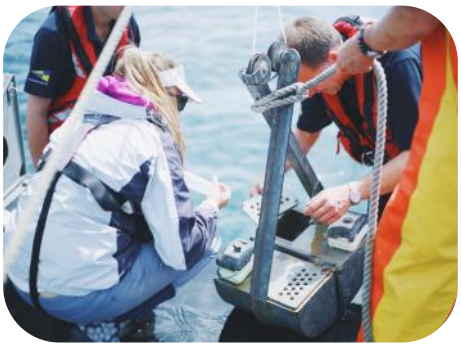
Gouvèrnément d'JÈRRI

MARINE RESOURCES ANNUAL REPORT 2018







GROWTH HOUSING AND ENVIRONMENT

MARINE RESOURCES SECTION

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CONTENTS

PREFACE

The Marine Resources team are pleased to present this expanded and updated annual report which summarises a majority (but by no means all) of our activities and results from 2018. As a small team with a wide remit, working within Marine Resources is rarely dull and the team's list of accomplishments reflect our ability to work collaboratively with each other and our stakeholders. It is also a reflection the team's wide skillset which allows us to work across licencing, enforcement, science, monitoring and other disciplines.

Capacity has always been an issue for Marine Resources and we were pleased to welcome new recruit, Phillip Langlois, who was employed to help ease pressure caused by Brexit and a review of the Bay of Granville Agreement. Aside from the challenge presented by Brexit, highlights from 2018 include increasing the number of fisheries inspections and prosecutions, the hosting of the ICES WG CRAB meeting, the ratification of Annex V of the OSPAR Convention (and registration of our marine protected areas) and the inauguration of mollusc and crustacean working groups through the Bay of Granville Agreement. We also revised and expanded our evidence-gathering and administrative programmes and our stakeholder engagement work which included meetings and actions relating to Ramsar, the offshore reef residents' associations, Ports of Jersey and representatives from the other Channel Islands at both a governmental and NGO level.

Research continued to form an important part of our remit both in terms of the monitoring of commercial stocks but also for environmental management and other purposes. A revision of shellfish monitoring has led to increased data gathering for lobster and crab while the analysis of VMS and other spatial data is providing insights into areas that have hitherto been largely data deficient. Our assistance with student projects (including a PhD student) continues to deliver useful evidence and conclusions about topics that are important (such as microplastics) but which we do not always have capacity to look at ourselves.

Enforcement, licencing and the legislative aspects of Marine Resources were subject to increased demand during 2018 and the team was not only able to keep pace but actually exceeded previous years' targets. Boat patrols and angling/slipway/quayside checks remain a core function delivered by all team members as is the day-to-day communication and engagement with our key stakeholders in the commercial and recreational fishing sectors as well as representatives from environmental and other groups.

So, while 2018 may have been somewhat busier than planned, the Marine Resources team is proud to have been able to absorb the additional responsibilities afforded to it and yet also to deliver its existing functions to a high standard. The issues of Brexit, the Bay of Granville Agreement Review and government reform are expected to form a major part of our 2019 workload but the team is prepared and able to handle these challenges.

We hope that our 2018 Annual Report is a reflection of the team's abilities and achievements. There are some smaller workstreams and individual projects that have not been included for reasons of space and there may be things that we could do better or differently. Receiving feedback is important and if you have any comments, questions or suggestions about this report or the team's activities then please get in touch with Marine Resources using the address on the cover page.

INTRODUCTION
JERSEY'S MARINE WATERS

The Bailiwick of Jersey (and indeed our entire planet) consists mostly of marine waters within which sit smaller parcels of dry land. Jersey's land area is 120 km^2 but this is dwarfed by the surrounding 2,455 km^2 of territorial sea. This ratio of land to sea is significant as it is the ecology and oceanographic processes of the marine environment that permits and preserves life on land, rather than vice versa. To mismanage our seas and oceans is therefore to risk our own well-being.

The island of Jersey has 90 km of coastline which includes everything from dramatic cliffs and wide sandy bays through to small harbours and, of course, the port of St Helier. This interface between land and sea is an important influence on the Island's character and perceptions of character. On spring tides the difference between low and high tide can be as much as 12 metres. The south, south-east and west coast have a very shallow, gently sloping shore profile which means that at low tide and the island can expand by a quarter as up to 30 km^2 of intertidal area becomes accessible. In contrast to this are the north and south west coasts which are characterised by steep granite cliffs. Both the inland character of Jersey and its marine environment are very much influenced by the great variation in aspect and exposure of its coastal edges.

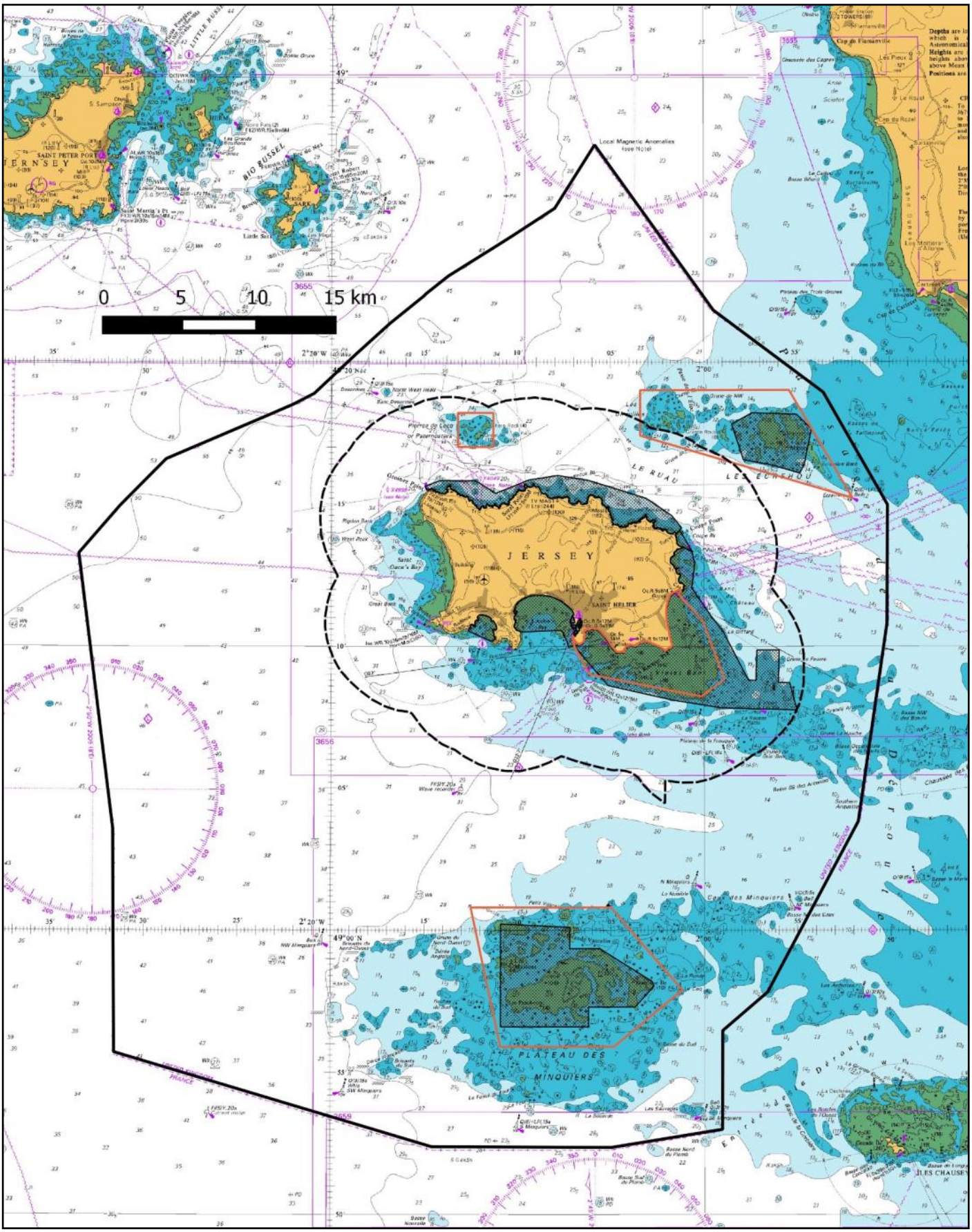
Jersey's is at the confluence of colder northern and warmer southern water marine regions. Many species from the Bay of Biscay reach their northern limit in the Channel Islands and, conversely, there are species in the southern UK that do not make across to the English Channel. The international importance of Jersey's marine ecology is recognised the designation of almost 190 km^2 of inter-tidal habitat as wetlands of international importance under the Ramsar Convention and 150 km^2 of marine waters as protected areas under the OSPAR Convention.

The character and ecology of Jersey's rocky reefs and intertidal sediment flats are not found elsewhere in Europe. At low tide an extensive and biologically rich area of seashore is uncovered while subtidally there is a little seen environment of kelp forests, seagrass beds and tide-swept sands and gravels. The offshore reef systems that comprise Les Écréhous, Les Dirouilles, Les Minquiers and Paternosters covers 100s of kilometres and are internationally recognised as productive but sensitive centres of biodiversity.

The seas around Jersey are productive, something which is reflected in the economic importance of fishing and aquaculture. The fishing industry plays a significant role in island life and often reflects an Anglo-Norman culture that goes back centuries. Fisheries and aquaculture directly support around 180 jobs and many more in associated industries such as engineering, maintenance, merchants, etc. Obtaining a sustainable fishery is important and in Jersey waters management occurs through measures that are employed locally and via a joint-management agreement with France.

Jersey marine waters are also rich with sites of cultural, archaeological and historical significance including La Cotte de St Brélade one of the most important Palaeolithic (Neanderthal) sites in the British Isles. At St Ouen peat beds storms may reveal the remains of a Neolithic forest while intertidal rocks sport a diversity of Napoleonic coastal fortifications and Second World War structures.

As a location for fishing, watersports, tourism, aquaculture, harbours, vital infrastructure and other activities, Jersey's marine zone is both beautiful and also an area of intense activity. The island's coastal strip, beaches and inshore waters are host to a complex interaction of physical, biological, social, cultural and economic activities. To reduce the possibility of conflict and harm to individuals or the environment requires close monitoring and management. This is a core function of the Marine Resources who, in conjunction with other government teams, industry representatives, marine stakeholders and NGOs, oversee the management of Jersey's marine waters to ensure that people can enjoy the benefits of the island's marine zone and heritage without causing unnecessary harm to themselves of the local environment.



Jersey's marine waters. The black line marks the limit of Jersey's territorial waters. The dashed line marks the three nautical mile limit from the island's coast. Within the three mile zone Jersey has full control over its marine management; outside of it any measure that may impinge on commercial fishing is subject to discussion through the Anglo-French Bay of Granville Agreement. The hatched zones around Jersey and the offshore reefs are Marine Protected Areas where dredging, trawling and other mobile fishing practices are prohibited. The red line marks the edge of Jersey's four Ramsar sites.

MARINE RESOURCES: WORKSTREAMS

OVERVIEW. Between the eight members of the Marine Resources team, a wide variety of work is undertaken. Some aspects of this work overlaps with other government departments, whilst others involve engagement with non-governmental organisations (NGOs). No one role is allocated solely to any individual and all Fisheries Officers can work across the team's portfolio. While this Annual Report is complied primarily of key results and highlights from 2018, a summary of some of the roles and responsibilities of the Marine Resources team is given below and illustrated on the page opposite.

FISHERIES MANAGEMENT

Officers undertake a range of tasks aimed at managing local fisheries. This includes conducting annual assessments on key commercial stocks, inputting and analysing quarterly commercial statistics, and engaging with wider jurisdictions such as the UK and France with regard to Management Agreements.

ENVIRONMENTAL MANAGEMENT

Officers conduct a variety of periodic testing, such as water sampling, shellfish sampling, and heavy metal sampling, in conjunction with stand alone projects, including supervision of student research. Recent projects include monitoring of sensitive habitats, improved documentation of local marine mammal abundance and distribution, and an impact assessment of new 'No Mobile Gear Zones'.

ENFORCEMENT

Officers are responsible for ensuring Fisheries-related laws and legislation are enforced, both around the coast of Jersey, and offshore in shared waters. This ranges from angling and low water checks at popular fishing locations, to boarding large commercial trawlers many nautical miles from Jersey's coast. Any enforcement action requires appropriate administration, from interviews under caution, to report writing, and attendance at Parish Hall and / or Court.

LICENCING

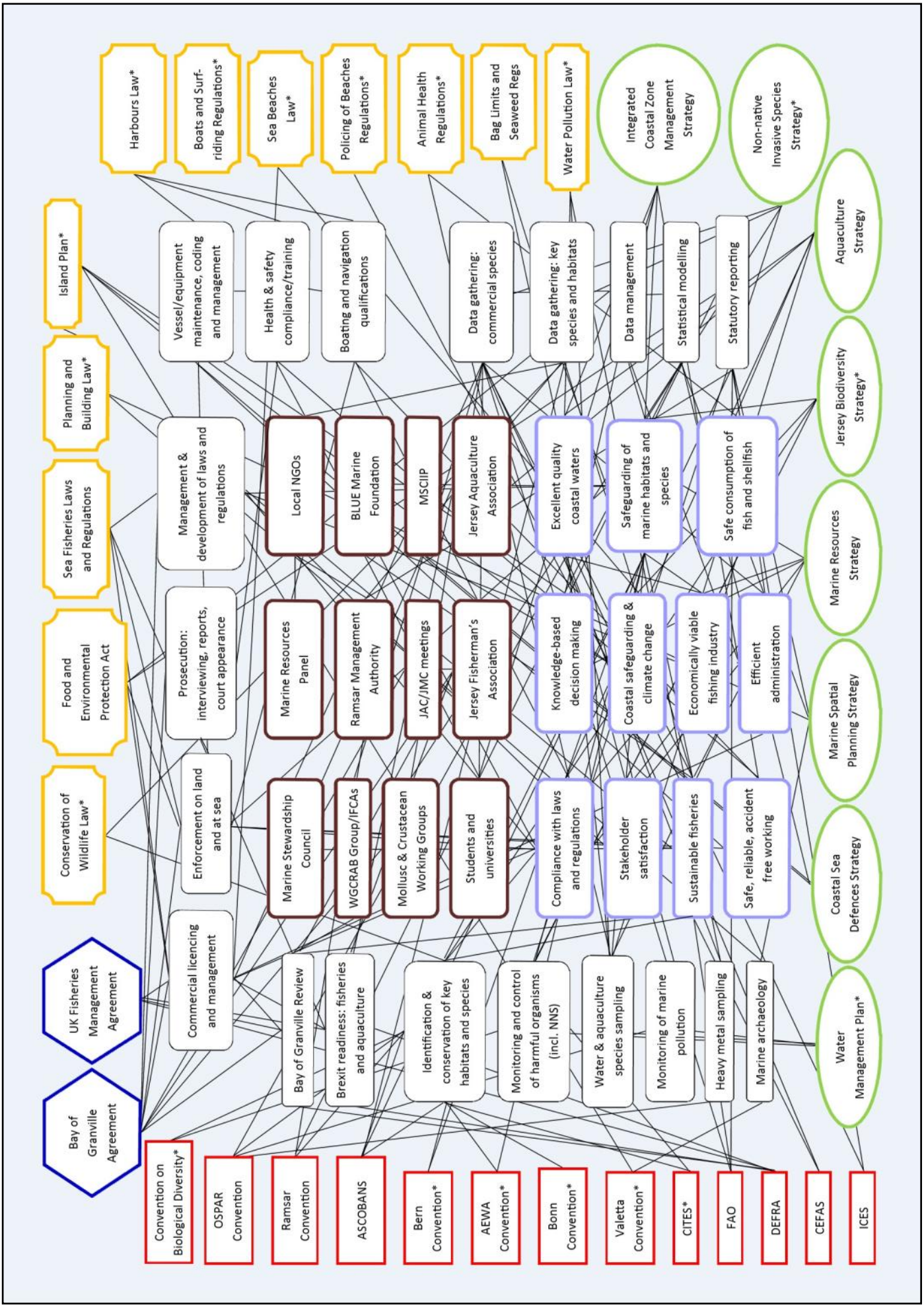
Officers administrate the licensing of a range of fishing activities, in addition to constructing and updating associated licence conditions. This includes the opening and closure of commercial fishing licences, activity specific permits such as beam trawling and scallop diving, licensing of aquaculture businesses, and administration of other miscellaneous permits, such as scientific exemptions.

LAWS & LEGISLATION

In addition to enforcement of local laws and regulations, Officers are also tasked with ensuring all policy and legislation is appropriately maintained. This includes drafting and submitting documentation such as law drafting instructions, Ministerial Decisions, and associated communications such as press releases.

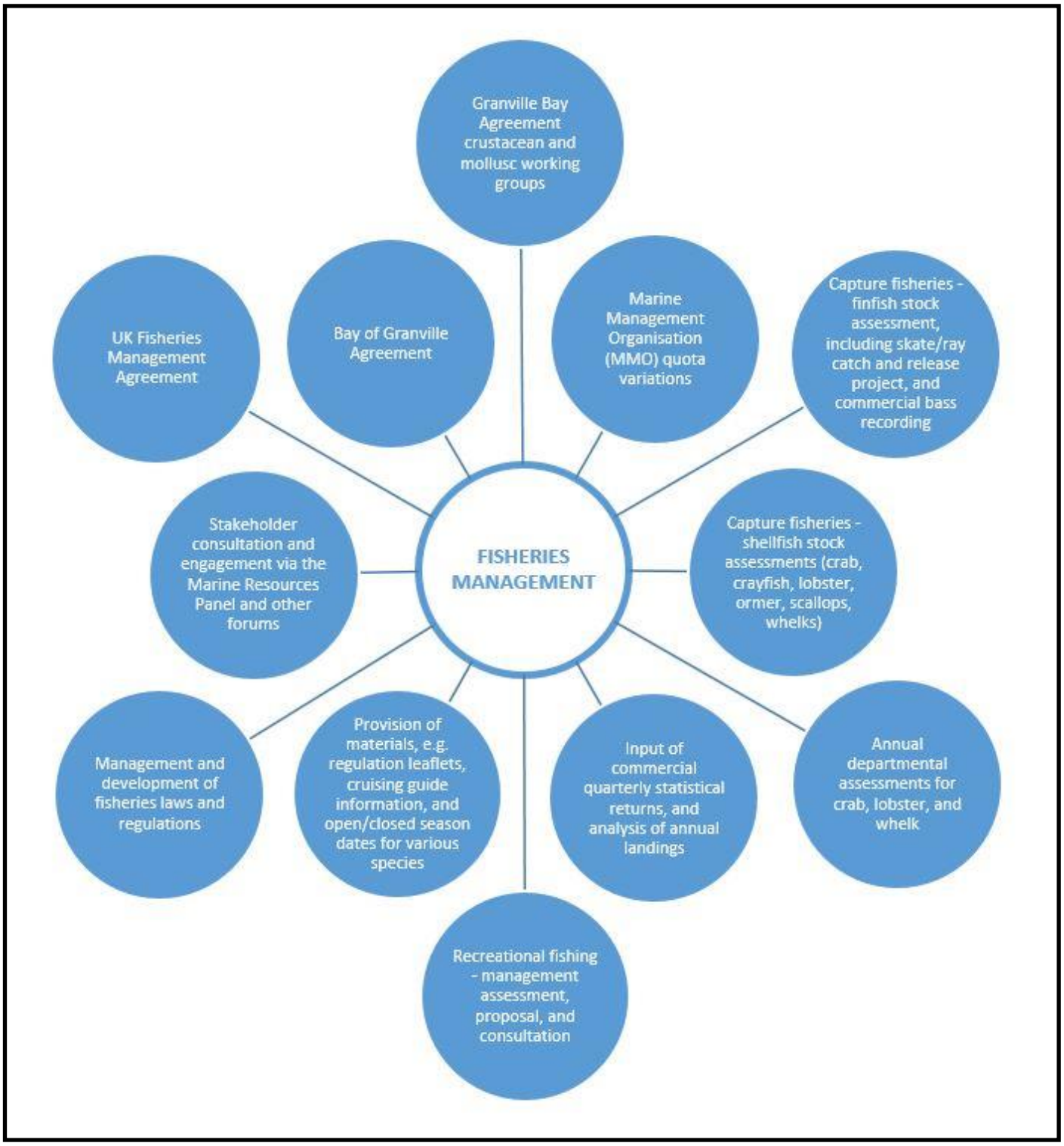
WIDER ENGAGEMENT

Many workstreams involve coordination with other Governments, non-governmental organisations, and local businesses. For example, the team has a close working relationship with local stakeholder groups, such as the Jersey Fishermen's Association, the Ramsar Management Authority, and the Societe Jersiase. They also liaise regularly with colleagues in France, through the Bay of Granville Agreement and associated Working Groups. In addition they draw on expertise from the UK from organisations such as the IFCAs, CEFAS, OSPAR, the MSC, and BLUE Marine Foundation.



A 'horrendogram' illustrating the core responsibilities, activities, regulations, strategies and outcomes undertaken by the Marine Resources team. * = Marine Resources contribute to these areas rather than managing them.

FISHERIES MANAGEMENT



FISHERIES MANAGEMENT
COMMERCIAL LANDINGS - SHELLFISH

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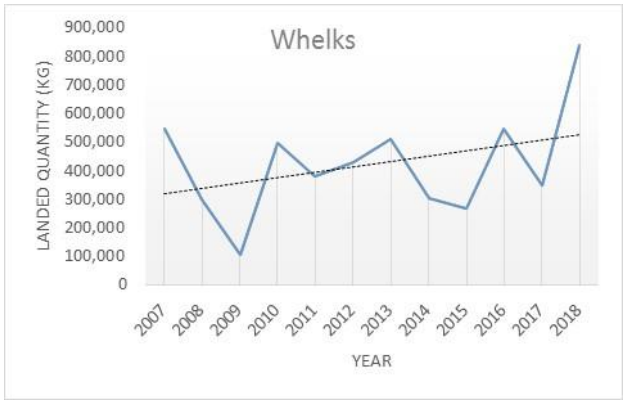

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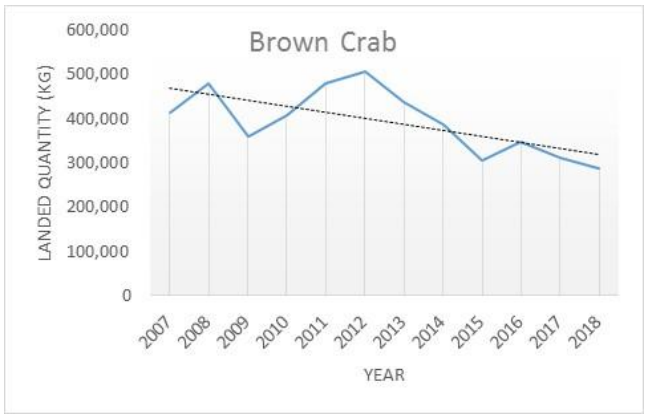

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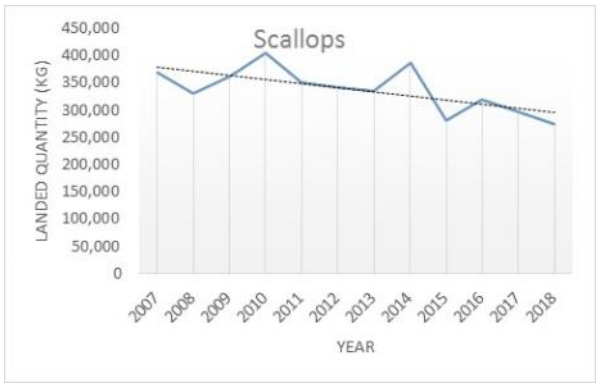

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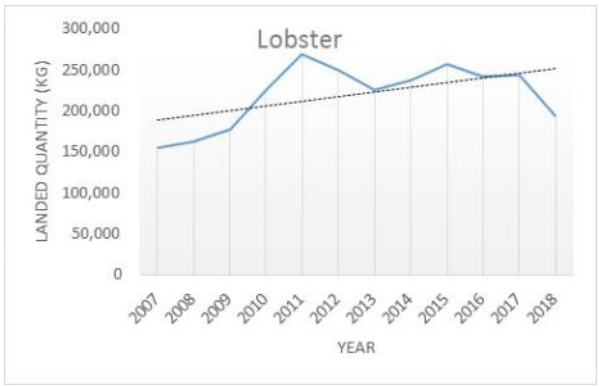

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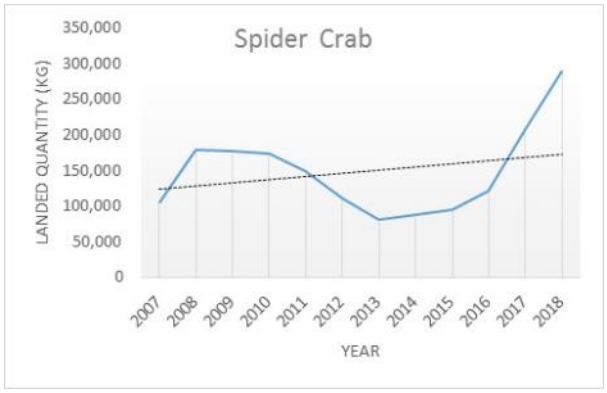

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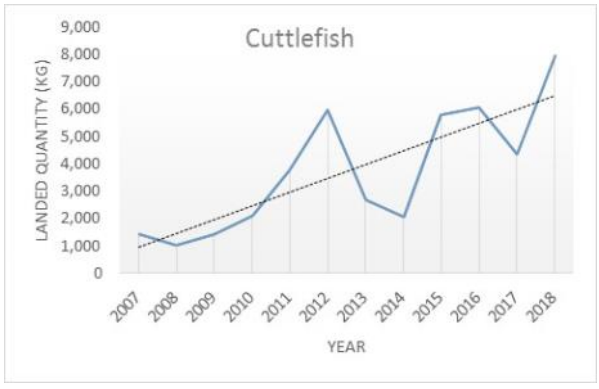


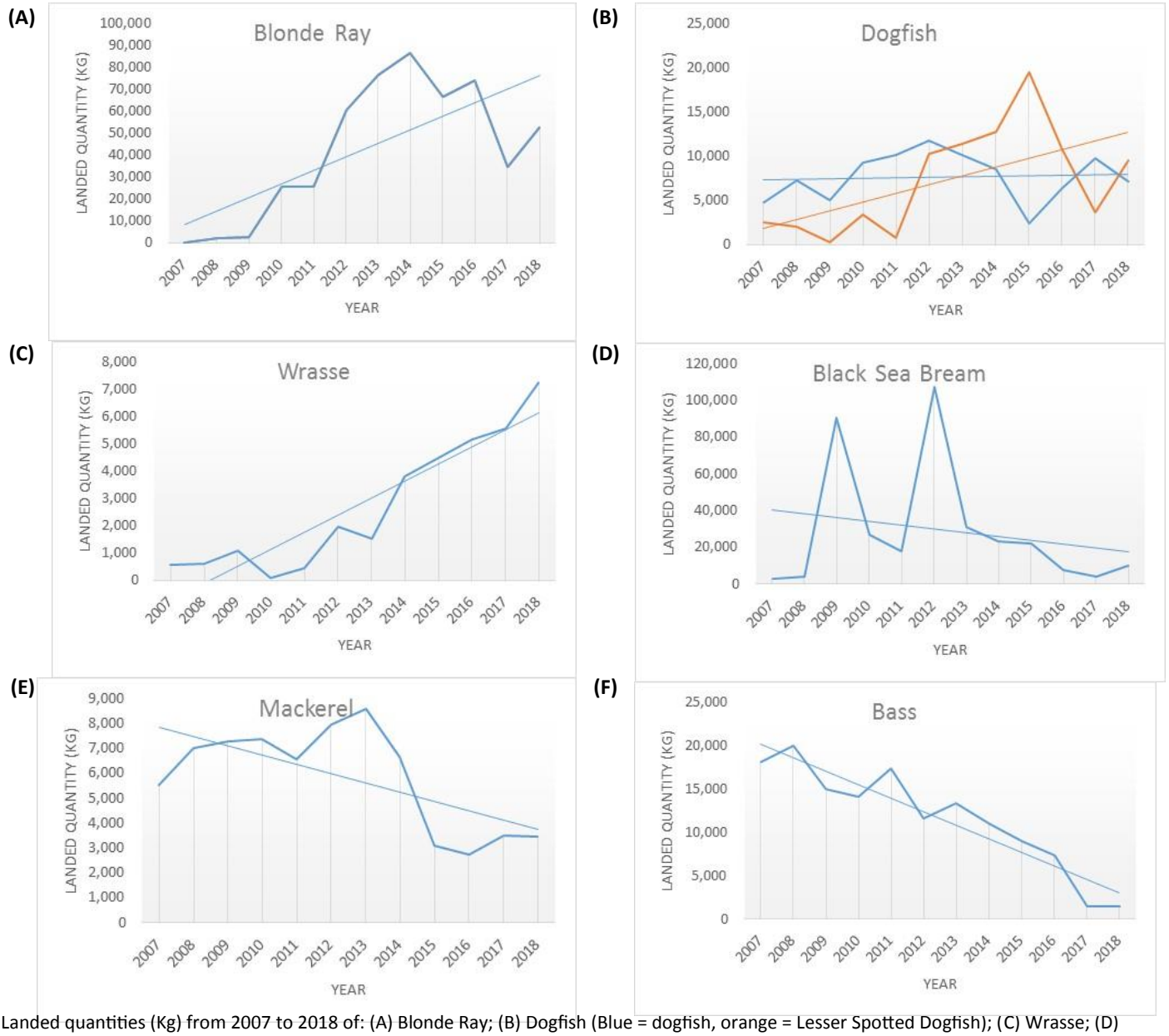
Landed quantities (Kg) of: (A) Whelks; (B) Brown Crab; (C) Scallop; (D) Lobster; (E) Spider crab; (F) Cuttlefish.

A CLOSER LOOK. Jersey's commercial fishery is economically dominated by shellfish. Lobster, and crabs make up around 70% of the financial value of commercial fishing with whelks and scallops being the next most important groups at around 22%. Wetfish forms around 5% of the Jersey fishing economy.

Trends between the species are mixed. Annual landings for lobster have decreased in recent years and although landings remain above historical levels, there is concern about the stock. Spider crab landings have increased significantly in recent years, with 2018 landings 200 tonnes greater than 2016. Brown crab has steeply declined since 2012 which is a matter for serious concern. This is addressed later in this report.

Lobsters, brown crab, spider crab, and whelks are discussed in more detail later in this section. In addition to the main stocks listed above, other species landed by Jersey boats includes: cuttlefish; cockles; lady crab; squid; ormers; queen scallops; crayfish; praire and prawns. See Appendix I for more details.

FISHERIES MANAGEMENT
COMMERCIAL LANDINGS - WETFISH



Landed quantities (Kg) from 2007 to 2018 of: (A) Blonde Ray; (B) Dogfish (Blue = dogfish, orange = Lesser Spotted Dogfish); (C) Wrasse; (D) Black Sea Bream; (E) Mackerel; (F) Bass.

A CLOSER LOOK. Jersey's commercial wetfish industry is small in comparison to shellfish and has suffered from restrictions related to logistics, markets and quota arrangements. A range of species are caught but often in relatively low numbers (see Appendix II). The annual landed quantity (Kg) for a selection of commercially important species is shown in the above graphs.

There is considerable variability in annual landings which may be related to individual vessels entering or leaving the fishery or from factors that are operating on a regional basis rather than just in Jersey waters. External influences are more of a feature in wetfish than shellfish because of their mobility, migration patterns and reproductive habitats as well as by current and historical overfishing in neighbouring regions. Local wetfish trends are monitored by Marine Resources but the island will generally (or may be obliged to) follow guidance issued from external research organisations such as ICES, the EU and UK.

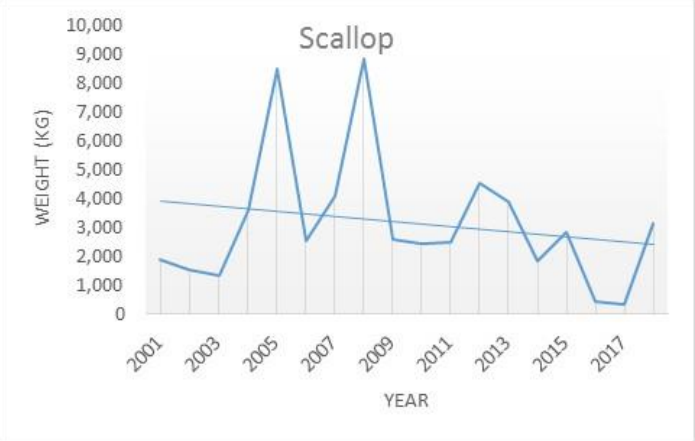
Individual wetfish species are subject to local research, usually by members of the Marine Resources team. This has included a ray-tagging project, a commercial recording scheme for bass (see 'Bass Stocks' page) and the acoustic tagging of wrasse.

FISHERIES MANAGEMENT
AQUACULTURE PRODUCTION

JERSEY'S AQUACULTURE INDUSTRY. Intertidal production remains focused on the Pacific oyster (*Crassostrea gigas*) and mussels although flat oysters are also grown. The cessation of ormer ranching off the east coast in 2016 has left scallops as the only subtidal species farmed. The main aquaculture area in Grouville Bay is covered under a single planning consent held by the Government of Jersey. This has improved consistency of licence conditions and has removed the planning barrier experienced by prospective new entrants. A reorganisation of some concessions in Grouville during 2018 saw an increase of three hectares in farmed area, while the subtidal area remained the same. Production of all shellfish has increased.

(A)

(B)



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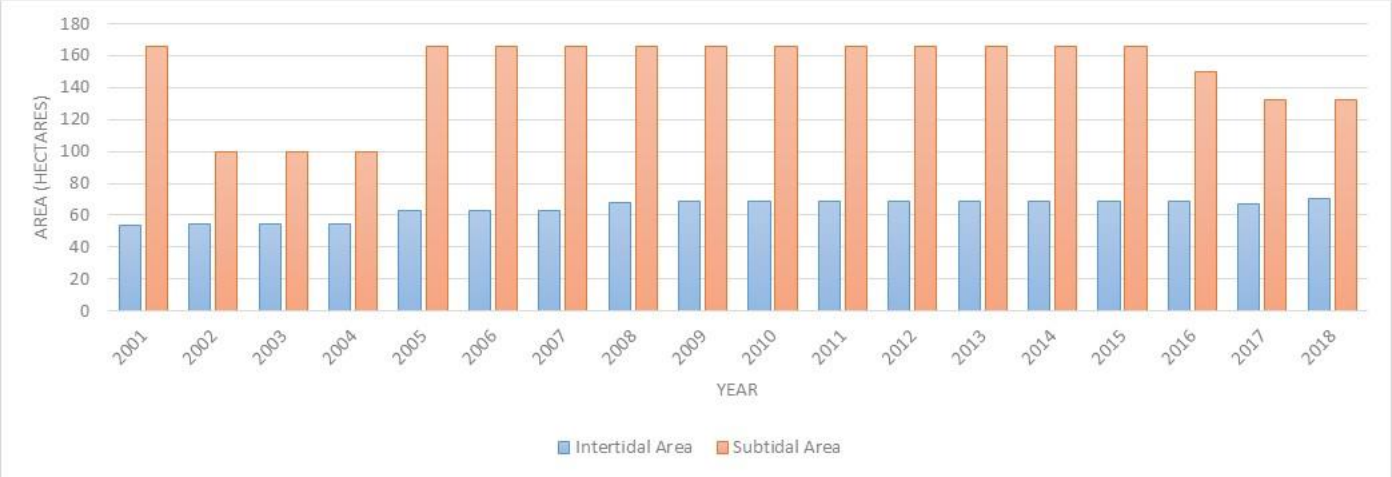
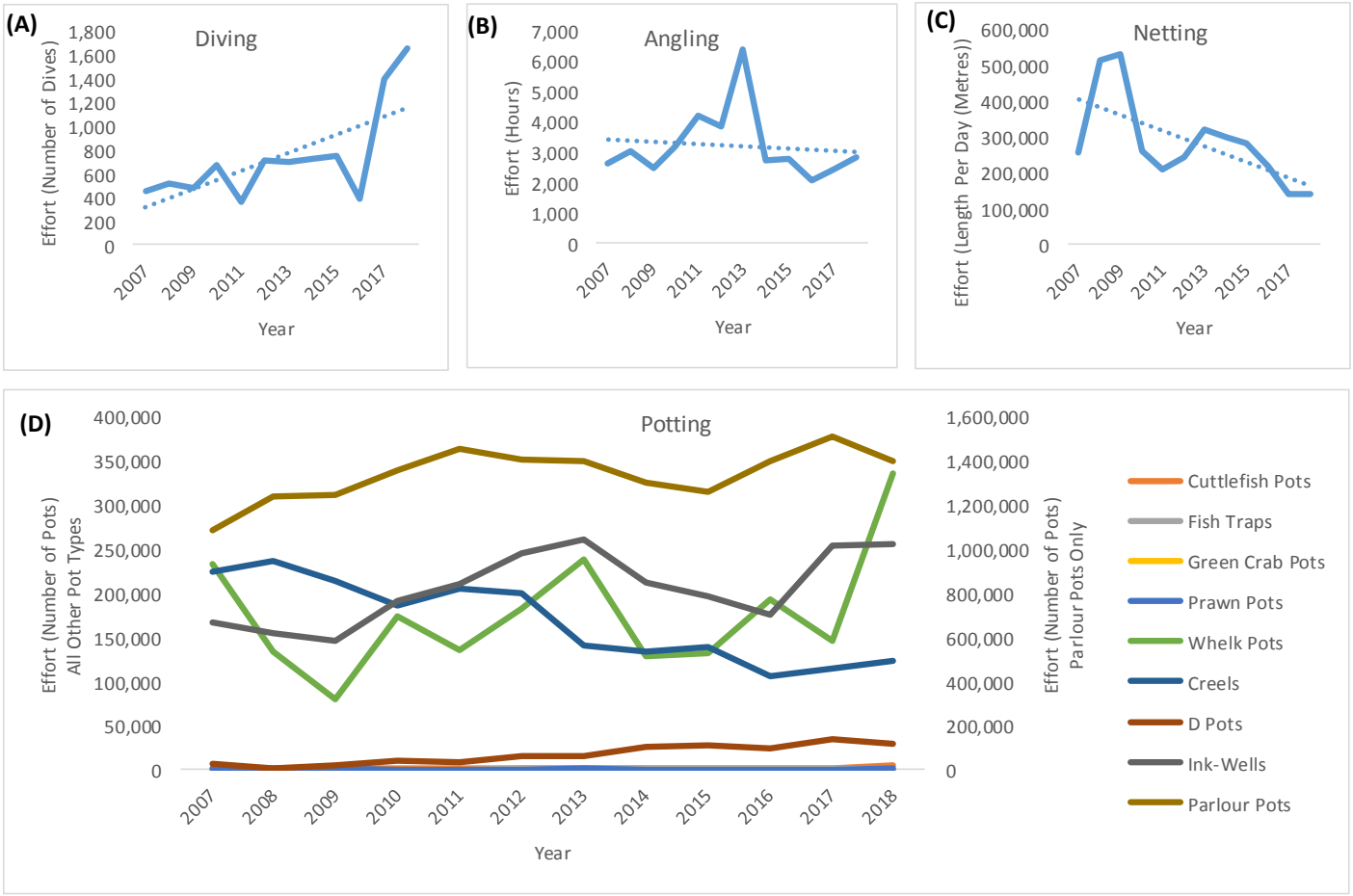


(A) Production weight (Kgs) of farmed Pacific Oyster. (B) Landed weight (Kgs) of farmed scallop. (C) Intertidal and subtidal areas.

Oyster beds in Grouville Bay

FISHERIES MANAGEMENT
FISHING EFFORT

FISHING METHODS. Jersey's commercial fishing fleet uses a range of fishing methods whose effort level is recorded in logbook submissions made by all commercial vessels. For example, fishers who target scallops by diving must record the number of dives they make each day and in which fishing zone. Fishers targeting fish might have to record the number of hours fished (angling), the number of hooks used (long lining) or the length of net used (netting). Knowing the effort expended when fishing is important as trends in catch weight may vary due to weather, fleet capacity, regulations, etc., and so cannot be used on its own to judge the health of a stock (see opposite).



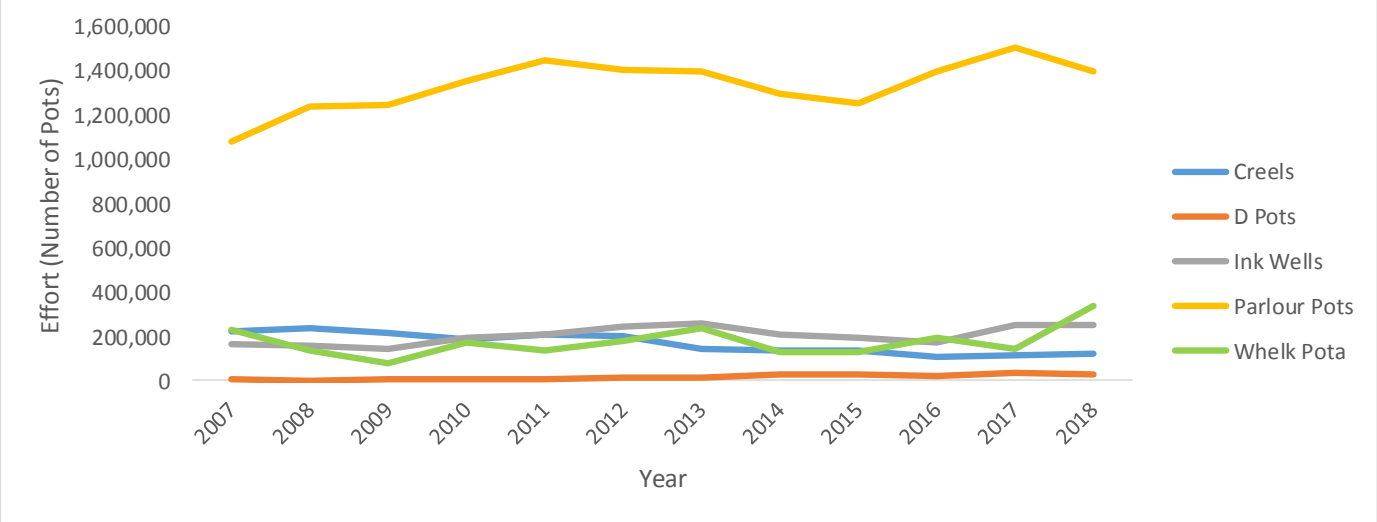
Fishing effort from 2007 to 2018 for individual metiers. A) Diving, measured by number of dives. B) Angling, measured in hours. C) Netting, measured by length of net used per day (metres). 'Netting' includes gillnets, tangle nets, and trammel nets. D) Potting, measured by number of pots. 'Potting' includes cuttlefish pots, fish traps, green crab pots, prawn pots, whelk pots, creels, D-pots, ink-well pots and parlour pots. Additional metiers not illustrated here include angling, long lining, low water fishing and trawling.

A CLOSER LOOK. Potting remains the dominant metier used across the island's commercial fleet. This is to be expected given the major role that crab and lobster contribute to the fishery. Although a variety of different pot types are used, parlour pots account of nearly 90% of the fishing effort used for crab and lobster. This is a reflection of their efficiency when compared to other traditional pot types and is something that may have to be examined in future, especially in relation the decline in lobster landings.

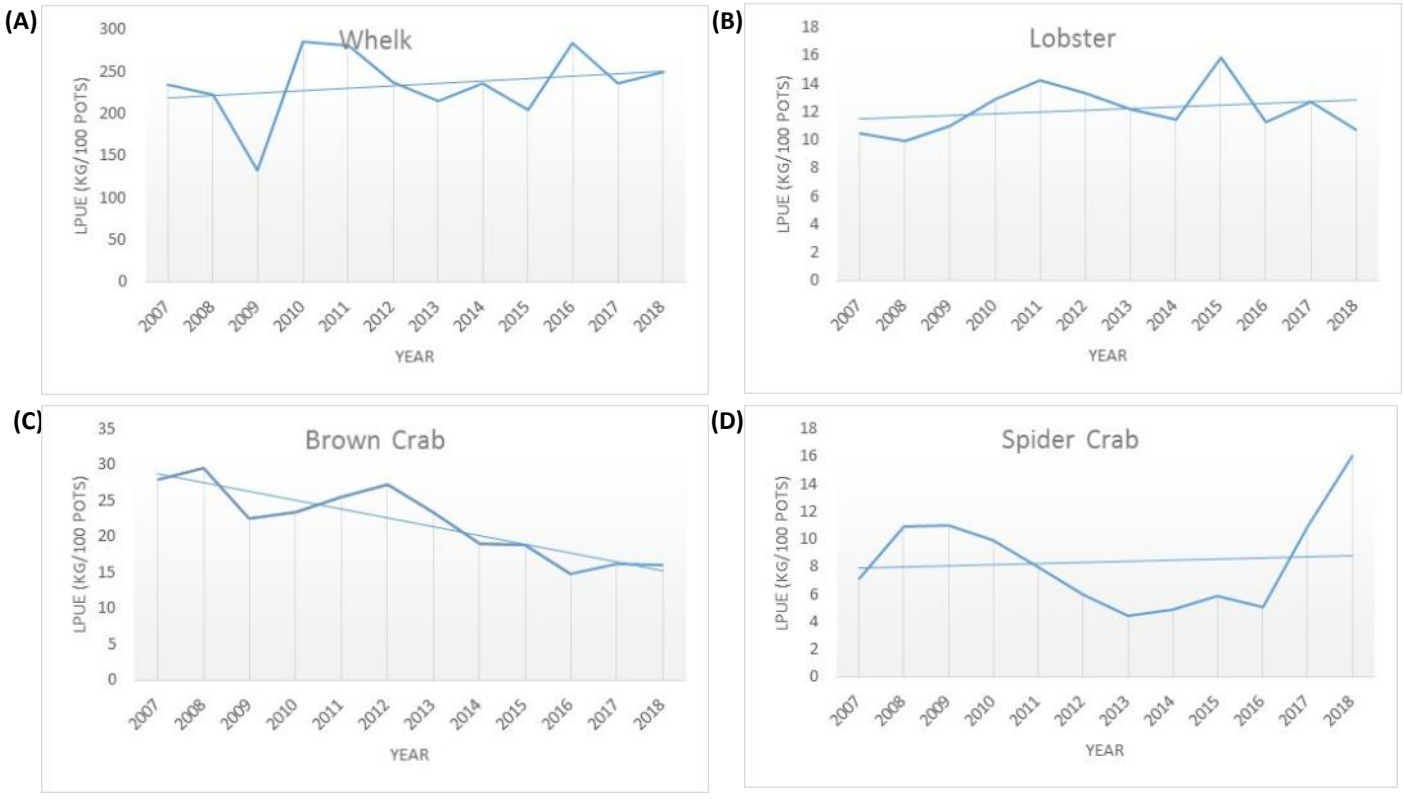
The use of nets has decreased in recent years which is probably a reflection of the bass fishing restrictions, as this species is a prime target for netters. The number of dives has increased significantly since 2016which reflects an expansion of the hand-dived scallop industry. Hours spent angling remains lower than its peak in 2013 but has increased since 2016 which may reflect an easing of restrictions on the bass fishery. The full data set can be found in Appendix III, which contains further details on metiers such as dredging, low water fishing, long lining, and trawling.

FISHERIES MANAGEMENT
LANDING PER UNIT EFFORT

LANDING PER UNIT EFFORT (LPUE) is a commonly used monitoring index for assessing the relative health of commercial fisheries. Landings may change for reasons other than a decrease in stock such as market variability, number of active vessels (particularly so for a small fleet) or individual fishing preferences. By taking into account the effort applied to catch a given quantity of a species, a more accurate index of the stock abundance is achievable. For example, in 2015 100 pots deployed off the Jersey coast would catch approximately 15 kg of lobster but by 2018 the same 100 pots would only catch 10 kg. This suggests that the density of lobster has decreased and that the underlying stock size is smaller. Although somewhat crude, LPUE is widely used as a ready means of monitoring stocks.



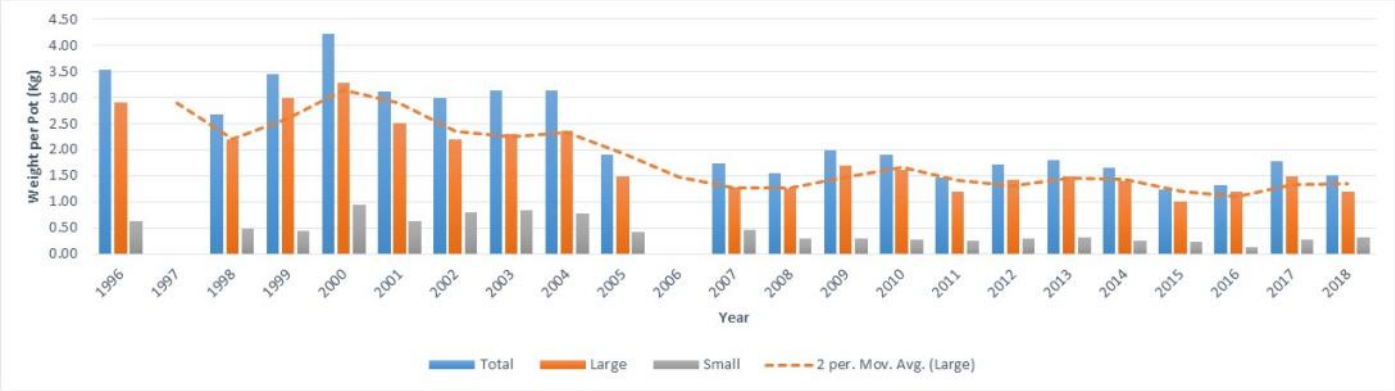
Potting Effort, 2007 - 2018. Creels (blue), D-Pots (orange), Ink Wells (grey), and Parlour Pots (yellow), Whelk Pots (green)



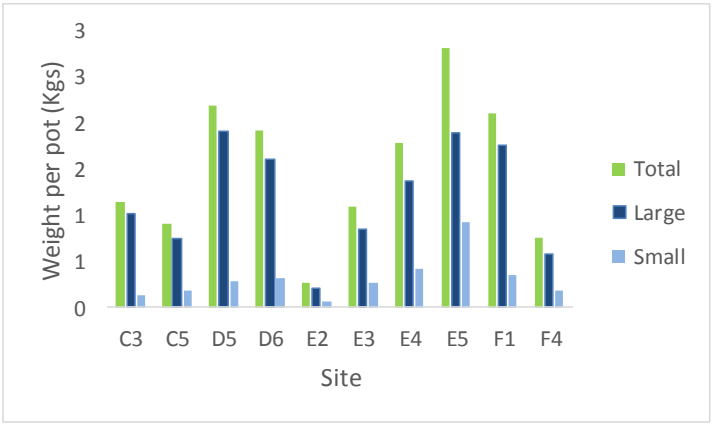
Catch Per Unit Effort for A) Whelk, B) Lobster, C) Brown Crab, D) Spider Crab. CPUE of crab and lobster is calculated using a combined total for creels, D-pots, ink wells, and parlour pots. CPUE for whelk is calculated using just whelk pots.

FISHERIES MANAGEMENT
WHELK STOCKS

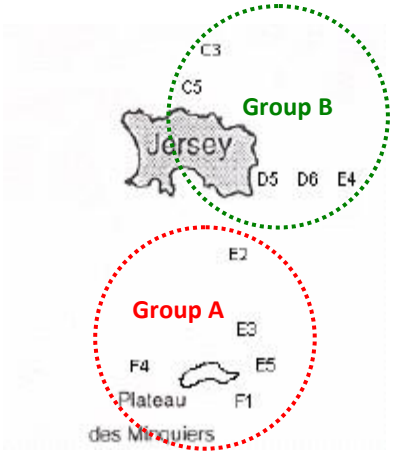
WHELK TRIALS. An annual study of whelk (*Buccinum undatum*) catch per unit effort (CPUE) is conducted each February. Several strings of baited whelk pots are deployed for 24 hours to the north, east and south of Jersey. When the pots are hauled the whelks are graded into 'small' (< minimum landing size of 50 mm) and 'large' (>MLS) and then weighed. The results are used to measure changes in whelk density at key locations. These trials have been run annually since 1996 and represent a valuable dataset.



CPUE (Weight (Kg) whelks per pot) from 1996 to 2018 with a two year moving average trendline on the 'large' (> MLS) group.



Weight (Kg) of whelks per pot, 2018. Results for Total, Large (above 50mm MLS) and Small (below 50mm MLS).



Location of sample sites.

RESULTS. Overall, the CPUE in 2018 was 1.5 kg per pot. This was a decrease on the CPUE recorded in 2017 (1.77kg). The 'large' size group in 2018 was the second highest in eight year, behind 2017, with a CPUE of 1.195 kg, although still significantly below the 1998 – 2002 average of 2.64 kg. The 'small' size group increased from 2017 to 0.308 kg per pot, the highest result in five years.

A CLOSER LOOK. Overall there is declining trend within the whelk stock with no significant improvement on catches over the last 10 years. An increase in catches of 'small' whelks is promising and there are some sites showing more positive results, such as east and south-east of Les Minquiers and the east of Jersey. Management of the whelk fishery outside the three nautical mile limit has been subject to prolonged discussion within the Bay of Granville Agreement.

Whelks ready for measuring

FISHERIES MANAGEMENT
LOBSTER STOCKS

LOBSTER TRIALS. Since 2004 an annual study has been conducted to monitor changes in the size and structure of the lobster population in Jersey waters. The trials are conducted in May and June at three different locations using parlour pots without escape gaps to ensure juveniles are caught. The equipment used and sites sampled remain the same, allowing comparison over time. Other data is also collected through quayside measurements and via the submission of catch logsheets.

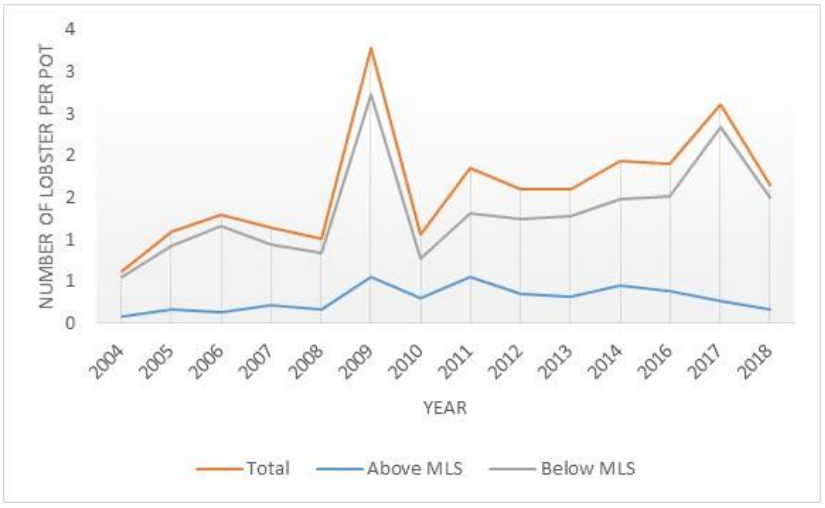
RESULTS. In 2018 **150** pot hauls were conducted, giving a total of **248** lobsters caught. This equated to an average of **1.65** lobsters per pot.

When broken down into above and below MLS, the 2018 above MLS results produced **25** above the minimum landing size (MLS) of 87mm, with 223 individuals below MLS.

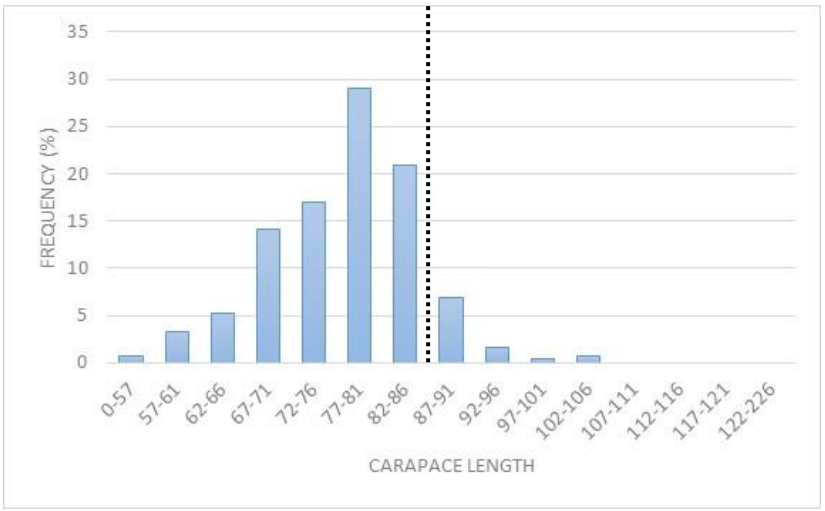
The largest lobster landed measured **104** mm carapace length, with an average size of **77.5** mm.

A total of **193,503** Kg of lobster was landed commercially. When number of pot lifts (**1,803,742*** for 2018) is taken into account, this equates to **10.73** Kg of sized lobster per 100 pots.*

* Pot types included in this total are creels, D-pots, ink-wells, and parlour pots.



Number of lobsters per pot in 2018. Total, above MLS (87mm) and below MLS.



Carapace length frequency distribution for 2018 in 5 mm classes. The dashed line indicates the minimum landing size of 87 mm.

A CLOSER LOOK. Current data suggest that there is pressure on the lobster population and investigations into this situation started in 2018. This included the collection of more detailed biological data to model the lobster population better and also to understand the potential impact of suggested management measures such as a reduction in parlour pots use or an increase in landing size.

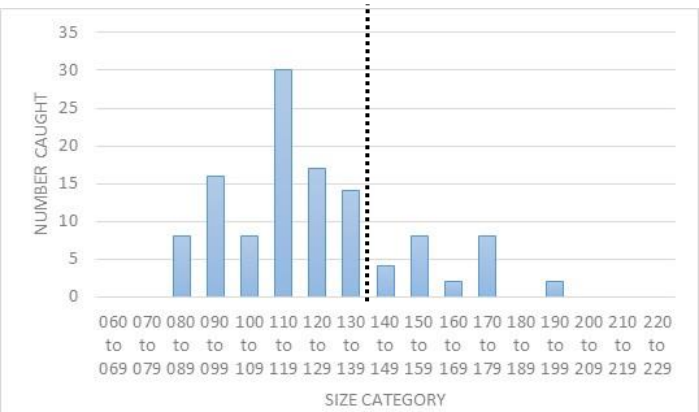
On a recreational level the simplest and most effective action is the creation of a bag limit. This was recommended as a priority action by the Marine Stewardship Council in their 2018 audit of the regional lobster fishery.


Measuring a lobster

FISHERIES MANAGEMENT
BROWN CRAB STOCKS

CRAB TRIALS. During the annual lobster trials, details and measurements are taken for all crab species caught in the pots. This is primarily brown crab (*Cancer pagurus;* below) and spider crab (*Maja brachydactyla;* opposite) but other smaller species may also be caught.

A CLOSER LOOK



Size distribution (in 10 mm classes) for brown crab carapace width in 2018. Dashed line = MLS of 140 mm.

The commercial fishery for brown crab has seen landings decrease severely since 2012. This has also been reflected in Jersey's trial data from 2014 to 2017. While our data show an increase in CPUE for 2018, it remains too early to know if this is related to an improvement in the underlying stock, particularly due to the continued decline seen across the commercial fishery. The overall trend in brown crab decline is also being seen in French, Guernsey and southern UK landing data and is being jointly investigated by marine managers in Jersey and France.

ADDITIONAL MANAGEMENT MEASURES

COMMERCIAL. Additional commercial management measures such as an increase in the minimum landing size are being considered by the JFA and Bay of Granville Agreement. It is proposed that a new size of 150 mm (previously 140 mm) will come into force in 2019.

RECREATIONAL. The popularity of the brown crab is also reflected in the recreational sector. Recreational bag limits for brown crab exist in France and southern England and these measures are under review as Jersey and Guernsey are the only areas in the English Channel not to have recreational bag limits for brown crab. This was noted as being a regulatory deficiency in the sustainability of our management of crab and lobster by the Marine Stewardship Council in 2018 and at the ICES WGCRAB meeting in 2017.

ICES WGCRAB

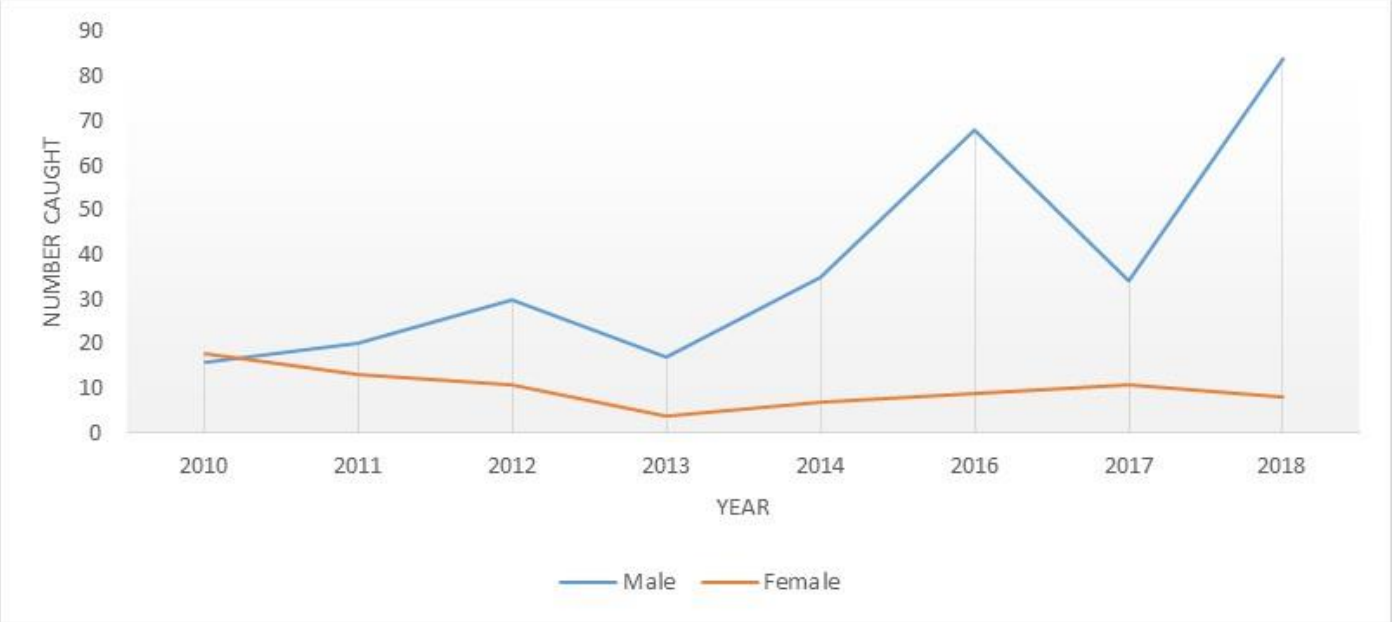
In 2018 Jersey hosted the ICES WGCRAB meeting which was attended by representatives from Jersey, France, Scotland, Norway, Greenland, Newfoundland, Isle of Man, and the Orkney Islands.

The meeting is an annual event which allows fisheries managers to compare their landing and other datasets and to discuss the latest trends, research and management measures. It is a useful forum in which to exchange and compare information and to learn about North Atlantic fisheries.

Discussions in 2018 were wide ranging and covered everything from Arctic snow crab to French crawfish. However, particular attention was paid to the brown crab crisis and a comparison of data suggests that this issue is restricted to the western English Channel and that it may have an environmental cause. The crisis is currently the subject of further investigation by Jersey, French and UK scientists.

FISHERIES MANAGEMENT
SPIDER CRAB STOCKS

A CLOSER LOOK

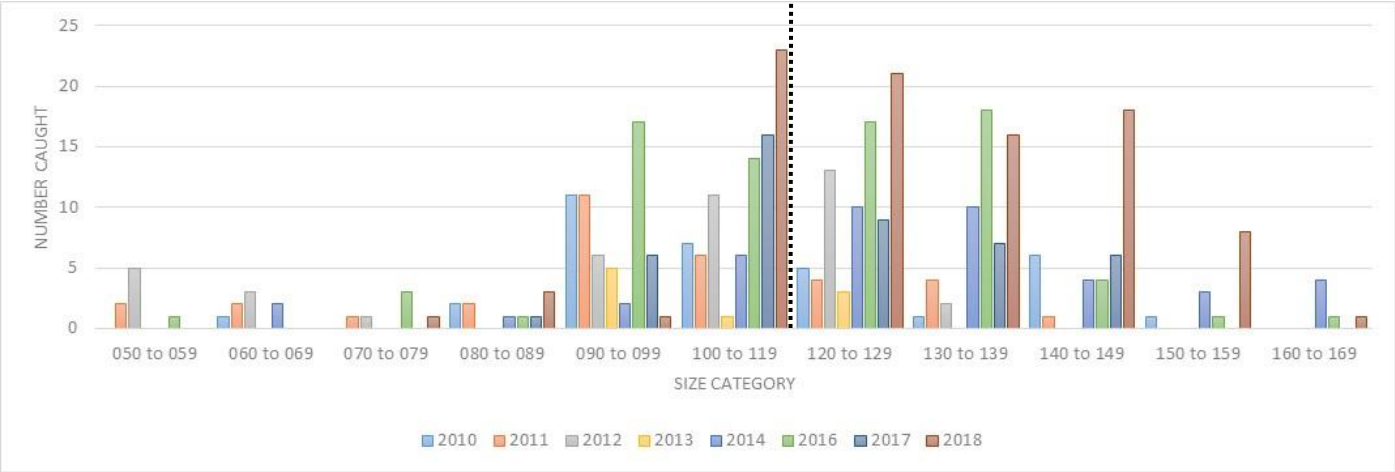


Spider crab trial data displaying the number of male and female spider crabs caught annually since 2010.

The Jersey spider crab fishery is highly variable and was just 81 tonnes in landed weight in 2013 but by 2018 this had risen to 289 tonnes. A majority of spider crab (around 75%) are caught in lobster pots with the rest being taken by netting or in whelk pots. The Bay of Granville area is an important fishery for this species and produces over half of all European landings, most of which is caught by netting from French vessels.

The spider crab has a complex life cycle which includes an annual migration into shallow water during the spring and summer months. The English Channel is near the northern edge of its range and it is thought that cold winters can markedly affect the population. Sea temperatures have been rising for several decades and a succession of milder winters since 2013 may have increased the local population.

The increase in spider crab has led to concerns that they are not worth as much as lobster and yet will occupy the same pots and eat the same bait. Local studies suggest that an increase in spider crabs does not seem to affect lobster catches but the recent prevalence of spider crab in the area is being monitored for signs of any side-effects in the local environment and fishing industry.



The size distribution (in 10 mm classes) of spider crab carapace length since 2010. The dashed line = MLS of 120 mm.

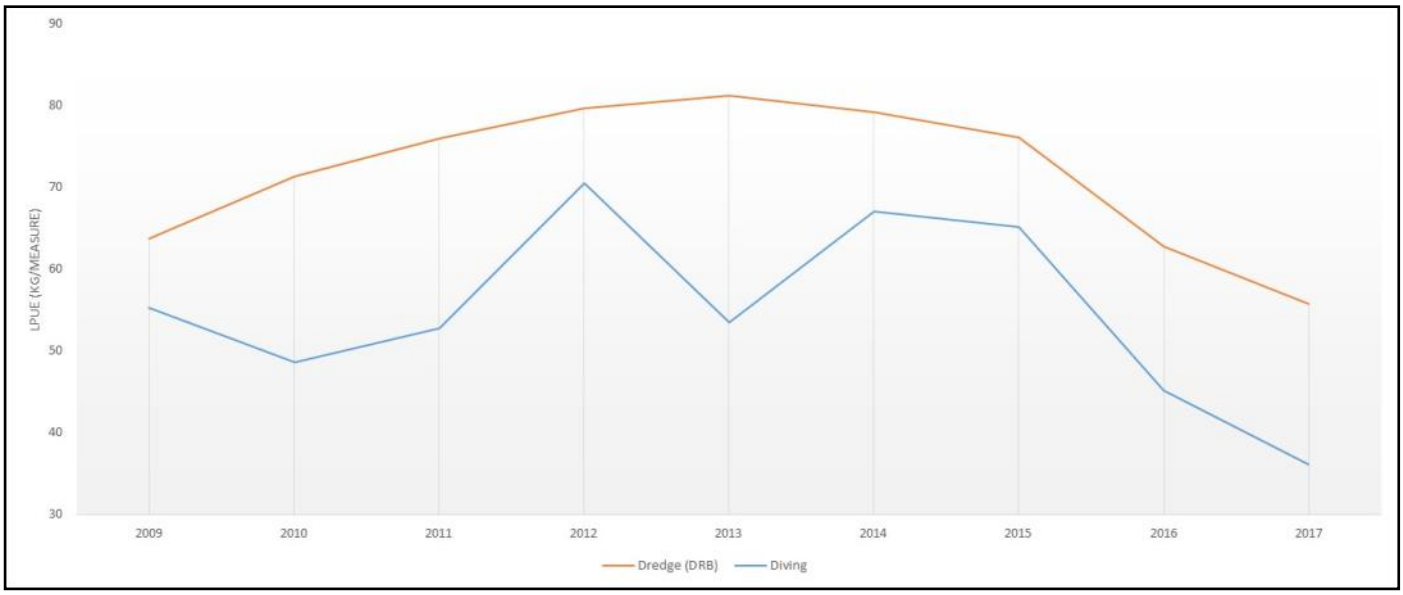
FISHERIES MANAGEMENT
SCALLOP STOCKS

THE SCALLOP FISHING INDUSTRY within Jersey waters is more complicated than most other species. The sector represents around 8% of Jersey's fishing economy but has a far greater significance to the Normandy and Brittany fishing sectors. Annual total landings for Jersey vessels is normally between 280 and 350 tonnes which is split between the scuba diving sector (around 50 tonnes annually) and dredgers (around 230 to 300 tonnes annually). The seabed areas around Jersey and SE of the Minquiers are important scalloping ground and, while exact figures have not been made available, estimates using VMS records suggest that French landings from Jersey waters may be two or three times those of the Jersey fleet depending on the year.

Scallops are the only major stock that the Government of Jersey does not routinely monitor through annual scientific trials. Since 2016 reports of declining stocks, particularly to the west and SW of Jersey, have been made by local vessels. With an absence of official data, alternative attempts have been made to assess the health of the local scallop stock. LPUE figures (available to 2017) can be calculated for local vessels and this suggests that between 2013 and 2017 there has been a decrease of over 50% for both dredged and dived scallops. This has led to discussions around enhanced management measures through the Bay of Granville Agreement especially since an analysis of VMS data suggested that 2015 had seen particularly intensive scallop fishing by the French fleet in Jersey waters..

A baseline assessment of Jersey scallop stocks was planned for 2018 to an agreed standard that could be compared with similar trials in French waters. This was due to occur in October but due to weather, gear problems and other issues, the survey did not proceed. It is, however, planned for the summer of 2019 as the data are needed as part of a review of scallop fishing within the Bay of Granville Agreement.

Although the scallop fishery is not as economically important to the Jersey fleet as it is to Normandy and Brittany, there are potential side-effects (such as damage to other fisheries, especially static gear, and sensitive seabed areas) that require quantifying. This process has begun and will continue locally and via the Bay of Granville Agreement.



LPUE for commercial scallops landed by Jersey vessels via dredging and scuba diving between 2009 and 2017. The effort measurement for dredging is the number of tows and for diving the number dives (tanks) used.

FISHERIES MANAGEMENT
MARINE STEWARDSHIP COUNCIL

THE MARINE STEWARDSHIP COUNCIL (MSC) was founded by the World Wildlife Fund in 1996 following the collapse in cod stocks off the Canadian Grand Banks. Its aim is to encourage sustainable fishing and to raise the general awareness and standards in relation to fisheries and environmental management. Since 1999 the MSC has been run as a financially independent organisation.

The MSC manages a certification system which assesses individual fisheries using scientific criteria against criteria relating to general management, traceability and sustainability. Compliant fisheries have the right to use the MSC's ecolabel to certify that their seafood is traceable to a fishery that meets MSC sustainability criteria.

In 2009 Jersey and Normandy applied to the MSC to have their joint lobster fishery assessed and, in 2011, it was certified as being sustainable. The MSC described the Jersey-Normandy lobster fishery as being:

'… a great example of collaborative management of a shared resource. Achieving MSC certification for the fishery recognizes that management and ensures continued improvement for the future. The lobster from Granville Bay, already renowned for its high quality, can now also be proudly recognized for its sustainability.'

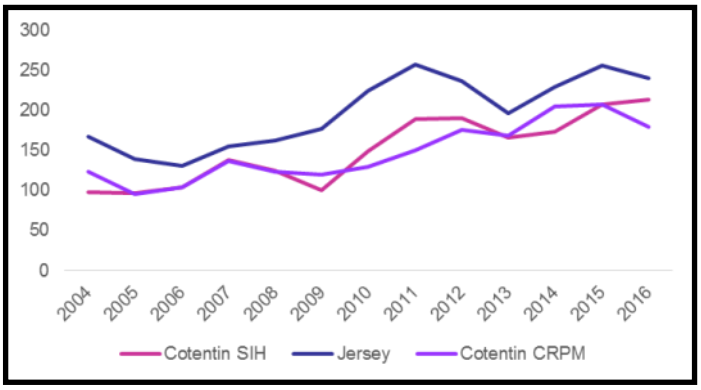
Since its certification the joint lobster fishery has passed five MSC audits allowing local fishermen, merchants and restaurants to continue to display the MSC ecolabel on locally sourced lobsters. The fishery was recertified in November 2016 and reassessed in 2017 for its first annual surveillance report by the MSC.

The audit team concluded that the fishery continues to conform to the MSC principles and criteria for sustainable fishing. The MSC has three central principles concerning: (1) harvest strategy; (2) impact on other species; and (3) research and compliance. Within each principle are several conditions for which both Jersey and Normandy have to provide data and evidence demonstrating that they are meeting the MSC's standards. It was confirmed that progress against these conditions is on target, and that suitable progress is being made against recommendations.

Meetings are held regularly (usually annually) which bring together the MSC assessors and the managers from the Jersey and Normandy fisheries. These meetings are used to share data, discuss current and future stock management and highlight any perceived issues. The MSC's certification and standards are continually evolving and it is likely that additional conditions will be added to the lobster fishery in future years.

MSC certification is an achievement for the Jersey-Normandy lobster fishery. However, the MSC's ecolabel has yet to gain wide usage within either Jersey or Normandy and, given that is has potential marketing and other benefits, this is something that could be looked at further. Additionally, the 2018 audit noted the decreasing lobster landings and CPUE and requested further investigation into this. They also recommended that Jersey look at measures for the recreational fishing sector such as bag limits.

For more information and the audit reports search for 'Jersey lobster' on the MSC website.



Landings of lobsters in Normandie and Jersey from 2004 to 2016 (Source: Ifremer, CRPM, Jersey Fisheries and Marine Resources).

FISHERIES MANAGEMENT
BASS FISHING

REGIONAL ADVICE. For several years the International Council for the Exploration of the Seas (ICES) has been warning of a Europe-wide decline in bass stocks. Over recent years increasingly stringent measures have been put in place by the EU following scientific stock analyses. These range from winter pelagic trawling bans to bag limits for anglers. In 2017 ICES advised that the stock was reaching its biomass limit, i.e. the point at which any future stock recovery is likely to be impaired due to low overall numbers. ICES therefore advised that no wild bass should be targeted and only a small bycatch allowed for certain fisheries. Based on this advice, together with considerations for the commercial and recreational fishing sectors, the European Union has proposed various measures to its member states.

RECREATIONAL

Jersey introduced a zero bag limit for recreational anglers in April 2017 after data from the International Council for the Exploration of the Seas (ICES) showed that the number of bass would soon fall below the lowest viable breeding limit. Recreational anglers were only able to target bass on a 'catch and release' basis.

In September 2018, ICES announced that it would now be appropriate to increase the bag limit for bass to one fish per day for recreational fishermen. The council's advice was based on new research which showed that a lower number of fish died from recreational fisheries than estimated. The survival rate of bass from 'catch and release' practices has also been higher than expected.

Monitoring of bass in Jersey also suggested that bass in local waters were showing evidence of recovery, so increasing the bag limit to one fish per day for recreational fishermen was supported. The Minister for the Environment took the decision to lift the ban on from October.

The local bass measures have been controversial with strong opinions being expressed on all sides. The correct management of a threatened fishery is vital as there are many instances where poor decision-making has led to stock collapses. Even the limited local data concerning bass suggests that close management of the species is vital to turn around what has been a persistent and steep decline in the local population. This situation is not unique to Jersey and is being repeated across northern Europe. We are grateful to Jersey's recreational angling community for their patience and assistance with the bass stock recovery measures.

COMMERCIAL

In Jersey commercial bass landings fell from 18 tonnes in 2007 to 7 tonnes in 2016, a decline of 61%. An index (CPUE) using commercial angling hours divided by the landed weight of bass caught by angling suggests that it requires several times longer to catch a prescribed quantity of bass now than it did in 2007.

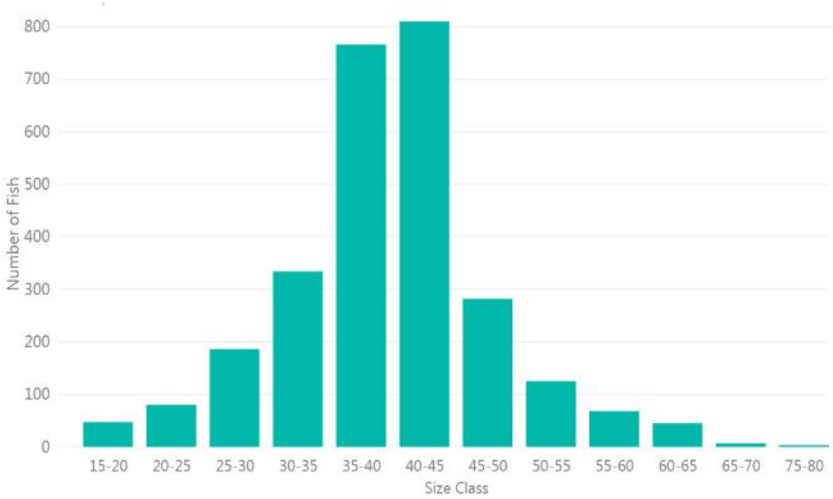
With bass stocks threatened, the local stakeholder group (the Marine Resources Panel) and the Minister for the Environment followed the ICES recommendations and, in 2017, imposed the following commercial restrictions:

- A closed season in February and March;
- A trawling bycatch of 3%;
- A netting bycatch of 3%;

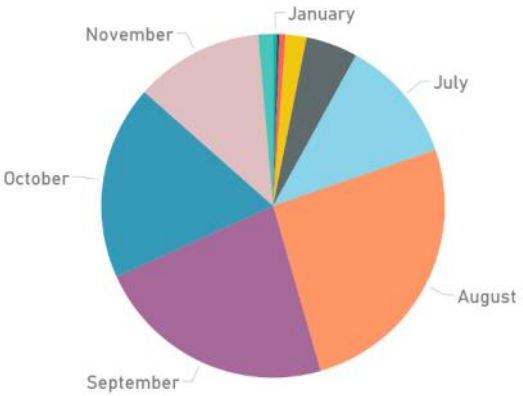
Twelve commercial bass fishing licences were issued on condition that the fish were caught using rods and hooks, that every bass caught is measured and recorded and that special Genuine Jersey tags are used that allow the fish to be traced to an individual boat. These measures have been unpopular across much of the fishing sector but with both local and international data suggesting that the bass population is at risk of irreversible collapse, pressure must be eased to allow the species' stock time to recover.

FISHERIES MANAGEMENT
BASS STOCKS

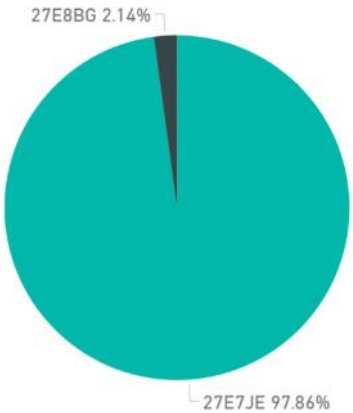
BASS SURVEY. A targeted commercial hook and line fishery was permitted for 12 boats with qualifying track records of over 250 kg catch in any given year between 2014 and 2016 (based on logbook records submitted to Marine Resources). Refocusing the bass fishery onto hook and line allowed for a small targeted commercial effort to supply the local market while at the same time vastly reducing the bycatch and dead discard of undersize bass and other species from the current gill net fishery. Data returns were required as part of the permit conditions, which included size information for both above and below minimum size fish, in addition to date and location of catches. 2018 results are displayed below.



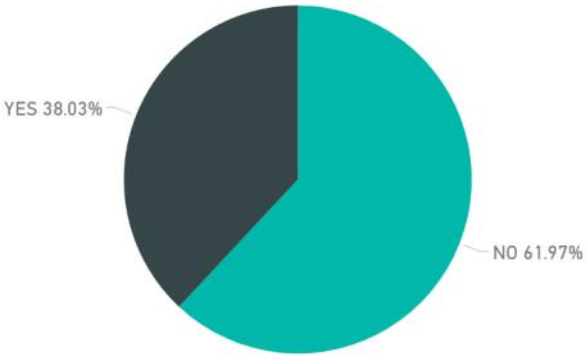
Size distribution (in 5 cm length classes) of bass caught by commercially licenced fishers in 2018. The minimum landing size is 42 cm which falls in the 40 to 45 cm size class.



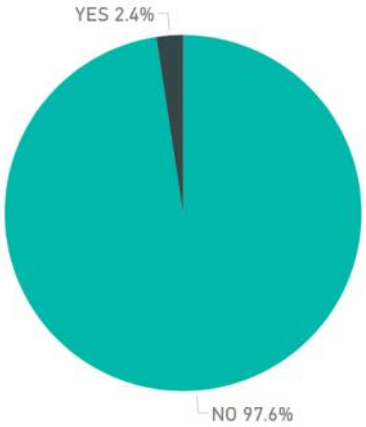
Number of fish caught by month by commercially licenced fishermen in 2018.



Number of fish caught by commercial reporting zone.



Number of fish retained for sale, and number of fish returned.



Discards and successful returns.

RESULTS. Almost **2,800** bass were caught commercially throughout 2018 by **10** licenced and permitted fishermen (out of 12 holding licences). The majority of fishing occurred during **August, September, and October. 38%** of the fish caught were retained for sale, whilst the remainder, being below the minimum landing size, were returned. Of those returned **97.6%** were done so successfully, highlighting the low mortality rate of hook and line fishing.

FISHERIES MANAGEMENT
MICROBIAL CONTAMINATION

SHELLFISH PRODUCTION CLASSIFICATION AREAS. Bivalve mollusc production areas are classified as A, B or C according to bacteriological criteria (levels of E.coli found in samples from the site). This is in accordance with the requirements in EC Regulation 854/2004, Annex II, Chapter II, A.

BED NAME	PRODUCTION AREA	SPECIES	GRADE
Holding Bed, Grouville	6, 27, and 29	*C. gigas*	B
	27	*M. edulis*	B
Main Bed South, Grouville	1 and 21	*C. gigas*	B
Main Bed North, Grouville	24 and 28	*C. gigas*	B
		M. edulis	B
La Hocq	8 and 25	*C. gigas*	B
Green Island	12	*O. edulis*	B

Classifications of Bivalve Mollusc Production Areas in Jersey. Effective 1 April 2018 to 31 March 2019.

WHAT DO THESE GRADES MEAN?

Grade A = Can be harvested for direct human consumption. 80% of samples collected must not exceed 230 E. coli per 100 g of flesh and intravalvular liquid. The remaining 20% of samples must not exceed 700 E. coli per 100 g of flesh and intravalvular liquid.

Grade B = Can go for human consumption after purification in an approved plant or after relaying in an approved Class A relaying area or after an EC approved heat treatment process. 90% of sampled molluscs must contain less than 4,600 *E. coli* per 100 grams of flesh; 10% of samples must not exceed 46,000 *E. coli* per 100 grams of flesh.

Grade C = Can go for human consumption only after relaying for at least two months in an approved relaying area followed, where necessary, by treatment in a purification centre, or after an EC approved heat treatment process. Molluscs must contain less than 46,000 *E. coli* per 100 grams of flesh.

Shellfish sampling in Grouville Bay

LICENCING


LICENCING
Jersey licences - opening, closing, renewing
Shellfish licences
Pot tag scheme
Granville Bay Permits
E & F Zone Permits
Beam Trawling Permits
Commercial and recreational scallop diving permits
Aquaculture licenses and associated administration, e.g. statistical returns, fees, applications for extensions
FEPA permits
Jersey licence conditions
New Entrant Scheme
Scientific exception permits

LICENCING
FISHING VESSELS

JERSEY'S FISHING FLEET. Any vessel exploiting fish or shellfish stocks in local waters on a commercial basis requires a fishing licence. The Jersey fishing vessel licensing system is aligned directly with that of the UK and as such contributes to the stabilisation of fishing effort at a European wide level.

IN NUMBERS.

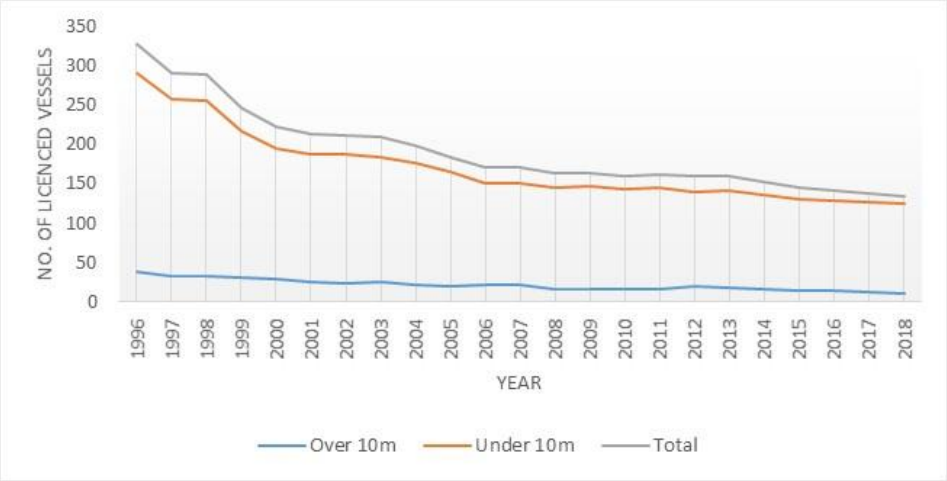
This year, 19 licences opened, and 22 closed.

This resulted in a decrease in licenced fishing vessels from 138 to 135.

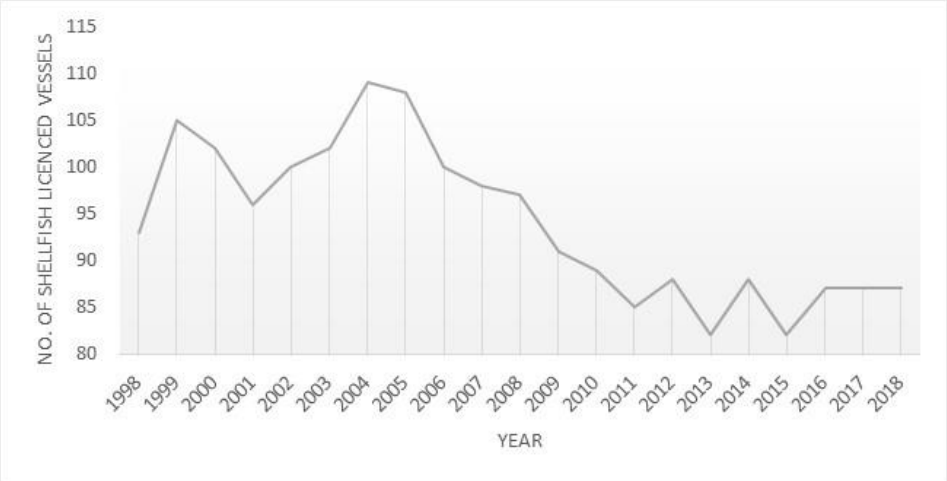
There was a decrease of 1 over 10m boat, and a decrease of 2 under 10m boats.

The number of shellfish entitled boats remained the same.

This brings the capacity for Kw up to 11,919.02, and the Tonnage down to 542.34.



The number of licenced vessels as of 31st December 2018



The number of shellfish entitled boats as of 31st December 2018

THE NEW ENTRANT SCHEME. In 2017 a licence scheme was brought in to assist new entrants by creating an incentive to make a tangible and long term commitment to the fishing industry. A small pool of Government-owned licences were made available to lease out to new entrants in the industry under set criteria agreed by Government and the Jersey Fisherman's Association. As of December 31st 2017, three licenses had been approved as a result of this scheme. By the end of 2018 there were two licences in issue. One was renewed for a further year during 2018, and the second was issued in early 2018. One licence was closed during the year; this has thus far not been reallocated.

LICENCING
FOOD AND ENVIRONMENTAL PROTECTION

The deposition of any material below the mean high water mark requires a licence (or exemption) issued under the Food and Environment Protection Act (FEPA) 1985 (Jersey) Order 1987. This covers inert, artificial and natural materials but deposition in connection with certain activities and circumstances are exempted. If you wish to deposit any material at sea or on the seashore (no mater how apparently innocuous it may seem) then advice should first be sought from Marine Resources.

FEPA licence applications are submitted to Marine Resources and are then subject to evaluation by a panel of representatives that represent key sectors of marine regulation and management. If no serious objections are raised then the licence is drafted and presented to the Minister for the Environment to sign. Licences are subject to a fee and Marine Resources issue around five a year, mostly in connection with the redepositing of seaweed in St Aubin's Bay and the removal of sandbanks from harbour entrances.

Most new licences issued will be valid for a year but scope exists for them to be renewed for up to two years without going through a full FEPA panel evaluation. Details concerning issued FEPA licences are submitted annually to DEFRA as part of Jersey's commitment to the OSPAR Convention.

The following FEPA licences were issued during 2018:

LICENCE NO.	APPLICANT	PROJECT	DATE OF ISSUE	DATE OF EXPIRY
2018/1	Department of Infrastructure	Deposit of green seaweed (*Ulva* spp.) from St Aubin's Bay onto the foul ground offshore.	03 May 2018	02 May 2020
2018/2	Department for Infrastructure	Deposit of green seaweed (*Ulva* spp.) on intertidal zone.	01 June 2018	31 May 2019
2018/3	Jersey Telecom	Installation of fibre optic cable, West Park St Helier	07 June 2018	31 December 2018

LICENCING
OTHER LICENCING ACTIVITIES

Removal of Pebbles

The removal of sand, pebbles and other material from the seashore is prohibited by the Sea Beaches (Removal of Sand and Stone) (Jersey) Law 1963. This law was enacted to prevent the commercial exploitation of beach sand, etc., for building and other trades. However, it has the side-effect of requiring anyone that wishes to remove pebbles from the seashore to apply to the Minister for the Environment for an exemption.

Marine Resources manages these exemptions and until recently received only one or two applications a year. The number of applications has recently been rising as word of the need for a licence has spread and also because of an increased desire to sell decorated local pebbles at markets and on the internet.

The removal of beach pebbles is not encouraged as they fulfil an important ecosystem service by protecting our coastal areas and seawalls from tidal and storm damage and it can take decades/centuries for new pebbles to form and be recruited to a shingle bank. Rather than take pebbles from Jersey's beaches, we would prefer that people obtained them from garden centres or other more sustainable sources.

However, those wishing to take small quantities of pebbles from local beaches may apply to the Minister for an exemption. Such applications must be made via Marine Resources; please contact us for details.

Scientific Survey Exemptions

Those wishing to conduct scientific studies in Jersey waters that may impinge on local fisheries can apply to Marine Resources for an exemption to the Sea Fisheries (Jersey) Law 1994. A small number of exemptions are issued locally including for an annual trawl survey undertaken by CEFAS and a French algal survey undertaken at Les Écréhous. Other exemptions have been issued to permit the study of individual species or to facilitate studies of the wider marine environment.

Aquaculture Concessions

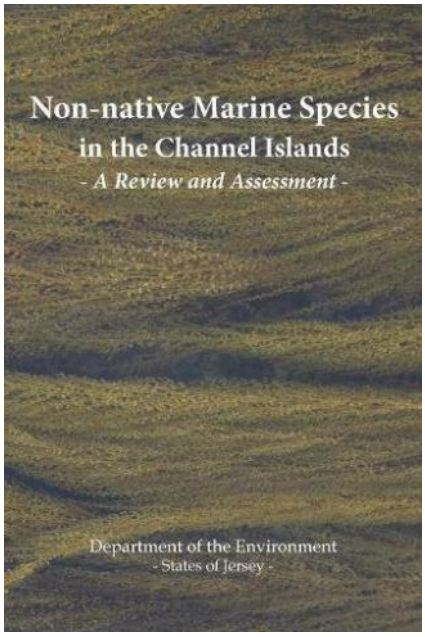
The Minister of the Environment may issue aquaculture licences which gives the holder exclusive right to the exploitation of specific species within a set area. Such licences are also subject to Planning approval and may require an environmental impact assessment. A recent reorganisation of intertidal aquaculture has led to a defined aquaculture area being created on the south of Grouville Bay to which the Government of Jersey holds planning permission. This includes three areas reserved for new entrants with any applications made outside of this area being discouraged.

Two subtidal aquaculture applications were subject to applications for renewed licences in 2018, one of which was successful. Near to the end of the year an application was received for one of the new entrants' areas in Grouville Bay. This was discussed at the Marine Resources panel in November 2018 with the applicant being requested to provide further information. This will continue to go through the application process in 2019.

ENVIRONMENTAL MANAGEMENT

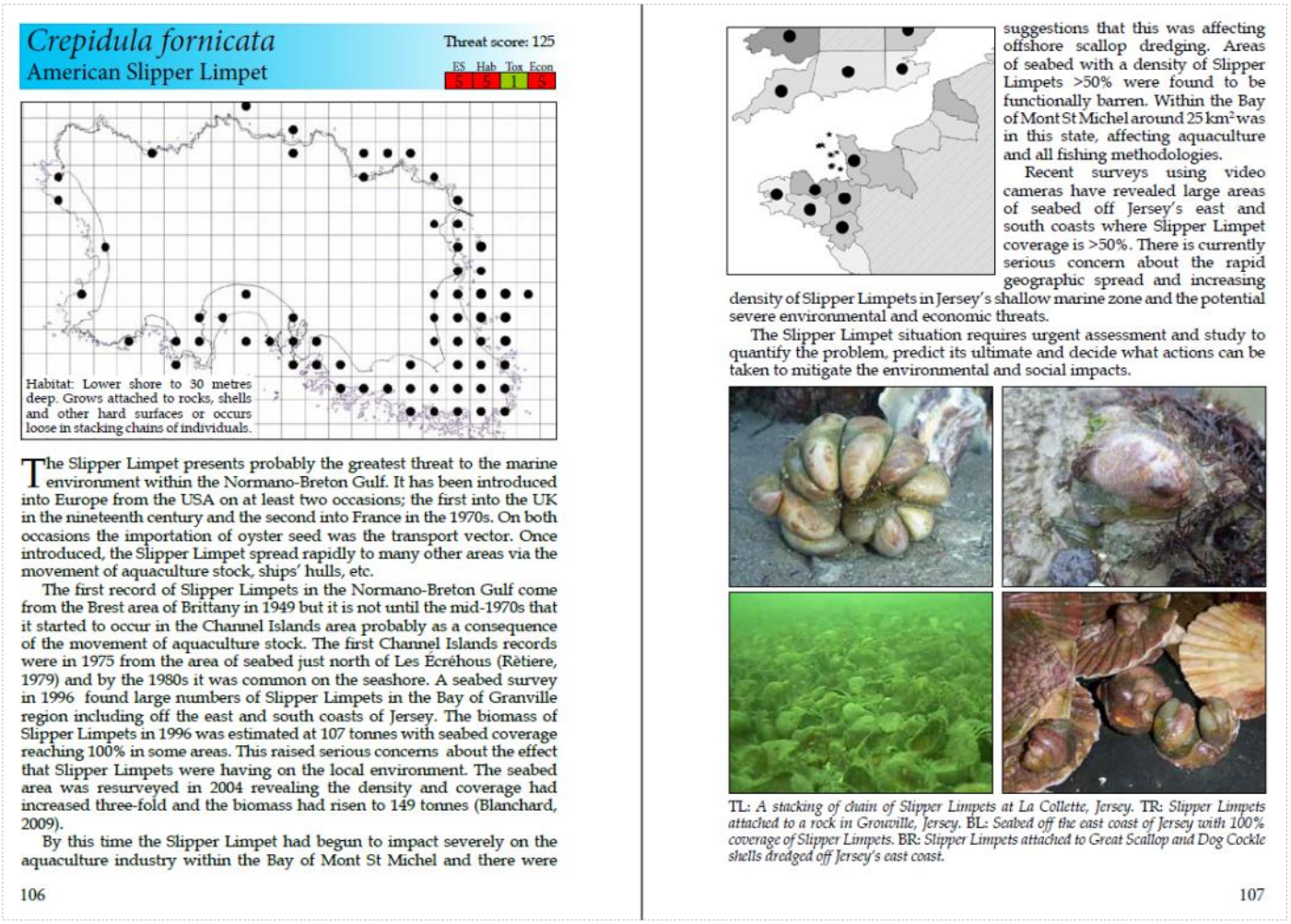
ENVIRONMENTAL MANAGEMENT
NON-NATIVE SPECIES

Non-native species can have significant impacts on marine ecosystems, from competition to biodiversity loss. Entry routes include ballast waters, fouling on ships hulls and aquaculture. Eradication of non-indigenous species in the marine environment, once established, is considered virtually impossible due to logistic and resource issues. During 2017 the Marine Resources Section undertook a full review of the non-native marine species situation in Cannel Island waters. A total of 43 non-native species have been reported from the islands with another 25 probably being present but not yet recorded. Regionally there are possibly 134 species which have the potential to reach the islands within the next twenty years. Almost all non-native marine species are transported to Jersey via shipping or are carried here from other parts of the English Channel via tidal currents. A threat assessment made for each non-native species highlights several that are or have the potential to cause problems in local waters. The highest ranking species include the American Slipper Limpet (*Crepidula fornicata*), and Wireweed (*Sargassum muticum*).



For more information see the following report which available on the SoJ website:

Non-native Marine Species in the Channel Islands. **Department of the Environment, 2017.**



Crepidula fornicata
American Slipper Limpet

Threat score: 125

ES	Hab	Tox	Econ
5	5	1	5

Habitat: Lower shore to 30 metres deep. Grows attached to rocks, shells and other hard surfaces or occurs loose in stacking chains of individuals.

The Slipper Limpet presents probably the greatest threat to the marine environment within the Normano-Breton Gulf. It has been introduced into Europe from the USA on at least two occasions; the first into the UK in the nineteenth century and the second into France in the 1970s. On both occasions the importation of oyster seed was the transport vector. Once introduced, the Slipper Limpet spread rapidly to many other areas via the movement of aquaculture stock, ships' hulls, etc.

The first record of Slipper Limpets in the Normano-Breton Gulf come from the Brest area of Brittany in 1949 but it is not until the mid-1970s that it started to occur in the Channel Islands area probably as a consequence of the movement of aquaculture stock. The first Channel Islands records were in 1975 from the area of seabed just north of Les Écréhous (Rètiere, 1979) and by the 1980s it was common on the seashore. A seabed survey in 1996 found large numbers of Slipper Limpets in the Bay of Granville region including off the east and south coasts of Jersey. The biomass of Slipper Limpets in 1996 was estimated at 107 tonnes with seabed coverage reaching 100% in some areas. This raised serious concerns about the effect that Slipper Limpets were having on the local environment. The seabed area was resurveyed in 2004 revealing the density and coverage had increased three-fold and the biomass had risen to 149 tonnes (Blanchard, 2009).

By this time the Slipper Limpet had begun to impact severely on the aquaculture industry within the Bay of Mont St Michel and there were

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suggestions that this was affecting offshore scallop dredging. Areas of seabed with a density of Slipper Limpets >50% were found to be functionally barren. Within the Bay of Mont St Michel around 25 km^2 was in this state, affecting aquaculture and all fishing methodologies.

Recent surveys using video cameras have revealed large areas of seabed off Jersey's east and south coasts where Slipper Limpet coverage is >50%. There is currently serious concern about the rapid geographic spread and increasing density of Slipper Limpets in Jersey's shallow marine zone and the potential severe environmental and economic threats.

The Slipper Limpet situation requires urgent assessment and study to quantify the problem, predict its ultimate and decide what actions can be taken to mitigate the environmental and social impacts.

TL: A stacking of chain of Slipper Limpets at La Collette, Jersey. TR: Slipper Limpets attached to a rock in Grouville, Jersey. BL: Seabed off the east coast of Jersey with 100% coverage of Slipper Limpets. BR: Slipper Limpets attached to Great Scallop and Dog Cockle shells dredged off Jersey's east coast.

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An example page (American Slipper Limpet *Crepidula fornicata*) from the publication.

ENVIRONMENTAL MANAGEMENT
NON-NATIVE SPECIES

Below is a list of known non-native marine species from Channel Island waters and the locations from they've been reported. (Source: *Non-native Marine Species in the Channel Islands.* DoE, 2017.)

Scientific Name	Je	Ecr	Min	Pat	Gu	Al	Sk	He	Li
Bonamia ostreae	X								
Pileolaria berkeleyana	X								
Potamopyrgus antipodarum	X				X				
Coscinodiscus wailesii	X								
Crepidula fornicata	X	X	X		X	X	X		X
Dasysiphonia japonica	X								
Neosiphonia harveyi	X								
Corethron pennatum	X								
Hemigrapsus sanguineus	X				X				
Odontella sinensis	X				X				
Monocorophium sextonae	X								
Codium fragile fragile	X			X	X	X			
Sargassum muticum	X	X	X	X	X	X	X	X	X
Austrominius modestus	X		X		X	X		X	
Hesperibalanus fallax					X				
Amphibalanus improvisus					X			X	
Diadumene lineata					X				
Oncorhynchus kisutch					X				
Asparagopsis armata	X	X	X		X	X	X	X	X
Crassostrea gigas	X	X	X		X	X	X		
Mercenaria mercenaria	X								
Ruditapes philippinarum	X	X							
Mya arenaria					X				
Urosalpinx cinerea	X								
Grateloupia subpectinata	X	X	X		X	X			
Grateloupia turuturu	X								
Polyopes lancifolius	X								
Bonnemaisonia hamifera	X				X	X			
Solieria chordalis	X								
Tricellaria inopinata	X								
Watersipora subtorquata	X				X				
Perophora japonica	X				X				
Gracilaria vermiculophylla	X								
Styela clava	X	X	X		X			X	
Colpomenia peregrina	X	X	X		X	X	X	X	
Lyrodus pedicellatus	X				X	X		X	
Antithamnionella ternifolia	X				X	X			
Teredo navalis	X				X	X			
Bugula neritina	X				X				
Bugulina stolonifera	X								
Corella eumyota	X				X				
Undaria pinnatifida	X				X				
Botrylloides violaceus	X								

Key: Je = Jersey; Ecr = Les Écréhous; Min = Les Minquiers, Pat = Paternosters; Gu = Guernsey; Al = Alderney; Sk = Sark; He = Herm; Li = Lihou.

ENVIRONMENTAL MANAGEMENT
BATHING WATER

Monitoring of bathing water quality started in 1992, with 14 of the most popular beaches monitored weekly between May and September. The two main parameters for analysis are intestinal *Enterococci* and *Escherichia coli*, however other parameters such as the presence of cyanobacteria or microalgae can also be taken into account. The 2006 Bathing Water Directive has four standards for classification: Excellent, Good, Sufficient and Poor. The standards for this new Directive are approximately twice as strict as they were for the old 1976 directive. From 2015, bathing water compliance assessment changed from a classification based on water samples collected in one season to four years data. So, for 2018, results are based on 2015—2018 data. The results are forwarded to The Marine Conservation Society (MCS) for inclusion in the UK Good Beach Guide.

RESULTS. 2018 results identified **9** of the 16 beaches as having 'excellent' water quality, with **3** beaches falling into the 'good' classification. Only **2** beach was classed as 'sufficient', and **0** beaches fell into the 'poor' category.

EXCELLENT	GOOD	SUFFICIENT	POOR
Archirondel	Grouville	Bouley Bay	
Beauport	St Brelade's Bay	La Haule	
Green Island	Victoria Pool		
Grève de Lecq			
Harve des Pas			
Le Braye			
Plemont			
Portelet			
Watersplash			


Green Island

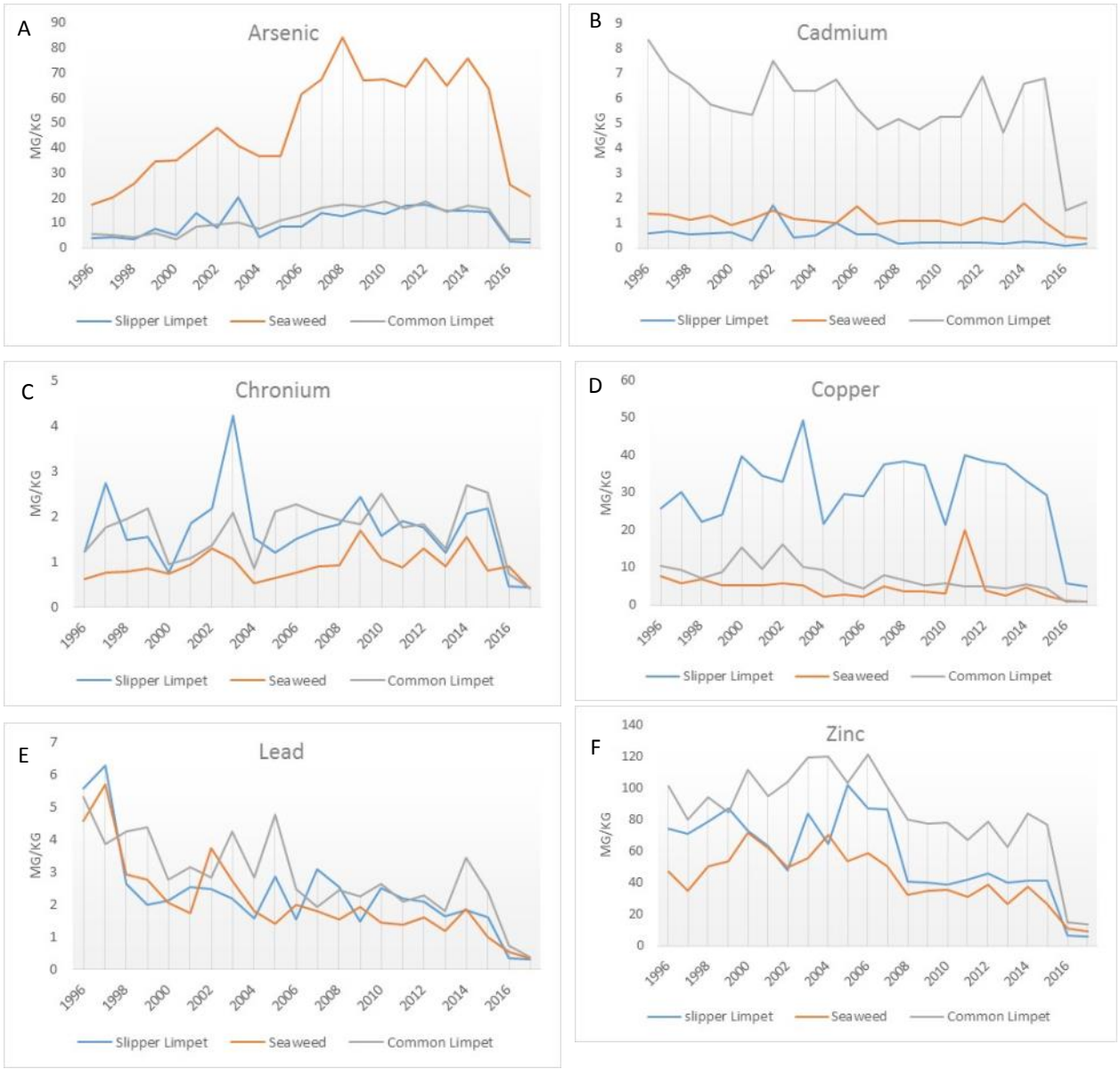

St Brelade's Bay


Beauport

ENVIRONMENTAL MANAGEMENT
HEAVY METAL MONITORING

Since 1993 monitoring has been conducted to assess heavy metal concentrations within marine species both onshore and offshore. The common limpet (*Patella vulgata)*, the slipper limpet (*Crepidula fornicata),* and a serrated seaweed (*Fucus serratus)* are used as bio-monitors.

The limpet and seaweed samples are taken from five locations around Jersey's coast (Elizabeth Castle, Harve de Pas, St Aubin's Fort, Corbière Lighthouse, and Gorey Castle) and slipper limpet samples from four locations (Elizabeth Castle, Harve de Pas, St Aubin's Bay, and Horn Rock (Gorey)). The programme has recently been extended to also include a full suite of samples from the offshore reefs (Les Écréhous and Les Minquiers). Samples are taken quarterly but have been subject to lengthy delays during the laboratory analysis process. Although 2018 samples have been submitted for analysis, the latest results run up to 2017.



Concentrations (mg/g) of various heavy metals in slipper limpets (blue), seaweed (orange), and common limpet (grey). (A) Arsenic; (B) Cadmium; (C) Chromium; (D) Copper; (E) Lead; (F) Zinc.

RESULTS. While there is variation between metals, analysis shows that there is a general correlation between sites indicating that trends are consistent around the locations sampled and therefore not indicative of a point source of these metals.

If you wish to view site-specific data, please contact the department.

ENVIRONMENTAL MANAGEMENT
ALGAL BLOOMS

Shellfish and seawater samples are collected and analysed monthly from November to April and bi-monthly from May to October, and analysed for three algal biotoxins. Below are the results for the past 10 years. For results dating back further please contact Growth, Housing and Environment.

Paralytic Shellfish Poisoning

YEAR	SHELLFISH	SEAWATER
2009	Not Detected	Below Trigger Point for Additional Sampling
2010	Not Detected	Below Trigger Point for Additional Sampling
2011	Not Detected	Below Trigger Point for Additional Sampling
2012	Not Detected	Below Trigger Point for Additional Sampling
2013	Not Detected	Below Trigger Point for Additional Sampling
2014	Not Detected	Below Trigger Point for Additional Sampling
2015	Not Detected	Below Trigger Point for Additional Sampling
2016	Not Detected	Below Trigger Point for Additional Sampling
2017	Not Detected	Below Trigger Point for Additional Sampling
2018	Not Detected	Below Trigger Point for Additional Sampling

Diarrhetic Shellfish Poisoning

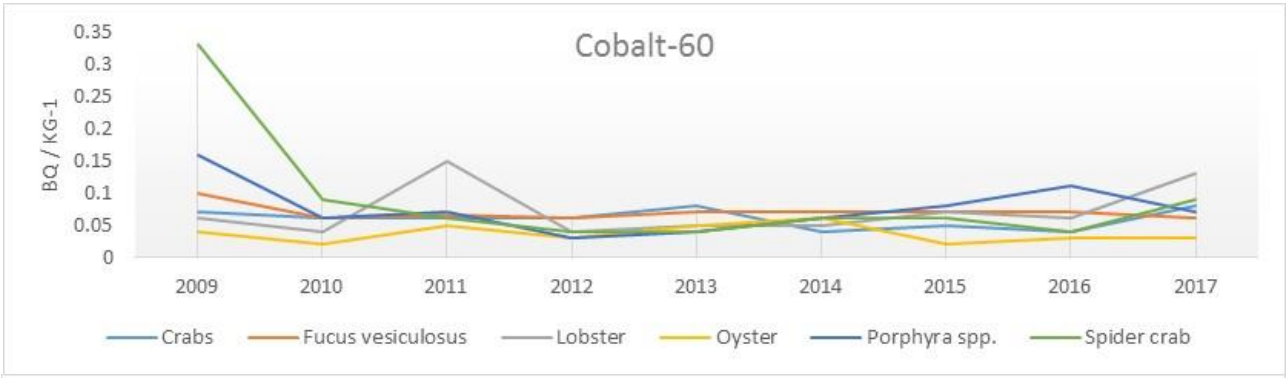
YEAR	SHELLFISH	SEAWATER
2009	Negative	Below Trigger Point for Additional Sampling
2010	Negative	Below Trigger Point for Additional Sampling
2011	Below Reporting Limit	Below Trigger Point for Additional Sampling
2012	Below Reporting Limit	Below Trigger Point for Additional Sampling
2013	Below Reporting Limit	Below Trigger Point for Additional Sampling
2014	Below Reporting Limit	Below Trigger Point for Additional Sampling
2015	Below Reporting Limit	Below Trigger Point for Additional Sampling
2016	Below Reporting Limit	Below Trigger Point for Additional Sampling
2017	Below Reporting Limit	Below Trigger Point for Additional Sampling
2018	Below Reporting Limit	Below Trigger Point for Additional Sampling

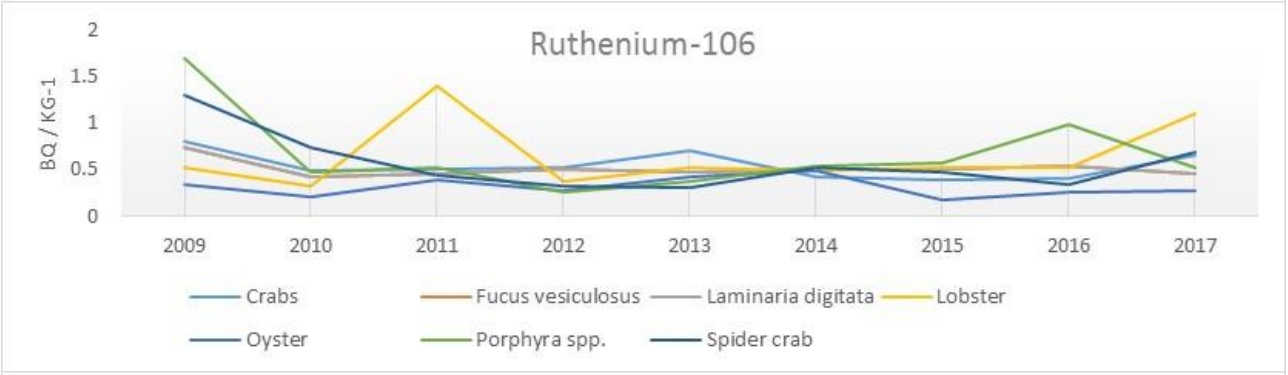
Amnesic Shellfish Poisoning

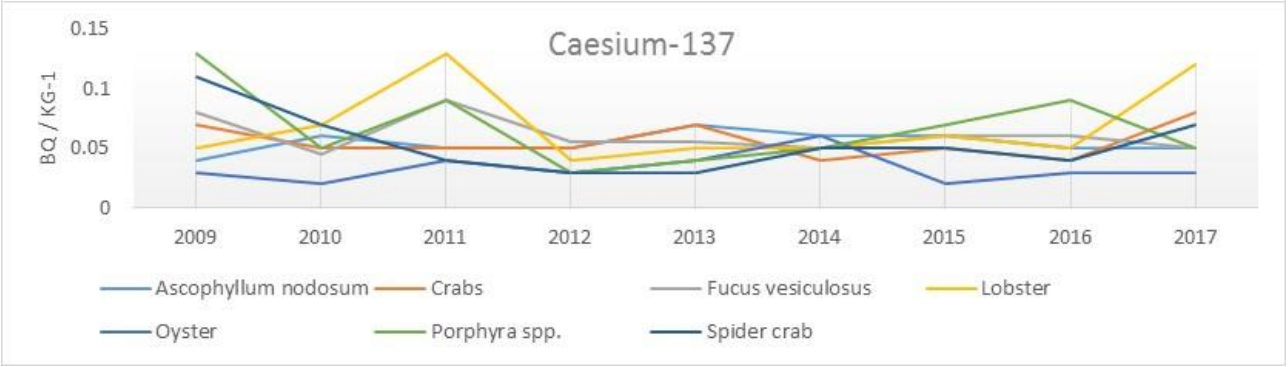
YEAR	SHELLFISH	SEAWATER
2009	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2010	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2011	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2012	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2013	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2014	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2015	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2016	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2017	Below Limit of Quantitation	Below Trigger Point for Additional Sampling
2018	Below Limit of Quantitation	Below Trigger Point for Additional Sampling

ENVIRONMENTAL MANAGEMENT
RADIOACTIVITY

Samples of marine environmental materials are analysed annually by the Environment Agency (UK) for levels of radioactivity to monitor the effect of radioactive discharges from the French reprocessing plant at La Hague and the power station at Flamanville as well as historical disposals of radioactive waste in the Hurd Deep. Fish and shellfish are monitored to determine exposure from the internal radiation pathway; sediment is analysed for external exposures. Seawater and seaweeds are sampled as environmental indicator materials and, in the latter case, because of their use as agricultural fertilisers.







Maximum measures a Cobalt-60, Ruthenium-106, and Caesium-137 as measured in a range of marine species from Jersey.

RESULTS. 'In 2017 there was evidence of routine releases from the nuclear industry in some food and environmental samples (e.g. strontium-90, technetium-99 and iodine-129). However, activity concentrations in fish and shellfish were low and similar to those in previous years. It is generally difficult to attribute the results to different sources, including fallout from weapon testing, due to the low levels detected. No evidence for significant releases of activity from the Hurd Deep site was found.

An assessment of the dose to a representative person who consumes large amounts of fish and shellfish was carried out. In 2017, the representative person was estimated to receive less than 0.005 mSv, which is less than 0.5 per cent of the dose limit for members of the public. The concentrations of artificial radionuclides in the marine environment of the Channel Islands and the effects of discharges from local sources, therefore, continued to be of negligible radiological significance.

(Source: *Radioactivity in Food and the Environment, 2017*. Environment Agency, 2018.)

ENVIRONMENTAL MANAGEMENT
MARINE PROTECTED AREAS

AN OVERVIEW. Jersey's has three Marine Protected Areas (MPAs) where the use of potentially destructive fishing is prohibited under the Sea Fisheries Law. These originate from the establishment of several no mobile gear zones within Jersey's three mile territorial limit and at Les Écréhous and Les Minquiers. These areas were closed in order to protect key habitats such as seagrass, maerl and kelp. The MPAs are important nursery grounds for fish and shellfish, including many commercial species, so protection not only benefits the local marine environment but also the fishing industry by increasing the resilience and size of local stocks. The mobile gear ban on dredging and trawling around Les Écréhous and Les Minquiers in 2017 brought Jersey's total MPA area to 150 km^2 or 6.5 per cent of the island's territorial waters. This falls short of the 10% suggested by the Convention on Biological Diversity but does mean that all the island's identified shallow marine habitats are legally protected from potentially destructive activities.

OSPAR: *The mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic.*

In 2010 the UK extended ratification of the OSPAR Convention to Jersey, with the exception of Annex V which covers the conservation of important marine habitats. In 2017 the Joint Nature Conservation Committee (JNCC) invited Jersey to nominate the 150 km^2 of 'no mobile gear zones' for inclusion within OSPAR's register of marine protected areas (MPAs). To be included on the OSPAR register a protected marine area must meet with IUCN MPA guidelines. Over several years Jersey had undertaken the survey work necessary to meet the requirements of Annex V including identifying and assessing important marine habitats and establishing a network of MPAs to conserve these. The island's MPAs therefore qualified for registration with OSPAR but the application could not proceed without Jersey having had ratification of Annex V extended to it.

Annex V requires contracting parties to identify and assess important marine habitats and ecosystems within their area and to implement necessary measures to protect them from the adverse effects of human activity. Jersey has two key habitats designated under OSPAR: maerl beds and *Zostera* (Seagrass) meadows. Both are high biodiversity habitats which are associated with beneficial ecosystem service functions including sediment stabilisation and removal of carbon from the atmosphere.

Survey work was undertaken by Marine Resources but a major contribution was also made by NGOs, principally Société Jersiaise, Seasearch and Jersey Marine Conservation. Important marine habitats were identified, mapped and assessed for their health, biodiversity, ecosystem service value and for any impact by human activities. Several measures were enacted to conserve and monitor these habitats including no mobile gear zones and monitoring and health assessments.

The Government of Jersey, JNCC and DEFRA have assessed and approved Jersey's application to extend Annex V to the island and to register its MPAs with OSPAR. Given that the island is already compliant with Annex V, there are no major resource implications and the applications for both are expected to be confirmed by the Foreign Office and OSPAR early in 2019.

Sections of a draft map showing habitats within Jersey's territorial waters. The protected seabed areas are outlined in black.

OSPAR COMMISSION

ENVIRONMENTAL MANAGEMENT
RAMSAR SITES

CONVENTION ON WETLANDS
(Ramsar, Iran, 1971)

AN OVERVIEW. The Ramsar Convention is an intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. Jersey has four designated Ramsar sites which have been in place since 2000 (Jersey South-east Coast) and 2005 (Les Écréhous, Les Minquiers and the Paternosters). Each site is subject to a Ramsar Management Plan (RMP) which were devised in 2011 following consultation with the Ramsar Management Authority (RMA) - a steering group formed from a range of local stakeholders.

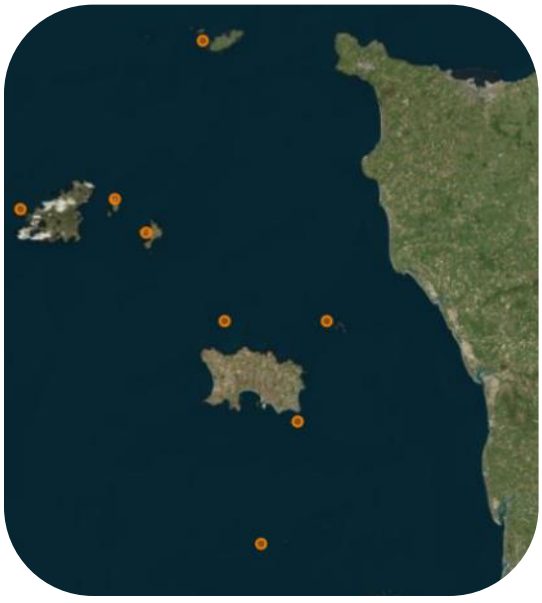
JERSEY'S RAMSAR MANAGEMENT AUTHORITY. Throughout 2018 Jersey's Ramsar Management Authority met regularly to continue to work towards the objectives set out within the management plans. Key achievements include:

Administration. As a result of the recent reformation of the RMA, the workload throughout 2018 was largely centred around the administrative processes of re-establishing the Authority. This included drafting and agreeing the Terms of Reference, formulation of annual Action Plans and 5 year Management Plans, nomination of sector representatives for an RMA steering committee, formulation and population of a risk assessment matrix for identification of pressures and prioritisation of work.

Code of Conduct. A Channel Island Ramsar Code of Conduct has been drafted, in conjunction with relevant authorities from Guernsey, Alderney, and Sark. It is intended to be published online in 2019.

WiSe Training. A training course was provided to encourage islanders to be more aware of marine wildlife and how to interact with it safely while at sea. Wildlife Safe (WiSe) is a national marine eco-tourism training and accreditation scheme used by many UK government agencies responsible for marine conservation. It is designed to help people learn how to safely interact with marine wildlife while at sea. The course aimed to promote sustainable eco-tourism, as a growing number of vessels now offer trips near or to the Island's Ramsar-designated and protected offshore reefs. Two WiSe courses were run in 2018. The first for interested individuals like kayakers, power boaters, sailors, and windsurfers who interact with wildlife from private vessels. The second was for professionals running commercial pleasure craft such as wildlife and fishing charter boats, rib trips, dive boats and charter yacht skippers.

Wildlife Safe (WiSe) Logo



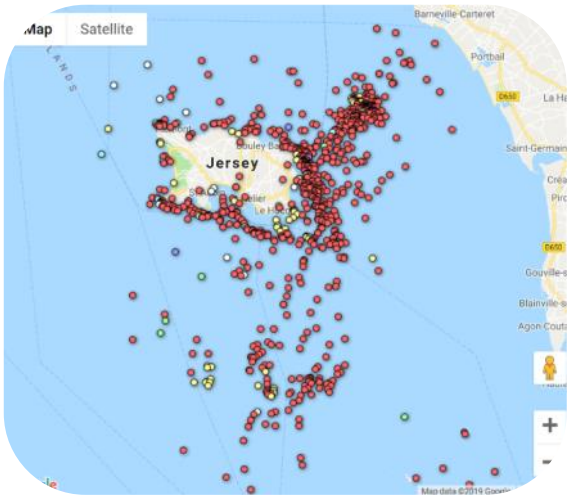
The eight Ramsar sites within the Channel Islands

ENVIRONMENTAL MANAGEMENT
MARINE MAMMALS

AN OVERVIEW. Jersey is home to large resident pods of bottle-nosed dolphins as well as colonies of grey seals, and other rarer visitors such as common dolphins and even whales. Marine Resources, in conjunction with the Société Jersiaise and others, has several different projects which document marine mammals with the aim of better understanding the local distribution, biology and behaviour.

DOLPHIN SIGHTINGS

All marine mammal sightings are recorded through 'Dolphin Watch' which is a smartphone app, hosted on Epicollect5. The app is open to the public and is used in the field while the encounter is happening. All records submitted are then publicly accessible via the Société Jersiaise website. Since launching in April 2017 over **1,000** dolphin sightings were made via the app including major contributions from local companies Jersey Seafaris and Island RIB Voyages. This dataset is already outlining the abundance and distribution of our dolphin, porpoise and seal species.



Map showing location of marine mammal sightings since Jan 2017 using Epicollect app. Available online at: **www.jerseycoast.co.uk**

C-POD

Fisheries Officers exchanging batteries and SD card of a C-Pod after a successful 3 month deployment.

C-PODs are passive acoustic monitoring instruments that detect toothed whales, dolphins, and porpoises by identifying echo-location sounds that they produce. Together with the Société Jersiaise Marine Biology Section, there are currently four C-PODs deployed along Jersey's east coast. These operate for 24 hours a day for several months at a time and provide information about the occurrence and behaviour of dolphins and porpoises as well as the seabed environment.

By the end of 2018 the CPODs had collectively operated for 918 days and had recorded over 800 dolphin and 170 porpoise encounters. Some of these can be matched to visual sightings made through the Epicollect5 app (see above). This massive dataset is due to be analysed and written up into a more formal report towards the end of 2019.

STRANDINGS

Species	Number
Bottle-nose Dolphin	1
Common Dolphin	4
Porpoise	0
Unidentified Dolphin	1
Grey Seal	4

Species and number of marine mammal strandings in Jersey in 2018.

Measurement data and other information (such as species, location, etc.) are collected from stranded dead marine mammals. To obtain these data Marine Resources coordinates with British Divers Marine Life Rescue, the Department for Infrastructure, Société Jersiaise and Jersey Coastguard. In 2018 there were ten marine mammals stranded, mostly during the autumn and winter months. This is not an unusual total with the most frequent species being grey seals and common dolphins both of which are resident in local waters. In most instances the cause of death is difficult to ascertain but illness or starvation may be significant factors as is interaction with fishing gear. Our data is shared with the Natural History Museum (London).

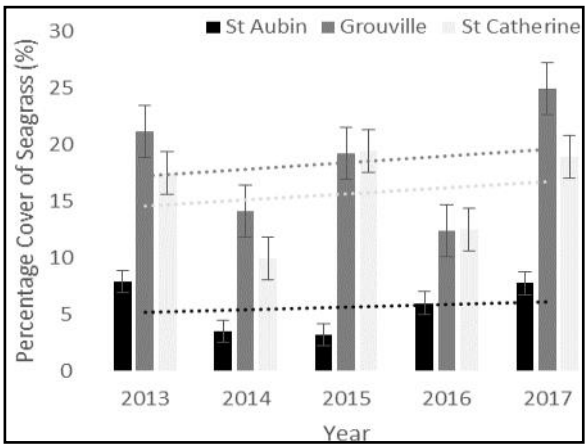
ENVIRONMENTAL MANAGEMENT
KEY HABITATS (OSPAR)

AN OVERVIEW. Under various international agreements, Jersey is obliged to monitor and assess the status of critical marine habitats and species. For certain species, specific monitoring programmes are well established (e.g. cetaceans) or part of wider reporting obligations (e.g. fishing vessel logsheets and landing declarations). Monitoring of critical habitats is undertaken as part as other programmes such as Ramsar monitoring plans or as specific assessments (e.g. seagrass and maerl).

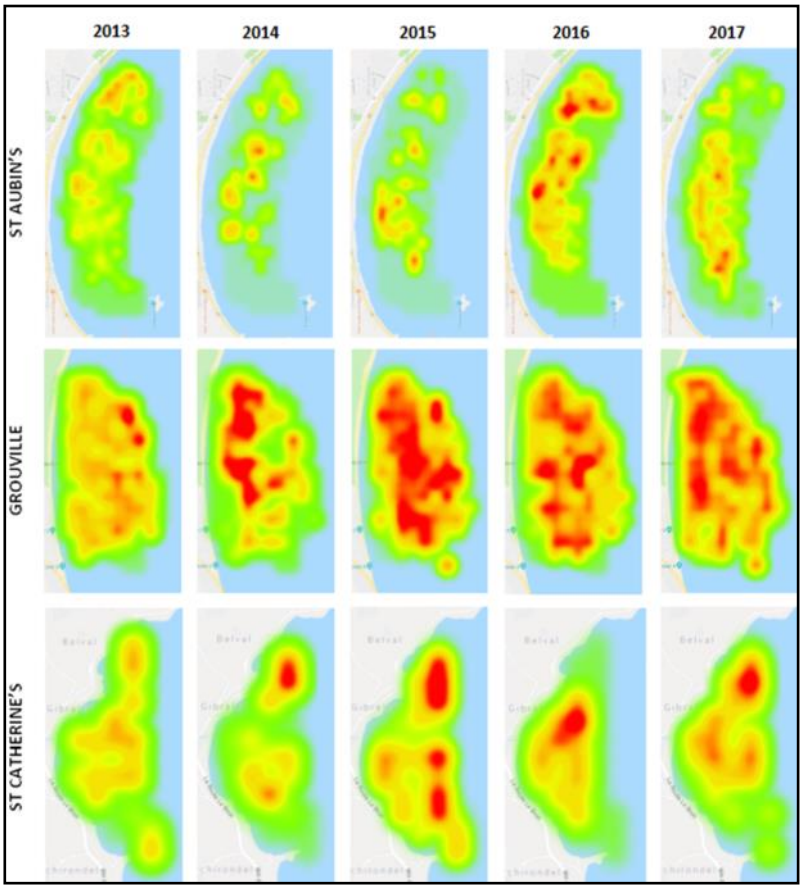
SEAGRASS

Seagrass fulfils an important ecological function in the marine environment. It is associated with high biodiversity, acting as a nursery area for commercial species, and as an important food source for wading birds. However, it is vulnerable to disease, pollution and disturbance and as such all European seagrass beds are considered 'threatened' by anthropogenic activities. Jersey is home to two seagrass species, the subtidal *Zostera marina* and the intertidal *Zostera noltii.* In response to concerns raised about the health of the *Z. noltii* beds within Jersey's inshore waters a research project was set up in 2013. It aimed to provide baseline information regarding the ecology and health of Jersey's intertidal seagrass populations, particularly in St Aubin's Bay, Grouville Bay, and St Catherine's Bay. The study has since been repeated annually, with the help of undergraduate students and citizen science contributions, providing a temporal data set spanning over five consecutive years.

Percentage cover data were collected for three distinct beds across Jersey's southern and eastern coastlines, using a photographic grid method. Following the five year study period, the following observations were identified; 1) An absence of seagrass directly downstream of the WwTW outfall pipe in St Aubin's Bay; 2) A disparity in seagrass density in St Aubin's Bay, geographically and temporally; 3) A greater density of seagrass in the study sites on the east coast – Grouville Bay and St Catherine's Bay - compared to St Aubin's Bay; 4) An average increase in seagrass percentage cover across all three sites, despite significant annual variation. A full report is intended for publication in 2019.

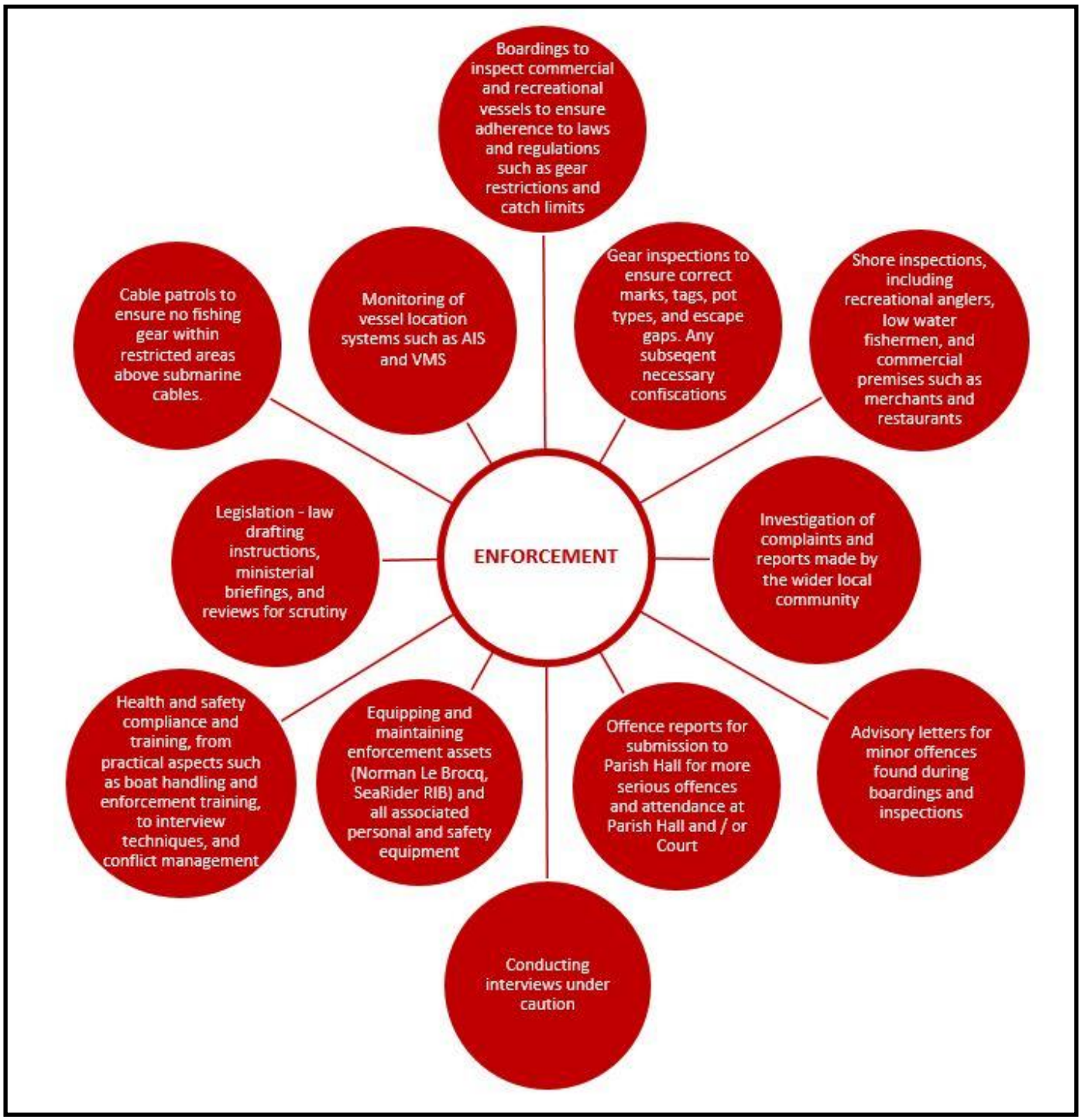


Annual percentage cover of seagrass *Z. noltii* across three sites over a five year monitoring period. Black = St Aubin's. Dark grey = Grouville. Light grey = St Catherine's. Error bars represent standard error



Heatmap showing the density of intertidal *Z. noltii* in St Aubin's Bay, Grouville and St Catherine's Bay. Red = greatest density. Green = lowest density.

ENFORCEMENT



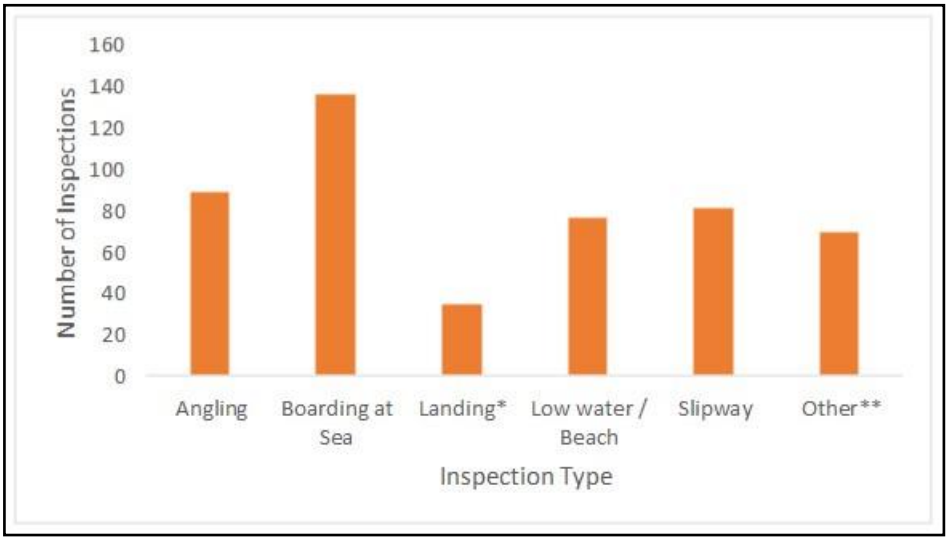
ENFORCEMENT
INSPECTION AND OFFENCES

OUR ROLE. Fisheries officers carry out routine inspection checks along our island's coast, from piers and low water areas on-island, to offshore reefs, and to the limits of our shared fishing zones. Officers regularly board local and French vessels, both recreational and commercial. Checks are conducted to ensure fishing regulations are adhered to, such as minimum landing sizes, open/closed seasons, and compliance with fishing zones. (See also 'Offences'.)

In 2017 inspection recording moved from a paper-based system to the use of smartphone apps. This increased the accuracy of inspection records (especially location data, which is taken using GPS) and removed the need to type in paper records. A review of all historical inspection records was undertaken so that Marine Resources now has a single continuous database of inspections back to the start of 1997. This dataset provides otherwise difficult to obtain information such as catches from recreational fishers and foreign vessels.


Officers boarding Cap Pillar

IN NUMBERS. In 2018 a total of **485** inspection checks were conducted by Marine Resources officers. This is **above** average and possibly reflects the new electronic recording system and the recruitment of additional officers. Of these inspections, **over 50%** were shore based, including angling inspections and low-water checks on the beach. **136** boardings at sea were conducted (excluding gear checks). A majority of our checks were conducted during work hours but one third (**34**%) took place outside of government core work hours (09:00 - 16:00) or at weekends.



The number of inspections, separated by type. The checks are dominated by boardings at sea, low water and slipway checks and angling checks, usually on piers or headlands.
** 'Landings' including both at St Helier, and across other outlaying harbours such as those along the north coast. ** 'Other' includes activities such as gear inspections and premises checks.*

OFFENCES. 2018 saw a total of 39 recorded offences, concerning both local and French fishermen. Offences ranged from fishing out of seasons and undersized animals to unmarked fishing gear. Outcomes varied from written warnings to fines**.** Several investigations were still ongoing at the start of 2019.

ENFORCEMENT
FPV *NORMAN LE BROCQ*

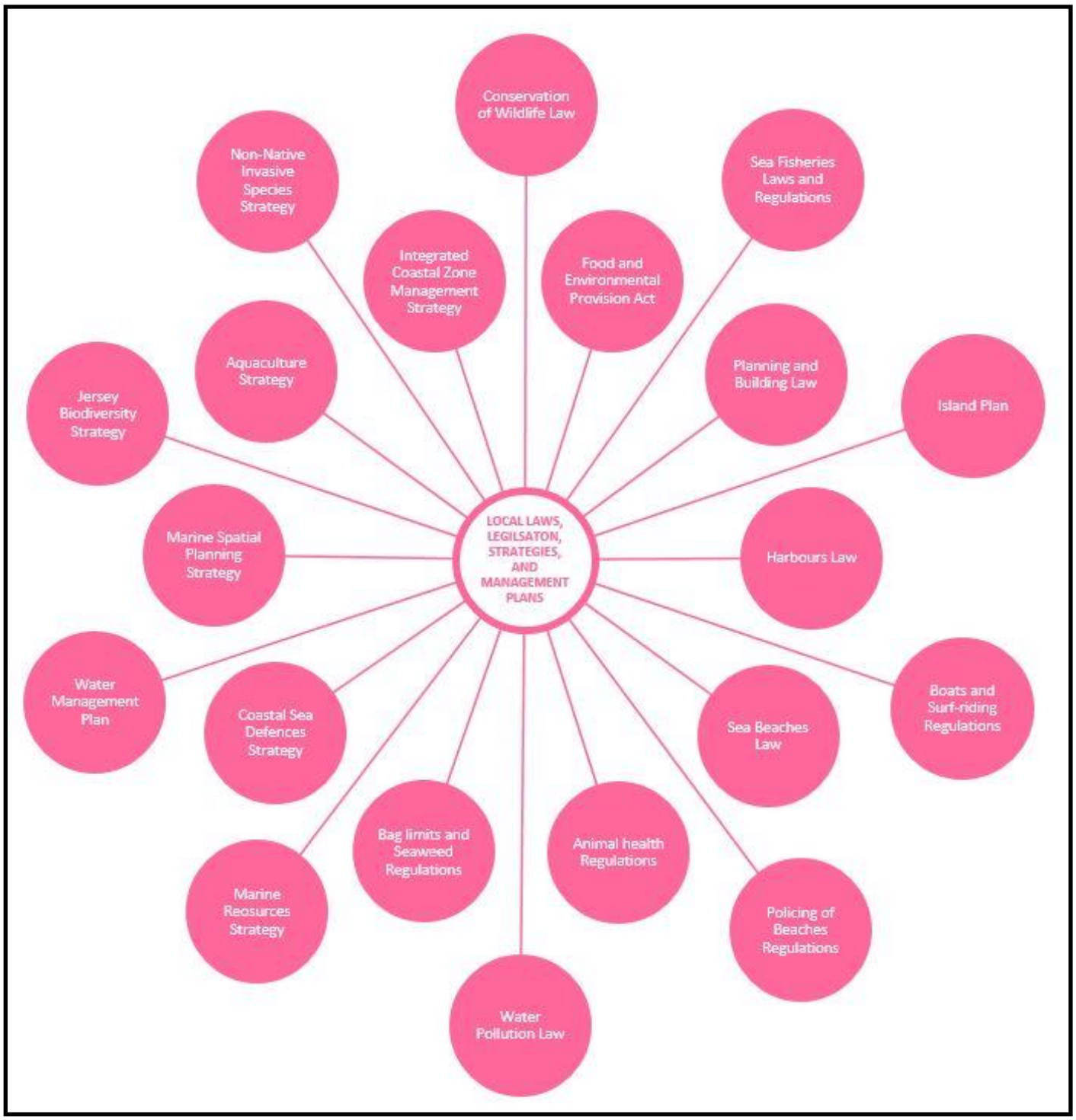
THE BOAT. The Norman Le Brocq, built in 1997 with an overall length of 15.1m and a cruising speed of 20-22 knots, has a primary role in fisheries patrols, enforcement, and research work. As a Government of Jersey asset, she is also available for tasks by other departments, such as Customs and Immigration, Police, and the Ambulance Service. She carries an additional vessel - the 'SeaRider' - an Avon 4.7m RIB used for close operations such as boarding commercial vessels.

2018. The Norman Le Brocq clocked up 413.58 hours and 4,188.02 miles in 2018. She carried out 86 days at sea, completing a wide variety of tasks:

TASK*	COUNT	NOTES
Patrol	43	Patrols can range from round-island inshore patrols of local vessels, to offshore patrols of local and French vessels, to joint patrols with French authorities in local and French waters. Also included in this count are cable patrols.
Research	40	The large number of research trips was a combination of Departmental annual research projects in addition to assisting a PhD study.
Delivery	9	Delivery trips entailed drop off and pick up of Officers attending meetings in Granville and St Malo. They are often combined with patrols, both local and joint.
Training	6	Regular training requirements include man overboard situations, on-board fire drills, and practice of salvage pump scenarios.

* note that often multiple tasks are combined in one trip. E.G. patrols will usually be undertaken before and / or after deliveries or research.

LEGISLATION



LEGISLATION
LAWS AND REGULATIONS

INCREASE IN THE BAG LIMIT FOR BASS (*Dicentrarchus labrax)* TO ONE FISH PER DAY

Sea Fisheries (Bag Limits) (Jersey) Order 2016

In late 2016 ICES (International Council for the Exploration of the Seas) published data showing that Northern European Seabass (bass) stocks (those north of the 48°N latitude) had reached and would soon fall below, the lowest viable breeding limit. ICES urged the EU to take strong steps to conserve bass stocks and Jersey responded by introducing measures that took effect from April 2017 which moved the local commercial bass fishery onto hook and line only and thus away from netting and trawling. A zero bass bag limit was introduced in Jersey for the recreational sector, creating a catch and release fishery. This recreational catch and release policy was adopted by all EU countries in 2018.

On 4 September 2018 ICES issued revised advice indicating that there is a lower fishing mortality from recreational fisheries and a higher survival rate from the catch and release practice than previous estimated and that therefore it is appropriate to introduce a daily bag limit of one fish per day for recreational fishers applicable from October to December 2018.

Local monitoring of bass stocks has been achieved via a licencing scheme for commercial fishing vessels which requires fishers to collect statistics on every bass they catch. This dataset suggests that Jersey's bass population is in recovery and that the ICES advice of implementing a bag limit of one fish per day is appropriate. Monitoring of the stock will continue through the commercial licencing scheme and through data gathered through the recreational sector.

INTRODUCTION OF A ZERO BAG LIMIT FOR BLUEFIN TUNA (*Thunnus thynnus*)

Sea Fisheries (Bag Limits) (Jersey) Order 2016

Bluefin Tuna (*Thunnus thynnus*) are categorised on the IUCN Red List as endangered. In recent years Bluefin Tuna (BFT) have been present within the Jersey territorial sea and in the summer of 2018 were caught as by-catch by French trawlers operating in the area. The resultant publicity has generated interest in recreational fishing for this species.

Measures have been in place for a number of years in the UK and Europe to protect BFT from commercial and recreational fishing. These measures are necessary because in the Eastern Atlantic stock current fishing mortality is far above maximum sustainable yield. Management is essential to the future of this species, as it represents the majority of the species global population.

Whilst Jersey has measures in place for commercial fishing there are no equivalent measures with regard to recreational fishing. To protect this species and prevent problems that could arise as a result of Jersey recreational fishing vessels landing BFT it was recommended that Jersey set a zero BFT bag limit for the recreational sector.

LEGISLATION
LAWS AND REGULATIONS

SPIDER CRAB FISHERY

Sea Fisheries (Miscellaneous Provisions) (Amendment No. 6) (Jersey) Regulations 2014

In the past a range of measures were recommended by the Joint Management Committee, established under the terms of the Agreement relating to fishing in the Bay of Granville. One such measure related to the introduction of a ban on netting in an area to the south west of Jersey during the annual spider crab closure. An amendment to the Sea Fisheries (Jersey) Law 1994 was approved in 2012 and the Sea Fish-eries (Miscellaneous Provisions) (Amendment No. 6) (Jersey) Regulations 2014 were approved and be-came active in 2014.

At Granville Bay Meetings held on 3rd and 4th July the dates for the closure and the area to be closed to netting in the following year were confirmed and the Minister produced a Ministerial Order to make the necessary restrictions for 2018. There was a degree of urgency associated with the production of the Order, as the closure needed to take effect from 1st September and fishermen need at least two weeks warning before that date. An Order was required to close the fishery in accordance with Regulation 5(2) from 00:01 hours on Friday 1st September 2018 until 23:59 hours on Sunday 15th October 2018.

A REVIEW OF RECREATIONAL BAG LIMITS

A 2017 review by Marine Resources examined known and potential threats to recreationally fished marine species in Jersey waters. This review was prompted by concern over the health of certain stocks and a concern that the current regulations could potentially allow the unrestricted exploitation of many species that are at present considered to be sustainably fished (for example, wrasse, baitworms, bream and razorfish). In other jurisdictions this situation has led to sudden overexploitation of individual stocks by one or two commercial ventures, leaving them unavailable for others to fish. In addition, the review identified that Jersey's recreational fishing regulations are out-of-step with those of most European countries.

The review's initial conclusions focused on the creation of recreational bag limits for most fished species and some minimum sizes for others. These were discussed by the Marine Resources Panel in January 2018 and was followed by an unplanned but ultimately constructive public consultation. Following close consultation with fishing representatives, adjustments were made and a list of proposed bag limits and landing sizes was agreed upon. These have been reviewed and approved by recreational fishing representatives and the Marine Resources Panel.

The proposed changes to fishing for recreational species are scheduled for law drafting and it is expected that the process will progress during 2019. Although controversial, the proposed measures are required to prevent the unregulated overexploitation of species, a situation which can severely affect recreational stocks, making them unavailable for everyone (e.g. in southern England commercial bait digging has left little behind for recreational fishers to collect). For more information on the proposed changes and for a copy of the evidence and documentation underpinning the review, please contact Marine Resources.

LEGISLATION
BREXIT

OVERVIEW. 'Brexit' refers to the withdrawal of the United Kingdom from the European Union, which is scheduled to take place on 29th March 2019 as this is when the period for negotiating a Withdrawal Agreement will end, unless an extension is agreed. This follows the referendum of 23 June 2016 when 51.9 per cent of voters chose to leave the EU. Whilst Jersey's position differs from that of the UK, in that we have a limited relationship with the European Union as set out under Protocol 3 of the UK's 1972 Accession Treaty, there are certain areas where the Island will be impacted.

TECHNICAL NOTICES. The UK Government published a series of technical notices which set out information to allow UK businesses and citizens to understand what they would need to do in a 'no deal' scenario. The Government of Jersey published responses these notices to ensure that businesses and individuals know what steps they may need to take. These were wide ranging, but included 'Exporting animals and animal products if there's no Brexit deal', and 'Commercial fishing if there's no Brexit deal' (see following page).

BREXIT WEEK. A series of public events for residents and businesses were arranged for the first week of 2019, to share information about preparations for the UK's exit from the European Union. Included in the week's schedule is an expert industry roundtable attended by representatives from the agriculture, dairy, fisheries and aquaculture businesses.

JERSEY
Ready for
Brexit.

Department
for Environment
Food & Rural Affairs

ENGAGEMENT WITH THE UK. Because Jersey is not part of the EU, the UK will be responsible for representing our interests in their negotiations with the EU. Specific teams have been set up to focus on the areas where Brexit may affect Jersey most. The Marine Resources team have been heavily involved with the 'Agriculture & Fisheries' workstreams, and are engaging regularly with the UK Government.

INDUSTRY ENGAGEMENT. Throughout the lead up to Brexit the Marine Resources team has maintained communication with industry, from fishermen to merchants and aquaculture businesses, through a number of 'Brexit Industry Briefings'.

For more information visit www.gov.je/brexit

LEGISLATION
BREXIT

UK Brexit Technical Notice:
COMMERCIAL FISHING IF THERE'S NO BREXIT DEAL

Government of Jersey Response

Before March 2019:
Commercial fishing in Jersey's Territorial Waters is governed by two separate agreements; the Fisheries Management Agreement (FMA) with the UK and the Granville Bay Agreement (GBA) with France.

After March 2019 if there is no deal:
The UK will leave the Common Fisheries Policy (CFP) and assume the rights and obligations of an independent coastal state under The United Nations Convention on the Law of the Sea (UNCLOS). Jersey is not part of the CFP but is subject to certain rules of the CPF under the obligations of the FMA. The FMA will remain in place but will require revision following the UK's decision to exit the EU. Jersey vessels will be able to access UK waters as they do now, as licensing arrangements are in place. Non-UK flagged vessels will not have automatic right to access UK Waters. Non-UK flagged vessels (i.e. French vessels) access Jersey Waters, not by virtue of CFP access rights, but through the reciprocal arrangements in place under the GBA. This Agreement is currently under review by all Parties, as is required under the Agreement itself, and access will be part of that review. Whilst there is no automatic access to EU waters for UK vessels, Jersey vessels will be able to access EU Waters as prescribed in the GBA.

Jersey vessels, as UK flagged vessels, will no longer have an automatic right to land in EU ports. Landings can only occur in designated ports and where vessels meet certain requirements including notification of intention and correct documentation. Vessels landing will require catch certificates for each consignment that certifies it conforms to the EU's illegal, unreported and unregulated (IUU) requirements. A system to provide these certificates is currently under development. Aquaculture products are exempt from the requirement for a catch certificate.

Export of fishery products will also require additional paperwork. In the event of a no deal animal products and live animals will also require an Export Health Certificates (EHCs). Consignments would need to go through a Border Inspection Post (BIP). This requirement would apply to aquaculture and exports by merchants but at this time there are no BIPs in the Bay of Granville area.

LEGISLATION
BAY OF GRANVILLE AGREEMENT

The Bay of Granville Agreement (BOGA) is a treaty covering the joint management of fisheries in Jersey and local French waters within the Normano-Breton Gulf. The agreement was signed by the UK and France in July 2000 and came into force on 1 January 2004. Since that time the BoGA framework has dominated the management of Jersey's commercial fishery in marine waters outside of the island's three nautical mile limit. The BoGA is subject to periodic revision and in December 2017 Jersey was given permission by the Foreign Office to initiate a review of its operation. This review operated throughout 2018 and has required a considerable amount officer time. The review outcome is expected in 2019.

What is the Bay of Granville Agreement?

The BoGA makes provision for a maximum number of French and Jersey vessels to fish in a defined sea area covering Jersey, Normandy and Brittany waters. Permission to fish within this area comes via an access permit which is issued to a vessel by its respective authority. The access permit provides a general right to fish in the Bay of Granville Area and limited access to several smaller zones where fishing is restricted to an additional list of named boats. This geographical arrangement, together with the number of vessels allowed within each zone, is shown on the chart opposite.

As well as allowing access to each side's fishing grounds, the BoGA provides a mechanism for the joint-management of fisheries within the geographic area it covers. The Agreement states that its management structure exists to deliver three objectives:

- The Agreement should strengthen relations between the regional fishing fleets.

- The Agreement must conserve fisheries resources in the Bay of Granville area.

- The Agreement must contribute to the prosperity of communities dependent on the fishery.

Administratively the Agreement is formed of two committees that are tasked with working together to manage the BoG Area and its fisheries resources. These are the Joint Advisory Committee (JAC) and the Joint Management Committee (JMC).

The JAC is formed of representatives from the Normandy, Brittany and Jersey fishing associations (which represent the regions fishing fleets) plus a smaller number of representatives from the Jersey and French administrations (primarily civil servants and scientists).

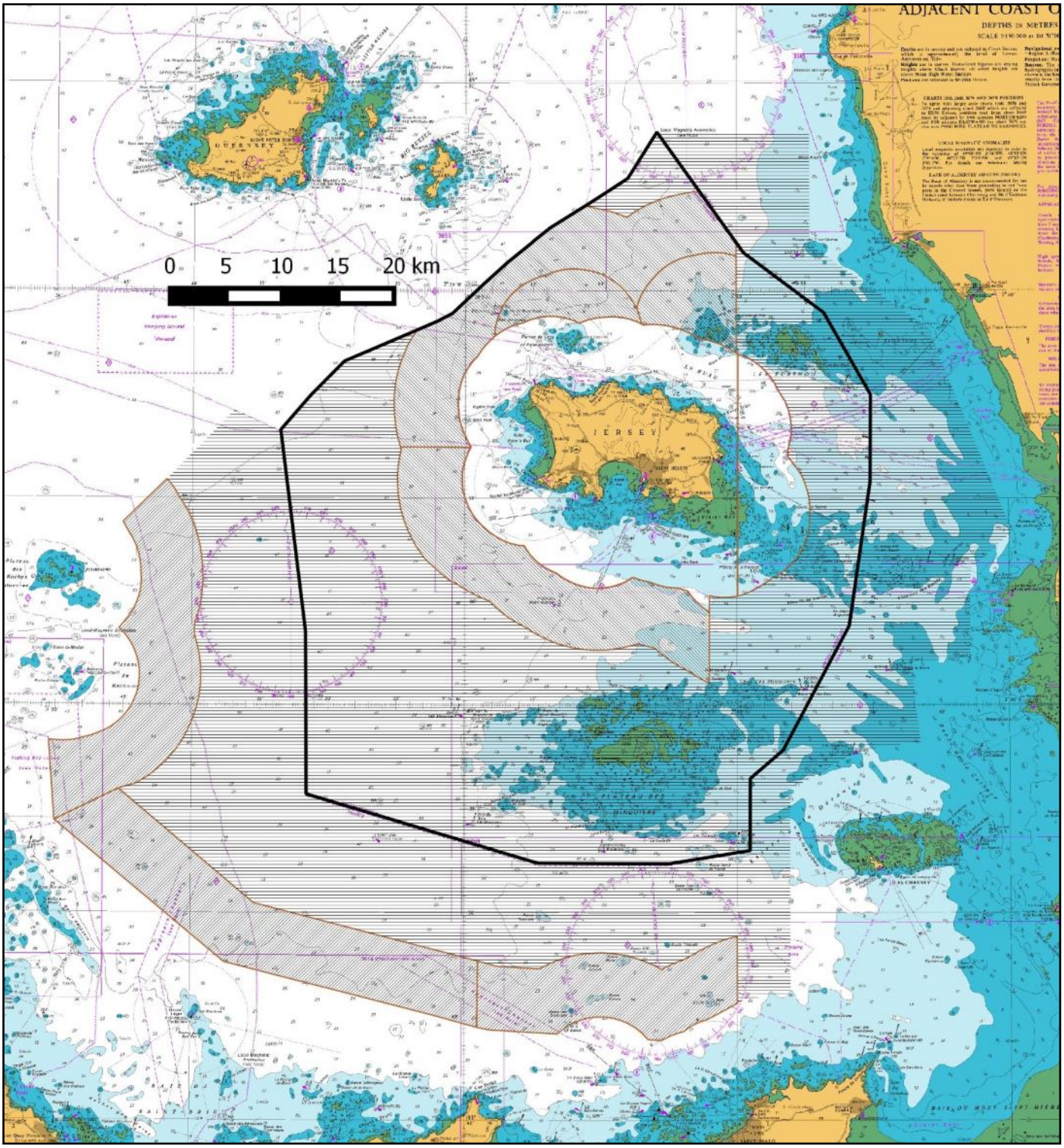
The JAC is the usual entry point for any items or propositions concerning fisheries management within the BoG Area. The JAC meets three times a year usually in Granville (February), Jersey (July) and St Malo (October). It is the role of the JAC to discuss and examine issues and, if possible, make jointly agreed recommendations regarding fisheries management to the JMC.

In terms of managerial responsibility, the JMC is superior to the JAC and is the principal decision-making and administrative body within the Agreement framework. The JMC membership is drawn from civil servants and government scientists from France and Jersey. The JMC meets twice a year usually following JAC meetings in July and October.

The Agreement process dictates that recommendations and advice from the JAC should be provided to the JMC for their consideration and, if felt appropriate, approval. Items that have been approved by the JMC level can then be passed to the national or regional administrations to be incorporated into licence conditions or legislation. As well as providing the Agreement's wider management, the JMC has other administrative powers which includes the ability to create fishing permits and to refer contentious matters into an independent arbitration process.

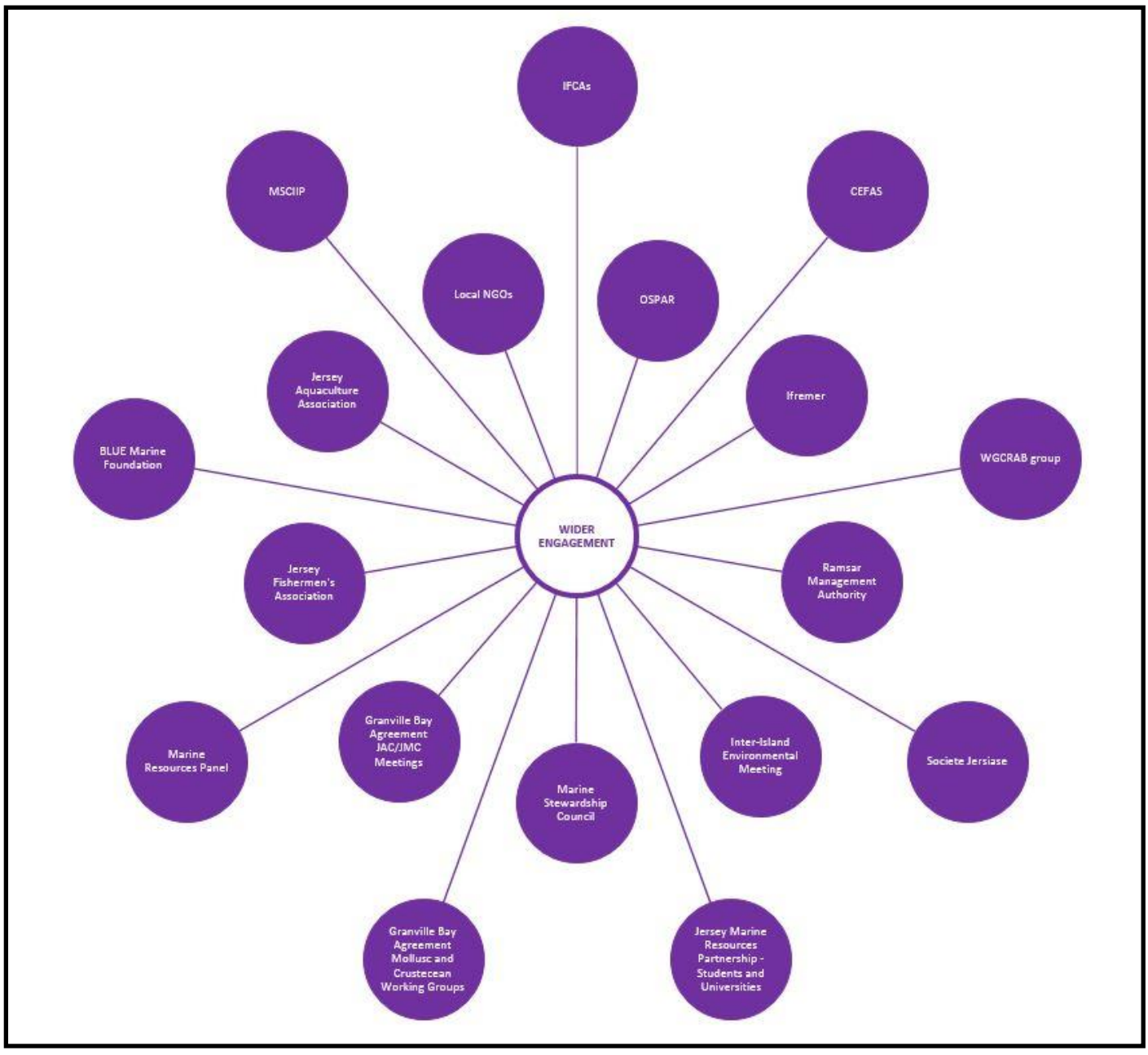
Outside of defining the responsibilities of the JAC and JMC, the BoGA defines the administrative and regulatory framework that relates to other matters such as jurisdiction, supervisory procedure, access arrangements and emergency and arbitration processes. There is no termination clause in the BoGA but provision was made 'to review its operation' at the end of the first five years and then at least every ten years after that.

The current review process is examining all aspects of the BoGA to see how it has operated in practice since 2004 and what its effect has been on the fisheries of Jersey, Normandy and Brittany. Although initiated by the Government of Jersey, the review has been conducted jointly with the Normandy and Brittany fishing associations via scheduled and unscheduled JAC and JMC meetings.



The Bay of Granville Agreement. Since 2004 outside of Jersey's three nautical mile limit the marine waters are managed jointly with France via an international fisheries agreement. The horizontally hatched area allows fishing by Jersey and French vessels in possession of a Bay of Granville access permit. The diagonally hatched zones (outlines in red) have restrictions relating to the number of vessels that may operate there and the fishing activities they may undertake.

WIDER ENGAGEMENT



WIDER ENGAGEMENT
MARINE RESOURCES PANEL

OVERVIEW. The Sea Fisheries Advisory panel was set up in the 1970s to address fishermen's concerns about overexploitation, neighbourhood agreements with France and local conservation issues. From the beginning its membership included key professional and amateur stakeholders with an interest in the marine environment. This diverse membership encouraged a holistic approach to management. Today the since renamed Marine Resources Panel continues to offer advice, knowledge and opinion on a range of maritime issues. Membership includes representatives from:

- The boat owning communities
- Jersey Aquaculture Association (JAA)
- Jersey Fishermen's Association (JFA)
- Jersey Recreational Fishermen Association
- Société Jersiaise
- Jersey Inshore Fishermen's Association (JIFA)
- Jersey merchants
- Marine Resources team

The following were matters handled by the MR Panel during 2018:

AQUAUCLTURE

Renewals	Applications were considered from La Rocque Fisheries, R. Titterington, and C. Gould.
New Entrants	A new entrant application from Bay Shellfish was considered.
Ordinance	The issue of unexploded ordinance in Grouville Bay was raised and discussed.

CAPTURE FISHERIES

Bag Limits	A discussion document concerning management measures for recreational fishermen - including catch limits and gear restrictions - was presented. Updates resulting from consultation and discussions between the JRFA and MR were later discussed.
Bass	A presentation concerning stock assessments was delivered, in addition to a report submitted by the JFA.
Brown Crab	A presentation summarising current knowledge was delivered, and management measures proposed by the JFA were discussed.
Whelk	A report on the annual stock assessment was provided, and subsequent recommendations were discussed.

ENVIRONMENT

Brexit	Continued updates were delivered throughout the year.
No Take Zone	A proposal for a No Take Zone at Portelet was tabled, alongside a report submitted by the Société Jersiaise.
Ramsar	An overview of the restructuring of the Ramsar Management Authority was provided.
PhD Research	An introduction to a new PhD study looking at marine protected areas was given by the student and the Blue Marine Foundation who are supporting the work.

Minutes of all meetings are available online at gov.je.

WIDER ENGAGEMENT
STUDENT PROJECTS

Every year Marine Resources has been approached by local and UK students in search of marine-related projects as part of their undergraduate or postgraduate qualifications. In response to this Marine Resources produces an annual list of potential student projects. Some of these are repeat projects (usually based around monitoring habitats or species) while others are devised in repose to identified knowledge gaps or data needs. No funding can be offered but we can offer advice and limited supervision plus it is usually possible to organise access to laboratory and other facilities. In return we request a copy of the dissertation and any raw data generated.

2018 STUDENT PROJECTS

In recent years Marine Resources have helped with a range of student projects that have included studies on local seagrass ecology, the biology of Asian shore crabs, climate-change and barnacles and studies of local fish populations using baited video stations. The quality of all these projects was exceptionally high and this was reflected in the high grades received by the students. Additionally, their studies have helped to shed light on several areas which have been previously understudied.

During 2018 we assisted five students to look at microplastics in the sea and intertidal sediments (two projects), the effect of the invasive slipper limpet on key habitats and the relationship between green seaweed and seagrass in St Aubin's Bay. Together with the Société Jersiaise, we also assisted with a national study which took seed from local seagrass, treated it with nutrients and planted it out on the seashore to see if its possible to recolonise former seagrass areas.

The results from these projects are generally made available in the spring and late summer which means that the outcome from the 2018 student projects will not be known until later in 2019. Early indications are that all the projects were successful and fulfilled (often exceeded) their objectives. Additionally, links have been made with the University of Portsmouth with regard to the processing and analysis of some of our larger datasets including the massive one generated by the dolphin hydrophone study.

As well as generating valid scientific data and offering insights in local marine biology, assisting students with their studies has allowed Marine Resources to forge links with universities and talented individuals many of whom keep in touch with us and have, in turn, assisted us with queries or information provision. In this way it is hoped that the island of Jersey, the students and their universities benefit from this small but important part of our management of and desire to understand better aspects of our marine environment.

Crew on the *Norman Le Brocq* assisting students with seabed survey work off Jersey's east coast during the summer of 2018.

WIDER ENGAGEMENT
PhD RESEARCH

SUMMER RESEARCH

THE PROJECT. During the summer of 2018, the Marine Resources team helped a local PhD student who was monitoring changes following closure to mobile gear at the offshore reefs. This is part of a wider study being run by the Blue Marine Foundation and supervised by Plymouth University in an effort to better understand the ecological and socio-economic aspects of Marine Protected Areas. Although the research is being run independently of the Government of Jersey some of the data and results will contribute to the stock and habitat assessment work being undertaken by Marine Resources.

VIDEO SURVEYS. The beginning of the field season started with drop down underwater video surveys to pinpoint the location of key habitats (such as maerl, seagrass, and tubeworm communities) for further investigation. These habitats were then videoed over 100 metre transects to record information regarding the health of habitat and associated species.

SEDIMENT SAMPLING. Mid-season, a Van-Veen grab was sent over from Plymouth which the team used to take grab samples of marine sediment with. This will be to assess the infaunal component of the sedimentary habitats at the offshore reefs both inside and outside the protected areas.

POTTING STUDIES, Lastly, at the end of the season, experimental pots were deployed at Les Écréhous and Minquiers to help gain an understanding of the crab and lobster stocks. Additionally to this, cameras were attached to the pots to see what other species were attracted to the bait in the pots.

Field work will be repeated in 2019 and 2020 to build up an understanding of the ecology of the reefs and any effects the No Mobile Gear Zones are having over time. Ecological data collected in the field will be used in combination with landings data and socio-economic studies to understand the importance of the reefs to fisheries as well as the local marine environment.

APPENDIX I
COMMERCIAL LANDINGS: SHELLFISH

SPECIES	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Amandes / Dog cockles	733	885	1830	1610	1395	1370	1338	0	0	0	0
Brown Crab	480844	360872	408880	478533	507056	436120	386031	305807	348500	310353	287252
Crayfish	142	138	0	5	47	7	33	46	121	2	11
Cuttlefish	1038	1405	2090	3772	5989	2689	2065	5773	6053	4372	7934
Green Crab	0	0	0	0	0	0	0	0	0	0	20
Lady / Velvet Crab	198	185	837	296	247	319	297	258	218	296	287
Lobster	162572	177087	225536	268218	249163	225994	237229	256921	241460	243150	193503
Octopus	0	4	7	0	0	0	0	0	22	2	2
Ormer	0	9	941	242	230	89	10	23	277	0	7
Praires	304	58	0	0	0	0	0	0	210	0	0
Prawns	40	41	0	63	69	1	116	0	26	3	29
Queen Scallops	0	20	1020	0	0	0	0	0	300	150	0
Scallops [1, 2]	330997	362528	404552	349658	342786	335332	387331	280018	319731	296741	275021
Spider Crab	178692	177158	173289	148556	110298	81645	87727	95519	121751	208828	289229
Squid	127	35	50	123	63	421	239	631	480	498	631
Whelks	297742	104995	497410	377622	430368	512058	303701	268921	544237	345980	838926

Notes

1. 2007 onwards includes dredged and commercially dived.
2. 2010 contained 1,020 kg of Queen Scallops.

APPENDIX II
COMMERCIAL LANDINGS: WETFISH

Species	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Blonde Ray	2300	2380	25593	25573	60657	76488	86747	66848	74170	34370	52655
Dogfish	7303	5062	9225	10126	11761	10104	8525	2367	6354	9730	7154
Wrasse	605	1073	100	454	1957	1543	3823	4485	5169	5588	7248
Black Sea Bream	4215	90089	26856	17954	107173	31253	23141	21858	7869	3823	9847
Lesser Spotted Dogfish	2030	335	3430	800	10258	11443	12796	19494	10735	3600	9500
Mackerel	7004	7264	7351	6550	7945	8564	6639	3077	2714	3476	3436
Conger Eels	7179	3730	3578	3276	2093	1979	1635	1075	2550	2753	3194
Pollack	7334	8933	8771	21059	9227	8445	6327	4663	2452	2300	1689
Smooth Hound	1010	1865	3132	612	14636	17587	10927	25200	8280	1803	5070
Whiting	910	22	2762	117	252	495	3024	2804	1012	1624	1391
Brill	2997	2956	3928	6610	2336	3414	4172	3971	1843	1584	1393
Bass	19915	14919	14077	17324	11537	13366	10929	8960	7306	1483	1476
Bull Huss / Greater Spotted Dogfish	0	1308	2623	1445	139	46	426	223	1042	1323	859
Plaice	2722	3579	2951	5016	2421	2702	2159	2156	1427	1245	803
Turbot	400	684	896	3029	2070	2468	2035	2331	924	1186	680
Grey Mullet	1470	1274	2529	2202	1527	2552	2378	2199	2416	789	932
Dover Sole	2194	1489	1585	1768	1279	2382	1093	1007	951	755	1594
Angler Fish / Monkfish	240	418	153	1170	41	348	844	1226	576	477	258
Red Gurnard	210	89	0	855	2707	2839	2899	2683	2866	438	1940
Sand Sole	165	0	245	910	706	595	1052	1192	831	434	379
Tope	747	237	30	270	660	429	290	345	2599	280	181
Pouting	875	644	1604	1150	1085	1480	850	1100	910	261	870
Red Mullet	372	266	195	430	698	323	235	128	182	194	133
Snipe / Garfish	0	12	1	1	1	100	4	13	35	138	42
Horse Mackerel	3	2286	3	0	185	190	148	269	0	114	191
Undulate Ray	117	3639	2183	0	0	0	0	0	40	65	960
Lemon Sole	0	0	0	0	11	0	1	0	0	61	57
Grey Gurnard	1875	1020	783	85	0	0	0	0	26	46	48
Trigger Fish	6	75	8	0	1	0	5	3	3	43	0
Ling	159	15	209	478	572	374	331	184	37	30	0
Sand Eels	15	1966	311	15	13	19	17	5	30	22	31
Cod	198	200	251	302	8	2	459	28	55	20	25
Gilt-head Bream	0	250	60	0	550	7	0	0	120	18	20
Thornback Ray	167	50	104	62	238	25	13	10	190	10	21
Sea Trout	0	0	1	0	2	0	6	0	1	1	0
Historic - Skate/Ray	77704	19691	10448	14594	0	0	13	0	0	0	0
Small-eyed Ray	193	998	4582	1071	1478	823	489	1187	0	0	10
Porbeagle Shark	0	0	300	0	0	0	0	0	0	0	0
John Dory	9	43	9	11	5	65	5	6	28	0	64
Shad	0	0	6	0	0	0	0	0	135	0	0
Spurdog	0	4	0	37	0	8	5	0	0	0	0
Herring	0	1	0	0	40	0	0	0	0	0	0
Flounder	0	0	0	0	3	0	0	0	2	0	0
Haddock	0	13	0	0	0	0	0	0	0	0	44
Saithe	0	0	2	0	0	0	0	0	0	0	0

APPENDIX III
COMMERCIAL FISHING EFFORT

GEAR NAME	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Diving	523	478	673	357	711	700	723	758	393	1407	1659
Dredge	1962	1104	1867	3801	3472	3171	4318	2970	4418	4106	4058
Angling	3058	2449	3184	4233	3845	6400	2752	2768	2042	2403	2818
Long Lines	24560	12955	11820	14470	9911	7491	1168	2200	3972	909	2518
Low Water	0	0	0	0	0	0	2	2	0	0	0
Gillnet 090 - 099	131120	87812	72010	85827	132240	191278	141060	109196	106245	32703	21165
Gillnet 100 - 119	8400	10400	19239	19954	24756	11700	15820	6570	8140	22322	16100
Gillnet 120 - 219	11600	4200	6540	11410	6640	6750	2200	8360	11800	3574	5900
Historic Gill Net	0	0	200	7504	0	0	0	0	0	0	0
Historic Mesh	0	0	8230	4050	0	0	0	0	0	0	0
Historic Tangle 100	0	1200	1600	12	0	0	3	0	0	0	0
Historic Tangle 120	0	500	4700	3300	0	0	0	0	0	0	0
Historic Tangle 130	0	1600	5000	640	0	0	0	0	0	0	0
Historic Tangle 90	0	16100	0	0	0	0	0	0	0	0	0
Historic Trammel	15570	6800	3000	2550	0	0	0	0	0	0	0
Seine Netting 080 - 099	0	123	0	0	0	1500	0	0	0	0	0
Tangle 220+	329517	375918	107984	61048	31630	55521	82040	113070	60720	50232	76579
Trammel 090 - 099	3720	316	5500	4900	6150	37450	1704	8136	9600	11173	360
Trammel 100 - 119	2400	7260	13800	4340	14000	9800	20800	28900	19301	13009	7500
Trammel 120 - 219	4000	8000	3600	2000	23060	0	11060	1000	2638	416	1190
Trammel 220+	8000	13800	8800	0	3800	5300	24202	6640	0	8117	13600
Cuttlefish Pots	0	184	153	588	837	626	653	1080	1131	972	3648
Fish Traps	0	0	0	0	235	320	268	437	331	143	0
Green Crab Pots	6	0	0	0	0	0	0	0	0	0	0
Prawn Pots	224	280	0	0	0	440	0	0	24	96	631
Whelk Pots	134369	79487	174558	134748	181775	238773	129053	131786	192215	146561	336190
Creels	236575	213323	185918	205896	200393	141078	133786	139041	105776	114810	122412
D Pots	1064	3635	9743	8445	14934	15768	25037	26584	24206	33357	29148
Ink-Wells	154339	145295	191920	211200	245721	261830	211559	195921	174760	254333	255074
Parlour Pots	1240582	1245983	1356367	1452853	1403837	1397155	1300286	1258174	1398436	1509818	1397108
Beam Trawl 080 - 099	40	0	0	12	0	0	0	12	60	0	0
Otter Trawl Bottom 080 - 099	2146	1313	3201	3797	3090	2062	1262	3320	2040	994	1335
Otter Trawl Mid-water 080 - 099	0	0	0	0	0	1036	555	1245	585	12	28
Pair Trawling Bottom 080 - 099	0	0	0	0	0	44	0	0	0	0	0
Pair Trawling Mid-water 080 - 099	0	2322	172	801	4140	0	909	340	0	0	0