has a maximum pot limit per licence of 600 pots. There is a total pot limit of 3600 inside 3 M, and an overall territorial limit of 15600 pots, intended to limit overall effort in the fishery. The minimum landing size (MLS) for *Buccinum undatum* in Manx waters is 75 mm, compared with 45 mm in the UK, and similarly under EU regulation. See Table 12 for general management arrangements for whelk fishery.

**Table 12. Indicative whelk fishery regulation measures within the Isle of Man’s territorial sea. This list is not comprehensive and may change with alterations to licence condition or legislation.**

<table>
<thead>
<tr>
<th>Whelk Fishery – Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species-specific licence.</td>
</tr>
<tr>
<td>Maximum pot limit of 3,600 inside 3 nautical miles, and 15,600 within 0-12.</td>
</tr>
<tr>
<td>Minimum landing size of 75mm.</td>
</tr>
<tr>
<td>Marine Nature Reserve (various restrictions may apply).</td>
</tr>
<tr>
<td>Satellite tracking device required for all vessels &gt;15m.</td>
</tr>
</tbody>
</table>

**Nephrops Regulation**

*Nephrops* (languoustine) is only a limited fishery by Manx vessels, and regulations are not specific to the territorial sea. Minimum Landing sizes:

- total length 70mm
- tails 37mm
- carapace length 20mm

**Commercial Fish Species Regulation**

**Quota management**

The Isle of Man fishes against the UK quotas. Due to relatively little activity 1994-1996 when quota baselines were set, the IOM has limited access to only a few quota species.

The Manx Fish Producers Organisation (MFPO) was formed in 2003, and in 2004 DEFRA agreed to give the IOM its own quota management responsibilities. Monthly allocations for quota species are set by the MFPO and are confirmed by DEFRA (UK). Post-Brexit quota management arrangements are currently unclear.
Table 13. Indicative commercial finfish species regulation measures within the Isle of Man territorial sea. This list is not comprehensive and may be subject to change.

<table>
<thead>
<tr>
<th>Commercial Fish Species - Regulation measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quotas for certain species (as EU specified).</td>
</tr>
<tr>
<td>MLS – Minimum landing sizes for certain species (typically as EU specified).</td>
</tr>
<tr>
<td>Marine Protected Areas (various restrictions).</td>
</tr>
<tr>
<td>Satellite tracking device required for all vessels &gt;15m within the territorial sea.</td>
</tr>
<tr>
<td>Spatial restrictions may also apply, e.g. Herring Block, Cod Recovery (CRZ).</td>
</tr>
<tr>
<td>Sandeel restrictions may apply.</td>
</tr>
</tbody>
</table>

**Cod Recovery Zone (CRZ)**
Affects vessels over 10m, using regulated gear types – one of which is the otter trawl (queen scallop fishery). Therefore, the over-10m IOM vessels are currently affected by the management measures in place for CRZ although derogation from management measures may be permitted under certain conditions.

**Herring Box**
Since the collapse of the Irish Sea herring stocks in the 1980s, the fishery in the Irish Sea has included closures of both spawning and nursery grounds. A closed area exists to the east of the Isle of Man to protect the spawning aggregations off Douglas Bank. A gillnet fishery has a derogation to fish within the Irish closed box. Boats from the Republic of Ireland are not permitted to fish east of the Isle of Man.

The herring box is protected under the Sea-Fisheries (Technical Measures) Bye-laws 2000, Part III Special Provisions Relating to Fishing for Certain Sea-Fish and is closed to herring fishing from 21st September to 15th November every year, covering a substantial area of the Manx Territorial Sea. See Figure 17.

See also:
Overview of the Douglas Bank closure for herring under Article 20 of Council Regulation (EC) No 850/98 (that extends to Manx waters) please see:

For further information regarding protection of spawning and nursery areas of commercial species please see MMEA Chapter 3.3 (Subtidal Ecology) and MMEA Chapter 3.7 (Marine and Coastal Conservation).

**Registration of Buyers and Sellers**
Fish and shellfish bought at first sale and marketed on the Isle of Man can only be sold and purchased by a registered person of the Buyers and Sellers Scheme and Certificates of Registration as a Buyer are issued to ‘first point of sale’.
The purpose of the scheme is to ensure that consumers know that the fish and shellfish they are buying come from a traceable source and at the same time support their local fishing industry. Furthermore it aims to ensure that legitimate fishermen achieve the market price for their catches. The UK has had such a scheme in place since 2005 and was broadly welcomed by the fishing industry on its introduction. It has since helped to ensure fishermen realise best prices for their catches as well as contributing towards the reduction in illegal or "black fish" landings.

The sale of first sale fish is defined as “fish being marketed for the first time”. A buyer is defined as “someone (an individual, partnership, company or corporate body) who buys first sale fish direct from a vessel or agent”. There is no cost to register and vessel owners do not fall under the scheme (“Sellers” are in effect auction sites). A sales note providing details of all fish bought is required for each landing, to be provided by the buyer.

The Scheme was voluntarily run on the Isle of Man for a year initially and became mandatory in December 2011 when Manx legislation was approved in Tynwald. This legislation means that on the Isle of Man it is now an offence to buy fish at first sale without prior registration and it is illegal to purchase product from a vessel that is not registered to sell commercially. Any person caught selling fish or shellfish, other than obtained from a licensed fishing vessel, is guilty of an offence.


**Regulations for Sea Angling and Freshwater Fisheries**

The Sea Fisheries (Consolidation) Byelaws 1984 makes it an offence to fish for, take or kill any salmon (including sea trout) at sea, or in a harbour, or from the foreshore. The same Byelaws also prohibit the use of floating nets and the use of nets within 500 metres of a river mouth and in a harbour.
The Sea Fisheries (Protection of Migratory Fish Species) Byelaws 2005 prohibits the netting of sea fish in a restricted zone from Peel round the north coast to Ramsey to protect migratory fish species. There are two specified areas within the zone where seasonal sand eel netting is permitted under licence.

Anglers are required to be in possession of an angling licence whilst fishing freshwaters in the Isle of Man; various types of licence are available depending on the type of fishing. There are seasonal restrictions in place under the Inland Fisheries Regulations 2011.

In addition to the above it is also an offence for a hobby fisherman to sell their catch unless properly licensed to do so. Under the new legislation you can only buy fish from a licensed buyer/seller (see previous).

**Marine Protected Areas in Manx Waters**

Please see MMEA Chapter 3.7 (Marine and Coastal Conservation) for additional information on Marine Protected Areas (MPAs) in Manx waters for both fisheries and conservation purposes including:

- Fisheries Closed and Restricted Areas,
- Marine zoning in the 0-3 M inshore area,
- Marine Nature Reserves (MNRs) for biodiversity conservation and sustainable fisheries management. The MNRs formerly included fisheries closed/restricted area such as Port Erin Closed Area; Douglas Bay Closed Area; *Baie ny Carrickey* Closed Area, Laxey Bay and Niarbyl Bay.

The first MPAs were developed for research and fisheries management purposes, primarily for scallop and queen scallop fisheries, between 1989 and 2009. These were administered under the Fisheries Act, however, in 2011 Ramsey Bay MNR was designated under the Wildlife Act to serve multiple purposes, including habitat and species protection and sustainable fisheries, and was the first MPA to separate fishery types and conservation interests into management zones.

In a parallel process the Manx Marine Nature Reserve Project, begun in 2008, identified the priority areas for conservation, based on known habitats and species. After Ramsey Bay MNR had demonstrated its potential to serve multiple functions, the fisheries management and conservation objectives became more closely aligned and, as a result, all the existing MPAs were converted to Marine Nature Reserves in 2018, after a two year process.

A map of all current, fixed Marine Protected Areas (which are all Marine Nature Reserves) within Manx waters is provided in Figure 22 and a summary list is provided in Table 14 below. It does not include annually-variable closed areas for fishery management within the territorial sea area. See [https://www.gov.im/media/1362691/iomfl-schedule-h40-300818.pdf](https://www.gov.im/media/1362691/iomfl-schedule-h40-300818.pdf) for details.

Figure 22. Marine Nature Reserves within the 3 M area of the Manx territorial sea. Dark blue areas are MNRs, light blue areas are inshore Fisheries Zones. The 12 M, or territorial sea boundary is also shown. Correct at August 2018.
Table 14. Characteristics of Marine Nature Reserves in Manx Waters.

<table>
<thead>
<tr>
<th>Closed Area</th>
<th>Legislation (selected)</th>
<th>Year Implemented</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Designation) Order 2018.</td>
<td>in 2018</td>
<td>Byelaws 2018.</td>
</tr>
<tr>
<td>Laxey MNR</td>
<td>Sea Fisheries (Scallop Ranching) (Restricted Area) Byelaws 2009, Manx Marine Nature</td>
<td>(2009 as Restricted Area)</td>
<td>No fishing for queen or king scallops without authority. See: Manx Marine</td>
</tr>
<tr>
<td>Niarbyl MNR</td>
<td>Sea Fisheries (Scallop Ranching) (Restricted Area) Byelaws 2009, Manx Marine Nature</td>
<td>(2009 as Restricted Area)</td>
<td>No fishing for queen or king scallops without authority. See: Manx Marine</td>
</tr>
<tr>
<td>Port Erin Bay MNR</td>
<td>Sea Fisheries (Experimental Area) Byelaws 2006 (I) &amp; Amendments in 2007 (II), 2009</td>
<td>(1989, extended 2003, 2006</td>
<td>Various, but towed gear only within Fisheries Management Zone and static</td>
</tr>
<tr>
<td></td>
<td>(III), Manx Marine Nature Reserves (Designation) Order 2018.</td>
<td>as Experimental Area) MNR</td>
<td>gear excluded from Horse Mussel Zone and Eel Grass Zone, See: Manx Marine</td>
</tr>
<tr>
<td></td>
<td>Reserve) (no. 2) byelaws 2011, Ramsey Bay (Marine Nature Reserve) (no.2) byelaws 2011</td>
<td>designated 2018</td>
<td></td>
</tr>
</tbody>
</table>
Fisheries Enforcement

DEFA Fisheries Directorate has legislative responsibility for the management of sea fisheries under the Fisheries Act 2012. Under this legislation they have the power to apply various bye-laws. See also Chapter 1.2 Legislation.

Monitoring of the Fleet & VMS (Vessel Monitoring System)

The UK and the Isle of Man fishing authorities are required by the EU to monitor their fishing fleet activities to ensure that they comply with the many regulations (including restrictions) placed upon fishing vessels.

DEFA has inspection and enforcement powers and Fisheries Enforcement Officers have the authority to enter premises and board fishing vessels both at sea and in harbour, to examine and inspect equipment and landings. DEFA are also participating at a UK-Fisheries Department level on schemes such as registration and buyers scheme, fishing activity reporting and monitoring. As a consequence DEFA have access and direct input into the same IT systems that have been put in place to enable monitoring and reporting in the UK.

The satellite-based VMS system is mandatory on all vessels fishing for king and queen scallops within Manx waters. Currently this is only mandatory on other EU vessels whose overall length exceeds 12 metres. VMS was primarily adopted an enforcement tool in Manx waters but secondary benefits for science and research have been identified.

DEFA Fisheries Enforcement Officers enforce a number of fisheries bye-laws within the territorial sea and work with partners in neighbouring jurisdictions on all enforcement matters to ensure effective compliance across the entire Irish Sea is carried out in a consistent manner.

Fisheries Protection

DEFA manage 3 fisheries protection vessels, the 22m FPV. Barrule and two rigid-hull inflatable, fast craft. Fisheries officers have responsibility for the enforcement of fisheries legislation within Manx Territorial Waters with the power to board vessels for inspection at sea and if necessary detain vessels for inspection. The Isle of Man has jurisdiction within the Island’s 12 mile-limit for Manx fisheries legislation and enforcement, while technically the Royal Navy can undertake enforcement activities in relation to UK fisheries legislation, but not Manx legislation.

For details on the capability and equipment onboard the FVP Barrule for research and survey please see Chapter 6.2 (Shipping and Navigation).
AIS
Currently vessels over 15m are required to carry AIS (Automatic Identification System) monitoring equipment on board also, but this requirement does not negate VMS obligations.

See also:
MMEA Chapter 1.2 (Legislation) and:

The Scallop Management Board (SMB)
Originally established as a Queen scallop Management Board (QMB) in 2011, the board has recently expanded to incorporate both scallop species under a single entity. The board consists of fishermen, processors and fisheries science representatives from the Isle of Man and UK, together with scientists from Bangor University and from DEFA – Fisheries Directorate. The board has an independent chair, and further details can be found at: https://www.gov.im/about-the-government/departments/environment-food-and-agriculture/fisheries-directorate/isle-of-man-scallop-management-board/

The Manx Fish Producers’ Organisation.
The Manx Fish Producers’ Organisation was established in 2003 having taken over from the Isle of Man Fishermen’s Association, which started as a fisheries lobby group and chandlery in the mid-1970s. The reason for the change in name was largely to reflect the change in
status of the organisation which now includes the management of fish quotas. The MFPO still acts as a fisheries representative group both on the island and in the United Kingdom.

Members of the organisation, mostly from the mobile gear sector that fish with scallop dredges and trawls, but also from a small number of static gear vessels which fish mainly for lobster, brown crab and whelks.

The Manx Fish Producers Organisation has probably been more proactive than any other scalloping organisation in the British Isles in promoting sustainability in its main fisheries. The fishermen have supported and indeed driven such technical conservation measures as the current gear methods and the management measures, including marine protected areas, that have contributed to the develop of sustainable fisheries over recent years.

MFPO fishermen have been proactive in their support for the Ramsey Bay Marine Nature Reserve, and to the development of the fisheries management zone, which has demonstrated a conservative, valuable and efficient seasonal fishery since 2013. Increasing self-management in the MNR has been the basis of a potentially wider application of management zones within the 0-3 M area, which has been made possible by the 2016 access restrictions.

Chief Executive: Dr. David Beard

Tel: +44 (0)1624 842144
Email: iomfishermen@manx.net
Address: The Heritage Centre, The Quay. Peel
Isle of Man, IM5 1TA. British Isles

Crab and Lobster Association
Not currently an active group.

Isle of Man Angling Association
Angling interests on the island are represented through the Isle of Man Angling Association. Contact: Kevin Walmsley & Record Fish Recorder: Gary Reid.

Manx Recreational Anglers Forum
The aim of the forum is for DEFA Fisheries Directorate and local anglers to work together for the overall improvement and development of all recreational angling opportunities and to promote the sport in the Isle of Man.

Objectives of Manx Recreational Anglers Forum:
- To act as a forum for raising and discussing issues and to seek consensus.
- To act as an intermediary for consultation processes.
- To improve communication and understanding between DEFA and local anglers.
- To achieve concurrence on Department priorities in accordance with the Government’s Service Delivery Plan and the needs of anglers.
• To liaise with other similar forums and groups as appropriate.
• To develop a strategy for the active promotion and enhancement of recreational angling opportunities in the Isle of Man, in close collaboration with other stakeholders.

For further information about the Forum please contact DEFA Fisheries.

**Key angling clubs on the Island:**
Ramsey Angling Club  
Peel Angling Club  
Douglas & District Angling Club  
Mannin Angling Club  
*Ellan Vannin* Angling Club

It is noted that many recreational anglers on the Isle of Man and visitors are not affiliated to an angling club, and often fish in an *ad hoc* basis. In addition, recreational coarse fishers are often not affiliated to a group although in the past they have voiced opinion through the Anglers forum (see above). There are several organised boat & shore competitions and also annual Angling Festivals.

Please also see the MMEA Chapter 7.1 (Tourism and Recreation) for Commercial Outdoor Operators as some have a commercial angling interest.

**Marine and Fisheries Research**

Since 2007, Bangor University have advised DEFA on both fisheries science and conservation matters and the marine biologists within the Department have worked alongside Bangor scientists on research with a focus on achieving sustainable fisheries within an ecosystem context.

Significant work related to queen scallop, king scallop and pot fishing, particularly whelk, has been conducted in recent years. This has directly contributed towards positive and proactive management of these stocks. Further details on this research can be found at: [http://fisheries-conservation.bangor.ac.uk/iom/reports.php.en](http://fisheries-conservation.bangor.ac.uk/iom/reports.php.en)

While primarily focussed on commercial fisheries research, Bangor University has also contributed to Manx marine conservation studies. In 2008 a comprehensive study using the RV. Prince Madog, surveyed numerous sites and enabled the identification of benthic habitats and associated faunal assemblages. At least 7,325 still images from 150 survey stations have since been analysed by Bangor researchers and DEFA Marine Biodiversity Officers. A map showing survey locations is shown in Figure 23.

Further information about the research findings from this research and other recent survey work in Manx waters please refer to MMEA Chapter 3.3 (Subtidal Ecology).
For further information relating marine monitoring please refer to MMEA Chapter 2.4 (Marine Pollution).

![Bangor University Survey locations. Locations of more recent survey work may not be included on this map.](image)

**Herring stock assessment**

Acoustic surveys of the herring grounds around the Isle of Man are undertaken annually by the Northern Irish Agri-Food and Biosciences Institute (AFBI) as part of their wider Irish Sea survey. The survey work is usually carried out in the autumn from the RV Corystes, using an echo-sounder to detect fish (herring and sprat).

Results are incorporated into assessments of the Irish Sea fish stocks carried out by the International Council for the Exploration of the Sea (ICES), which provides scientific advice for managing the fisheries within the EU Common Fishery Policy.

For further information please see: ICES Herring Assessment Working Group (Area South of 62°N (HAWG) Herring in Division VIIa North of 52° 30’ N (Irish Sea):

[http://www.ices.dk/community/groups/Pages/HAWG.aspx](http://www.ices.dk/community/groups/Pages/HAWG.aspx)

AFBI – Agri-food and Biosciences Institute – R.V Corystes: https://www.afbini.gov.uk/articles/research-vessel-corystes
Student Projects

The Department of Environment, Food and Agriculture often accommodates visiting researchers and students. In recent years DEFA Officers have co-supervised research projects of MSc degree students undertaking their research theses from several Universities.

In addition DEFA Officers also provide information and available data in support of other student research.

Most of the MSc degree research projects for Inland Fisheries have been freshwater based, however 2 projects have studied Manx populations of the migratory European eel (freshwater phase of life cycle).

Details of resultant theses and reports, as well as some from the Port Erin Marine Laboratory (see below) are available, with subject specificity, on request.

Port Erin Marine Laboratory – Liverpool University

A considerable body of knowledge was amassed at The Port Erin Marine Laboratory from 1892, with the activities of the Liverpool Marine Biology Committee and subsequently by the University of Liverpool (Port Erin Marine Laboratory).

Following the closure of the Port Erin Marine Laboratory in 2006, marine and fisheries information and data (including biological records) for Manx waters has not been centrally managed and there is no biological records centre on the island. A project was started in 2006 by former PEML researchers, DEFA and MNH, to catalogue the whereabouts of key Manx marine and fisheries information following the laboratories closure. An updated catalogue is not yet accessible.

See MMEA Chapter 7.2 (Education) for further information on the Port Erin Laboratory.

Celtic SeaTrout Project

The Isle of Man Government is an associate partner in the EU funded project. See: http://www.celticseatrout.com/.
The Manx Seafood Processing Industry
The Manx fish and shellfish industry currently employs between 300-350 jobs in the factories, at sea and in supporting industries (engineering, mechanics etc.).

Isle of Man Food Park, Peel
In 2012 a £3m regeneration of the Isle of Man Food Park in Peel (formally Mills Yard Road) was undertaken by Government, with further investment from the companies who are building units on the sites made available to them as part of this regeneration project.

Currently there are 150 approx. employees working on the Food Park site with 120 approx. people working on the shop floor hand-shucking king scallops and queenies.

Other Initiatives and Activities

Responsible Fishing Scheme
Progress is under way in accrediting the Manx fleet under the Responsible Fishing Scheme. Seven vessels in the Manx fleet have now been accredited and there is evidence that fish and shellfish landed by boats that are accredited are more sought after.

European recognition for Manx Queenies
The Manx queenie processing industry with support from DEFA successfully registered 'Isle of Man (Manx) Queenies' under the European Union, Product of Designated Origin (PDO) or the Product of Geographical Indication (PGI) labelling scheme. It is unclear what effect Brexit will have on these schemes.
Aquaculture

There has been no historic salmon farming in Manx coastal waters.

DEFA operates a small hatchery which is used for supportive breeding of salmon for specific local restoration and mitigation projects. A proportion of the 0+ and 1+ salmon released prior to 2011 were micro-tagged and fin-clipped; no tags have been recovered from marine fisheries, although a small number of clipped fish have been reported by river anglers. Since 2011, all hatchery-bred salmon have been released as first-feed fry, and therefore have not been tagged.

Troutlodge Inc., lease two rainbow trout hatcheries from the Isle of Man Government, producing eggs for export across the world, and supplying fish for recreational stocking in the Island’s reservoirs.

The Isle of Man currently has the highest level of fish health status under EU standards.

Marine Aquaculture

Historically the Isle of Man, via the now-closed Port Erin Marine Laboratory, played an important role in the development of marine aquaculture, and even within the last 20 years the island was making a contribution to marine finfish aquaculture with commercial facilities near Derbyhaven exporting juvenile cod and turbot to Scotland and Europe. However, this facility closed in 2006, and no significant new aquaculture developments have occurred since.

Commercial seaweed farming also occurred between 1986 and 1996 when a mariculture company processed and sold seaweed for food.

In relation to aquaculture, and animal health in general, DEFA manage disease testing for aquatic animals and plants, in cooperation with UK administrations. There are strict controls and requirements for the importation of aquatic organisms, further information can be found here: https://www.gov.im/categories/business-and-industries/agriculture/fish-health-surveillance-testing/

Further Baseline Information

Since 2011 all logbook data detailing landings to the Isle of Man has been entered into the Fishing Activity Database (FAD) and is included in iFISH. The Fishing Activity Database (FAD), the CITRIX System is hosted by CEFAS and data is ultimately submitted to MMO and DEFRA. Historically, Isle of Man fisheries information is more detailed (spatially) than elsewhere in the British waters, as it was collected for the Manx under 10m fleet.

A significant body of marine and fisheries information relating to Manx waters remains a lasting legacy from the now-closed Port Erin Marine Laboratory, with over 120 years of
academic marine research and surveys in Manx waters. However, there is currently no single comprehensive inventory of this information, although some records exist.

Identifying fishing grounds is important information for decision-making in relation to spatial marine management and access to summary information is an important area for consideration.

Summary of further baseline information is available in Table 15 and 16.
Table 15. Example Sources of Baseline Fisheries data and Information.
*Note: some data are not available to third parties due to commercial sensitivity or privacy legislation.

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Examples of available information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Environment, Food and Agriculture – Fisheries</td>
<td>Species specific catch and effort data.</td>
</tr>
<tr>
<td></td>
<td>Fleet capacity and management data.</td>
</tr>
<tr>
<td></td>
<td>Environmental data, habitat, species and marine conservation.</td>
</tr>
<tr>
<td></td>
<td>Fisheries sightings data – until 2010.</td>
</tr>
<tr>
<td></td>
<td>Vessel monitoring system (VMS) data.</td>
</tr>
<tr>
<td></td>
<td>Fisheries logbooks and sales records.</td>
</tr>
<tr>
<td></td>
<td>Hobby pot catch statistics.</td>
</tr>
<tr>
<td></td>
<td>Historic sightings data and lists (years-years) previously provided to DEFRA in the UK.</td>
</tr>
<tr>
<td></td>
<td>Reports of aerial sightings by the UK are provided to DEFA weekly.</td>
</tr>
<tr>
<td>Department of Environment, Food and Agriculture – IOM Government Laboratory</td>
<td>Marine monitoring data, shellfish analysis</td>
</tr>
<tr>
<td></td>
<td>Oceanographic, including temperature, salinity, chlorophyll (from Government Laboratory)</td>
</tr>
<tr>
<td>Manx Fish Producers Organisation</td>
<td>VMS data for outside of the 12nm.</td>
</tr>
<tr>
<td>Bangor University</td>
<td>IOM Fisheries survey and monitoring data, species specific data, marine benthic and environmental data.</td>
</tr>
<tr>
<td></td>
<td>Seabed video and photographs.</td>
</tr>
<tr>
<td></td>
<td>Physico-chemical sampling data.</td>
</tr>
<tr>
<td></td>
<td>Technical reports and data sheets.</td>
</tr>
<tr>
<td></td>
<td>Particle Tracking information.</td>
</tr>
<tr>
<td></td>
<td>Genetics data for Manx Scallops</td>
</tr>
<tr>
<td></td>
<td>Bycatch and survivability information</td>
</tr>
<tr>
<td>Source</td>
<td>Data Description</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Centre for Environment, Fisheries and Aquaculture Science (CEFAS) | Species specific data including IOM.  
General marine environmental data.  
Otolith records                                                                                   |
| Manx Fishermen                             | Local knowledge on trends, real-time data, grounds.  
Track plotter information possibly available from vessels.                                        |
| UK Met Office                              | Modelled wave data  
Provided by the: http://www.metoffice.gov.uk/research/ocean/operational/dpds/dpds_wave.html |
| The UK Marine Management Organisation & DEFRA | UK Sea Fishery Statistics inc. IOM, landings by port to the UK, catches, import/export data, state of main stocks and exploitation levels.  
Defra data project outputs are in the public domain via website below. NB: includes some Manx data but not everything: http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16368 |
| ICES                                       | Herring population assessment data.  
Irish Sea whitefish stock assessments.  
Fishery area maps and GIS shapefiles.                                                            |
| DARD/ AFBI                                 | Species specific data from including Herring population assessment/ NI quotas for herring.  
Nephrops data?                                                                                   |
| The now closed Port Erin Marine Laboratory | An assortment of documents, publications and journals including student theses, were retained by DEFA and MNH on the closure of the Marine Laboratory in 2006.  
There is a requirement for cataloguing and making items and former Manx biological records more assessable for Fisheries research.  
The Liverpool Biological Committee Archives: http://www.archive.org/search.php?query=creator%3A%22Liverpool+Marine+Biology+Committee%22 |
| UK Scallop Working Group                   | Data was passed to Bangor University although historic data is retained on old computers from the group.                                             |
| British Oceanographic Data Centre          | Geophysical reports relating to Nephrops.                                                                                                          |
Table 16. Example sources of baseline Sea Angling data and information.

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Examples of available information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Environment, Food and Agriculture - Fisheries</td>
<td>Annual Surveys – juveniles in rivers (Salmonids)</td>
</tr>
<tr>
<td></td>
<td>Juvenile salmonid monitoring reports produced annually by DEFA since 2003. Recent reports include angler catch data and rod licence sales.</td>
</tr>
<tr>
<td></td>
<td>Tales from the Riverbank Magazine.</td>
</tr>
<tr>
<td></td>
<td>Angling licence sales data has been recorded since 2000 (there might be more in the archives somewhere!). No data on sea angling.</td>
</tr>
<tr>
<td>Isle of Man Angling Federation &amp; Local Angling clubs</td>
<td>Competition catch and weight data</td>
</tr>
<tr>
<td></td>
<td>Club fixture dates and locations</td>
</tr>
<tr>
<td></td>
<td>Historic catch records (paper records) – most date back to 1950’s.</td>
</tr>
</tbody>
</table>

Manx Angling records

Data & Knowledge Gaps

Summary

Manx landings and first-sale values are only a small part of the overall fisheries management situation.

There is limited information about *Nephrops* in Manx waters, which is a potentially valuable fishery. Many under 15m vessels in this fishery (and which do not fish for scallops) are not required to carry satellite VMS systems, and so their fishing activity information is not available.

Spatial and temporal patterns of *Nephrops*, crab and lobster fishing is largely unknown, although improving.

Relatively poor information and data relating to crab and lobster & whelk, although since 2012 Bangor University have been collecting baseline fisheries as well as more specific data. The situation is probably significantly better than in most other jurisdictions, although still insufficient for appropriate fisheries management.

Limited CPUE information is available for these fisheries, although this has improved in recent years.

Very limited catch composition, recruitment data, population dynamics and fishing activity patterns for several species, especially crab and lobster.

Stock assessments for inshore and juvenile populations are limited and there is no current ongoing research targeting nursery grounds, nor on juvenile fish.

There is limited information available on landings made elsewhere from catches within the territorial sea, which while not a complete gap as such, does not feature in strategic fisheries management.

Effort information is not always an appropriate assessment of a fishery, and specific stock assessment information is lacking for all but the two scallop species.

When fish leave Manx freshwater their migratory patterns are often unknown e.g. The Celtic Sea Trout Project has collected valuable information on sea trout movements and sea trout genetics in the Irish Sea area, including Manx sea trout. There is no specific information available on migration patterns of Manx-origin salmon or eels.

The economic value of Sea Angling to the Manx economy is currently unknown. Elsewhere such angling studies to gain value on the industry and wider spends have been undertaken e.g. Scotland, NI.
Potential risk of phycotoxins to Manx shellfish fisheries, especially domoic acid (the cause of Amnesic Shellfish Poisoning ASP), see chapter 3.1 (Plankton in Manx Waters).

Potential risk of pathogens to wild and cultured fisheries resources.

**Resource List**
Manx stakeholders have identified a requirement for a thorough review to be carried out of the sources and whereabouts of marine and fisheries data and information relating to Manx waters, particularly historic information from the former Port Erin Marine Laboratory. There have also been requests to make all such information more accessible.

Initial work on such a local resource have previously been undertaken in an *ad hoc* fashion, steered by members of the Manx Biological Recording Partnership and DEFA, however a lack of a resources and absence of a Manx Biological Records Centre has meant a comprehensive resource is yet to be compiled.

To start this initiative, limited funding has been secured to compile a list of key publications for Manx waters and this is currently in preparation with collaboration between DEFA, MNH, Manx Biological Recording Partnership and The UK’s National Marine Biological Library.

**Marine GIS Mapping and Data Management**
- Lack of metadata for data holdings.
- No centralised resource for marine and fisheries data on the Isle of Man.
- No systematic data sharing between different organisations, research institutions, DEFA and other IOM Government Departments.
- Historic and paper records and publications are neither catalogued nor accessible.
- No biological records centre on the Isle of Man although a willingness to share data.
- On-island capacity for marine mapping, GIS and marine data management is limited by resources.

**Commercial Sensitivity**

**Formal requests (external)**
DEFA Fisheries has access to a variety of collected fisheries information for the territorial sea. Certain information cannot be divulged unless specific permission has been granted. In particular, any information where an individual vessel can be identified is recognised as commercially sensitive or contrary to privacy legislation.

Formal requests for information regarding the following items should therefore be made to fisheries@gov.im and DEFA Fisheries shall review all requests on a case by case basis:

- Licensing
- Registration of fishing vessels
- Catch statistics
- Enforcement statistics – boardings/sightings/VMS data
All other information (external to Manx waters) requires directing to the appropriate neighbouring jurisdictions.

**Internal requests (between IOM Departments)**
DEFA Fisheries are keepers of data published in an appropriate format. This information needs to be anonymised prior to the sharing of information across Departments. Other statutory organisations elsewhere including CEFAS, MMO are governed by the same rules. Only in the exception that life and death be at risk may VMS raw data be available prior to review and higher officer approval.

**Initial Considerations for Future Marine Development**
This section serves as an initial guideline to identify some generic effects that a range of potential marine developments may have on the key commercial species.

Effects and relevance to fisheries species and habitats will vary greatly depending on the nature of any proposed development, area of a development, footprint and the sensitivity and recoverability of the receiving area. Impacts may be site-specific. Therefore the following summary does not remove any requirements from a potential developer to consider effects, and carry out appropriate assessment.

**Potential Effects**

**Reduced Productivity**
Fishing grounds and nursery grounds are complex systems comprising input from the wider Irish Sea as well as local benthos, epifauna and resident fauna. Any major changes to the resident fauna e.g. through dredging, construction and/or usage could have a profound effect on the viability of a fishery or nursery ground.

**Noise**
Underwater noise and vibration associated with construction activities such as piling operations, cable laying, seismic surveys may affect the distribution and movement habits of commercial fishery species. Finfish for example, are sensitive to underwater noise and may avoid noise sources, while recent research indicates that scallop larvae may be adversely affected by anthropogenic noise (Aguilar de Soto et al. 2013), although further confirmatory research may be necessary. Use of sonar for survey work may also have a profound impact. Such impacts may be short-term e.g. construction duration. Operational noise from a development e.g. from renewables, may have a longer-term impact. Under the Marine Infrastructure Management Act the consenting process for seismic surveys is conducted by DEFA, see [https://www.gov.im/about-the-government/departments/environment-food-and-agriculture/fisheries-directorate/seismic-surveys-in-manx-waters/](https://www.gov.im/about-the-government/departments/environment-food-and-agriculture/fisheries-directorate/seismic-surveys-in-manx-waters/)

**Direct Mortality**
The installation and construction of devices and cables has the potential to cause mortality to commercially important shellfish species depending on the type of construction methods employed.
Electromagnetic Field Effects
Certain fish and shellfish species are sensitive to electromagnetic fields (EMF) generated from power passing through underwater cables (inter-array and export power cables).

Physical loss of seabed habitats due to new structures.
Dependant on the footprint of development and nature of receiving environment.

Physical presence of structures
Introducing a large amount of new metal or other artificial materials to a water environment may have several other effects on habitats and species.

Habitat degradation/removal
Several commercial species are closely associated with key habitats and substrates during all or parts of life cycle e.g. sand eels burrow in sediments. Disturbance or damage to the seabed during construction may affect benthic species and habitats and the fish and shellfish communities they support. Habitats that have a wider ‘ecosystem function’ including biogenic reefs such as horse mussel (*Modiolus* sp.) or *Sabellaria* sp. are of particular note. Effects will be dependent on species and habitat sensitivity and recoverability.

Smothering
Construction and installation activities mobilise benthic sediments and therefore shellfish and crustacean are susceptible to smothering from excess sediment in the water column.

Pollution
Disturbance of the seabed may cause re-mobilisation of contaminants or nutrients to the detriment of species and habitats e.g. TBT.

Pollution from the introduction of marine lubricants, oil leaks and the use of antifoul paints pose a potential risk to shellfish and crustacea.

Pollution incidents may cause temporary restrictions in fishing activities and harvest with economic and biodiversity consequences. Please also refer to MMEA Chapter 6.2. (Shipping and Navigation), and MMEA Chapter 2.4 (Marine Pollution).

Collision/entanglement
The potential collision/entanglement risks associated with any future developments include:
- Mobile gear fishing too close to structures and/or over cables.
- Pots, nets, or longlines shot too close to any offshore structures.
- Potting vessels using grapnels to obtain lost gear.

The risk of entanglement may be expected to increase if the size and/or abundance of commercially important species increase around offshore devices. For example, if the
number of lobsters increases near a device then it is likely that potting operators might increase their gear lying nearer to them.

Please also see MMEA Chapter 6.2 (Shipping and Navigation) for further information relating to vessel collision risk.

**Access**

Piers are frequently used by recreational sea anglers on the Isle of Man and in recent years there are increasing restrictions on access e.g. Edward Pier, Douglas is now out of bounds. Future developments that utilise piers and harbour areas may have potential to impose further restrictions to recreational access.

**Socio-economic effects:**

**Temporary & Permanent Displacement**

Future offshore development within Manx waters may lead to exclusion or displacement of fishing activities from an area thereby increasing pressures upon alternative fishing grounds. The extent of such displacement will be dependent on the scale of the development and siting. The presence or otherwise of any exclusion zone to certain forms of fishing may also affect the level of displacement experienced.

Displacement may cause vessels to move further offshore. Greater transit times would have economic implications to the Manx fleet regarding fuel consumption together with increasing carbon footprint impacts.

There is an increased risk that displaced vessels may impact upon areas that are currently less frequently fished with impacts to biodiversity especially where areas are of high biodiversity value but as yet unprotected.

- Constraining effort into smaller areas may also lead to localised stock depletion.
- Increased gear conflicts between static users and mobile gear users.
- Increased competition between vessels.
- Permanent displacement increases the risk of reduced fishing opportunities.

**Cable Routing**

It is recommended that the routing of any associated cables for offshore developments should be appropriately sited to avoid prime fishing grounds within Manx waters. Please also see MMEA Chapter 6.1 (Cables and Pipelines). Please see also: Vella G. (2010) and references therein.
**Potential Positive effects:**

**Increase in habitat/ resources**  
An increase in benthic habitat (structure)  
Attraction  
Artificial reef benefits

**No take zones**  
No-Take Zones in a development zone may have the potential to provide a buffer zone and nursery habitat if in an area of degraded habitat i.e. from other pressures. See: Defew et al. (2012).

**Employment** – servicing/maintenance

There may be opportunities for the local fishing industry to utilise their vessels for the data collection to inform environmental assessments and in the conveyance of persons and equipment during the installation phase of any development.

**Initial considerations for handling potential effects from future marine development**

The following generic information and initial guidelines are provided as a reference source to assist in the initiation of early liaison with key organisations and stakeholders during consultation. The list is not comprehensive.

**Stakeholder engagement**

Early dialogue with the fishing industry.

Many of the potential conflicts and issues between commercial fisheries and future development can be avoided through early dialogue and information. It is vital to consider fishermen’s interests at the earliest opportunity in any planning stages for a potential offshore development in Manx waters. In general:

- Avoid key fishing grounds/ intensely fished areas.  
- Avoid installation/ decommissioning during key fishing seasons or important life times for catch species.  
- Choose installation techniques based on the best available information and to reduce where possible any envisaged negative impacts with regards to fisheries interests.  
- Offer effected vessels work associated with survey and monitoring and/or installation of devices.  
- Review compensation for earnings loss or fund development projects and/or research.  
- Where feasible - allow static gear operations to continue within exclusion zones.
- VHF safety broadcasts.
- Specify antifouling products.
- Ensure risk assessments are adequate for leaks and spill incidents.
- Ensure developer has adequate and workable pollution plan in place.
- Lobster friendly foundations.
- Precautionary approach.
- Collaborating with other research
- Data and information sharing
  - Encourage the collection of data once, for many purposes.
  - Make information and data accessible.

**Review what is done in other places**
- Not just UK/EU – Review best practices from other Crown Dependencies, Overseas Territories, Canada, other offshore wind areas.

**Pre-development monitoring**
- in agreement with relevant Departments and the Fisheries.
- Manx fishermen involved where feasible.

**Risk Assessments / EIA/ Appropriate assessment**
- Dependant on scale of development, location and technology.

**Pre-construction**
- early stakeholder engagement.

**During construction**
- monitoring carried out and overseen by appropriate DEFA and/or IOM Marine Plan Officers.

**Post construction monitoring.**
- with DEFA approval.

**For a useful reference see also: Blyth-Skyrme (2010).**

**Impact and Sensitivity assessments**
Despite robust information relating to the effects of fishing effort on the Manx seabed, no current, long-term scientific survey work nor monitoring is undertaken specifically in relation to future offshore development in Manx waters. However, research undertaken elsewhere may be used to guide survey work and monitoring programmes as best practice.

There is limited information and no assessment work has been undertaken regarding the sensitivity and recoverability of the species and habitats present in Manx waters to a range of potential coastal and offshore development.
References


Manx Heritage Foundation (1992). Herring in Manx waters.


NIEA (2011). Fish and Aquaculture for the NI State of the Seas Report


**Website links:**


