



MARINE RESOURCES ANNUAL REPORT 2019



**GROWTH HOUSING AND ENVIRONMENT
MARINE RESOURCES SECTION
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PREFACE

The year 2019 proved to be both varied and somewhat challenging for many of the island's marine stakeholders including the Marine Resources team. Across the year the marine sector experienced additional pressure from events such as a decline in key stocks, the fallout from Brexit, prolonged poor autumn/winter weather and issues associated with the Bay of Granville Agreement.

Even in more normal times any one of these would have represented a reasonable test of people's resolve, and patience. To experience them all in the same year was far from easy and as a team we are highly appreciative to all our stakeholders for their ability to work with each other and government. In doing so we were able to find practical ways of managing and mitigating against what were often difficult circumstances.

Despite these additional responsibilities, the day to day business of managing Jersey's fisheries and marine environment managed to continue as normal. This included tasks such as the administration of licences and permits, inspections and patrol work, legislation, environmental management, research and monitoring, and the government and public reporting associated with all of these. We would like to think that the Marine Resources team was able to keep pace with demand while also taking on additional responsibilities. We are particularly grateful that our two recent recruits were able to get up to speed so quickly and could take some of the pressure from existing team members.

The year brought with it many high points which included Marine Resources organising the OSPAR Marine Biodiversity Committee meeting in St Helier during March 2019. This high profile event was attended by over 30 delegates from an assortment of European and other countries. The meeting was opened by the Deputy Minister for the Environment and Marine Resources' officers were able to attend the individual meetings. The occasion was used to confirm the OSPAR Commission's acceptance of Jersey's three no mobile fishing gear zones as globally recognised marine protected areas.

We also experienced considerable success with patrol and enforcement work and received some excellent results from our research projects especially the dolphin hydrophone monitoring, stock assessment modelling and student led work streams. Additionally, new and amended legislation was passed and progress was made in the reform (and planned reform) of several administrative areas. Progress was made around data gathering for local bass, lobster and crab stocks with key findings being shared with our colleagues in Ifremer, CEFAS, Normandy and Brittany.

Hopefully all this is adequately reflected in this Marine Resources Annual Report for 2019 and that this is a suitable summary of the team's principle areas of responsibility, key achievements and important results for the year. The report retains the same format as last year but the contents have been thoroughly reviewed. Should you require further information or have suggestions about the team's activities or the report's contents then please contact us at fisheries@gov.je



INTRODUCTION

JERSEY'S MARINE WATERS

The Bailiwick of Jersey consists mostly of marine waters within which reside small parcels of dry land. Jersey's total land area is 120 km² but this is dwarfed by the surrounding 2,455 km² of territorial sea. This ratio of sea to land sustains the island as it is the oceanographic processes and ecology of the marine environment that underpins our climate, water resources and the key tourism, leisure, agricultural and fisheries economies. 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 dramatic cliffs, wide sandy bays, rocky shores, small harbours and, of course, the port of St Helier. This interface between land and sea has an important influence on Jersey's character and sense of identity. On spring tides the difference between the low and high low marks may be as much as 12 metres. The south, south-east and west coasts have a shallow, gently sloping shore profile which means that at low water the island's area can expand by a quarter as up to 30 km² of intertidal area becomes accessible on foot. In contrast are the north, south and west coasts which are characterised by steep granite cliffs studded with inlets and caves, and exposed sandy or rocky beaches. Both the inland character of Jersey and its marine environment are much influenced by the great variation in aspect, exposure and ecology of the coastal fringe.

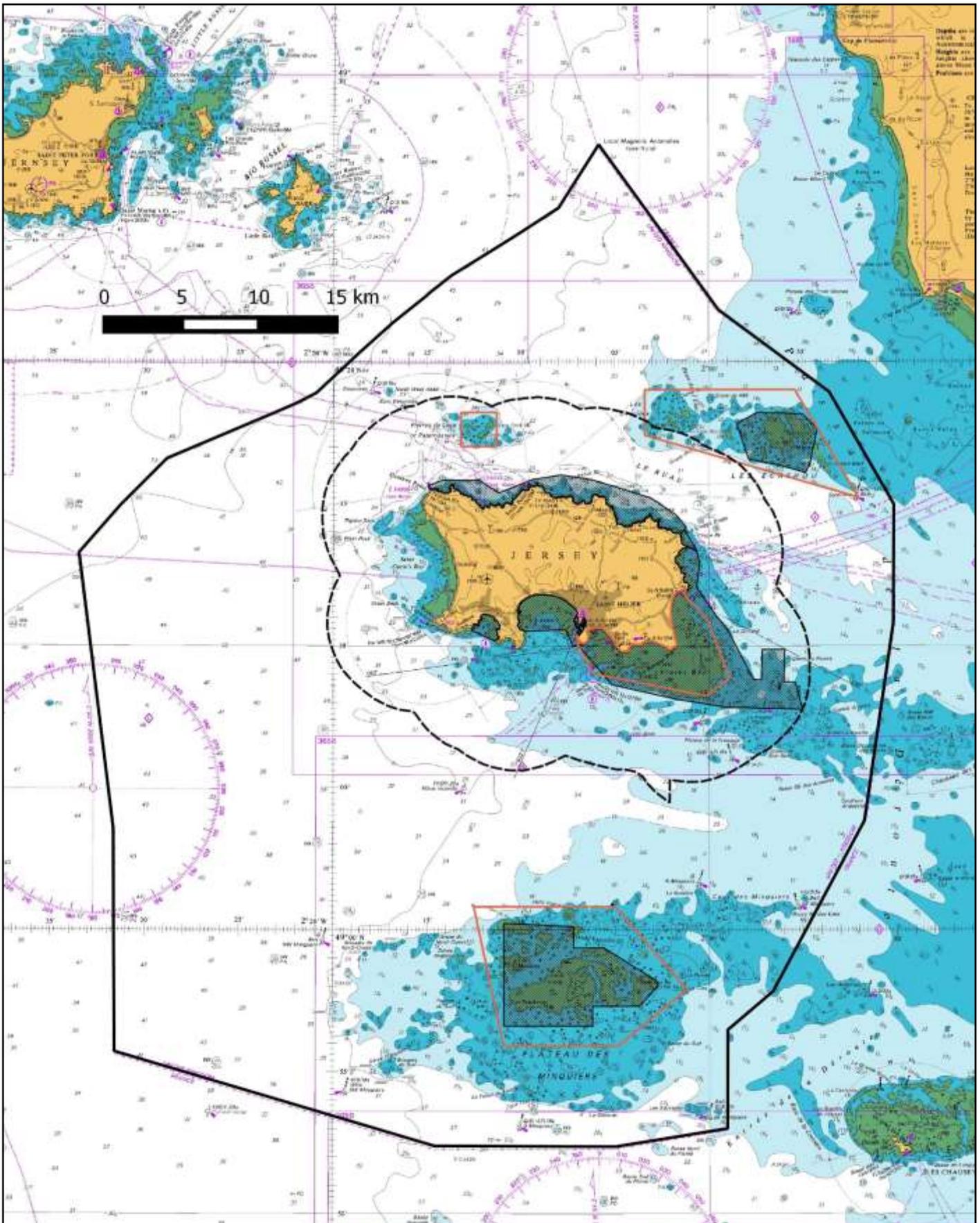
Jersey's marine fauna and flora represents a confluence of northern colder water species and warmer southern ones. Species from the Bay of Biscay reach their northern limit in the Channel Islands and, conversely, there are those found in the UK and North Sea that whose southern limit is the Normano-Breton Gulf. The international importance of Jersey's marine ecology is recognised in the 190 km² of key habitats that are designated as Ramsar (wetlands of international importance) areas and the 150 km² of seabed and marine waters that are Marine Protected Areas under the OSPAR Convention.

The ecology of Jersey's rocky reefs and intertidal sediment flats are unique within Europe. At low water an extensive biologically rich area of seashore is uncovered while subtidally there are kelp forests, seagrass meadows, maerl beds and tide-swept sands and gravels. The offshore reef systems that comprise Les Écréhous, Les Dirouilles, Les Minquiers and Paternosters cover 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 reflects an Anglo-Norman culture that goes back many centuries. Fisheries and aquaculture directly support around 180 jobs plus many more in associated industries such as engineering, maintenance, retail, etc. Achieving 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's marine areas also contain sites of cultural, archaeological and historical significance including prehistoric dwellings, shipwrecks, fortifications, geological exposures, geographic features and fishing artefacts. A number of these are already protected as Sites of Special Interest and currently UK and French archaeologists are studying exciting new finds of possible international significance along the coastline.

Jersey's marine zone can accommodate many activities such as fishing, watersports, tourism, aquaculture, harbours and vital infrastructure. This makes it an area of intense activity especially inshore and at offshore hotspots such as Les Écréhous and to reduce the possibility of conflict or harm to individuals, infrastructure or the environment requires close monitoring and management. This is a core function of Marine Resources who, in conjunction with other government teams, industry representatives, marine stakeholders and NGOs, oversee the management of Jersey's marine waters. Our objective is to ensure that people can access and enjoy the benefits of Jersey's marine zone without causing harm to themselves, other people, coastal features or to the local marine environment. Pleasing everyone all of the time is never easy but we hope that the balance we maintain between usage, exploitation and conservation of our marine waters is the correct one for the island of Jersey.



Jersey's territorial seas. 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 this three mile zone Jersey has full control over its marine management; outside of it any measure that may impinge on commercial fishing must be discussed 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 (wetlands of international importance) sites.

MARINE RESOURCES: WORKSTREAMS

OVERVIEW. In 2019 the Marine Resources team consisted of eight officers whose roles cover a wide range of activities and responsibilities. Some of this work overlaps with other government departments or requires 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 compiled primarily of key results and highlights from 2019, 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 duties which assist with the management of the local fishing industry. 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

Environmental management is a growing role that is underpinned by a mixture of monitoring and research. This includes water, shellfish and heavy metal sampling, the monitoring of key habitats and species plus individual research projects on biodiversity, climate change and the effect of anthropogenic behaviour. We also supervise students and work with of government teams.

ENFORCEMENT

Officers are responsible for ensuring fisheries related laws and legislation are enforced both around the coast of Jersey and offshore. This ranges from angling and low water checks at popular fishing locations, to boarding large commercial trawlers many 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 fishing activities which includes the construction and updating of 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

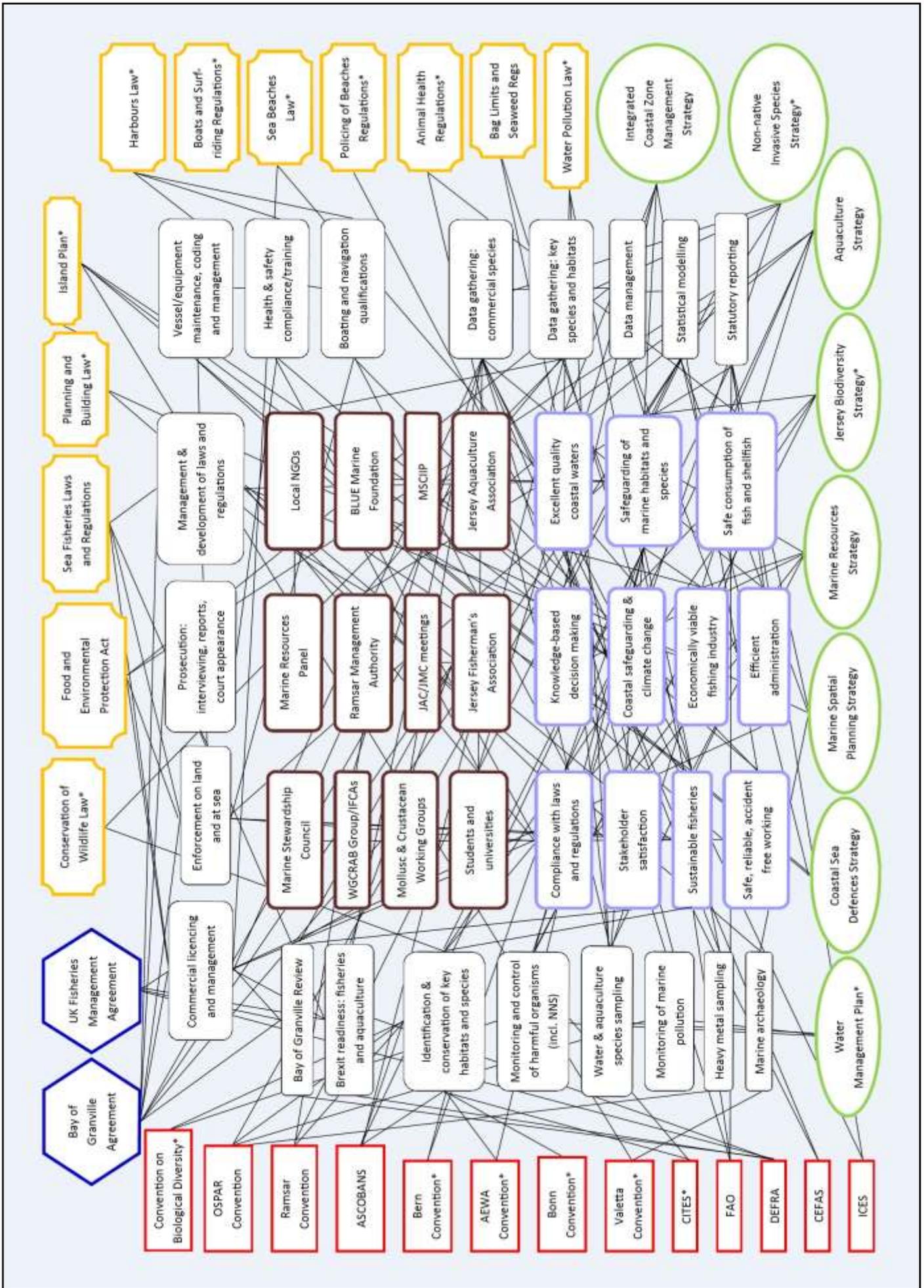
In addition to enforcement of local laws and regulations, officers are tasked with ensuring all policy and legislation is appropriately maintained. This includes writing and submitting documentation such as law drafting instructions, Ministerial Decisions, and associated communications such as press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



WIDER ENGAGEMENT



Most of the above work areas includes coordination with other government or government teams, non-governmental organisations and local businesses. The team has a close working relationship with local stakeholders both individually and via the Marine Resources Panel. We also liaise with colleagues in France and draw on local expertise within the Jersey Fisherman’s Association, Société Jersiaise and others and from the UK via organisations such as the inshore fishing associations (IFCAs), CEFAS, OSPAR, Marine Stewardship Council, various universities and BLUE Marine Foundation.



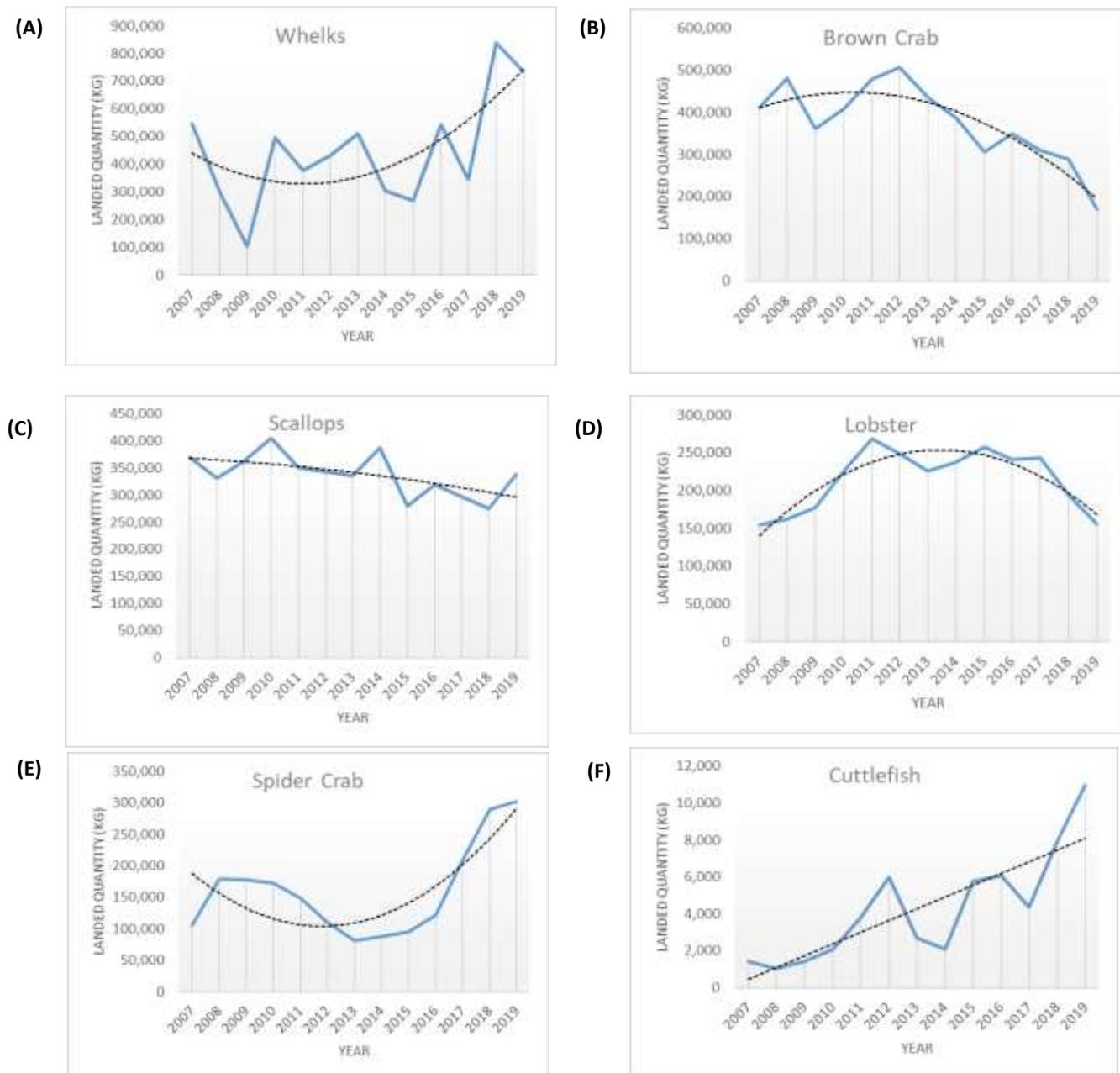
A 'horrendogram' which illustrates some of the core responsibilities, activities, regulations, strategies and outcomes undertaken by the Marine Resources team. * = Marine Resources contributes to this area rather than directly managing it.

FISHERIES MANAGEMENT



FISHERIES MANAGEMENT

COMMERCIAL LANDINGS - SHELLFISH



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

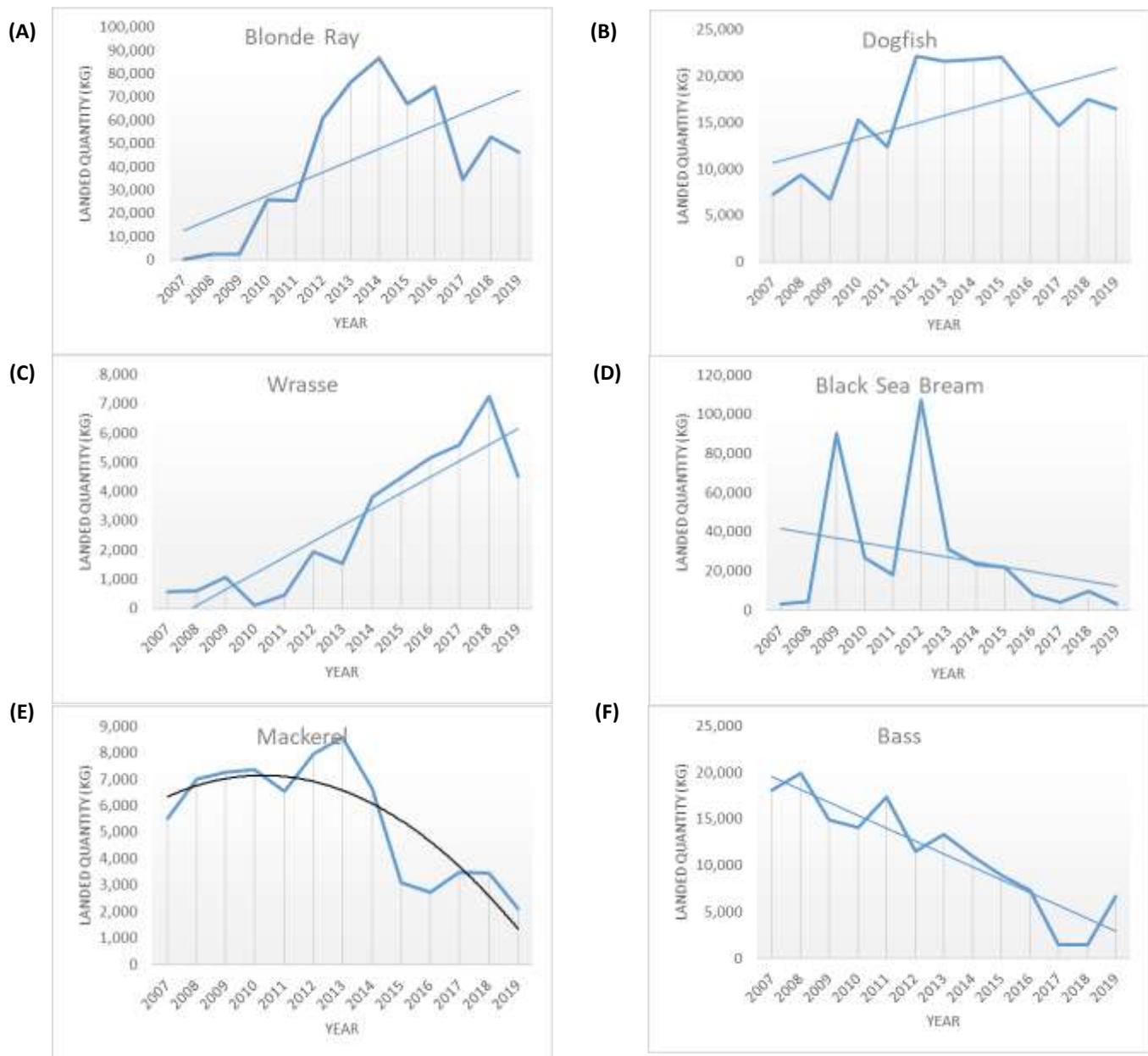
A CLOSER LOOK. Jersey’s commercial fishery is economically dominated by shellfish especially lobster and crab which form around 70% (by financial value) of landings. Whelks and scallops are also important at around 22% of landed value with wetfish and other species, such as cuttlefish, forming the remaining 8%.

Recent trends in the species’ landed weight are mixed. The annual landed weight for lobster and brown crab is declining which, given their economic dominance, is a major concern. In contrast, spider crab landings have increased steeply due to their abundance and because they are commencing a substitute for picked brown crab meat.

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 2019 of: (A) Blonde Ray; (B) Dogfish/catsharks (all species)); (C) Wrasse; (D) Black Sea Bream; (E) Mackerel; (F) Bass.

A CLOSER LOOK. Jersey's commercial wetfish industry is relatively small and has recently suffered from problems related to stock health, logistics, markets and designated quota. The local fishery is mostly low impact (hook and line, pots, etc.) and several species are targeted but often in quite low numbers (see Appendix II).

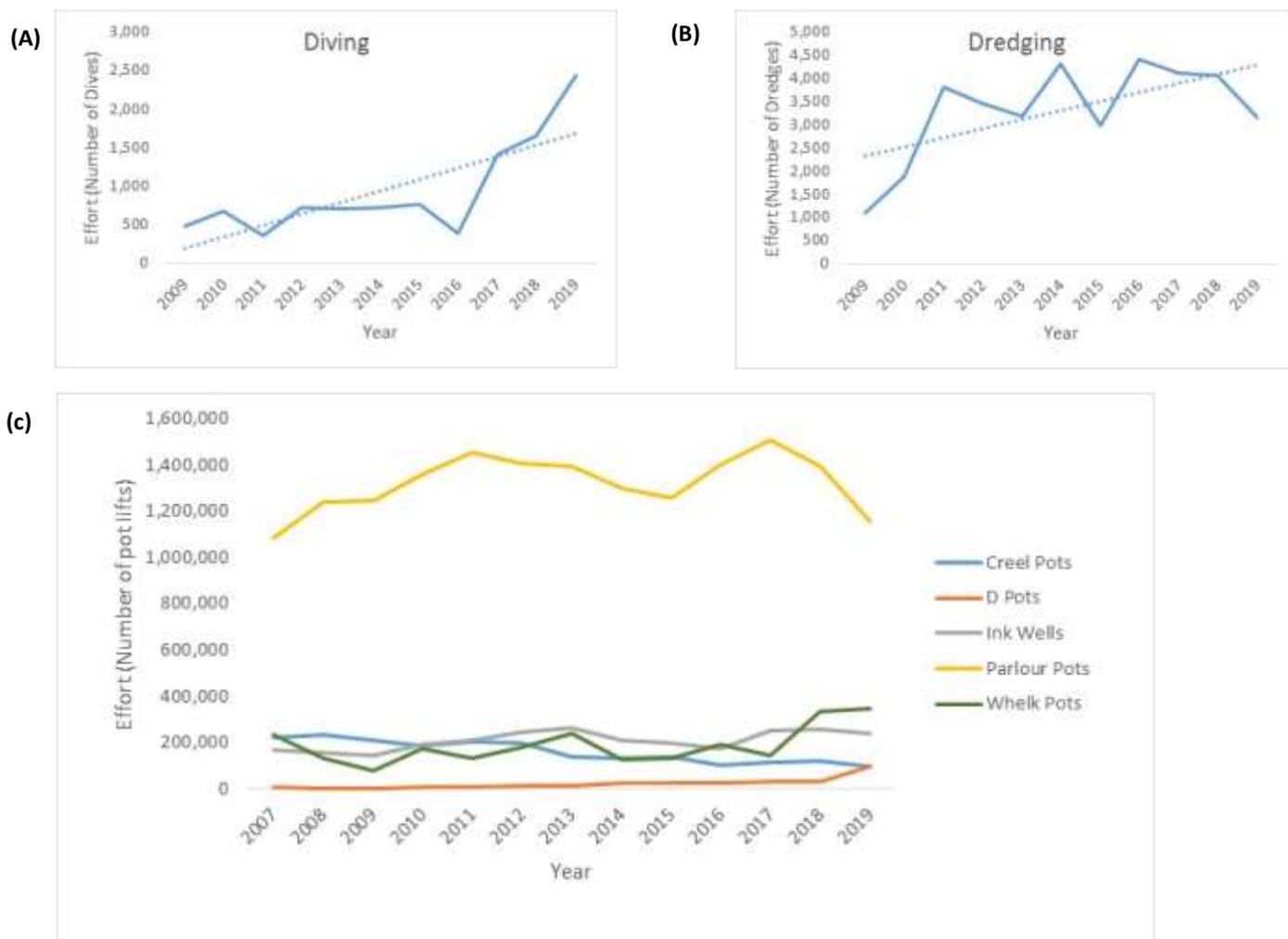
Annual landings are variable often because of individual vessels entering or leaving the fishery or from regional factors (such as overfishing) that occurs outside of Jersey waters. External influences are important to wetfish stocks because of their mobility, migratory patterns and reproductive habitats. Local wetfish trends are monitored by Marine Resources but the island's fishery is dwarfed by that of other fleets within the English Channel and so Jersey often follows guidance issued from external organisations such as ICES, the EU and UK.

Key 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

FISHING EFFORT

FISHING METHODS. Jersey's commercial fishing fleet uses a range of fishing techniques with all vessels being obliged to record their effort level in daily logsheets. For example, fishers targeting wetfish such as bass have to record the number of hours fished (if angling), the number of hooks used (if long lining) or the length of net used (if netting). Knowing the level effort expended when fishing is important as trends in catch weight will vary due to weather, fleet capacity, regulations, etc., and so catches cannot be used on their own to judge the health of a stock. However, catches combined with fishing effort will give a better indication of the health of individual stocks.



Fishing effort from 2009 to 2019 for selected metiers. A) Diving, measured by number of dives. B) Dredging, measured in number of tows. C) Lobster and crab potting measured by number of lifts for D-pots, ink-wells, creels and parlour pots. Additional measured metiers not illustrated here include angling, netting, long lining, low water fishing and trawling.

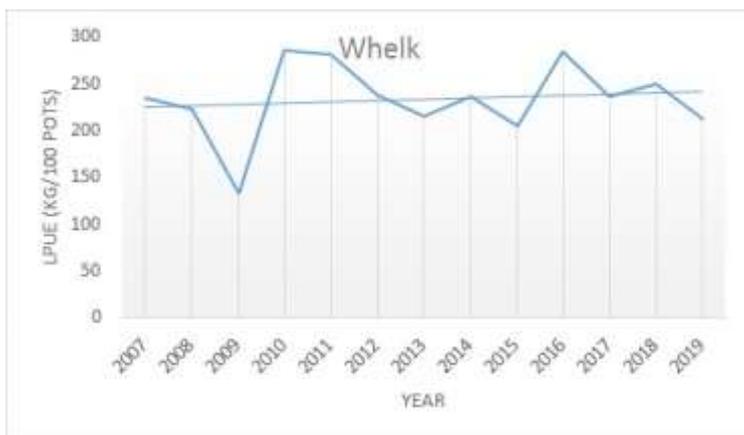
A CLOSER LOOK. Potting remains the dominant metier used across the island's commercial fleet. This is to be expected given the major role that crab and lobster contribute to the fishery. Although a variety of different pot types are used, parlour pots account for more than 80% of the fishing effort used for crab and lobster.

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 2016 which 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 index for assessing the relative health of commercial fisheries. Landings may change for reasons other than a decrease including 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 required to catch a given weight for a species, an index of the stock performance is achievable. For example, in 2015 100 pots deployed off the Jersey coast would catch approximately 15 kg of lobster but by 2019 the same 100 pots would only catch under 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.

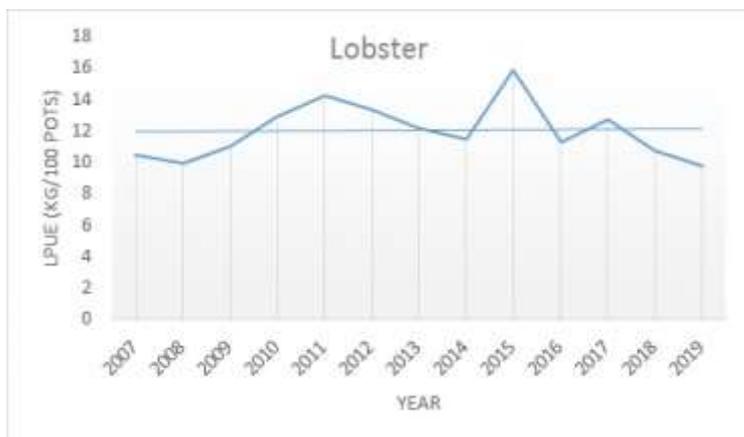


Whelk Peak year (2010): 284 kg/100 pots

Lowest year (2019): 211 kg/100 pots

Change: -25%

Status: Moderate decline since 2016

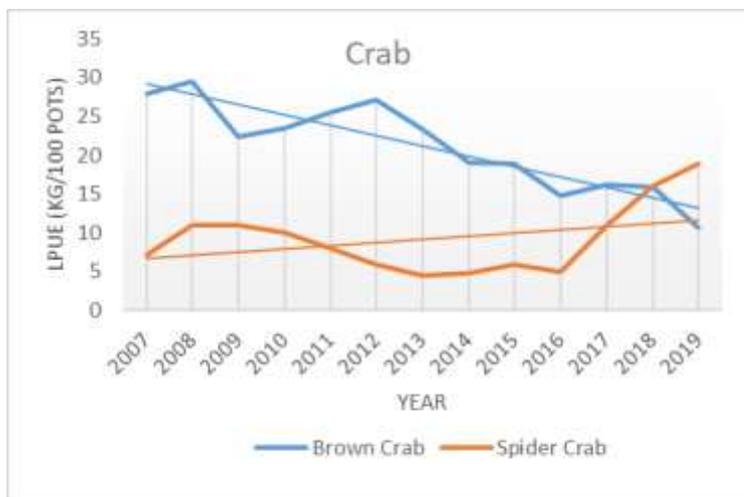


Lobster Peak year (2015): 15.8 kg/100 pots

Lowest year (2019): 9.7 kg/100 pots

Change: -38%

Status: Steep decline since 2015



Brown Crab Peak (2008): 29 kg/100 pots

Lowest year (2019): 10.7 kg/100 pots

Change: -63%

Status: Severe decline since 2012

Spider Crab Peak (2019): 18.9 kg/100 pots

Lowest year (2013): 4.46 kg/100 pots

Change: 424%

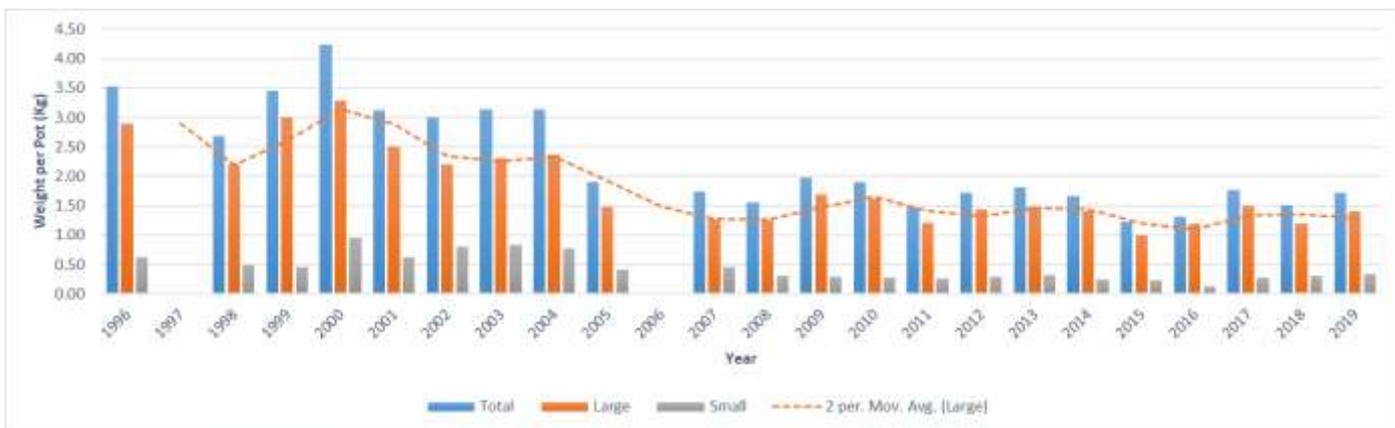
Status: Rapid rise since 2013

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

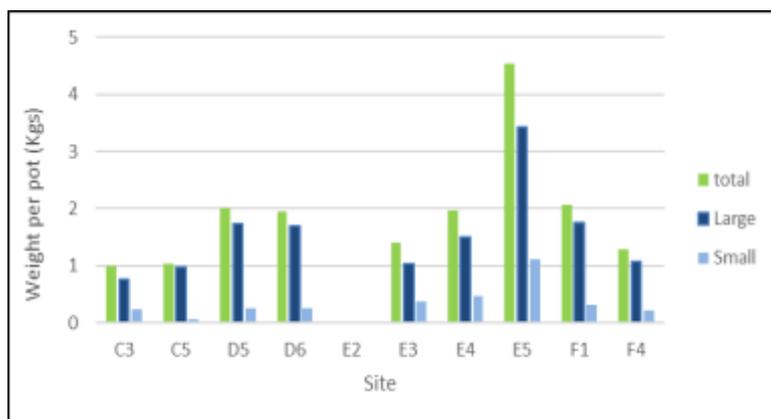
FISHERIES MANAGEMENT

WHELK STOCKS

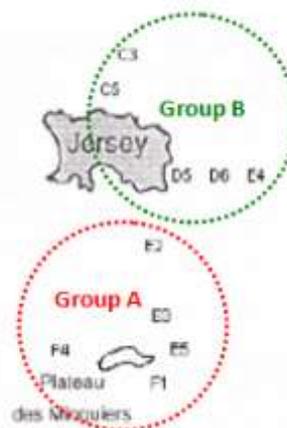
WHELK TRIALS. An annual study of whelk (*Buccinum undatum*) catch per unit effort (CPUE*) is conducted each February. Several strings of baited whelk pots are deployed for 24 hours to the north, east and south of Jersey. When the pots are hauled the whelks are graded into ‘small’ (< minimum landing size 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 is the same as LPUE but uses all caught animals rather than just those above minimum size.



CPUE (Weight (Kg) whelks per pot) from 1996 to 2019 with a two year moving average trendline on the ‘large’ (> MLS) group.



Weight (Kg) of whelks per pot, 2019. Results for Total, Large (above 50mm MLS) and Small (below 50mm MLS).



Location of sample sites.

RESULTS. Overall, the CPUE in 2019 was 1.7 kg per pot. This was 0.3kg increase on the CPUE recorded in 2018. The ‘large’ size group in 2019 was 1.4 kg, again higher than 2018, 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 2018 to 0.33 kg per pot, the highest result since 2007.

A CLOSER LOOK. Compare with pre-2007, the recent CPUE level is low but has remained stable and an observed increase in immature whelks is encouraging. The whelk fishery is intensively fished and the local stock is subject to certification (through Normandy) by the Marine Stewardship Council. Their audit for 2019 (and a 2018 Ifremer assessment) raised concern around the sustainability of the current fishery. This is subject to discussion through the Bay of Granville Agreement Mollusc Working Group.



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

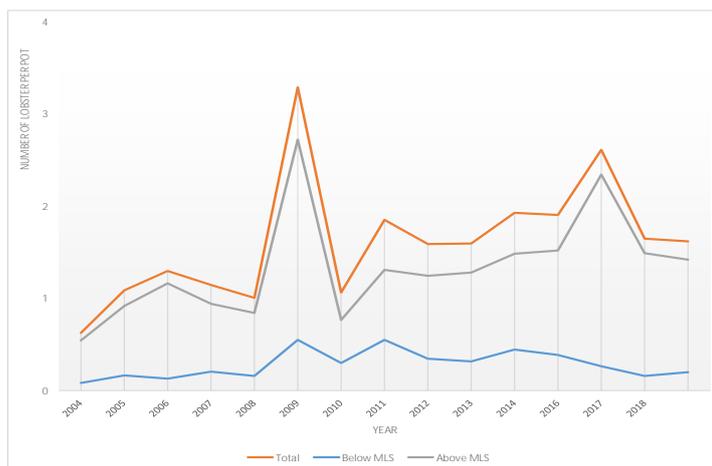
In 2019 150 pot hauls were conducted, giving a total of 243 lobsters caught. This equated to an average of 1.6 lobsters per pot.

When broken down into above and below MLS, the 2019 above MLS results produced 30 above the minimum landing size (MLS) of 87mm, with 213 individuals below MLS.

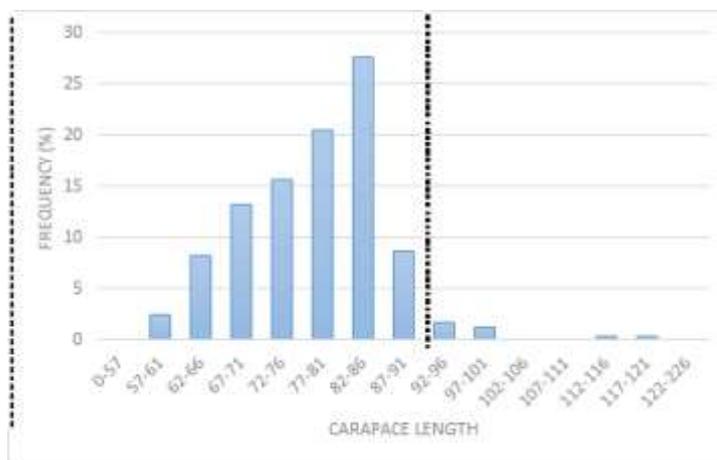
The largest lobster landed measured 120 mm carapace length, with an average size of 87.3 mm.

A total of 156,827 Kg of lobster was landed commercially. When number of pot lifts (1,612,504* for 2019) is taken into account, this equates to 9.7 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 2019. Total, above MLS (87mm) and below MLS.



Carapace length frequency distribution for 2019 in 5 mm classes. The dashed line indicates the minimum landing size of 87 mm.

A CLOSER LOOK. There is concern about the health of the lobster stock and so since 2018 an enhanced monitoring regime has been in place with 100s more measurements being taken annually.

In 2019 a Lobster Working Group was formed which included fishers, merchants and Marine Resources. The group proposed new management measures such as increasing the minimum size, reducing pot allocations, mandatory escape gaps and recreational bag limits. These proposed measures have been accepted by the Marine Resources Panel and will be implemented in 2020 and 2021 following consultation locally and with French representatives.



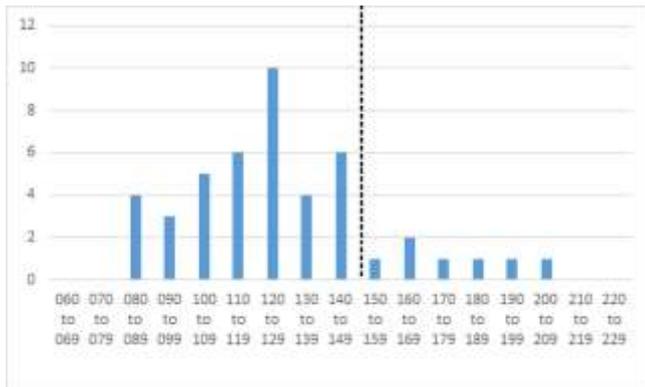
Measuring a lobster

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*) and spider crab (*Maja brachydactyla*) but other smaller species may also be caught.

A CLOSER LOOK



Size distribution (in 10 mm classes) for brown crab carapace width in

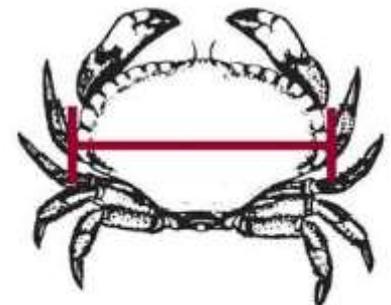
The commercial fishery for brown crab has seen landings decrease severely since 2012. This is also reflected in Jersey's trial data from 2014 to 2019 with our data showing a decline in CPUE with 2019 being the lowest year at 0.3 kg/pot.

The decline in brown crab catches is also being experienced in French, Guernsey and the southern UK. This phenomenon is of regional concern and is being jointly investigated by marine managers in Jersey, France and the UK. Jersey has also joined a UK Brown crab working group and is a member of the ICES Crab Working Group.

ADDITIONAL MANAGEMENT MEASURES

COMMERCIAL. A new size of 150 mm (previously 140 mm) came 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. In 2019 a recreational bag limit of 5 crabs per person per day was recommended for implementation during 2020. These proposed measures have been accepted by the Marine Resources Panel and implemented in 2020.



ICES WGCRAb



ICES
CIEM

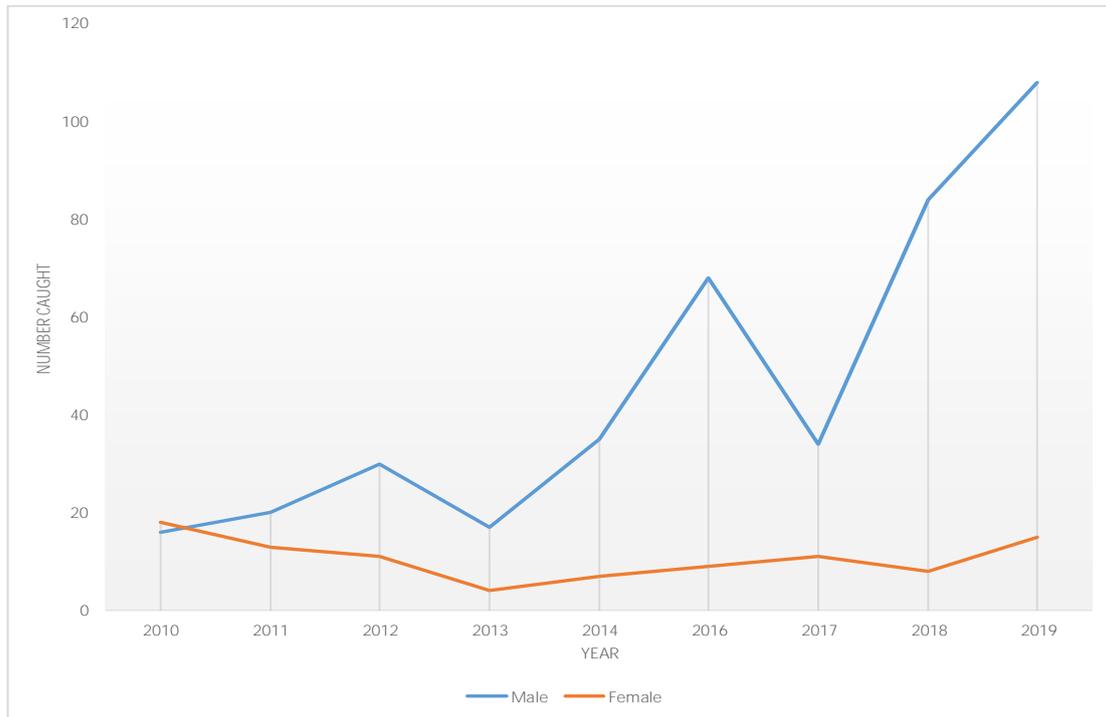
In 2018 Jersey hosted the ICES WGCRAb meeting which was attended by representatives from Jersey, France, Scotland, Norway, Greenland, Newfoundland, Isle of Man, and the Orkney Islands.

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

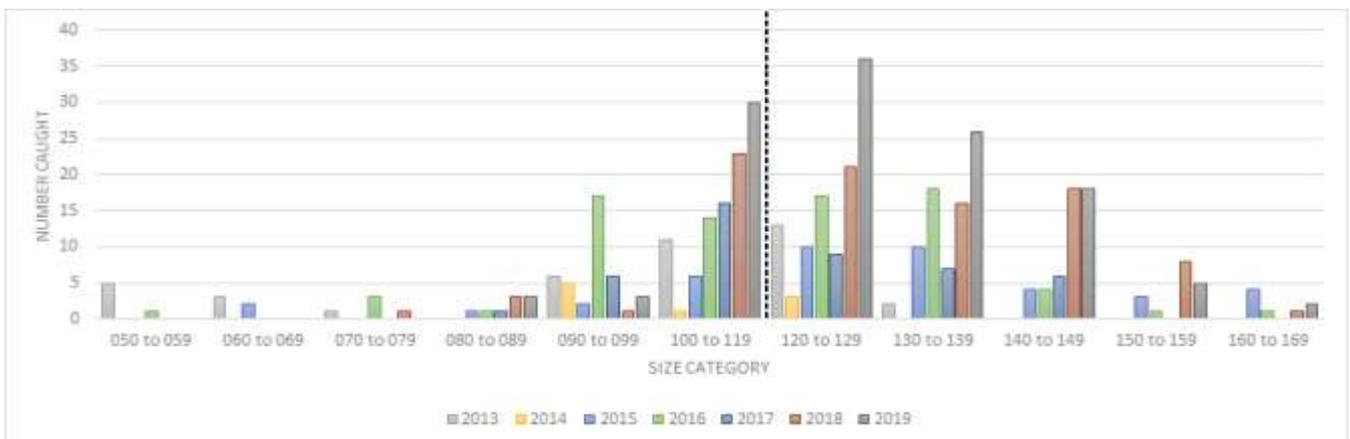


Spider crab annual potting survey results displaying the number of male and female spider crabs caught annually since 2010.

Historically the Jersey spider crab fishery has been variable primarily due to changes in stock abundance and density. For example, during 2013 landings were 81 tonnes but by 2019 this had increased to 310 tonnes. Around 75% of the Jersey catch comes from lobster pots with the remainder being from netting or whelk pots. The Bay of Granville area produces over half of all European spider crab landings with most taken by French vessels operating to the south and west of the island using benthic tangle nets.

The spider crab has a complex life cycle and during the spring and summer will migrate inshore from deeper to shallower waters. The English Channel is at the northern edge of its range and colder winters are thought to markedly affect the population. As winter sea temperatures have been rising for several decades it is possible that milder winters since 2013 have increased the local population.

Spider crab are less economically important than lobster but will occupy the same pots and eat the same bait. Local data suggest that spider crab abundance is not correlated with lobster catches but nonetheless the recent upsurge in the local spider crab population is being monitored for signs of any side-effect(s) 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

SCALLOPS

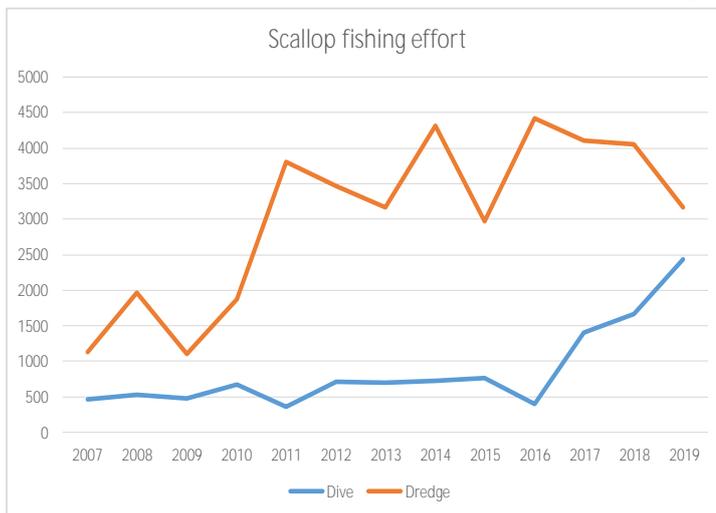
THE SCALLOP FISHING INDUSTRY represents around 8% of Jersey’s annual fishing economy with annual landings (combined for diving and dredging) usually being between 250 and 350 tonnes. In recent years catches from diving have increased substantially with annual totals starting to approach those obtained by the more traditional dredging metier.

Unlike other major shellfish species, Jersey’s scallops are not regularly assessed through annual scientific trials. Since 2015 there have been persistent reports of declining stocks particularly to the west and south-west but while fishing effort certainly increased up to 2016, the impact on stocks has not been verified. Baseline assessments of Jersey scallop stocks were planned for 2018 and 2019 but due to poor autumn weather in both years, the trials (which require hiring commercial vessels) were not completed.

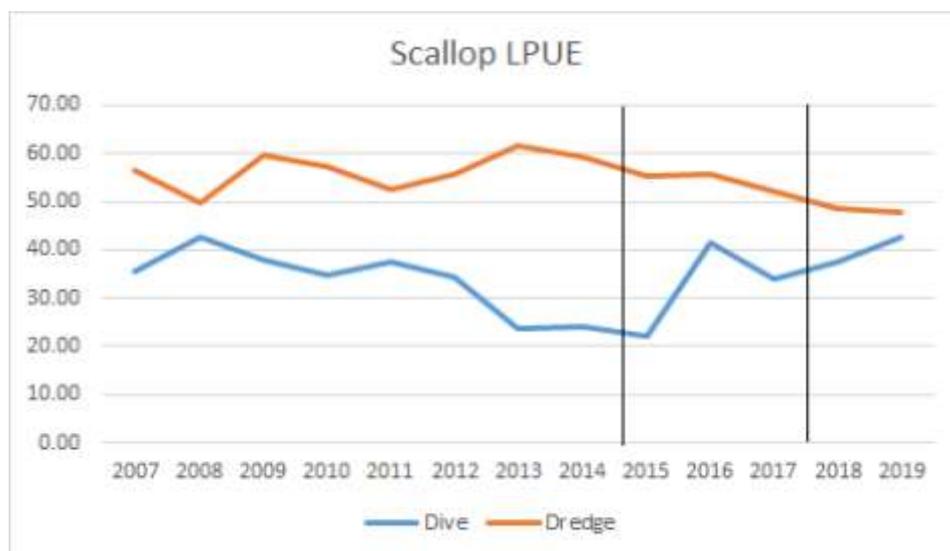
The management of the scallop stocks is complex as it involves a range of stakeholders with differing needs and objectives. This includes quantifying, managing and balancing levels of fishing effort by vessels from Jersey, Normandy and Brittany to ensure that the resource is being fish at sustainable levels. A recent additional factor for consideration is the increased popularity of dived scallops which reflects a general

trend towards sustainably sourced seafood. Jersey data also suggest that while the LPUE for dredged scallops is declining, it is rising for dived ones. This may reflect the divers’ preference for fishing inside the island’s marine protected areas where stocks are thought to be higher.

Finding an appropriate management strategy for Jersey scallops is important for local stocks as well as for economic and environmental reasons. Understanding the state of the stock is important and a full assessment is planned for 2020.



Levels of fishing effort for dives (blue) and dredged (orange) scallops between 2007 and 2019.



LPUE for Jersey commercial scallops vessels via dredging and scuba diving between 2007 and 2019. The effort measurement for dredging is the number of tows and for diving the number dives (tanks) used. Black lines represent introduction of marine protected areas on the South-east coast (2014) and Les Écréhous and Les Minquiers (2017).

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. An increase of 105% in catch advice has been issued for 2019 compared with the advice for 2018. This is mainly due to the above-average recruitment in 2013 and 2014, low fishing mortality and increase in stock size. 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.

In 2019, the recreational daily bag limit was increased from one fish per person per day to two. This was put in place following an EU change to two fish per day. The season was also increased from April 1st to March 1st.

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 2018 the Jersey Fishermen's Association put forward a proposition to allow a limited reintroduction of a targeted net fishery for Bass. This was considered and recommended for approval by the Marine Resources Panel and, following further work, a trial scheme was introduced by the Minister for December 2018. The scheme focused on gathering data relating to the impacts (including bycatch) of net fishing. Due to prolonged poor weather in December the scheme was extended to the end of January 2019 to allow more data to be collected.

Scientific netting has been expanded to the ten active permits who were previously involved in the hook and line scheme, although not all have decided to use this fishing technique. Since the return of netting in 2019, the landed weight has increased to 6.2 tonnes. A total of 2.7 tonnes of bass was landed in 2017 & 2018 combined.

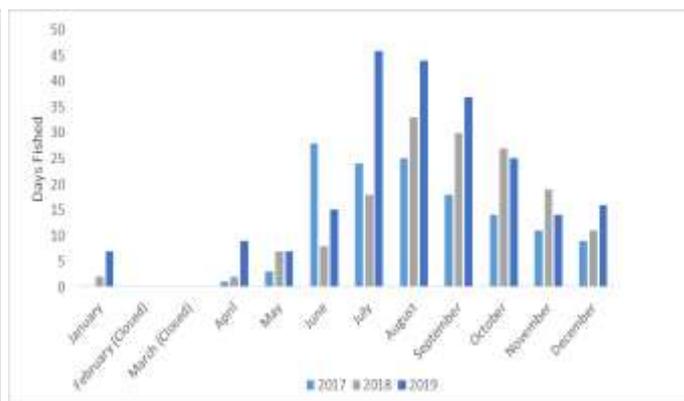
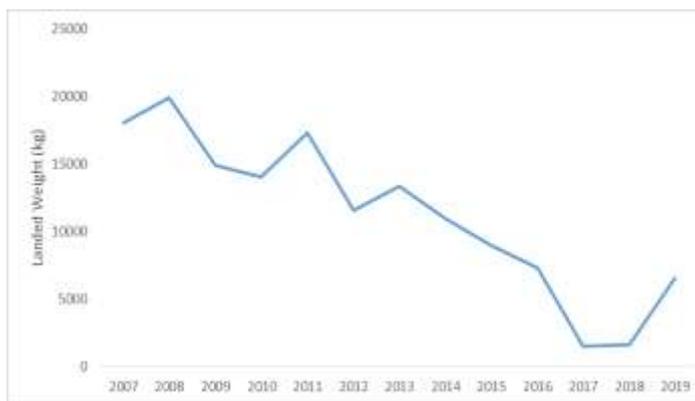
In 2020, Marine Resources will be conducting a separate scientific netting study to better understand catch compositions with varying mesh sizes. This will be undertaken with help from the industry. The study will also look at parameters such as post release mortality, seasonal morphology changes, and the effect of varying netting techniques. By undertaking this study in local waters a better understanding will be made for local marine resource managers as to what is the appropriate mesh size for the Jersey Bass fishery.



FISHERIES MANAGEMENT

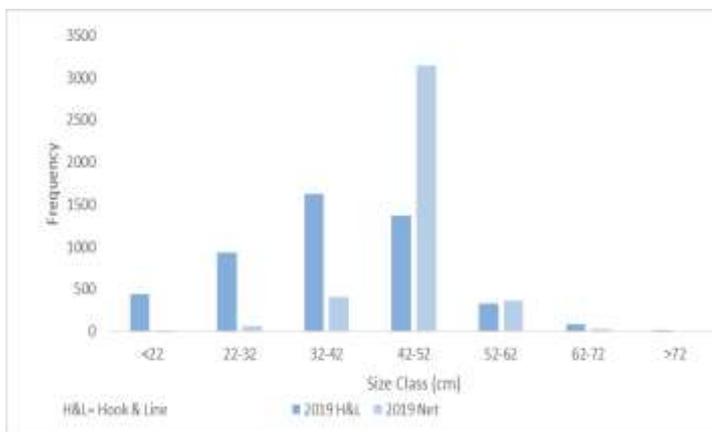
BASS STOCKS

BASS SURVEY. Of the ten boats permitted to fish for Bass in 2019, nine have been active. Between these vessels, 8,835 bass were caught. This is up from 2,911 fish being caught in 2017 and 3,066 in 2018. In 2019, 60% (n= 5,350) of fish caught were >42cm and retained (38% from hook and line). It is noted that the 2017 and 2018 fishery did not include netting with these catches accounting for 46% (n=4,029) of all bass caught in 2019. This year's trial has shown that a minimum mesh size of 100 mm is a selective metier when fishing for Bass. It does not, however, exclude all undersize bass or avoid capture of other species.

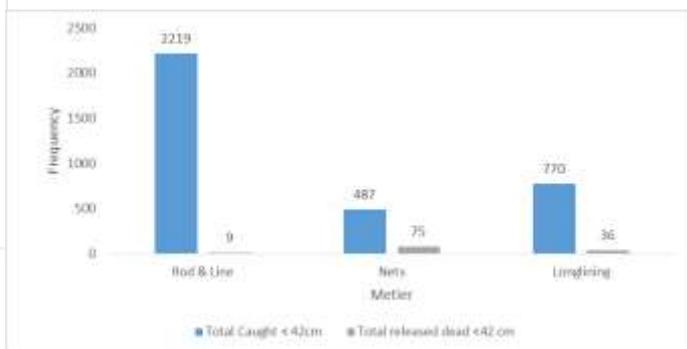


Landed weight (kg) of Bass by Jersey vessels between 2007.

Fishing effort since the reopening of the commercial bass fishery in 2017. Fishing effort has increased by 40% in 2019 with 220 days fished.



Size distribution (in 10 cm length classes) of bass caught by commercially licenced fishers in 2019. The minimum landing size is 42 cm which falls in the 42 to 52 cm size class.



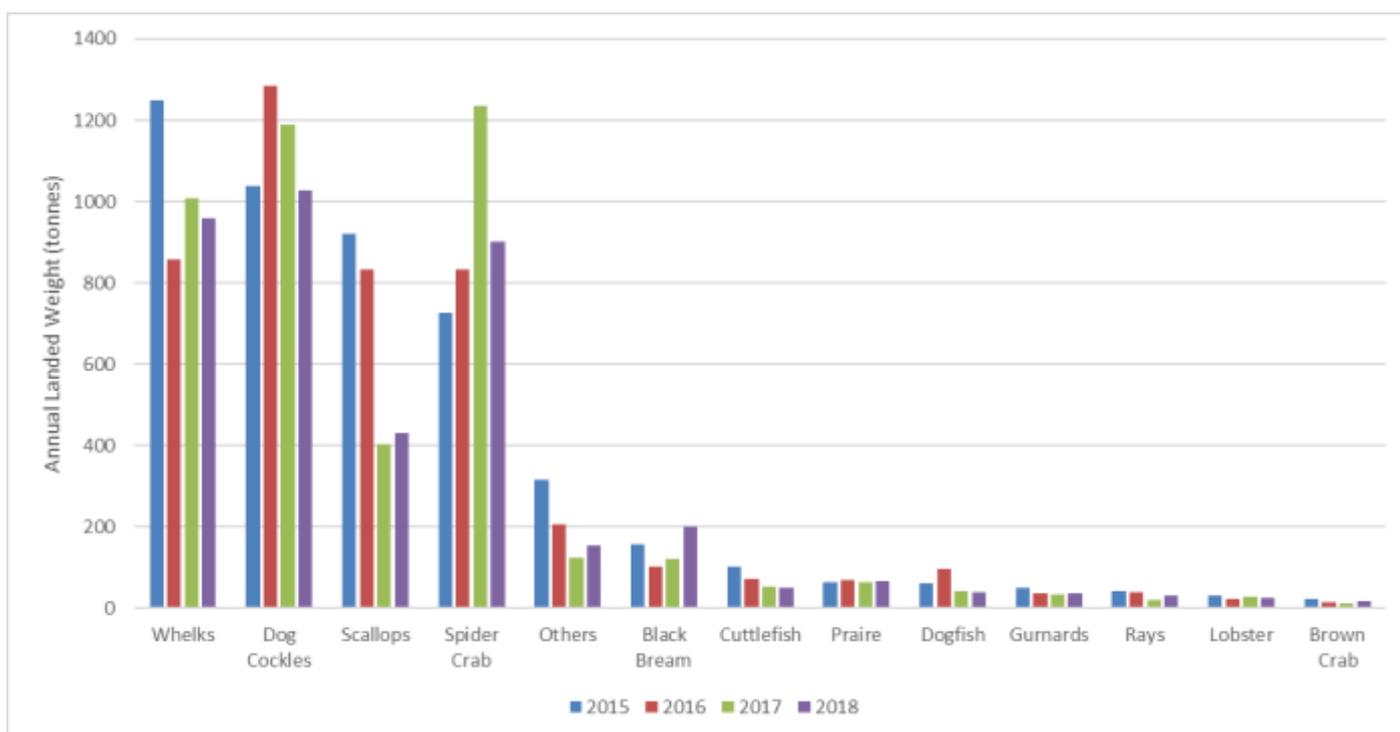
Mortality of caught bass <42 cm using three different fishing techniques.

RESULTS. In 2019, 3,596 undersize bass were caught with 62% being captured from the rod and line fishery. Mortality for caught fish <42cm was reported as 0.4% for rod and line, 5% for longlining and 15% for netting. It is noted that post release mortality of bass is unable to be fully understood without tracking or observing the individual. This will be researched in the 2020 marine resources independent netting study.

FISHERIES MANAGEMENT

BAY OF GRANVILLE LANDINGS

THE BAY OF GRAVILLE AGREEMENT provides shared access to a defined area of Jersey and French waters by a fixed list of local vessels. Fisheries stock management requires accurate knowledge of catch data and fishing effort which, in combination with biological and other parameters, can be used to model the health of a stock against sustainability thresholds. In early 2020 the French marine science organisation Ifremer used landing and other data to estimate catches made by French vessels in Jersey waters between 2015 and 2018. These figures, while estimated, provide a useful insight into levels of fishing within Jersey waters. A summary of catches for key species is given below: a redacted version of the report can be downloaded from: <https://archimer.ifremer.fr/doc/00620/73208/72401.pdf>



Estimated annual landed weight (tonnes) of species caught by Normandy and Brittany vessels in Jersey waters between 2015 and 2018. In the absence of specific zonal data, these figures were estimated by Ifremer using information held in several national datasets. NOTE: for non-VMS vessels the algorithm allocates catches on a probability that if they fished in a statistical zone that includes the island, then they will have fished inside Jersey's waters. Therefore, These figures only offer a guide to landing levels.

VMS	Group	2015	2016	2017	2018
Spider Crab	Crustacean	467	500	889	613
Brown Crab	Crustacean	5	4	3	3
Lobster	Crustacean	9	8	9	7
Dog Cockles	Mollusc	1025	1276	1186	1022
Scallops	Mollusc	783	685	294	346
Whelks	Mollusc	219	83	113	178
Praire	Mollusc	62	63	62	62
Cuttlefish	Mollusc	24	25	9	8
Others	Other	162	136	73	60
Black Bream	Wetfish	155	101	120	199
Gurnards	Wetfish	48	33	31	34
Dogfish	Wetfish	45	84	29	26
Rays	Wetfish	32	31	15	24

Non-VMS	Group	2015	2016	2017	2018
Dog Cockles	Mollusc	12	9	3	5
Scallops	Mollusc	138	148	110	84
Spider Crab	Crustacean	259	332	346	289
Whelks	Mollusc	1030	776	894	781
Black Bream	Wetfish	1	1	2	1
Praire	Mollusc	1	5	3	4
Gurnards	Wetfish	3	2	2	2
Dogfish	Wetfish	16	13	12	13
Rays	Wetfish	9	7	6	7
Brown Crab	Crustacean	17	10	10	13
Lobster	Crustacean	23	15	18	19
Cuttlefish	Mollusc	79	48	43	41
Others	Other	153	71	51	93

Estimated annual landed weight (tonnes) of key species caught by Normandy and Brittany vessels. **Left table:** Landings for VMS enabled vessels. **Right Table:** Landings for non-VMS enabled vessels.

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 audits are held 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 audit for 2019 lodged concern over the continued decrease in both lobster landings and the MSC's abundance index (i.e. LPUE) which, for the Jersey data, went below the 'alert threshold' of 1.0 for the first time since certification started (see graph below). A SPiCT (surplus production) model run on the combine dataset suggested that annual catches had been above the maximum sustainable yield (MSY) between 2010 and 2017 but were below this threshold in 2018 and 2019.

The MSC action plan emphasised the importance of obtaining a monitoring methodology that could obtain an accurate estimate of biomass and MSY. It was agreed that Jersey and Ifremer should work on this and on getting the result from such a methodology per reviewed. The work of the joint Crustacean Working Group and the temporary Jersey Lobster Management Working Group was welcomed by the MSC auditors. Additional information on spider crab and bycatch was requested.

The MSC's ecolabel has yet to gain wide usage within either Jersey or Normandy and, given that it has potential marketing and other benefits, this is something that could be looked at further.

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

Evolution IAS = Indice d'abondance 2019
(année Ref 2007)



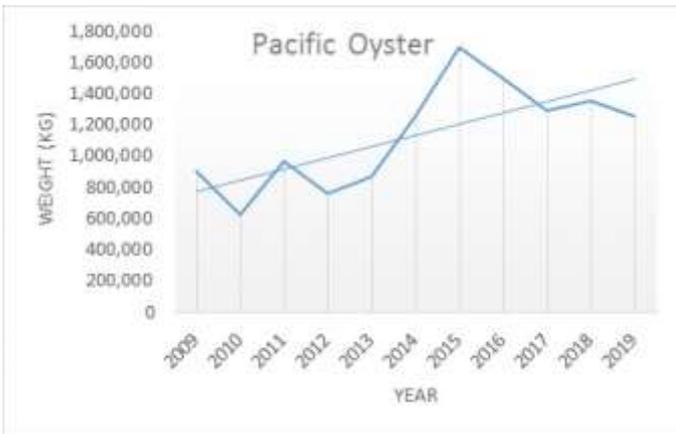
Right: The MSC's lobster abundance index. The alert threshold is 1.0 which Jersey went below in 2018 and 2019.

FISHERIES MANAGEMENT

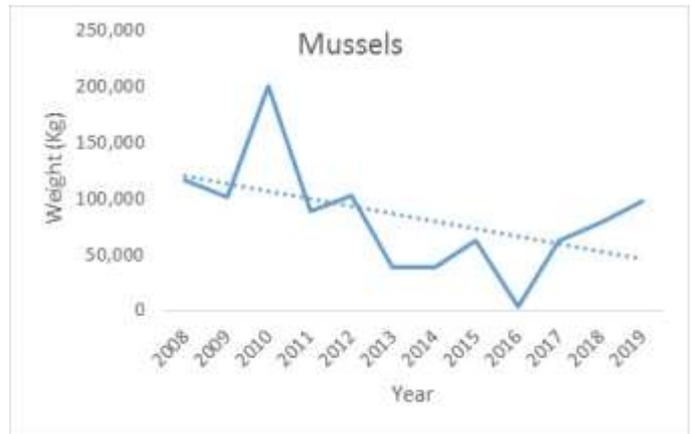
AQUACULTURE PRODUCTION

JERSEY'S AQUACULTURE INDUSTRY. Production remains focused on the Pacific oyster (*Crassostrea gigas*) and mussels although flat oysters are also grown. King scallops are farmed subtidally at one site. Production has remained steady over recent years as has the area of seashore occupied by aquaculture concessions. The island's main aquaculture area is in Grouville Bay (224 hectares) and is covered by a single planning consent held by the Government of Jersey. During 2019 the industry welcomed a new entrant in Grouville Bay on a two hectare site and minor changes added just over a hectare to existing concessions.

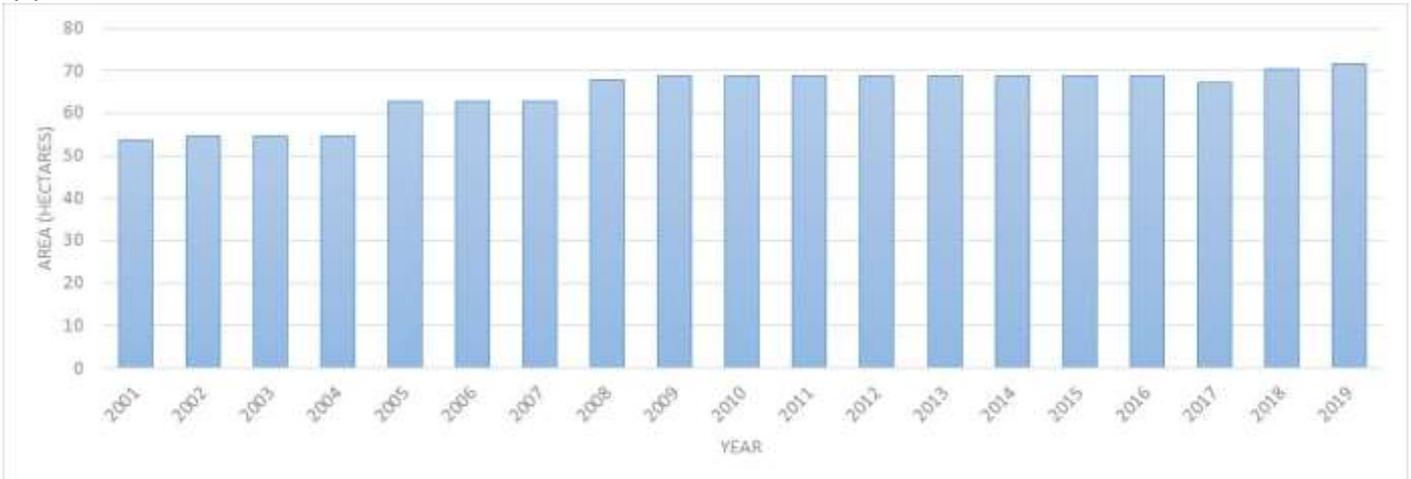
(A)



(B)



(C)



(A) Production weight (Kgs) of farmed Pacific Oyster. (B) Landed weight (Kgs) of farmed mussels. (C) Intertidal aquaculture areas (hectares).



Oyster beds in Grouville Bay

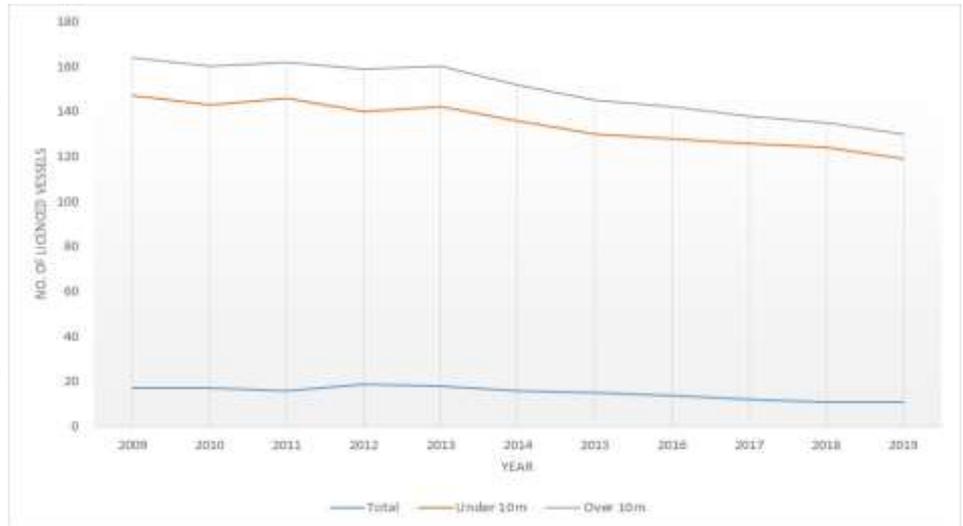
LICENCING



LICENCING

JERSEY 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.



Above: The number of licenced Jersey vessels (by length) between 2009 and 2019.

2019 SUMMARY

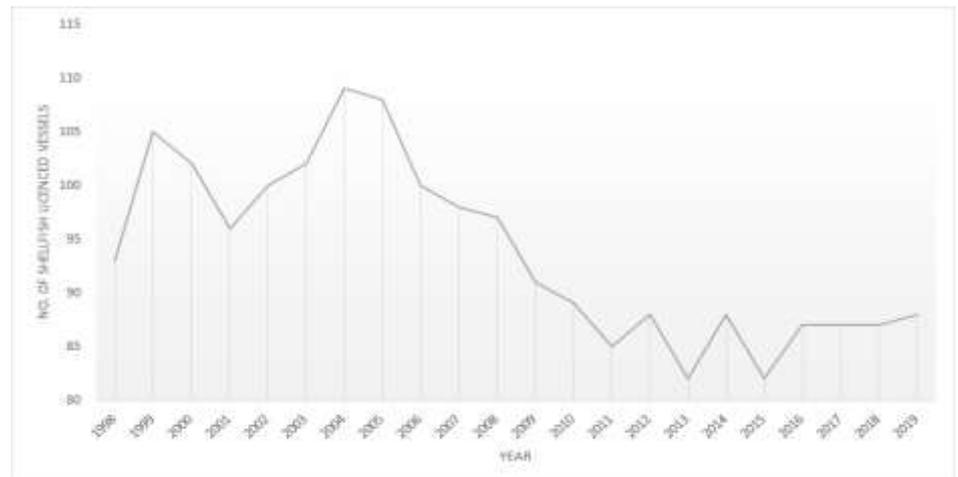
During 2019 18 licences opened and 23 closed.

There was a loss of five licenced fishing vessels (all under 10 metres) taking the total for 2019 to 130.

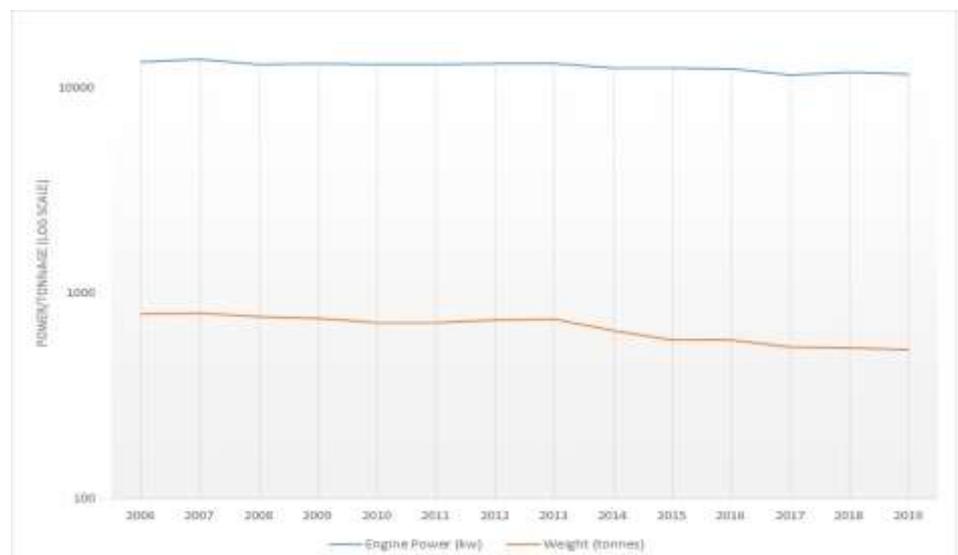
There are 11 over 10 metre vessels and 119 under 10m vessels.

The number of shellfish entitled vessels is 88.

The total engine capacity is 11,678 kw and the tonnage 534.



Above: The annual number of shellfish entitled vessels between 1998 and 2019.



Right: The total engine power and tonnage of the Jersey fleet between 2006 and 2019.

LICENCING

BAY OF GRANVILLE ACCESS PERMITS

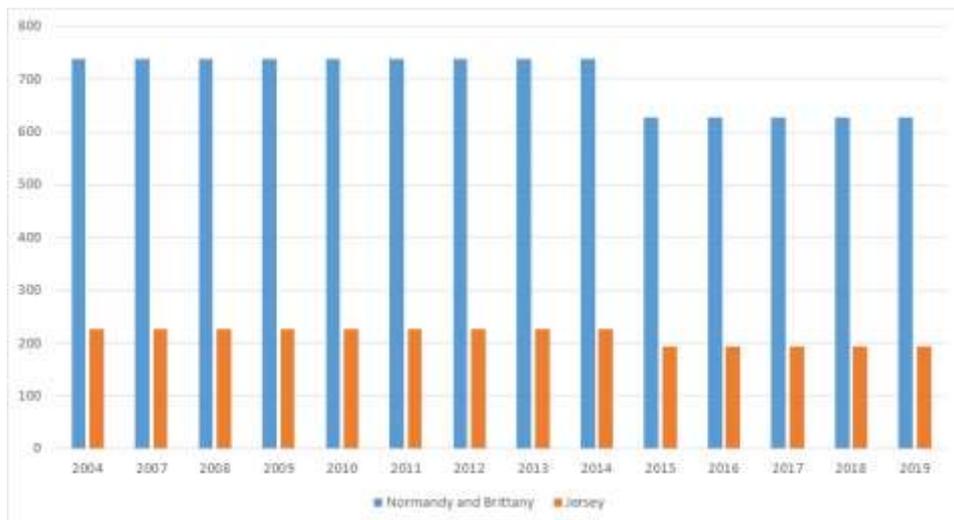
The Bay of Granville Agreement (in force since 2004) makes provision for Jersey and French vessels to access defined areas of each other's waters via a permit scheme. In order to fish in waters managed by the Bay of Granville Agreement, a vessel must hold a valid access permit issued by its fishing authority.

2019 SUMMARY

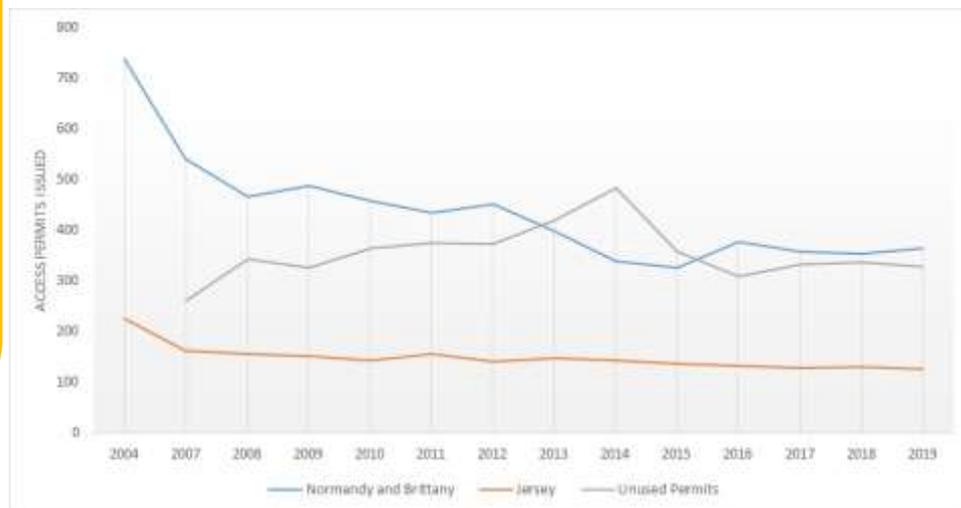
During 2019 a total of 820 access permits were available for Bay of Granville waters. Of these 627 were available to Normandy and Brittany vessels and 193 to Jersey vessels.

The number of permits issued in 2019 was 364 to Normandy and Brittany and 127 to Jersey vessels. This leaves 329 spare access permits (263 for French vessels and 66 for Jersey vessels).

From 2020 the maximum number of available permits will be reduced by a third to 540; 410 for French vessels and 126 for Jersey vessels.



The total number of available access permits under the Bay of Granville Agreement between 2004 and 2019.



The number of Bay of Granville Access Permits issued to French and Jersey vessels between 2004 and 2019. Also shown are the total number of unused (spare) permits for each year.

For several years Jersey has argued that the large number of unused (spare) Bay of Granville access permits represents a store of latent fishing effort which poses a potential risk to local stocks. During 2019 it was agreed to reduce the maximum number of available permits by a third from 820 to 540 with Normandy and Brittany having a maximum of 410 permits and Jersey 126 permits. This comes into force at the start of 2020 and is not reflected in the above figures.

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 matter 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 with representatives from key sectors of marine regulation and management. The panel will sometimes request further information about an application which may include physical or chemical testing, materials lists or the submission of pollution plans, etc.

If no serious objections are raised to the application then the licence is drafted and presented to the Minister for the Environment to sign. Most licences will come with a list of standard conditions plus and additional conditions requested by the panel. Licences are subject to a fee.

Marine Resources issue around five to ten licences a year, mostly in connection with seaweed and sandbank removal. New licences are usually valid for a year but scope exists for them to be renewed for up to two years. 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 2019:

LICENCE NO.	APPLICANT	PROJECT	DATE OF ISSUE	DATE OF EXPIRY
2019/01	Ports of Jersey	Sand bar removal	22/1/2019	22/01/2021
2019/02	Dfl	Deposit of brown seaweed	03/03/2019	03/05/2021
2019/03	Dfl	Deposit of green seaweed	03/03/2019	03/05/2021
2019/04	Pitcher and Le Quesne	Burial at sea	07/10/2019	28/10/2019
2019/06	Jersey Oyster	Return of tractor washings	18/10/2019	17/10/2021

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.

The number of applications risen in recent years 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. 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 should 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 annually including for a regular trawl survey by CEFAS and a French algal survey at Les Écréhous. Other exemptions have been issued to permit the study of individual species (for example, crawfish) or to facilitate studies of the wider marine environment.

Aquaculture Concessions

The Minister of the Environment may issue aquaculture licences which gives the holder the right to exploit specific species within a set beach or sea area. If equipment is required then the licences are also subject to Planning approval and so may require an environmental impact assessment. A recent reorganisation of intertidal aquaculture saw the creation of a defined aquaculture area in the south of Grouville Bay to which the Government of Jersey holds exclusive planning permission. This removes potential hurdle for new applicants and facilitates the management of existing concession areas.

During 2019 one new aquaculture licence was granted in Grouville Bay and the boundaries were moved for two existing concession areas. These applications were considered by the Marine Resources panel and were subject to public consultation before being granted. On Jersey the area of seashore/seabed that is suitable for aquaculture is limited and anyone interested in applying for an aquaculture concession should first speak with Marine Resources.

ENVIRONMENTAL MANAGEMENT

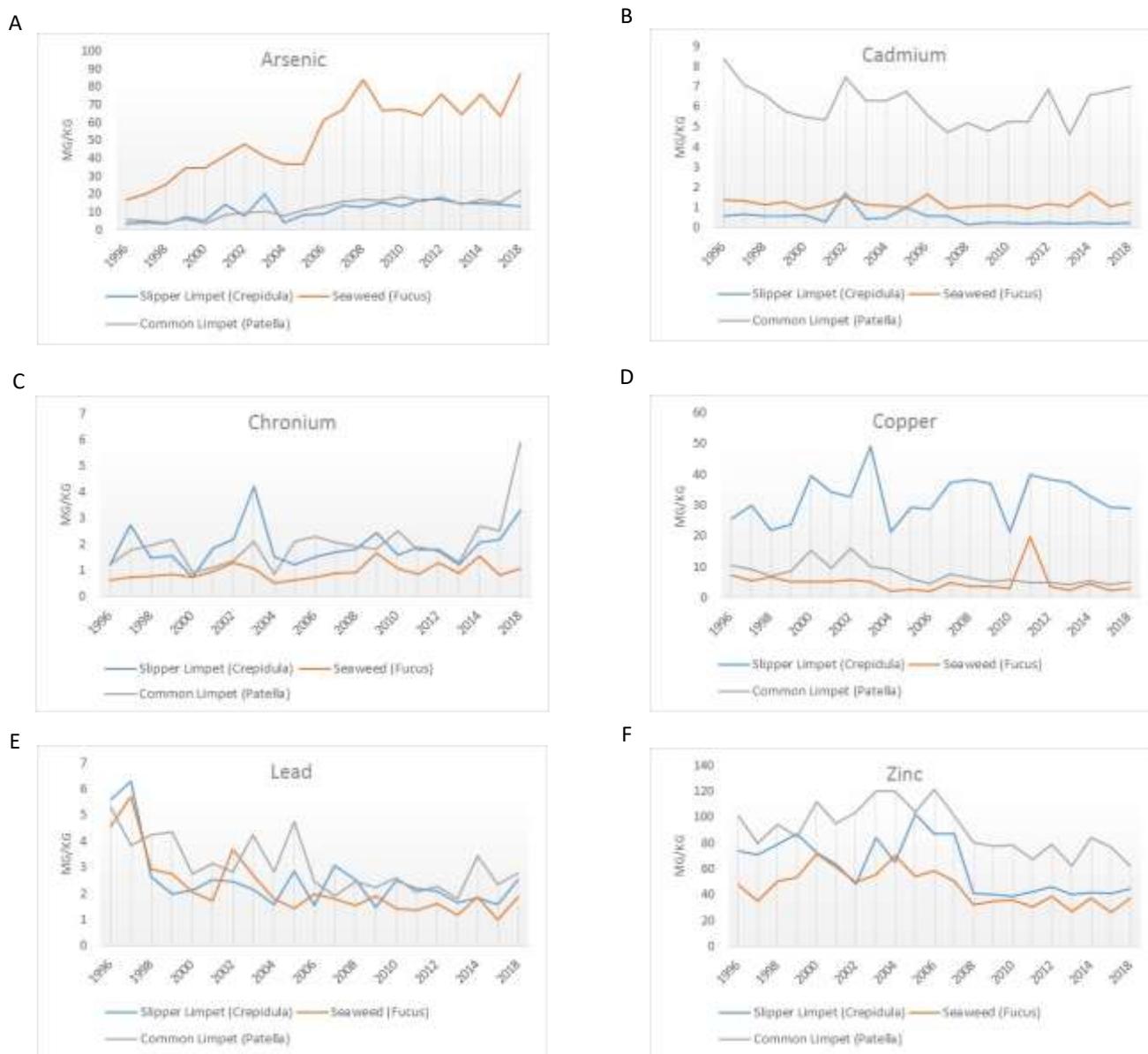


ENVIRONMENTAL MANAGEMENT

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. For this reason we are still awaiting results from the samples taken in 2019.



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, the overall analysis suggests 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 for 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. Data for 2019 remains unavailable as analysis is still underway. For results dating back further please contact Growth, Housing and Environment.

Paralytic Shellfish Poisoning

YEAR	SHELLFISH	SEAWATER
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
2019		

Diarrhetic Shellfish Poisoning

YEAR	SHELLFISH	SEAWATER
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
2019		

Amnesic Shellfish Poisoning

YEAR	SHELLFISH	SEAWATER
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
2019		

ENVIRONMENTAL 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	<i>C. gigas</i>	B
	27	<i>M. edulis</i>	B
Main Bed South, Grouville	1 and 21	<i>C. gigas</i>	B
Main Bed North, Grouville	24 and 28	<i>C. gigas</i>	B
		<i>M. edulis</i>	B
La Hocq	8 and 25	<i>C. gigas</i>	B
Green Island	12	<i>O. edulis</i>	B

Classifications of Bivalve Mollusc Production Areas in Jersey. Effective 1 April 2019 to 31 March 2020.

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.

OTHER ENVIRONMENTAL MONITORING

In addition to the work by Marine Resources some marine monitoring is undertaken by other Government of Jersey teams or non-government organisations, This includes:

Sea Water Monitoring (Bathing Water Quality)

www.gov.je/Environment/ProtectingEnvironment/SeaCoast/Pages/SeawaterMonitoring.aspx

Radioactivity Monitoring

www.food.gov.uk/research/radioactivity-in-food-and-the-environment

Sea Lettuce Monitoring (St Aubin's Bay)

www.gov.je/Environment/ProtectingEnvironment/SeaCoast/Pages/SeaLettuce.aspx

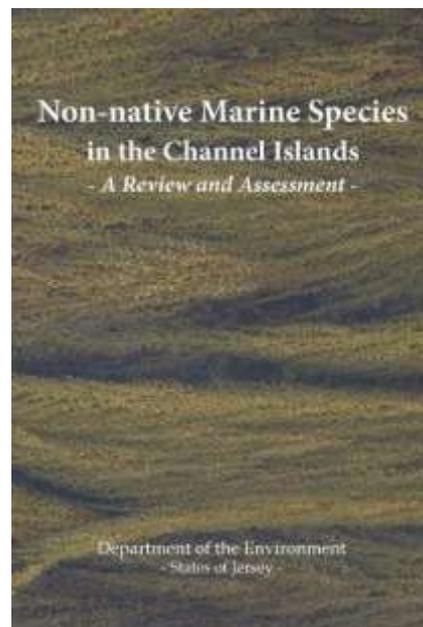
ENVIRONMENTAL MANAGEMENT

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-native 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 Channel Island waters. A total of 43 non-native species had 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 had been 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*).



The monitoring of non-native marine species continued in 2019 via general seashore monitoring and targeted surveying of the marinas in St Helier. This resulted in the discovery of the invasive Purple Acorn Barnacle (*Amphibalanus amphitrite*) in La Collette marina. This was attached to one of the pontoons and had probably been resident in the harbour for some years.

In August a member of the Societe Jersiaise discovered a sea squirt in Elizabeth Marina that had many of the characteristics of the Carpet Sea Squirt (*Didemnum vexillum*). The Carpet Sea Squirt presents a significant threat to the local marine environment but with help from Marine Scotland we were able to determine that the specimens in the marina were a native species. However, the Carpet Sea Squirt is expected to arrive in the region within the next few years and Jersey is working with agencies in the UK (including via the British-Irish Council) in assessing the impact and response to this species.

The results from two student projects on non-native species were received in 2019. The first, from Charlotte Hooper, reported the results of a study of the Asian Crab (*Hemigrapsus sanguineus*) on Jersey. This suggests that the crab was only recently established and that in future the island should expect the population to increase with a resulting negative impact including a reduced abundance of the Shore Crab (*Carcinus maenas*).

The second project, by Max Jouault, looked at the ecology of Slipper Limpet beds from the south and east coasts. This found reduced species diversity and abundance in Slipper Limpet areas in comparison with neighbouring habitats such as maerl and sandmason worm beds. This effect was particularly noticeable on molluscs and larger crustacean species with the conclusion being that any expansion of Slipper Limpet beds will present a future ecological and economic risk to the island.

For more information and a species list see the following report which available on the GoJ website:

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

www.gov.je/Government/Pages/StatesReports.aspx?ReportID=3366

ENVIRONMENTAL MANAGEMENT

MPAs and OSPAR

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 km² 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.

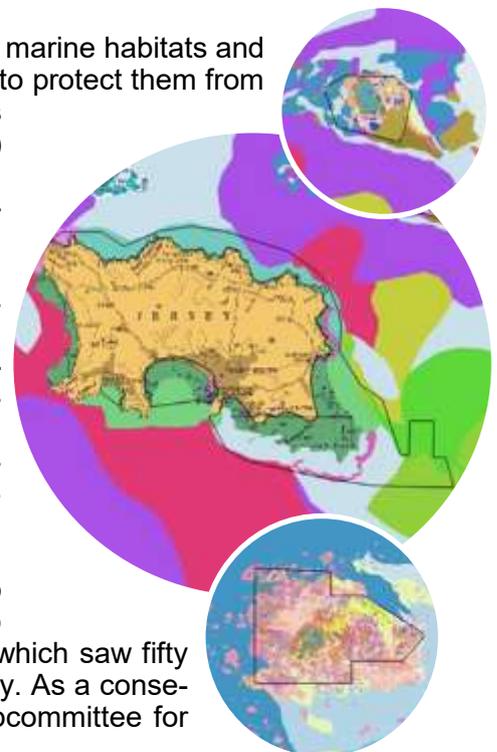
OSPAR: The mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic.

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 km² 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.

In 2019 DEFRA approved Jersey's application to extend Annex V to the island and also registered its MPAs with OSPAR. The island also hosted the OSPAR Biodiversity Committee Meeting in March 2019 which saw fifty international delegates converge on the island to discuss future policy. As a consequence Jersey is now part of the OSPAR Marine Environment Subcommittee for the British Isles.



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



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 2019 Jersey's Ramsar Management Authority (RMA) met regularly to continue working towards the objectives set out within the Ramsar management plans.

During 2019 the RMA's achievements included:

- Delivery of Ramsar site content at World Wetlands Day event organised by Marine Conservation Jersey
- Supported the development of the CI Ramsar code of conduct for publication in 2020.
- Developed new signage for the Ramsar Sites based on updated code of conduct for deployment in 2020.
- Consulted on various use and pollution issues that had the potential to impact Ramsar sites.
- Review and update of Ramsar site management plans progressed.
- Draft Wildlife Law reviewed and comments submitted.
- Contribution made to Island Plan in respect of Ramsar Sites.
- Sign erected at Les Écréhous to ensure appropriate behaviour is followed near the flagpole in nesting season.



Wildlife Safe (WiSe) Logo



There are eight Ramsar sites within the Channel Islands four of which are in Jersey waters.

ENVIRONMENTAL MANAGEMENT

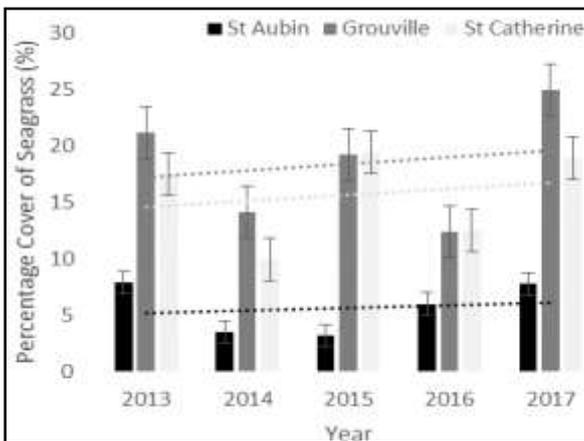
KEY HABITATS (OSPAR)

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).

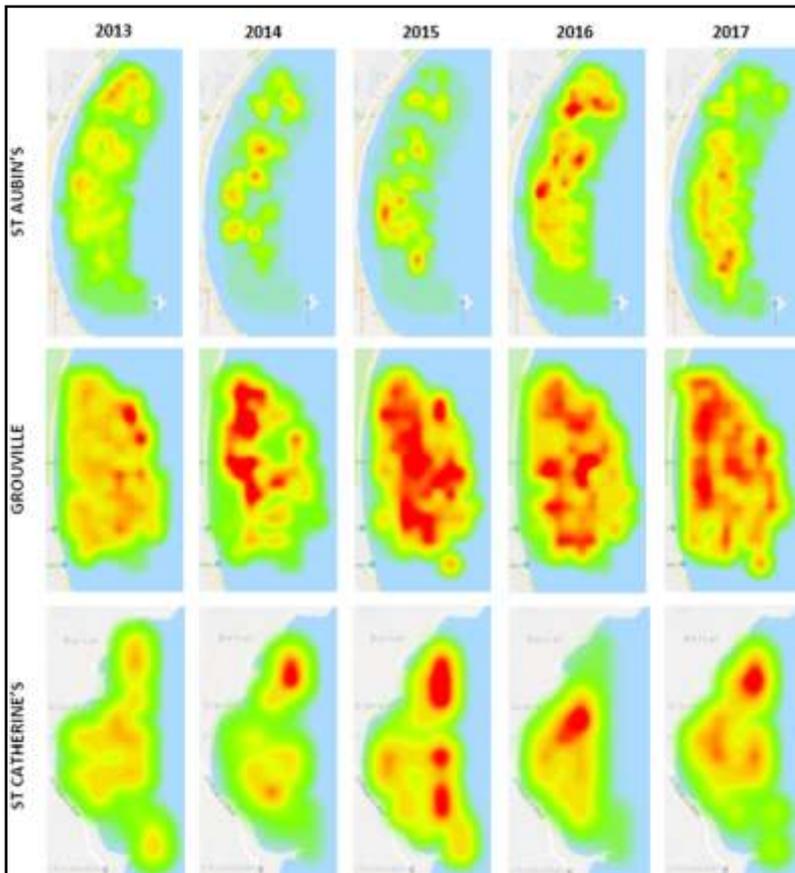
SEAGRASS

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.



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.

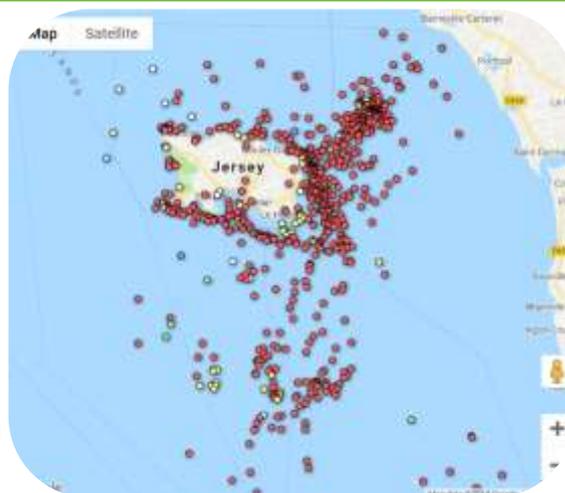
ENVIRONMENTAL MANAGEMENT

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.

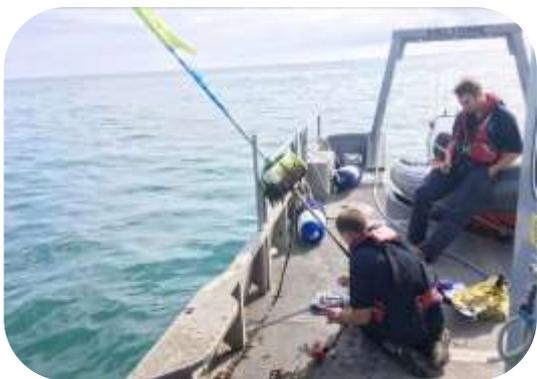
DOLPHIN SIGHTINGS

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 1,500 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 the SD card from 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, in 2019 there were four C-PODs deployed around Jersey's 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 2019 the CPODs had collectively recorded over 2,700 dolphin and porpoise encounters totalling more than 24,000 minutes. This massive dataset is scheduled to be analysed in 2020 by an MSc student and this, with other marine mammal findings, will be written up into a report in 2021.

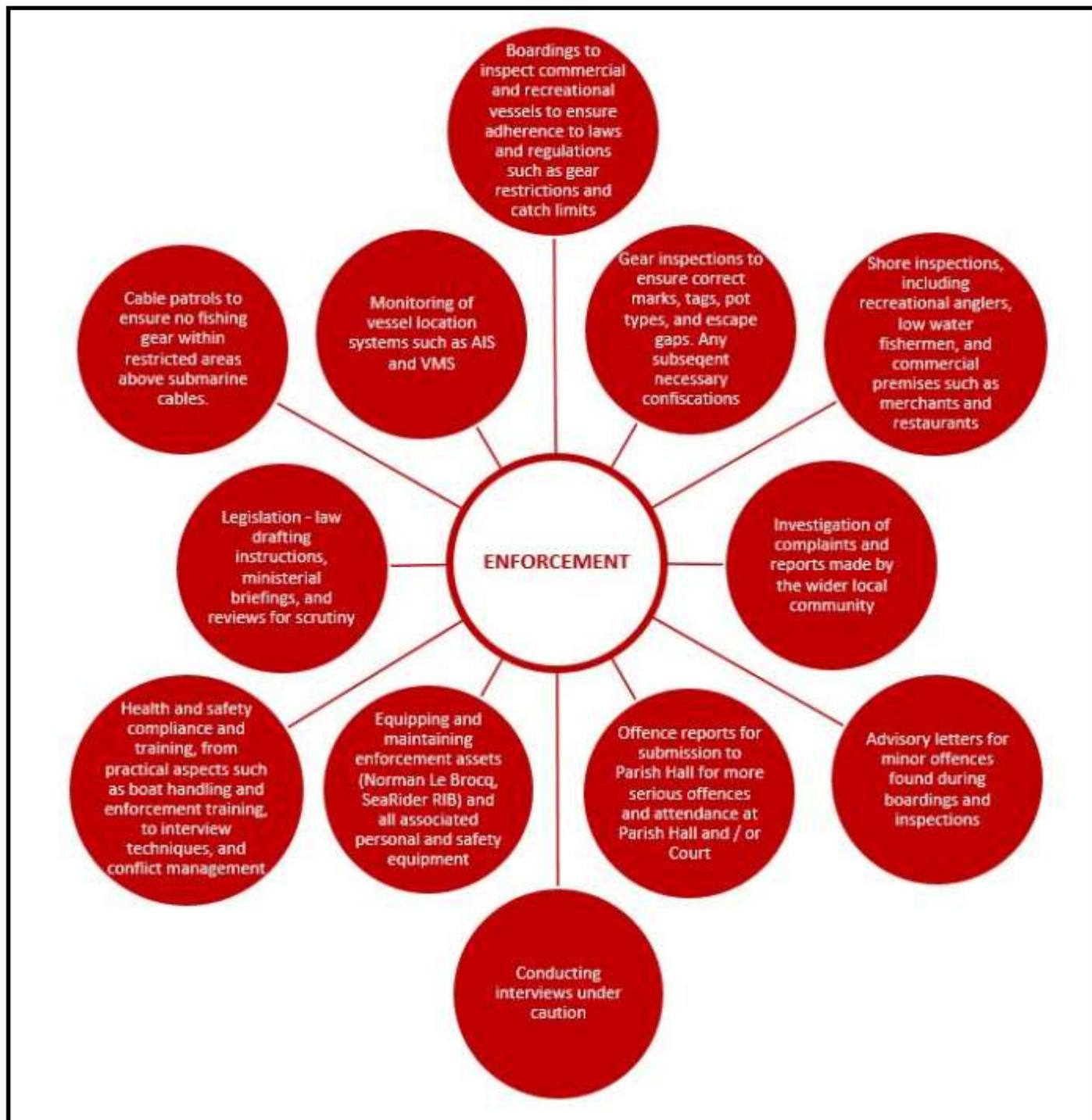
STRANDINGS

Species	Number
Bottle-nose Dolphin	2
Common Dolphin	4
Porpoise	1
Unidentified Dolphin	0
Grey Seal	4

Species and number of marine mammal strandings in Jersey in 2019.

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 2019 there were 11 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).

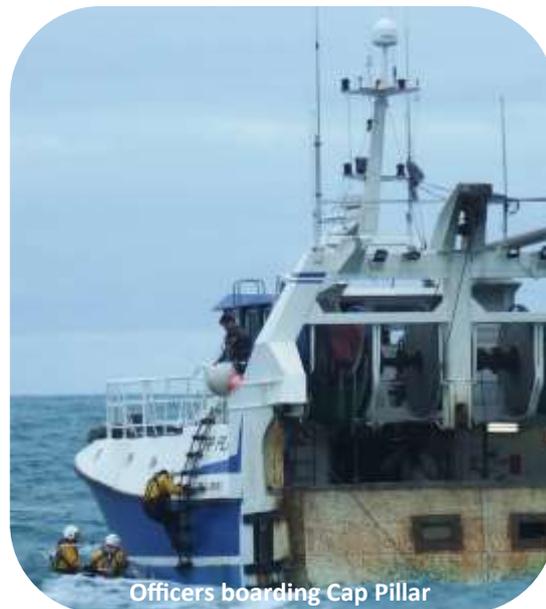
ENFORCEMENT



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’.)

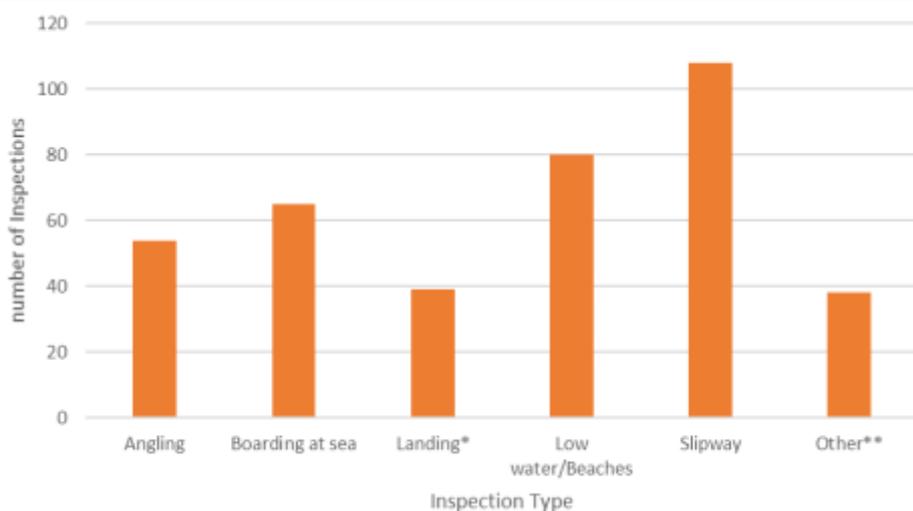
In 2017 inspection recording moved from a paper-based system to the use of smartphone apps. This increased the accuracy of inspection records (especially location data, which is taken using GPS) and removed the need to type in paper records. A review of all historical inspection records was undertaken 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 2019 a total of **384** inspection checks were conducted by Marine Resources officers. This is below average and reflects the NLB being tied up for repairs in 2019 and bad weather from august until the end of the year.

Of these inspections, **over 80%** were shore based, including angling inspections and low-water checks on the beach. **65** boardings at sea were conducted (excluding gear checks). A majority of our checks were conducted during work hours but nearly one third (**30%**) 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 outlying harbours such as those along the north coast.*

*** ‘Other’ includes activities such as gear inspections and premises checks.*

OFFENCES. 2019 saw a total of 52 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 2020.

ENFORCEMENT

FPV *NORMAN LE BROCCQ*

THE BOAT. The *Norman Le Broccq*, 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.

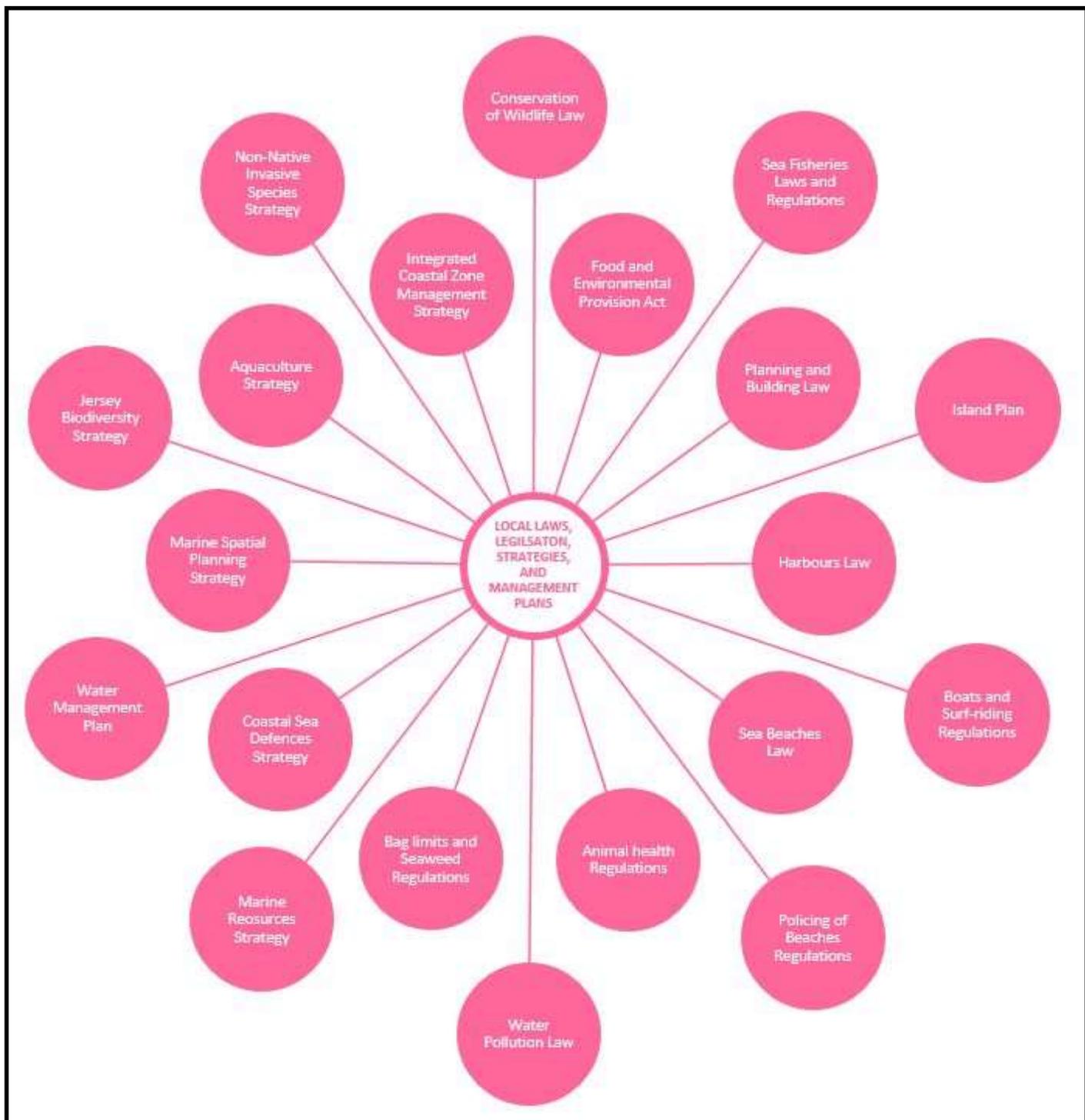
During 2019 the FPV *Norman Le Broccq* clocked up 373 hours at sea across 80 days and a total of 3,013 nautical miles . This figure excludes a period of several weeks when the vessel was out of action for repairs. During this time the team were kindly assisted by Ports of Jersey. Duties at sea included:

TASK*	COUNT	NOTES
Patrol	40	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	36	The large number of research trips was a combination of Departmental annual re-search projects in addition to assisting a PhD study.
Delivery	10	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	14	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

Aquatic Resources Law

On 17 September 2019 the Aquatic Resources Law (2014) was brought into effect via an appointed day act. The Aquatic Resources Law was been established several years ago but needed additional research and consultation in order to inform regulations under the law. This work was started in 2017 and resulted in a report entitled *Seaweed Aquaculture and Wild Harvesting* (available to download from the GoJ website). The report concluded that seaweed aquaculture in the marine environment (as opposed to tank based culture) would be problematic on Jersey's coast and that for wild harvesting to be sustainable would require the introduction of both recreational and commercial bag limits. Public consultation following the report's release backed the report's conclusions.

The new law means that anyone may harvest wild seaweed up to the bag limits specified. These limits are based on wet weight and range from zero for seaweed species which are rare or cannot recover quickly up to 10 kg for quick growing common seaweed species. Advice on cropping and good stewardship are also given and those requiring more details should download the report.

Anyone wishing to collect large quantities of seaweed for commercial purposes must first apply for a licence from the Minister for the Environment. The application should include a harvesting plan and, depending on the species and weights required, conditions to safeguard the environment may be applied to the licence. This is to ensure that all commercial activity is sustainable and sympathetic to the local marine environment. For these reasons (and to encourage that the processing of seaweed on island) the mechanical harvesting of seaweed is prohibited. Daily limits for commercial species range from 0 to 50 kg based on the same principles as above.

NOTE: The law applies only to the cutting and harvesting of live seaweed. Loose seaweed and storm cast seaweed (vraic à venu) of the sort that washes up at the top of beaches are excluded from the law and can be removed as required for use on fields, etc.

Brown Crab Minimum Size Limits

An updated was made to the Minimum Size Limit regulations on 28 May 2019 to increase the minimum landing size (MLS) for the brown crab (chancre) to 150 mm when measured across the back of the carapace. This 10 mm increase from the previous MLS of 140 mm was requested by the commercial fishing fleet in response to a steep decline in local landings. It is hoped that the size increase will improve the quality of crab being landed to market while also enhancing the breeding potential of the species. This should give the population a chance to stabilise and for dwindling catches to improve again.

At the same time a new commercial licence condition was introduced to prevent the landing of soft shelled or newly shelled crab. Soft shelled brown crab has little economic value as it is not much good for human consumption but it is often retained for use as whelk pot bait. The fleet do not see this as the best economic use for an otherwise valuable resource that is in decline. A ban on the landing of soft crabs will ensure that these individuals will remain in the population to either breed or perhaps be caught at a later stage when their meat has more value. This should help to stabilise the fishery and ensure only crabs which can generate a higher value are landed.

It will be a while before any effect can be measured but anecdotally fishermen have reported an increase in the price paid for brown crab since the MLS was increased. This has helped maintain income at a time when catches are smaller and more selective.

LEGISLATION

LAWS AND REGULATIONS

Pot Tag Extension

By law all commercial crab and lobster pots used by Jersey vessels are required to be marked with a valid tag as part of fishery control measures. The tags are issued centrally and display the name and J number of the vessel, the validation period and a tag number. Each vessels has a maximum number of tags the can use based on length.

Pot tags are normally renewed every two years with the renewal date being due in the summer of 2019. However, in the winter of 2019 the Marine Resources Panel requested the formation of a lobster working group with representatives from industry and government. The group was tasked with examining fisheries management options for the improvement of lobster stocks and market price. The group proposed a number of changes which included a reduction in the overall number of pots in the fishery. This would be achieved by reducing the allocation per boat. On the basis that this will occur in 2020 or 20201, it was thought that renewing pot tags in August 2019 would hinder this process. It was therefore agreed to extend, by ministerial decision, the validity of the 2017 to 2019 tags by one year to August 2020. A ministerial order was drawn up and signed by Deputy John Young, Minister for the Environment.

Spider Crab

The Bay of Granville Agreement oversees a seasonal management measure which prohibits the targeting of new shelled spider crab during the autumn months. Each year the Joint Advisory Committee must decide on the start and end dates for this closed season. Should they be unable to agree on these dates then the default closure is from the 1 September to 15 October.

For 2019 the closed season was set to the default dates of 1 September to 15 October and the Spider Crab (2019) Order reflecting this was passed by the States of Jersey on the 6 August 2019.

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.

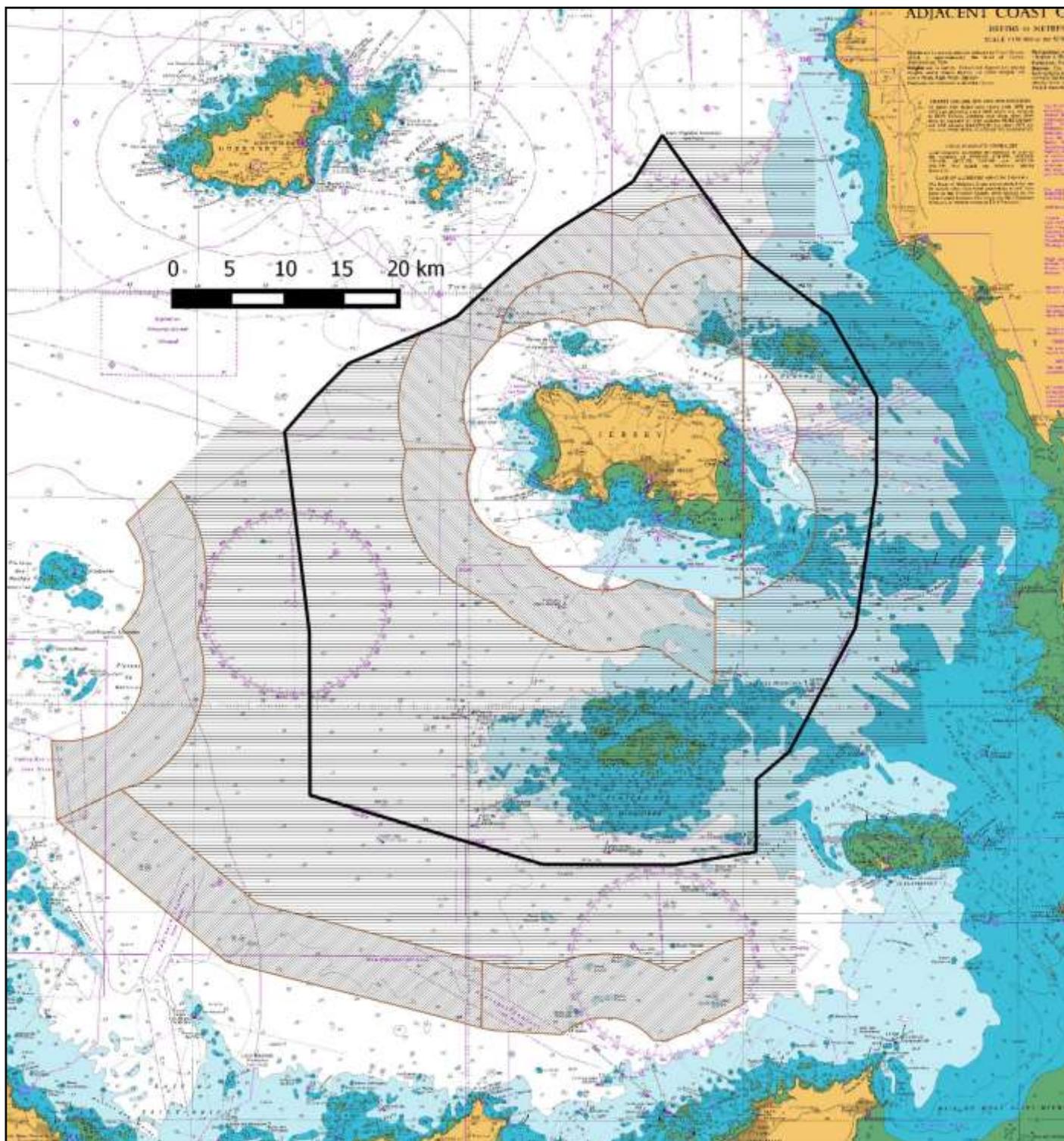
In terms of managerial responsibility, the JMC is superior to the JAC and is the principal decision-making and administrative body within the Agreement framework. The JMC membership is drawn from civil servants and government scientists from France and Jersey. The JMC meets twice a year usually following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

Government of Jersey

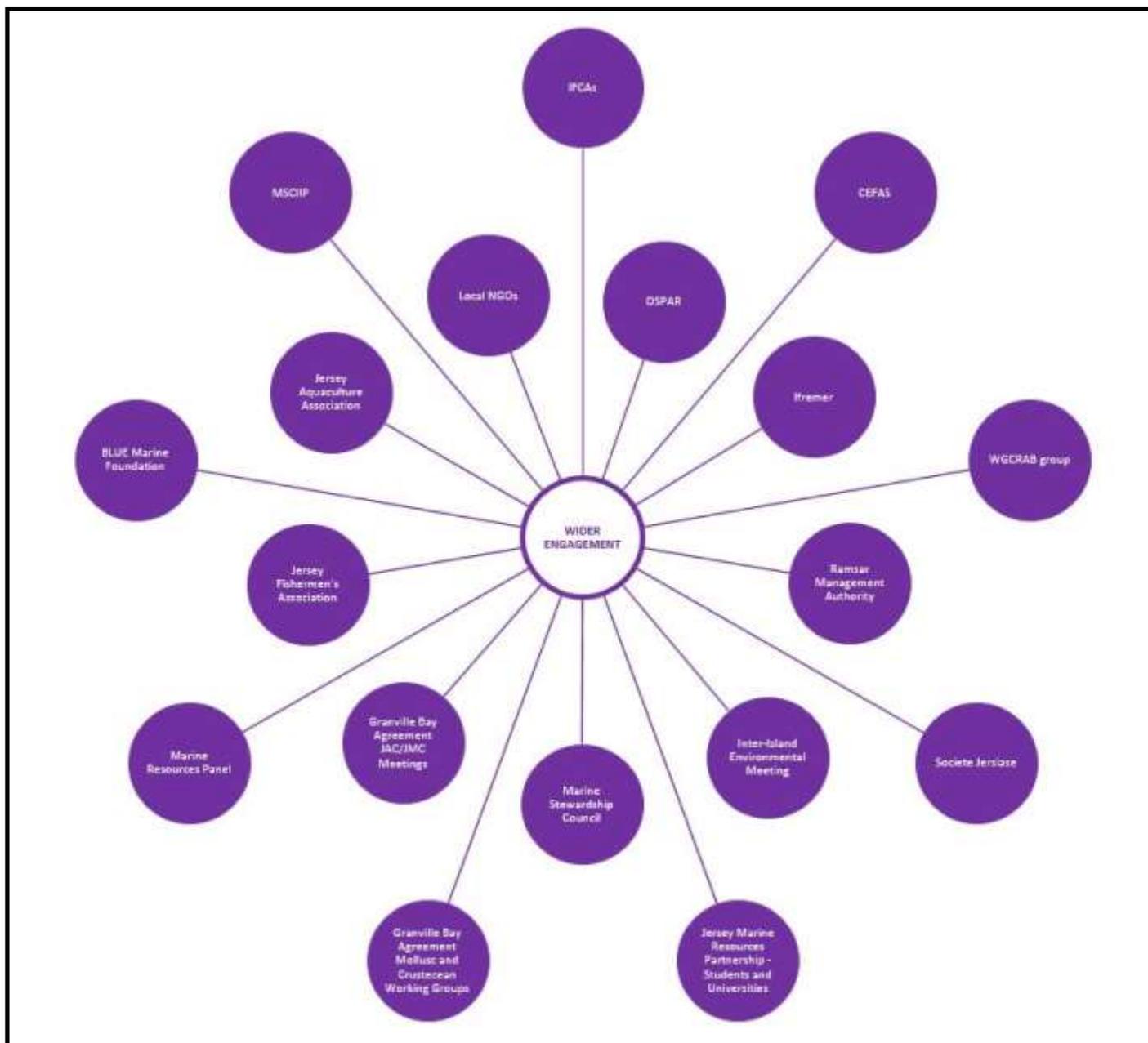
Outside of defining the responsibilities of the JAC and JMC, the BoGA defines the administrative and regulatory framework that relates to other matters such as jurisdiction, supervisory procedure, access arrangements and emergency and arbitration processes. There is no termination clause in the BoGA 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:

AQUACULTURE

- Financial returns** The need for annual financial data returns was queried by and would be looked into by the minister
- New Entrants** The new entrant application from Bay Shellfish was granted though queries were raised regarding the approval process.
- Bed changes** Seymour Oyster applied for a modification to there current concession area.

CAPTURE FISHERIES

- Bass** The updated summary on bass was delivered, in addition to a point about the need to diversify commercial fishing
- Brown crab** The minimum size was increased to 150mm
- Maximum size** Changes were made to limit the size of commercial fishing vessels to 12m, with current vessels being granted a 10 year grandfather clause
- Blue fin tuna** Requests were raised regarding a catch and release Bluefin tuna fishery, in addition a paper on the current status would be produced.
- Whelk** An update on the stock was presented, and subsequent recommendations were discussed.

ENVIRONMENT

- Brexit** Continued updates were delivered throughout the year.

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 response 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.

2019 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 2019 our students projects included research using baited remote underwater video systems (BRUVs) to study local fish populations, marine mammal sightings and ray and shark eggcase findings. The results from these projects are generally made available in the spring and late summer which means that the outcome from the 2019 student projects will not be known until later in 2020. 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 2019, the Marine Resources team helped a local PhD student to monitor changes following the establishment of the local MPAs in 2017. 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.



This fieldwork will be repeated in 2020 to build up an understanding of the ecology of the offshore reefs and any effects the MPAs 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

These figures are for commercial landings by Jersey vessels and are in kilogrammes. They are correct as of June 2020.

SPECIES	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Dog cockles	885	1830	1610	1395	1370	1338	0	0	0	0	80
Brown Crab	360872	408880	478533	507056	436120	386031	305807	348500	310353	287252	170941
Crayfish	138	0	5	47	7	33	46	121	2	11	6
Cuttlefish	1405	2090	3772	5989	2689	2065	5773	6053	4372	7934	10971
Green Crab	0	0	0	0	0	0	0	0	0	20	1236
Velvet Crab	185	837	296	247	319	297	258	218	296	287	317
Lobster	177087	225536	268218	249163	225994	237229	256921	241460	243150	193503	155374
Octopus	4	7	0	0	0	0	0	22	2	2	0
Ormer	9	941	242	230	89	10	23	277	0	7	643
Praires	58	0	0	0	0	0	0	210	0	0	0
Prawns	41	0	63	69	1	116	0	26	3	29	0
Queen Scallops	20	1020	0	0	0	0	0	300	150	0	0
Scallops ^{1,2}	362528	404552	349658	342786	335332	387331	280018	319731	296741	275021	337986
Spider Crab	177158	173289	148556	110298	81645	87727	95519	121751	208828	289229	301743
Squid	35	50	123	63	421	239	631	480	498	631	389
Whelks	104995	497410	377622	430368	512058	303701	268921	544237	345980	838926	735443

Notes:

1. Includes dredged and commercially dived scallops.

2. Includes 1,020 kg of queen scallops for the year 2010.

3. Marine resources have become aware of a potential error in one of the databases. This may lead to minor variations in some of these figures. These will be corrected for the 2020 report.

APPENDIX II

COMMERCIAL LANDINGS: WETFISH

These figures are for commercial landings by Jersey vessels and are in kilogrammes. They are correct as of June 2020.

Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Blonde Ray	2380	25593	25573	60657	76488	86747	66848	74170	34370	52655	46343
Dogfish	5062	9225	10126	11761	10104	8525	2367	6354	9730	7154	6634
Wrasse	1073	100	454	1957	1543	3823	4485	5169	5588	7248	4502
Black Sea Bream	90089	26856	17954	107173	31253	23141	21858	7869	3823	9847	3052
Lesser Spotted Dogfish	335	3430	800	10258	11443	12796	19494	10735	3600	9500	7590
Mackerel	7264	7351	6550	7945	8564	6639	3077	2714	3476	3436	2100
Conger Eels	3730	3578	3276	2093	1979	1635	1075	2550	2753	3194	2069
Pollack	8933	8771	21059	9227	8445	6327	4663	2452	2300	1689	1066
Smooth Hound	1865	3132	612	14636	17587	10927	25200	8280	1803	5070	3340
Whiting	22	2762	117	252	495	3024	2804	1012	1624	1391	787
Brill	2956	3928	6610	2336	3414	4172	3971	1843	1584	1393	1629
Bass	14919	14077	17324	11537	13366	10929	8960	7306	1483	1476	6649
Bull Huss / Greater Spotted Dogfish	1308	2623	1445	139	46	426	223	1042	1323	859	2238
Plaice	3579	2951	5016	2421	2702	2159	2156	1427	1245	803	936
Turbot	684	896	3029	2070	2468	2035	2331	924	1186	680	543
Grey Mullet	1274	2529	2202	1527	2552	2378	2199	2416	789	932	2154
Dover Sole	1489	1585	1768	1279	2382	1093	1007	951	755	1594	696
Angler Fish / Monkfish	418	153	1170	41	348	844	1226	576	477	258	466
Red Gurnard	89	0	855	2707	2839	2899	2683	2866	438	1940	1243
Sand Sole	0	245	910	706	595	1052	1192	831	434	379	234
Tope	237	30	270	660	429	290	345	2599	280	181	40
Puting	644	1604	1150	1085	1480	850	1100	910	261	870	332
Red Mullet	266	195	430	698	323	235	128	182	194	133	254
Snipe / Garfish	12	1	1	1	100	4	13	35	138	42	18
Horse Mackerel	2286	3	0	185	190	148	269	0	114	191	28
Undulate Ray	3639	2183	0	0	0	0	0	40	65	960	1702
Lemon Sole	0	0	0	11	0	1	0	0	61	57	0
Grey Gurnard	1020	783	85	0	0	0	0	26	46	48	6
Trigger Fish	75	8	0	1	0	5	3	3	43	0	2
Ling	15	209	478	572	374	331	184	37	30	0	3
Sand Eels	1966	311	15	13	19	17	5	30	22	31	8
Cod	200	251	302	8	2	459	28	55	20	25	194
Gilt-head Bream	250	60	0	550	7	0	0	120	18	20	254
Thornback Ray	50	104	62	238	25	13	10	190	10	21	76
Sea Trout	0	1	0	2	0	6	0	1	1	0	0
Historic - Skate/Ray	19691	10448	14594	0	0	13	0	0	0	0	0
Small-eyed Ray	998	4582	1071	1478	823	489	1187	0	0	10	5
Porbeagle Shark	0	300	0	0	0	0	0	0	0	0	0
John Dory	43	9	11	5	65	5	6	28	0	64	49
Shad	0	6	0	0	0	0	0	135	0	0	5
Spurdog	4	0	37	0	8	5	0	0	0	0	0
Herring	1	0	0	40	0	0	0	0	0	0	2
Flounder	0	0	0	3	0	0	0	2	0	0	0
Haddock	13	0	0	0	0	0	0	0	0	44	0
Saithe	0	2	0	0	0	0	0	0	0	0	0

APPENDIX III

COMMERCIAL FISHING EFFORT

These figures are for commercial landings by Jersey vessels and are in kilogrammes. They are correct as of June 2020.

GEAR NAME	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Diving	478	673	357	711	700	723	758	393	1407	1659	2436
Dredge	1104	1867	3801	3472	3171	4318	2970	4418	4106	4058	3164
Angling	2449	3184	4233	3845	6400	2752	2768	2042	2403	2818	2105
Long Lines	12955	11820	14470	9911	7491	1168	2200	3972	909	2518	8200
Low Water	0	0	0	0	0	2	2	0	0	0	40
Gillnet 090 - 099	87812	72010	85827	132240	191278	141060	109196	106245	32703	21165	1571
Gillnet 100 - 119	10400	19239	19954	24756	11700	15820	6570	8140	22322	16100	51095
Gillnet 120 - 219	4200	6540	11410	6640	6750	2200	8360	11800	3574	5900	3400
Historic Gill Net	0	200	7504	0	0	0	0	0	0	0	0
Historic Mesh	0	8230	4050	0	0	0	0	0	0	0	0
Historic Tangle 100	1200	1600	12	0	0	3	0	0	0	0	0
Historic Tangle 120	500	4700	3300	0	0	0	0	0	0	0	0
Historic Tangle 130	1600	5000	640	0	0	0	0	0	0	0	0
Historic Tangle 90	16100	0	0	0	0	0	0	0	0	0	0
Historic Trammel	6800	3000	2550	0	0	0	0	0	0	0	0
Seine Netting 080 - 099	123	0	0	0	1500	0	0	0	0	0	0
Tangle 220+	375918	107984	61048	31630	55521	82040	113070	60720	50232	76579	56570
Trammel 090 - 099	316	5500	4900	6150	37450	1704	8136	9600	11173	360	0
Trammel 100 - 119	7260	13800	4340	14000	9800	20800	28900	19301	13009	7500	6791
Trammel 120 - 219	8000	3600	2000	23060	0	11060	1000	2638	416	1190	13001
Trammel 220+	13800	8800	0	3800	5300	24202	6640	0	8117	13600	19142
Cuttlefish Pots	184	153	588	837	626	653	1080	1131	972	3648	4626
Fish Traps	0	0	0	235	320	268	437	331	143	0	18
Green Crab Pots	0	0	0	0	0	0	0	0	0	0	0
Prawn Pots	280	0	0	0	440	0	0	24	96	631	0
Whelk Pots	79487	174558	134748	181775	238773	129053	131786	192215	146561	336190	348213
Creels	213323	185918	205896	200393	141078	133786	139041	105776	114810	122412	99435
D Pots	3635	9743	8445	14934	15768	25037	26584	24206	33357	29148	95069
Ink-Wells	145295	191920	211200	245721	261830	211559	195921	174760	254333	255074	242795
Parlour Pots	124598 3	135636 7	145285 3	140383 7	139715 5	130028 6	125817 4	139843 6	150981 8	139710 8	115746 1
Beam Trawl 080 - 099	0	0	12	0	0	0	12	60	0	0	0
Otter Trawl Bottom 080 - 099	1313	3201	3797	3090	2062	1262	3320	2040	994	1335	1206
Otter Trawl Mid-water 080 - 099	0	0	0	0	1036	555	1245	585	12	28	0
Pair Trawling Bottom 080 - 099	0	0	0	0	44	0	0	0	0	0	0
Pair Trawling Mid-water 080 - 099	2322	172	801	4140	0	909	340	0	0	0	0