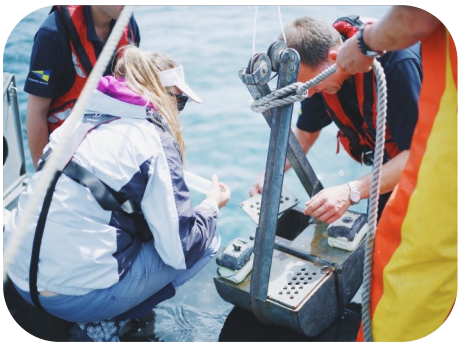
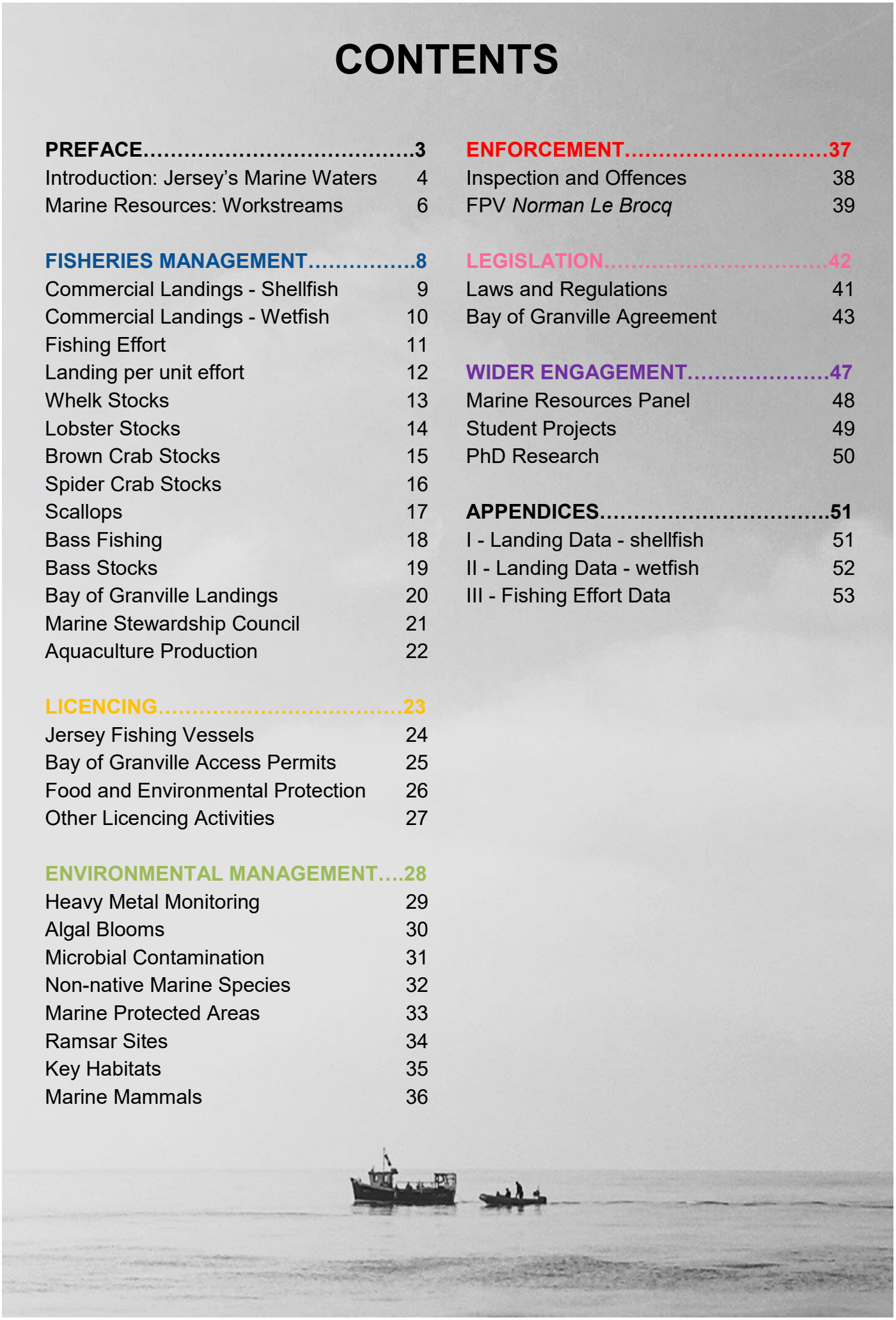
Gouvèrnément d'JÈRRI

MARINE RESOURCES ANNUAL REPORT 2020



GROWTH HOUSING AND ENVIRONMENT
MARINE RESOURCES SECTION
HOWARD DAVIS FARM
JERSEY JE3 5JP

CONTENTS



PREFACE

At the start of 2020 the Jersey fishing fleet were in the middle of was a prolonged period of autumnal and winter stormy weather that had restricted their ability to fish offshore. This, in combination with declining catches for lobster, brown crab and whelk, made for a tough beginning to the year but any hope of a better spring and summer was dashed by the Covid-19 pandemic. The associated lockdown restricted people's movements, closed shops and restricted foreign markets. Government assistance was provided through the Fisheries Support Scheme but many fishers also opted to sell direct from their vessels, using social media to coordinate arrival times and catches. The tactic worked and queues of people formed on the island's piers and beaches, giving fishers at least some respite from what were harsh economic conditions.

The Covid pandemic dominated 2020 disrupting the day-to-day routines of individuals, businesses and government all of whom were faced with a situation that was unexpected and widespread with its impact. Adjustments were required by everyone, including the Marine Resources team. The patrols at sea and shoreline checks were able to continue but had to be structured around Covid-19 guidance; the annual scientific trials took place as did other routine monitoring work. However, a good many meetings had to be postponed and were eventually held via video link rather than in person. This included committee and working group meetings (e.g. Bay of Granville Agreement, Marine Resources Panel) plus those associated with ICES, OSPAR, the British-Irish Council, DEFRA and others.

GoJ operations quickly moved online so that by the end of the summer conducting meetings via laptop (rather than face-to-face) had become routine. Some planned monitoring and researching projects have been delayed or postponed for a year. This was often due to travel restrictions which meant that individuals or equipment could not be brought into the island. Conversely, a lockdown in universities produced a demand for computer datasets for students to work on. Consequently, Marine Resources has formed or strengthened partnerships with several institutions whose students have looked at some of our science data from new angles.

The effect of Covid-19 will be visible throughout this report but the year was by no means a total loss. The Marine Resources team maintained its core functioning and, in some areas actually expanded it, and the long-planned refit of the *Norman Le Brocq* began on time. There are even hints decreased fishing effort in 2020 has increased the average size of landed lobsters although this requires confirmation. This has, nonetheless, been a tough year for all but especially the island's commercial fishers (and associated businesses) whose operation has been hit from all directions.

The pandemic was still active at the end of the year suggesting that 2021 may still present a challenge. Additional to this will be the termination of the Bay of Granville Agreement on 1 January 2021. The Agreement had dictated Jersey's fisheries management since 2004 but, as a consequence of the UK leaving the EU, has been replaced by a new Trade and Cooperation Agreement. As with any change, the new management framework will doubtless require a period of adjustment. In the meantime, the Marine Resources team wishes to thank everyone for their hard work, innovation, patience and accomplishment during what has been a challenging and historically unprecedented year for our fishing industry and other marine stakeholders.

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 km^2 but this is dwarfed by the surrounding 2,455 km^2 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 35 km^2 of intertidal area becomes accessible on foot. In contrast to this are the north, south-west and north-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.

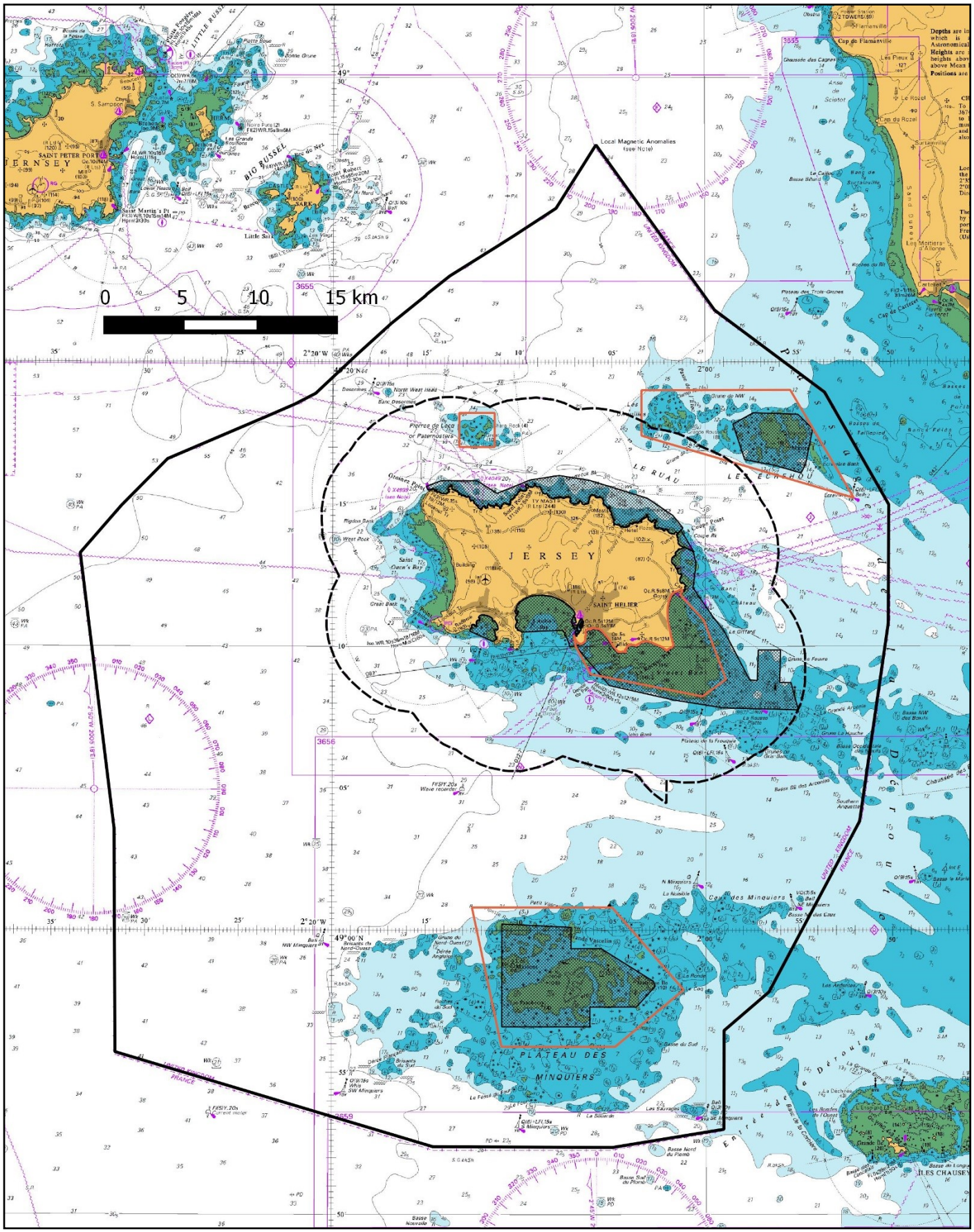
Jersey's marine fauna and flora represents a confluence of northern colder water species and warmer southern ones. Species from the Bay of Biscay reach their northern limit in the Channel Islands and, conversely, there are those found in the UK and North Sea that whose southern limit is the Normano-Breton Gulf. The international importance of Jersey's marine ecology is recognised in the 190 km^2 of key habitats that are designated as Ramsar (wetlands of international importance) areas and the 150 km^2 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.



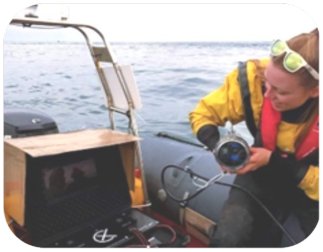
Jersey's territorial seas. *The black line marks the limit of Jersey's territorial waters. The dashed line marks the three nautical mile limit from the island's coast. Within this three mile zone Jersey has full control over its marine management; outside of it any measure that may impinge on commercial 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. During 2020 the Marine Resources team consisted of eight officers whose roles covered 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 complied primarily of key results and highlights from 2020, 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.

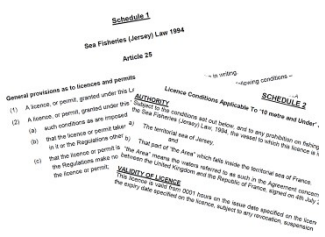


ENVIRONMENTAL MANAGEMENT

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.



Schedule 1

Sea Fisheries (Jersey) Law 1994

Article 25

SCHEDULE 2

LICENCING

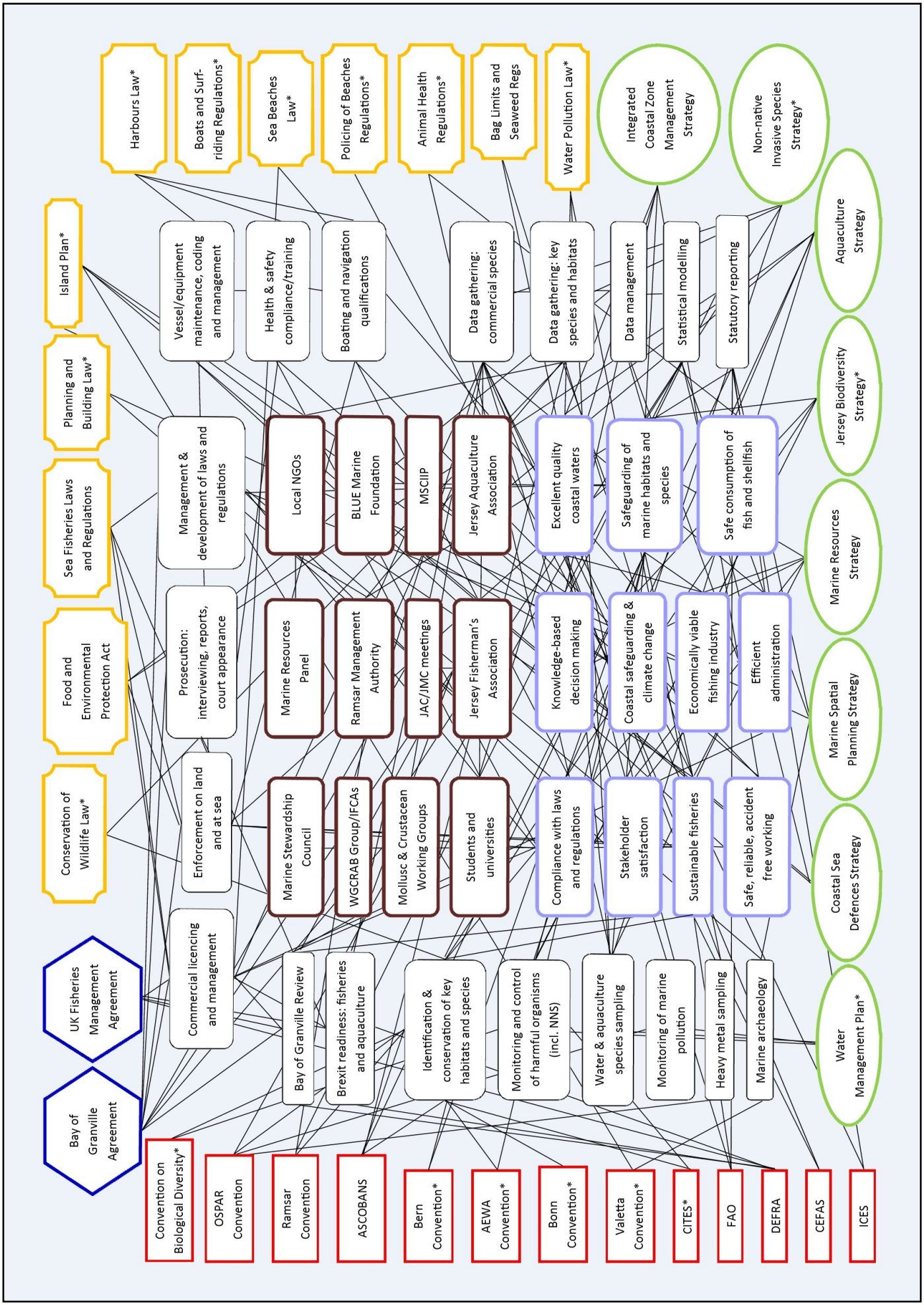
Officers administrate the licensing of fishing activities which includes the construction and updating of licence conditions. This includes the opening and closure of commercial fishing licences, activity specific permits such as beam trawling and scallop diving, licensing of aquaculture businesses, 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

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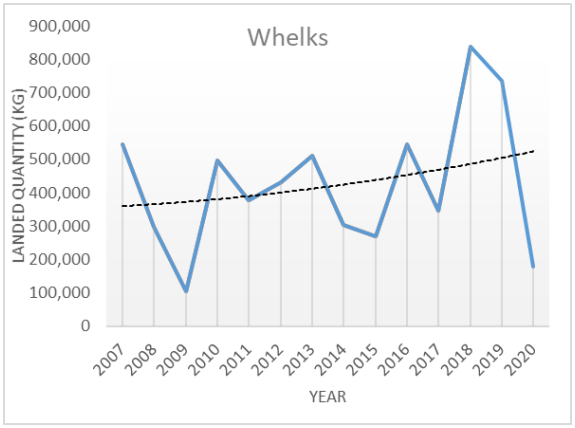

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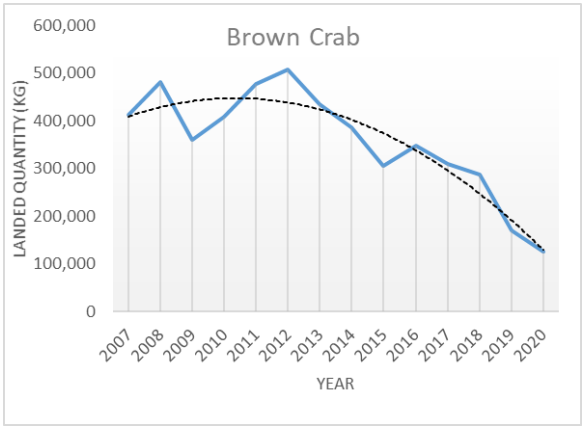

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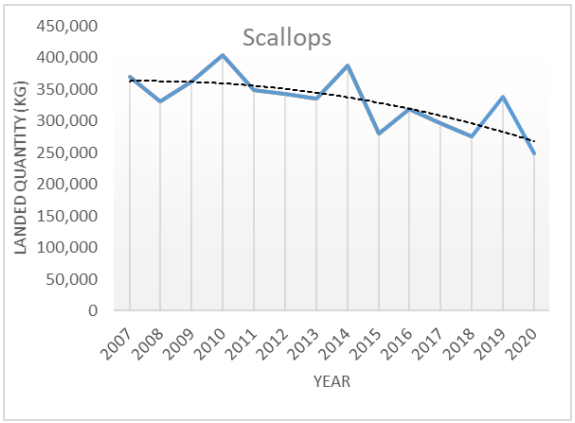

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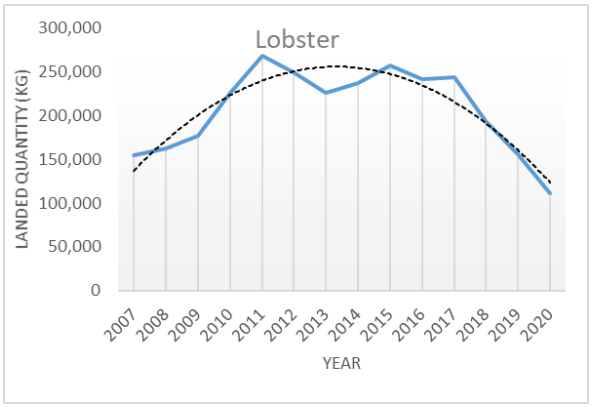

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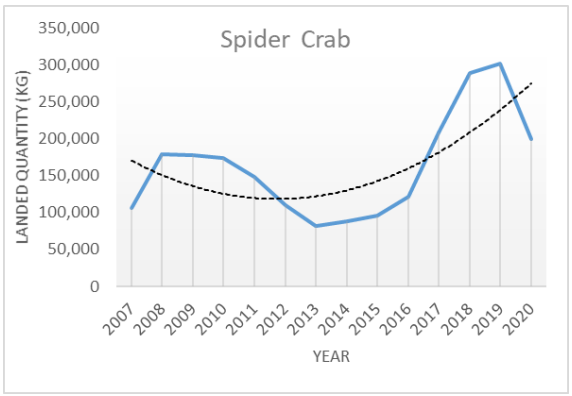

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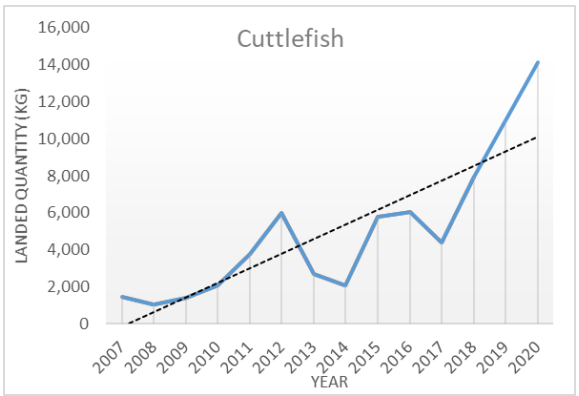


Landed quantities (Kg) of: (A) Whelks; (B) Brown Crab; (C) Scallop; (D) Lobster; (E) Spider crab; (F) Cuttlefish.

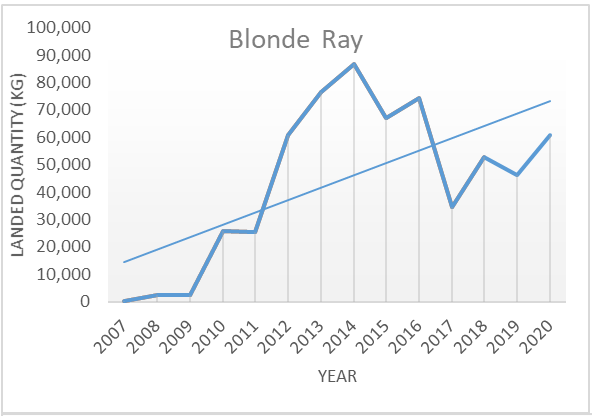
A CLOSER LOOK. Jersey's commercial fishery is economically dominated by shellfish especially lobster and crab which form around 70% (by financial value) of landings. Whelks and scallops are also important at around 22% of landed value with wetfish and other species, such as cuttlefish, forming the remaining 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 communing a substitute for picked brown crab meat. Additionally cuttlefish landings have also increased over the last few years, perhaps in response to increased prices and declines in other key stocks.

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

(A)



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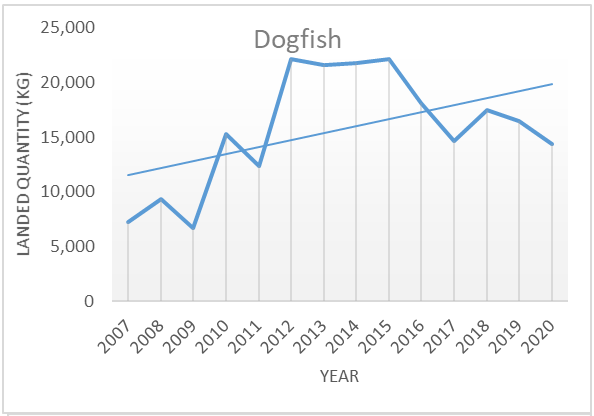

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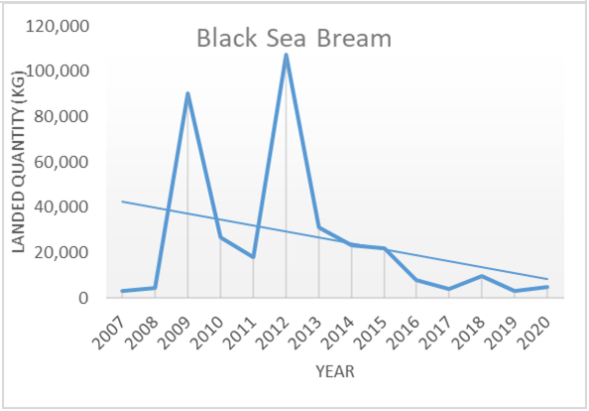

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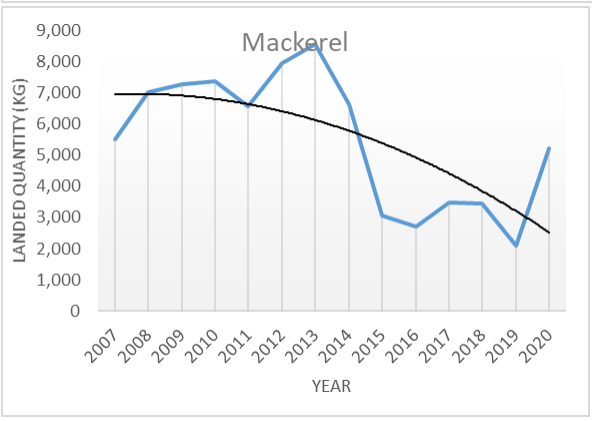

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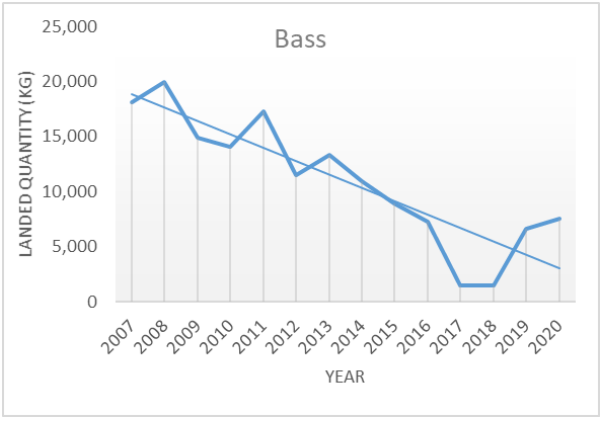


Landed quantities (Kg) from 2007 to 2019 of: (A) Blonde Ray; (B) Dogfish/catsharks (all species)); (C) Wrasse; (D) Black Sea Bream; (E) Mackerel; (F) Bass.

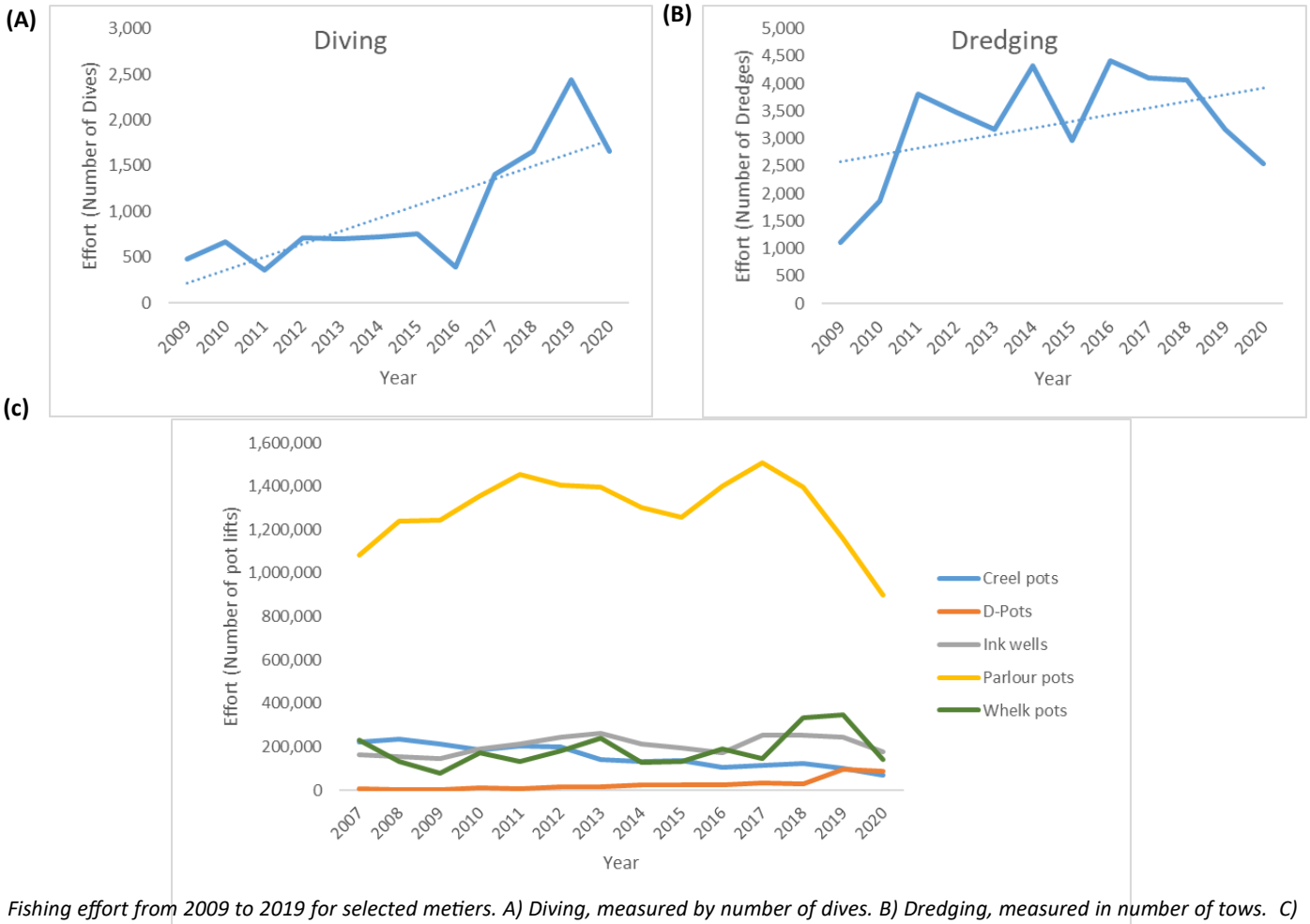
A CLOSER LOOK. Jersey's commercial wetfish industry is relatively small and has recently suffered from problems related to stock health, logistics, markets and designated quota. The local fishery is mostly low impact (hook and line, pots, etc.) and several species are targeted but often in quite low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

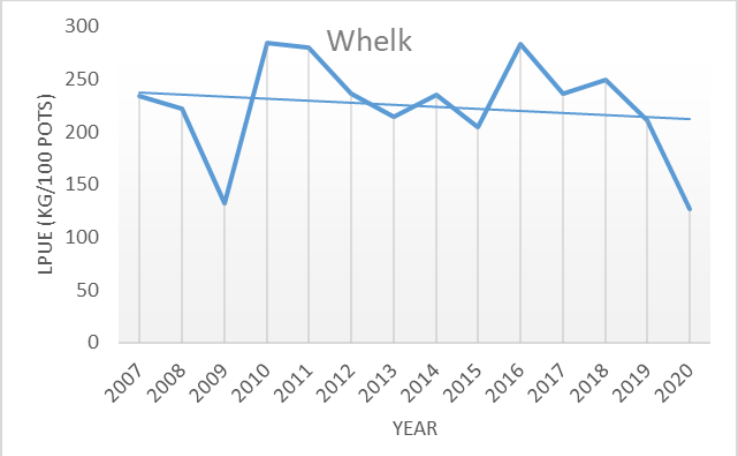
A CLOSER LOOK. Potting remains the dominant metier across the island's commercial fleet. This is to be expected given the importance of crab and lobster to the overall fishery. Although a variety of different pot types are used, parlour pots account for the majority of fishing effort for crab and lobster. The number of pot lifts (and therefore parlour pot usage) has been declining since 2017 which probably reflects stock decreases for both brown crab and lobster plus the economic impact of Covid-19 an poor weather in the winter of 2019/20.

Although not displayed here, netting for fish has also decreased in recent years. This is probably a reflection of bass fishing restrictions, this being a target species for netters. Overshadowing all fisheries activity has been the Covid-19 pandemic which resulted in key markets closing with a corresponding decrease in fishing effort for key species such as crab, lobster, whelks and scallops. However, a local demand for fresh fish, often sold direct from the boat, seems to increased the use of longlines and rod angling.

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 2020 the same 100 pots could only catch 9 kg. This suggests that the density of legally-sized lobster has decreased and that the underlying stock may have decreased. Although somewhat crude, LPUE is widely used as a ready means of monitoring stocks. It is important to remember that closure of markets has lead to lower landings and less effort.

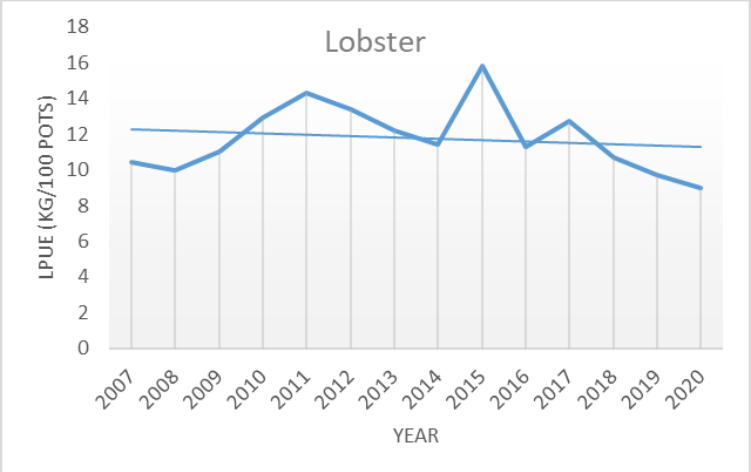


Whelk Peak year (2010): 284 kg/100 pots.

Lowest year (2020): 126 kg/100 pots.

Change: -42%

Status: Steep decline since 2016.

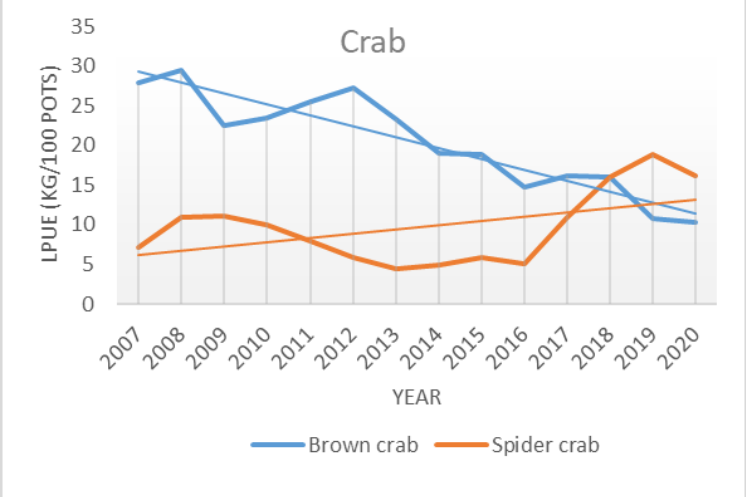


Lobster Peak year (2015): 15.8 kg/100 pots.

Lowest year (2020): 8.99 kg/100 pots.

Change: -43%

Status: Moderate to steep decline since 2015.



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

Lowest year (2020): 10.2 kg/100 pots.

Change: -65%

Status: Severe decline since 2012.

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

Lowest year (2013): 4.46 kg/100 pots.

Change: +424%

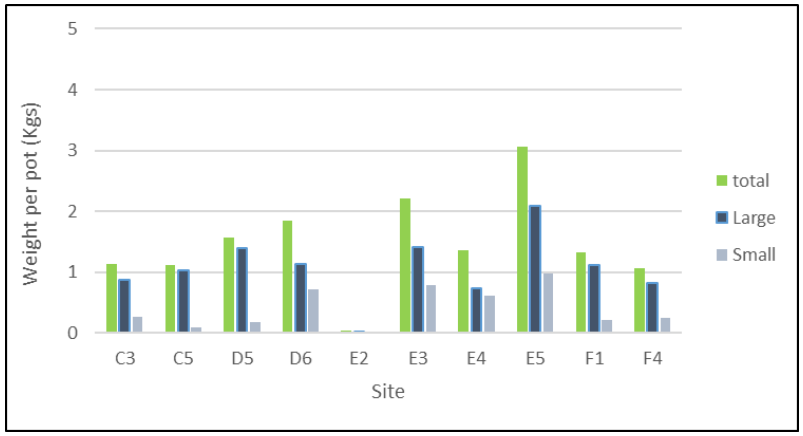
Status: Steep rise since 2013 with a small decrease in 2020.

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.

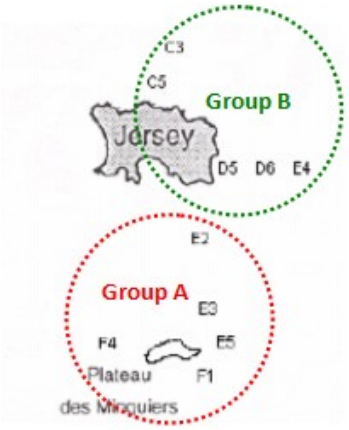
FISHERIES MANAGEMENT
WHELK STOCKS

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' (under 50 mm minimum size) and 'large' (>minimum size) 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 animals caught at sea rather than those landed.

CPUE (Weight (Kg) whelks per pot) from 1996 to 2019 with a two year moving average trend line 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 2020 was 1.5 kg per pot. This was a 0.3 kg decrease on the CPUE recorded in 2019. The 'large' size group in 2020 was 1 kg, again lower then 2019, with a CPUE of 1.40 kg, and significantly below the 1998–2002 average of 2.64 kg. The 'small' size group increased from 2019 to 0.41 kg per pot, the highest result since 2007.

A CLOSER LOOK. Compared with 1996 to 2007, the recent CPUE level is low but comparable with recent years. 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 long-term sustainability of the local fishery. This is the subject of joint research with Normandy and discussion within the 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 are collected through quayside measurements and via the submission of catch logsheets.

RESULTS

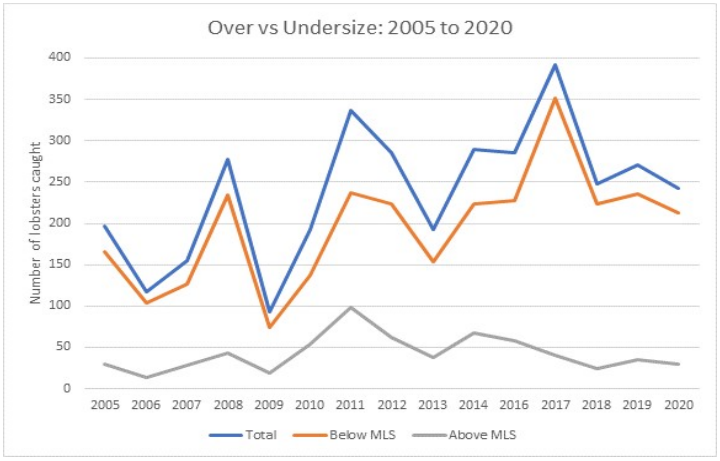
For 2020, 150 pot hauls were conducted, giving a total of 243 lobsters caught. This equated to an average of 1.6 lobsters per pot.

When broken down into above and below MLS, the 2020 MLS results produced 30 above minimum landing size (MLS: 87 mm), with 213 individuals below MLS.

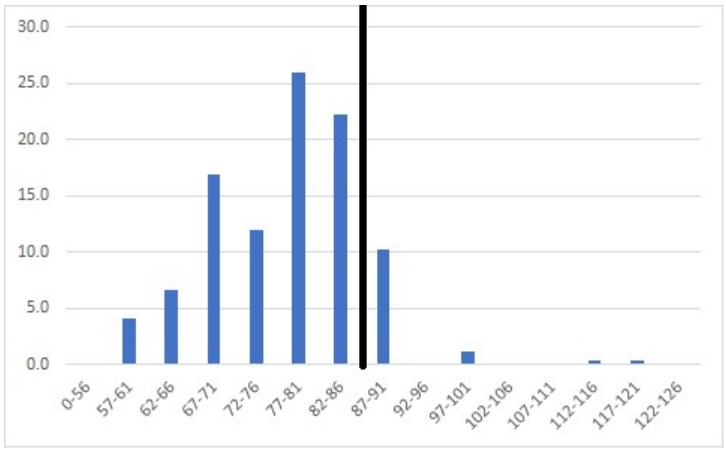
The largest lobster landed measured 119 mm carapace length, with an average size of 77.1 mm.

A total of 111,829 Kg of lobster was landed commercially. When number of pot lifts (1,237,732* for 2020) is taken into account, this equates to 9.03 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 year. Total, above MLS (87mm) and below MLS.



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

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

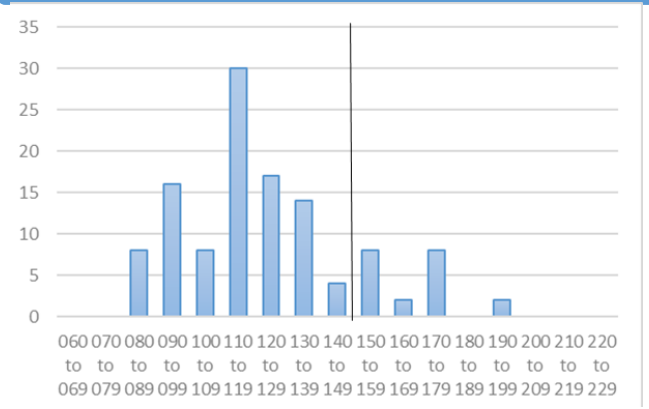
In 2019 a Lobster Working Group was formed through the Marine Resources Panel which included fishers, merchants and Marine Resources. The group proposed new management measures such as increasing the minimum size, reducing pot allocations, mandatory escape gaps and recreational bag limits. These proposed measures have been accepted by the Marine Resources Panel but were placed on hold in 2020 following the arrival of Covid-19. The situation will be reappraised in 2022.


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 2020. Black line = MLS of 150 mm.

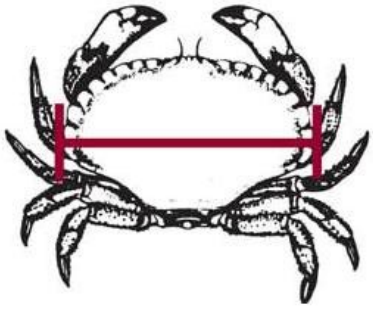
The commercial fishery for brown crab has seen landings decrease severely since 2012. This is also reflected in Jersey's trial data with the decline in CPUE since 2014 continuing. The lowest ever recorded CPUE was in 2020 at 0.3 kg per pot.

The decline in brown crab catches is also being experienced in France, 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. The 150 mm MLS (previously 140 mm) came into force in 2019. This has now also been reflected across the recreational sector.

RECREATIONAL. Brown crab above legal size are rarely caught onshore but are still caught in pots by recreational fishers. During 2020, a recreational bag limit of five brown crabs per person or, if fishing from a recreational vessel, five brown crabs per boat came into force. These measures mirror those of other European countries and are part of a range of bag limits designed to safeguard recreational stocks for future generations.



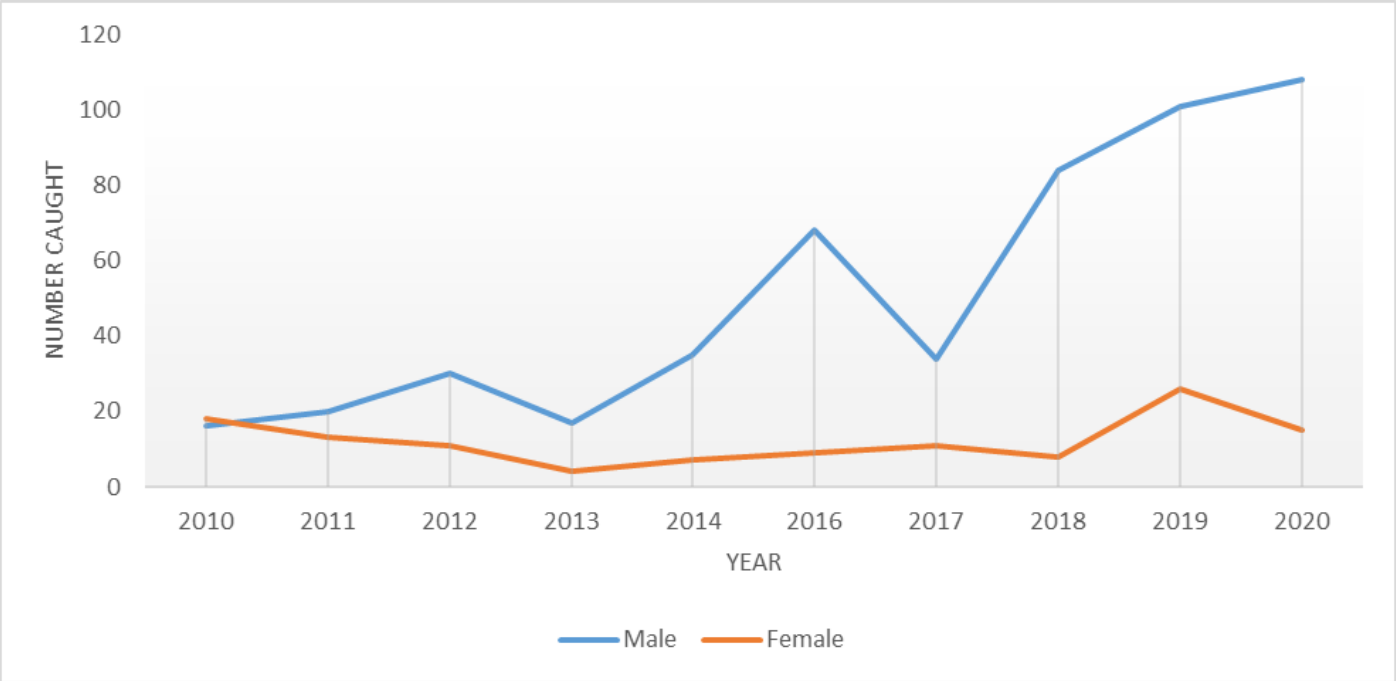
ICES WGCRAB

In 2020 the annual ICES WGCRAB meeting was held online due to Covid-19. It was attended by representatives from Jersey, France, England, Ireland, Scotland, Norway, Greenland, Newfoundland, Isle of Man, and the Orkney Islands.

The meeting 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 and presentations in 2020 focused stock assessment methodologies and the reaction of species to changes in environmental conditions such as sea temperature. The ongoing brown crab recruitment crisis continued to be a topic of interest with evidence of its effects now being felt in the southern Irish Sea. The theory of this being linked to warming seas (possibly through disease or breeding) remains the subject of active research including on Jersey.

FISHERIES MANAGEMENT
SPIDER CRAB STOCKS

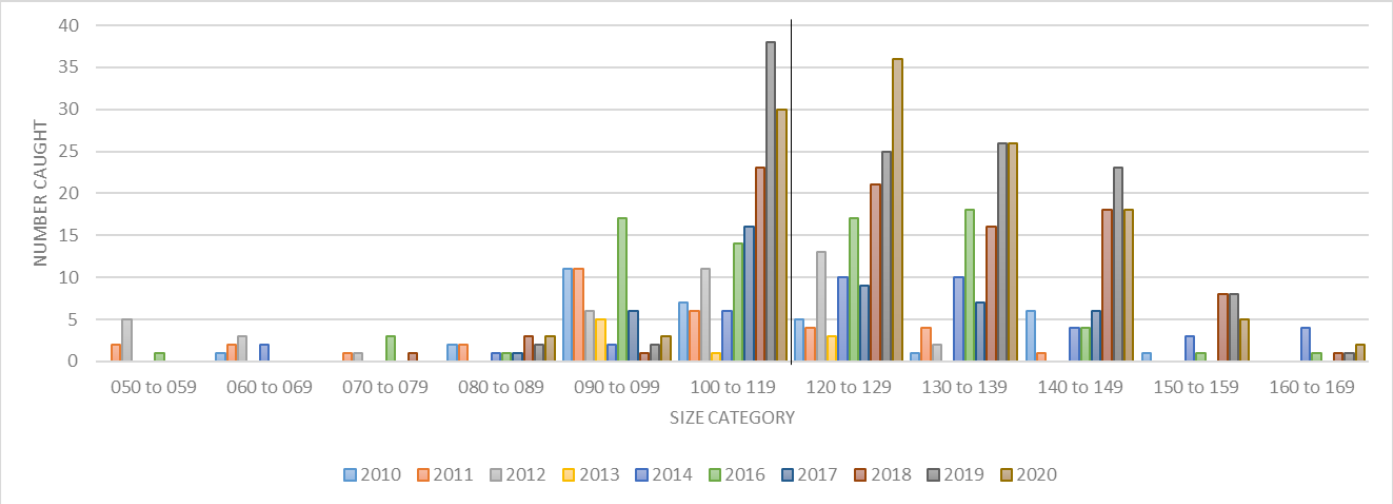


Spider crab annual potting survey results displaying the number of male and female spider crabs caught annually since 2010.

THE JERSEY SPIDER CRAB fishery has been highly variable between years due to changes in stock abundance and density. For example, for 2013 landings totalled 81 tonnes but by 2019 this had increased to over 310 tonnes. However, for 2020 this decreased to just under 200 tonnes, perhaps due to Covid-19. Around 75% of the Jersey catch comes from lobster pots with the remainder being primarily from netting. The Bay of Granville area produces over half of all European spider crab landings especially 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 animals will migrate from deeper to shallower waters. The English Channel is at the northern edge of its range and so colder winters are thought to markedly affect the summer population. It is therefore possible that a series of milder winters since 2013 have led to increased landings.

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 in relation to the local environment and potting industry.



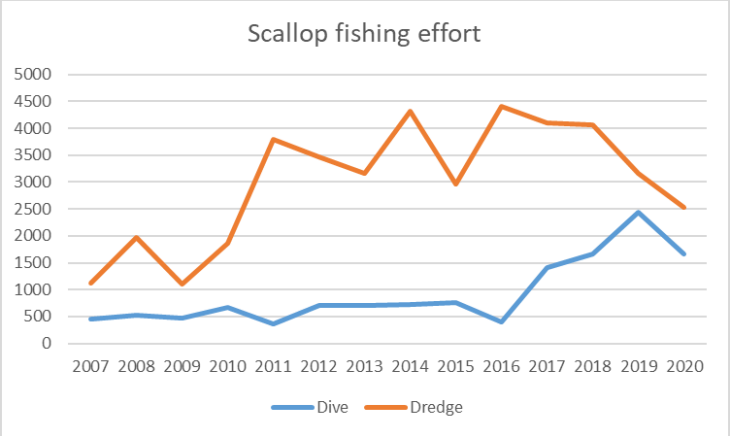
The size distribution (in 10 mm classes) of spider crab carapace length since 2010. The black line = MLS of 120 mm.

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 beginning to approach those obtained by the more traditional dredging metier.

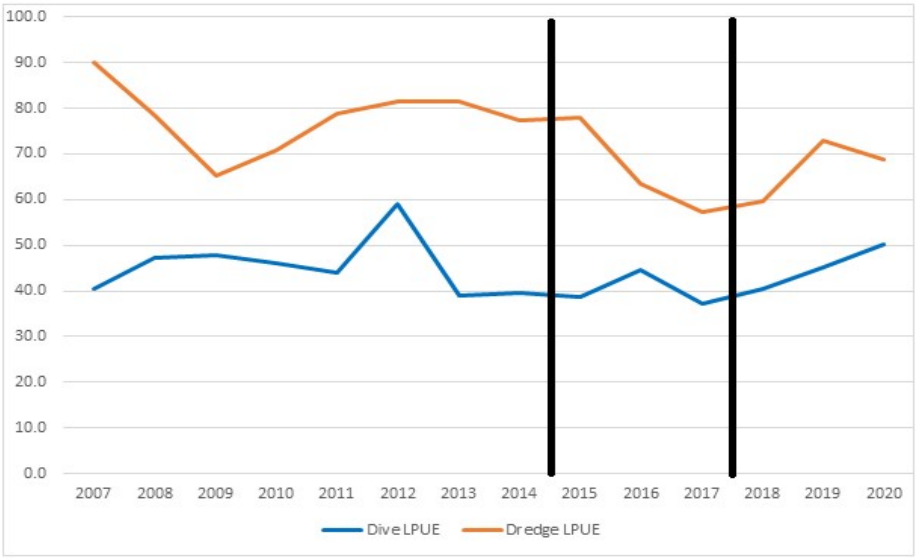
Unlike other major shellfish species, Jersey's scallops are not regularly assessed through annual scientific trials. Since 2015 there have been reports of declining stocks particularly to the west and south-west of Jersey but stock health has not yet been verified. Baseline assessments of Jersey scallop 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. Plans to complete the baseline assessments were abandoned in 2020 due to Covid-19 and will be attempted in the spring of 2021.

The management of scallop stocks is complex due to its stakeholders who have differing needs and objectives. Modelling stocks 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.



Levels of fishing effort for dives (blue) and dredged (orange) scallops between 2007 and 2020.

Finding an appropriate management strategy for Jersey scallops is important for local stocks as well as for economic and environmental reasons. It is hoped that the delayed surveys will go ahead in 2021.



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 fishers. 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.

During 2020 the Covid-global pandemic meant commercial netting of bass was opened earlier in mid march in response to a collapse in shellfish export and to meet demand for local seafood.

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

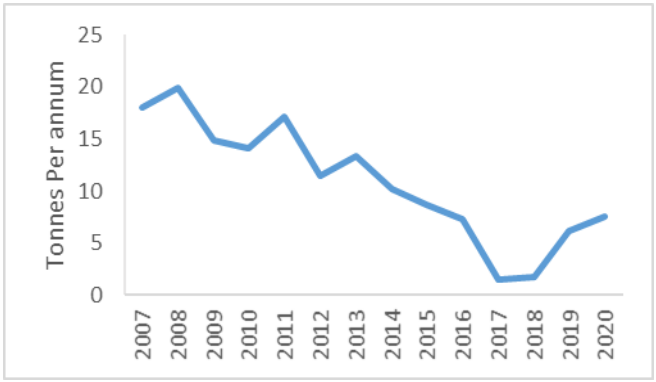
In 2018 the Jersey Fishermen's Association put forward a proposition to allow a limited reintroduction of a targeted net fishery for Bass. This was considered and recommended for approval by the Marine Resources Panel and, following further work, a trial scheme was introduced by the Minister for December 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.

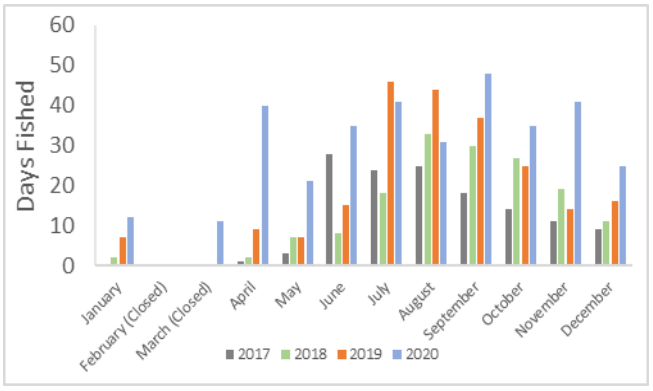
In 2020, Marine Resources conducted a separate scientific netting study to better understand catch compositions with varying mesh sizes. This will be undertaken with help from the industry. The study will also look at parameters such as post release mortality, seasonal morphology changes, and the effect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

FISHERIES MANAGEMENT
BASS STOCKS

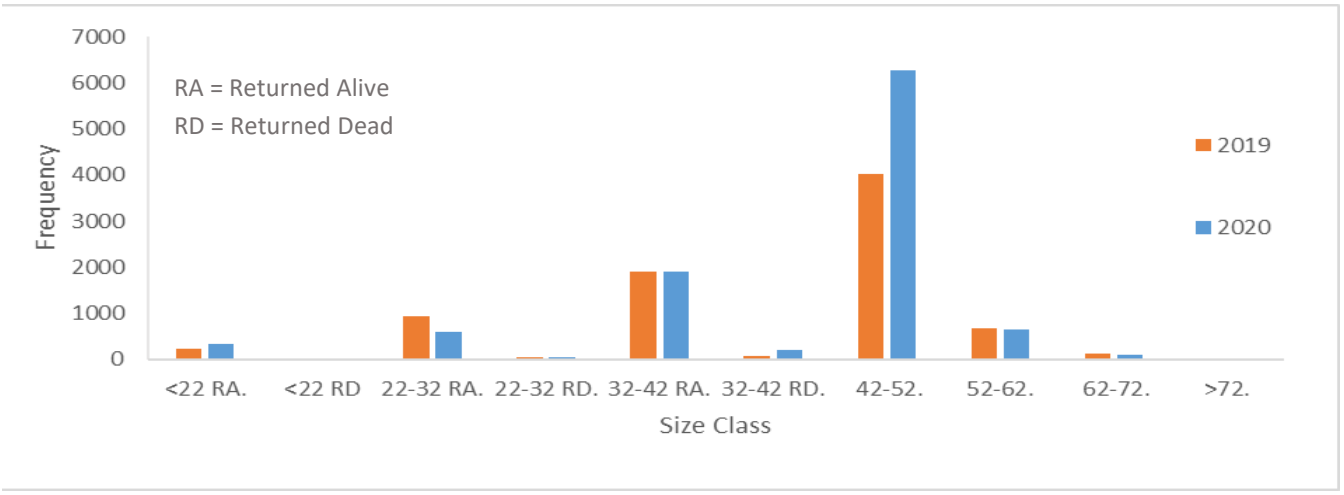
BASS SURVEY. Ten permits were available for the 2020 season with all being used on at least five fishing trips. In the last quarter of 2020, the permit number dropped to nine due to breaches of licence condition. The 2020 season was opened early by the Minister for the Environment on 25 March allowing permitted fishers earlier access to the fishery to help compensate for losses occurring through Covid-19.



Landed weight (kg) of Bass by Jersey vessels between 2007. and 2020.



Overall, 340 fishing days were recorded in 2020 compared to 221 in 2019. A steady rise in bass fishing effort is apparent from 2017-2020.



Size distribution (in 10 cm length classes) of bass caught by commercially licenced fishers in 2019 & 2020.

RESULTS. In total, 10,852 bass were caught in the 2020/21 season (catch data from January 2021 is included). This is an increase from 8,835 in 2019 (23% increase). Similarities can be seen in the catch composition from all metiers used in the 2019 and 2020 season. The largest rise in catches of a specific size is in the 42-52cm bracket from 4029 bass in 2019 to 6908 in 2020/21. Total landed catch has risen from 6.2 t in 2019 to 7.55t in 2020. Jersey's bass fishery increased to a value of approximately £91,000 in 2020. This has been acquired with an estimation of the price attained by fishers throughout the year (£12 per kilo).

FISHERIES MANAGEMENT
RECREATIONAL BAG LIMITS

BAG LIMITS. Until 2019, jersey remained one of the few places in North West Europe which did not have any restrictions on the number of fish and shellfish which could be harvested recreationally. Following consultation with stakeholders (e.g. commercial and recreational fishing representatives, government and politicians) a series of bag limits were devised for individuals and recreational boats. These limits were devised to as a means to reduce unlicensed commercial fishing, conserve stocks and promote sustainable usage of resources.

Minimum sizes and bag limits (fish and cephalopods)

Common name	Per person limit	Vessel limit	Minimum size (cm)
Amber Jack	1	5	-
Atlantic Bonito	1	5	-
Black Bream Gilt-head Bream Red Bream Couche's Bream	10	50*	Black Bream 23 Red Bream 25
Cod Coalfish Haddock Hake Pollack Poor Cod Rockling Ling Whiting	10	50*	Cod 35 Coalfish 35 Haddock 30 Pollack 30 Whiting 27 Ling 63
Conger Eel	2	2	58
Brill Flounder Lemon Sole Plaice Sole Turbot	10	50*	Brill 30 Flounder 25 Lemon 25 Plaice 27 Sole 24 Turbot 30
Gurnard Species	20	20	-
Herring Sardine Anchovy Sandeel Sprat	5KG	5KG	Herring 20 Sardine 11
Mackerel Scad	40	200*	Mackerel 20 Scad 15

*For groups with more than one species, the bag limit comprises wholly of any single species or a combination of species.
For example: 8 turbot and 2 Brill is the personal limit.
**Specific permits apply to certain species.

Minimum sizes and bag limits continued (fish and cephalopods)

Common name	Per person limit	Vessel limit	Minimum size (cm)
Mullet Species (Including Red Mullet)	20	20*	20 15 (Red Mullet)
Pouting	20	100	-
Blonde Ray Small-eyed Ray Thornback Ray Undulate Ray	5	5*	
Bass	2	10	42
Bull Huss Dogfish Starry Smooth-hound	20	20*	-
Squid/Cuttlefish	10KG	10KG	
Common Octopus	2	2	0.75KG
Wrasse Species	5	5	-

How to measure a fish:

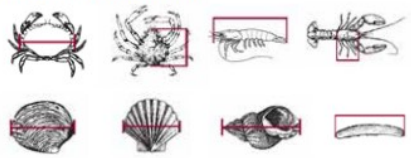
Measured from tip of the snout to end of the tail fin

Fish species with 0 Bag Limit:
Albacore Tuna, Angel Shark, Basking Shark, Bigeye Tuna, Black Skate, Bluefin Tuna, Blue Shark, Common Skate, Giant Goby, Orange Roughy, Porbeagle Shark, Shad species, Smooth Hammerhead Shark, Spurdog, Tope, White Shark and White Skate.

Minimum sizes and bag limits (other)

Common name	Per person limit	Vessel limit	Minimum size (cm)
Bait Worms	2KG	2KG	
Brown Crab	5	5	15
Common Whelk	5KG	5KG	4.5
European Lobster	5	5	8.7
Green Crab	100	100	
Spider Crab	10	50	12
Velvet Crab	40	40	6.5
Limpet Species	100	100	2.5
Ormer	20	100	9
Otter Shell	20	20	
Oyster Species	50	50	-
Scallop	24**		10.2
Common Cockle Dog Cockle Norwegian Cockle Rough Cockle Paloudre Spp. Manilla Clam Praire Surf Clam Razorfish Spp.	150	150*	Common Cockle 3 Paloudre Spp. 4 Surf Clam 2.5 Razorfish 10

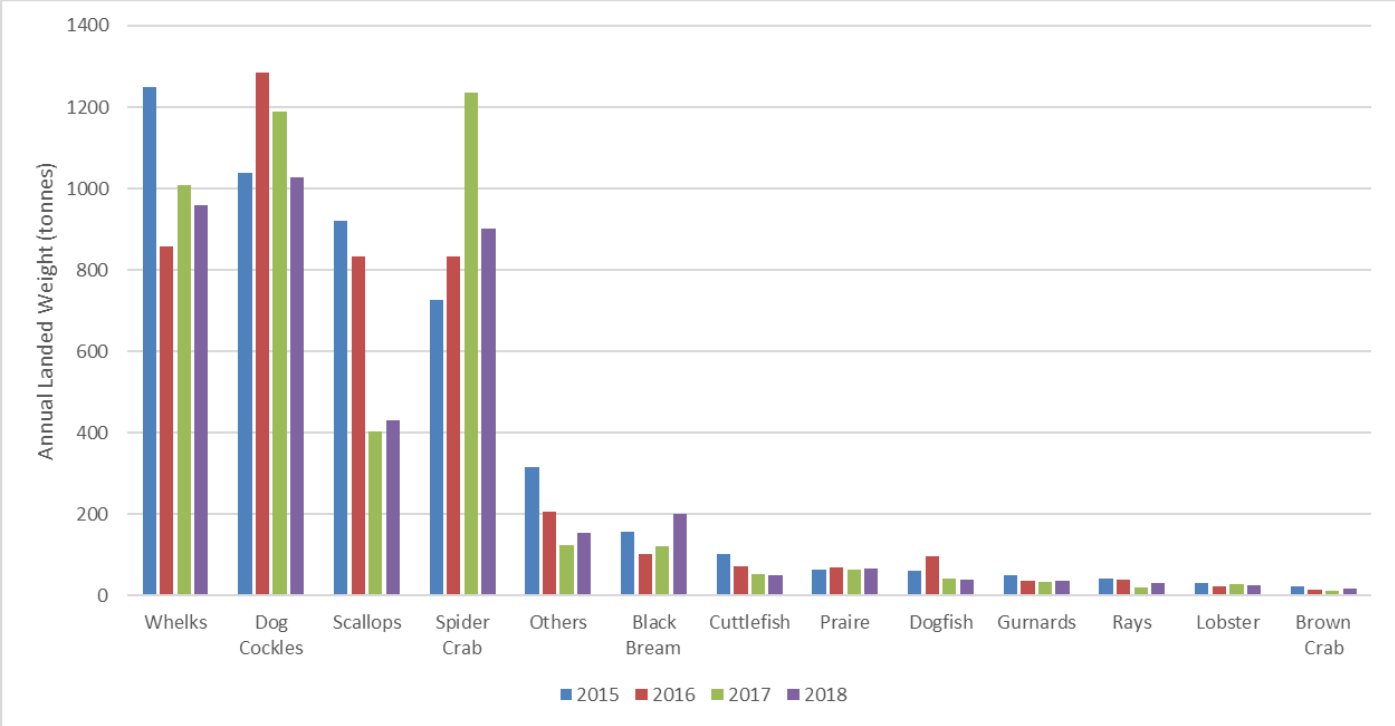
Guidance on how to measure:



The Marine Resources team reviewed recreational fishing in Jersey and identified the highly targeted species and ones which may become more vulnerable in the future. The team's recommendations include introducing 45 new bag limits covering a total of 102 marine species.

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 are estimated from regional landing data and provide a guide to yield from 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.'

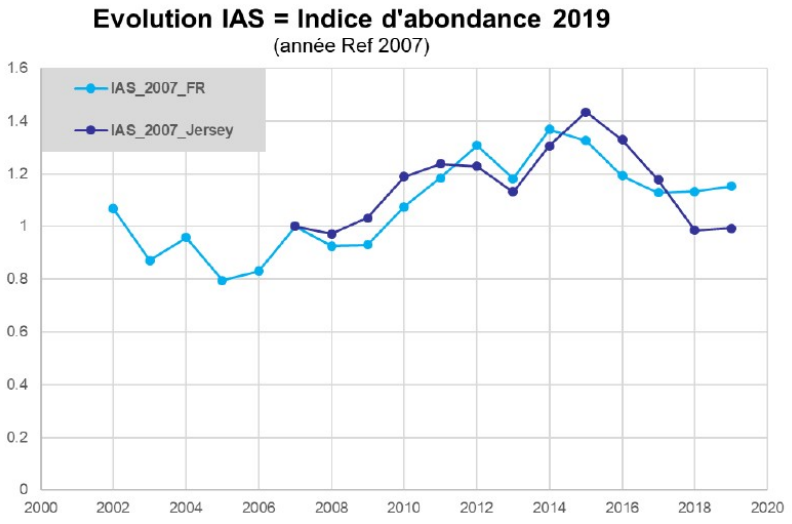
Since its certification the joint lobster fishery has passed five MSC audits allowing local fishers, merchants and restaurants to continue to display the MSC ecolabel on locally sourced lobsters. The fishery was recertified in November 2016 and audits are held annually which bring together the MSC assessors 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 2020 recognised a decreasing trend in both lobster landings and the MSC's abundance index (i.e. LPUE) which, for the Jersey stock, 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 sustainability threshold (MSY) between 2010 and 2017 but fell below it for 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 peer 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 is 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.

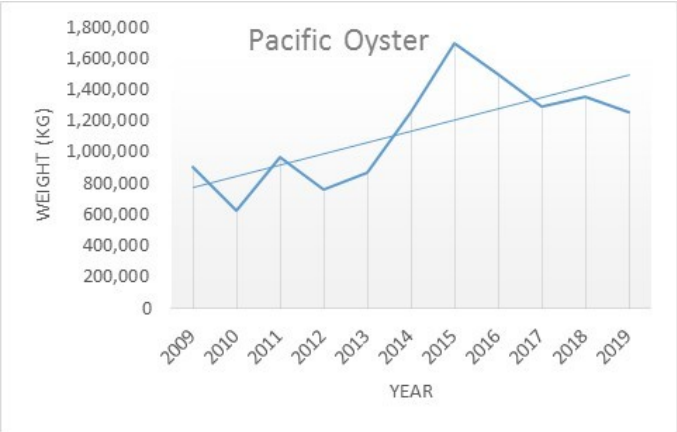


Right: The MSC's lobster abundance index. The alert threshold is 1.0 which Jersey went below in 2018 and 2019.

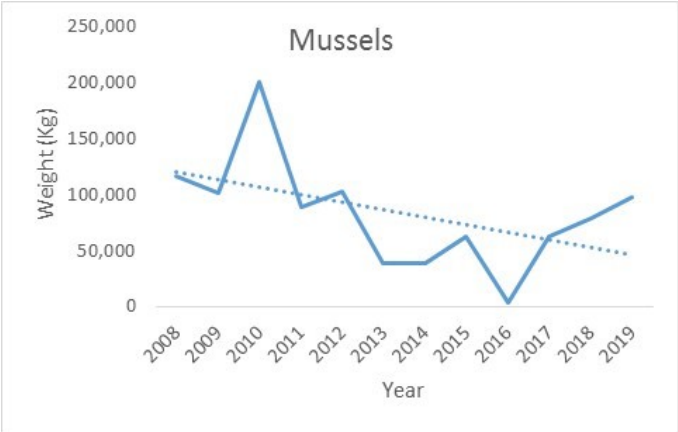
FISHERIES MANAGEMENT
AQUACULTURE PRODUCTION

JERSEY'S AQUACULTURE INDUSTRY. Production remains focused on the Pacific oyster (*Crassostrea gigas*) and mussels. 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. In 2020 an emergency holding bed was established on the upper shore of Grouville bay to allow oysters that were nearing market size to be held for longer at slower growing speeds while markets were depressed due to Covid restrictions.

(A)



(B)



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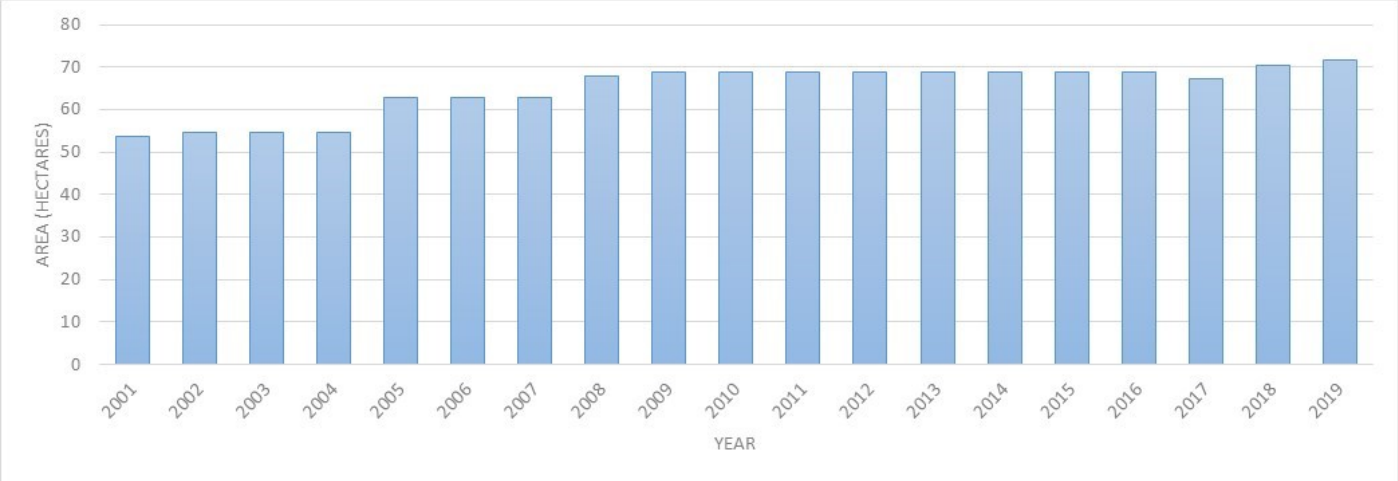


(A) Production weight (Kgs) of farmed Pacific Oyster. (B) Landed weight (Kgs) of farmed mussels. (C) Intertidal aquaculture areas (hectares).

Oyster beds in Grouville Bay

LICENCING


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

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.

2020 SUMMARY

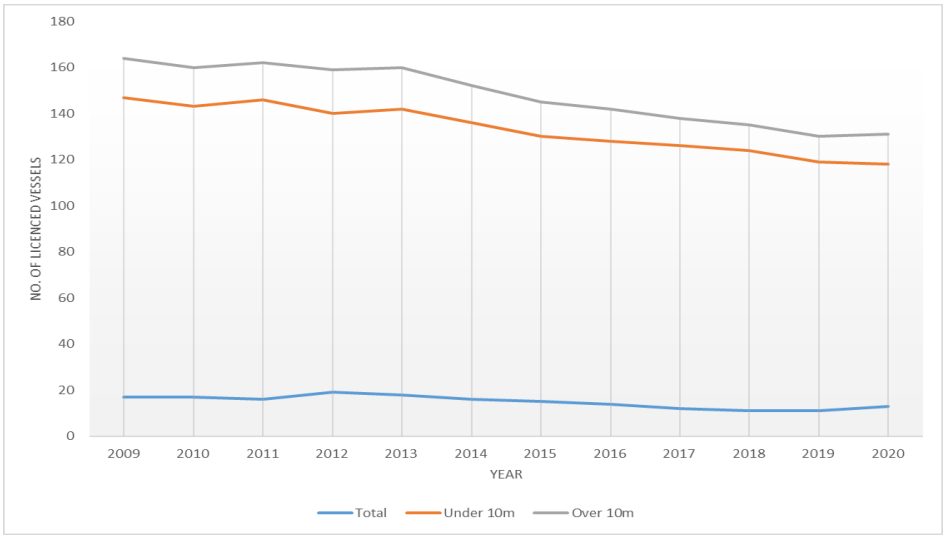
During 2020, 12 licences opened and 11 closed.

There was a gain of one licenced fishing vessels taking the total for 20 to 131.

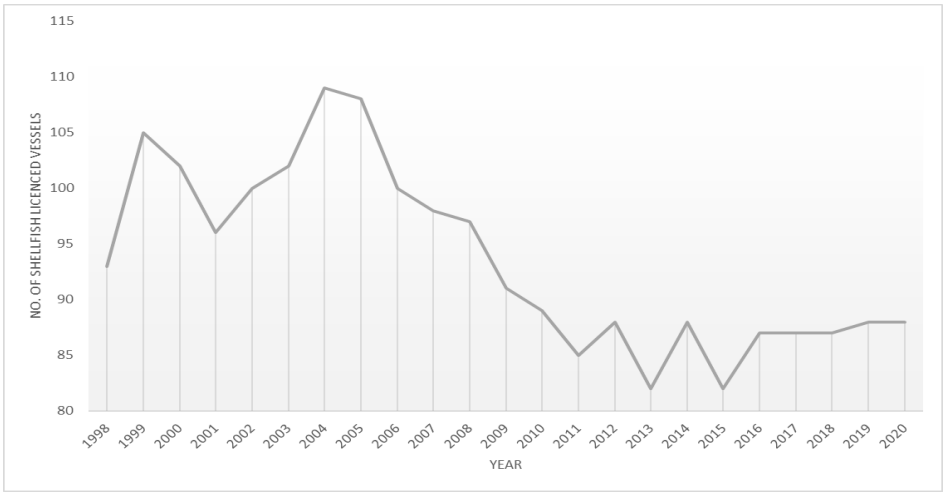
There are 13 over 10 metre vessels and 118 under 10m vessels.

The number of shellfish entitled vessels remained the same at 88.

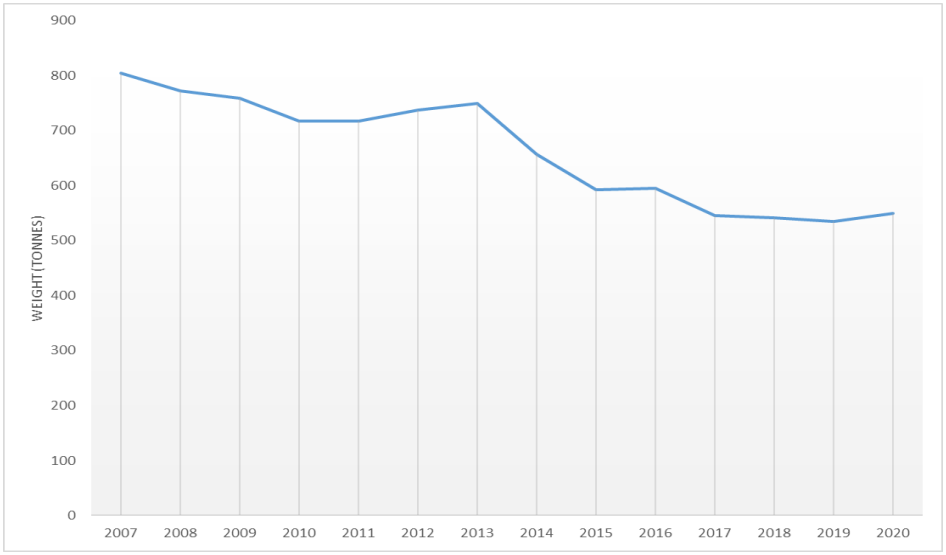
Combined engine capacity is 11,987 kw and tonnage 549.



Above: The number of licenced Jersey vessels (by length) between 2009 and 2020.



Above: The annual number of shellfish entitled vessels between 1998 and 2020.



Right: The total engine power and tonnage of the Jersey fleet between 2006 and 2020.

LICENCING
BAY OF GRANVILLE ACCESS PERMITS

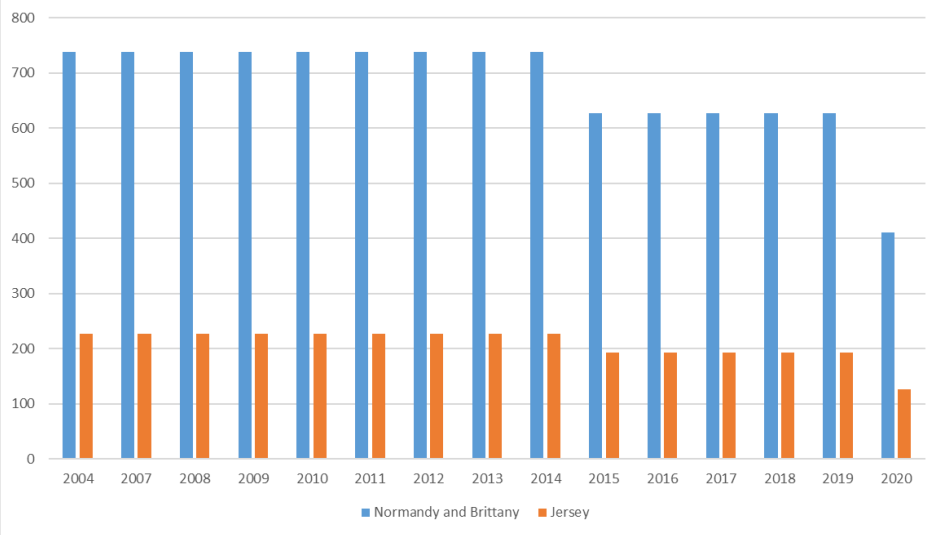
The Bay of Granville Agreement (in force since 2004) makes provision for Jersey and French vessels to access defined areas of each other's waters via a permit scheme. In order to fish in waters managed by the BOG , a vessel must hold a valid access permit issued by its fishing authority. Brexit officially occurred on the 31st January 2020, following this date treaties in place remained in effect whilst ongoing negotiation took place until the end of 2020 when the agreement was terminated in favour of the TCA.

2020 SUMMARY

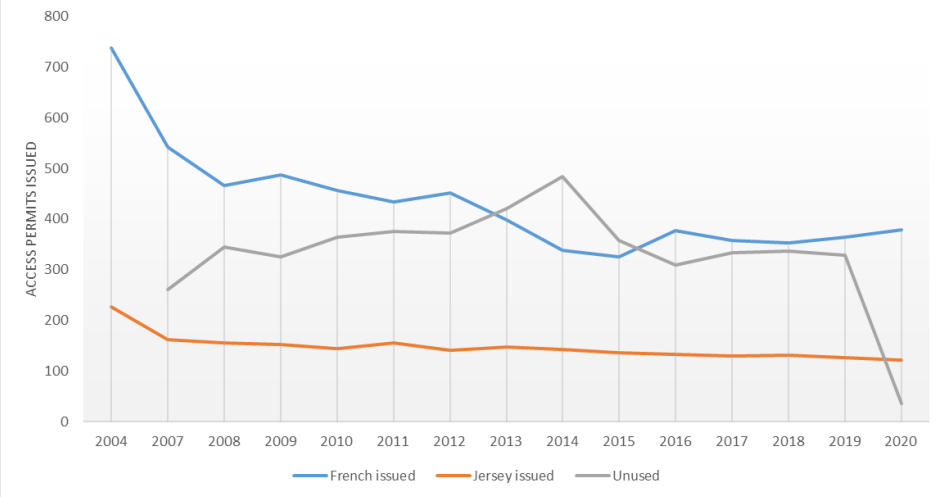
During 2019 a total of 820 access permits were available for Bay of Granville waters. Of these 627 were available to Normandy and Brittany vessels and 193 to Jersey vessels.

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

The number of permits issued in 2020 was 379 to Normandy and Brittany and 121 to Jersey vessels. This leaves 36 spare access permits (31 for French vessels and 5 for Jersey vessels).



The total number of available access permits under the Bay of Granville Agreement between 2004 and 2020.



The number of Bay of Granville Access Permits issued to French and Jersey vessels between 2004 and 2020. Also shown are the total number of unused (spare) permits for each year.

LICENCING
FOOD AND ENVIRONMENTAL PROTECTION

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

FEPA licence applications are submitted to Marine Resources and are then subject to evaluation by a panel 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 2020:

LICENCE NO.	APPLICANT	PROJECT	DATE OF ISSUE	DATE OF EXPIRY
2020/01	PoJ	Dredging marina of sand and mud	01/04/2020	31/03/2022
2020/02	PoJ	Deploying pontoons and piling; exempt under coastal works clause	N/A	N/A
2020/03	IHE	Deposit of green seaweed	13/08/200	31/12/2022

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.

During 2020, 11 applications were received and approved. This would allow the removal of up to 1250 pebbles and 200 buckets of sand.

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.

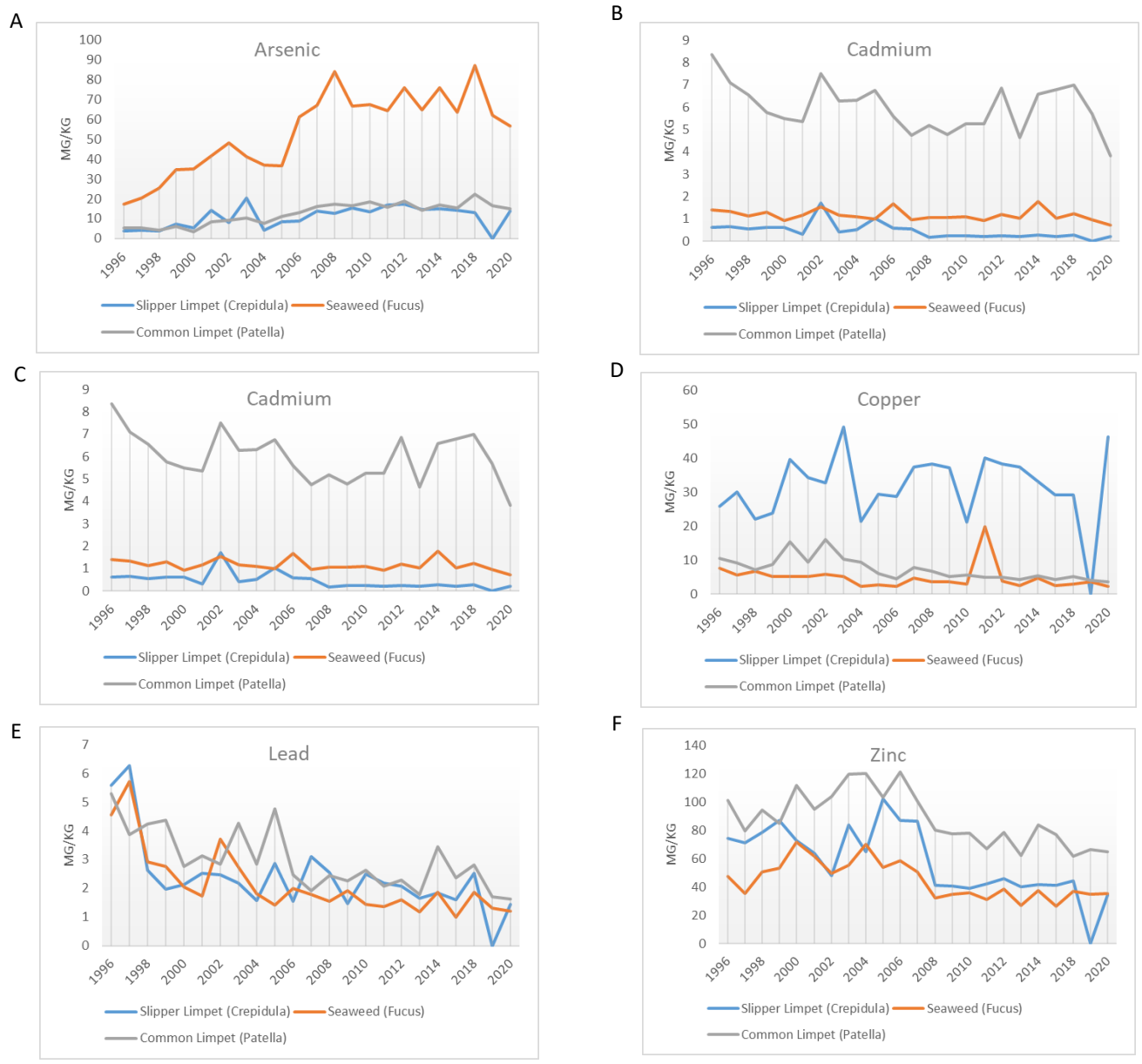
During 2019 one new aquaculture licence was granted in Grouville Bay and the boundaries were moved for two existing concession areas. These applications were considered by the Marine Resources panel and were subject to public consultation before being granted. On Jersey the area of seashore/seabed that 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 and analysed on island. Note that the slipper limpet figures drop to zero in 2019 as no samples could be collected.



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 bimonthly from May to October, and analysed for three algal biotoxins. Below are the results since 2010 although data for 2019 and 2020 are unavailable. 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		
2020		

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		
2020		

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		
2020		

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

Classifications of Bivalve Mollusc Production Areas in Jersey. Effective 1 April 2020 to 31 March 2021.

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 isundertaken 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

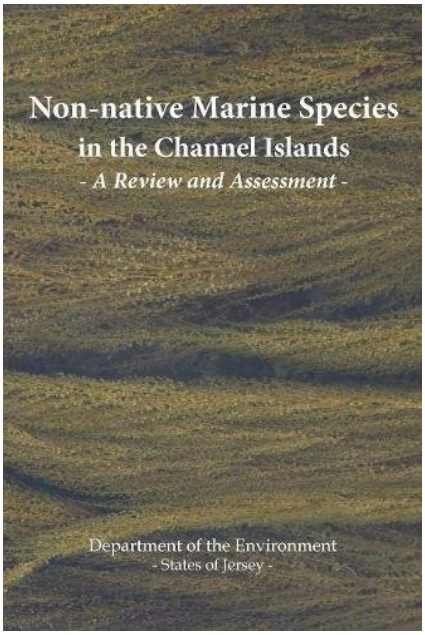
Sea Lettuce Monitoring (St Aubin's Bay)
www.gov.je/Environment/ProtectingEnvironment/SeaCoast/Pages/SeaLettuce.aspx

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 Cannel 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 during 2020 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 Société 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 km^2 or 6.5 per cent of the island's territorial waters. This falls short of the 10% suggested by the Convention on Biological Diversity but does mean that all the island's identified shallow marine habitats are legally protected from potentially destructive activities.

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

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

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

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

Assessment work inside and outside the MPA network has continued into 2020 as part of a wider review of the island's marine habitats. Jersey is also an active participant within the OSPAR Marine Environment Subcommittee for the British Isles. The establishment of Jersey's MPA network was included as a chapter in the recent Elsevier book *Marine Protected Area: Science Policy and Management* (John Humphreys and Robert Clark, editors).

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

OSPAR COMMISSION

ENVIRONMENTAL MANAGEMENT
RAMSAR SITES

CONVENTION ON WETLANDS
(Ramsar, Iran, 1971)

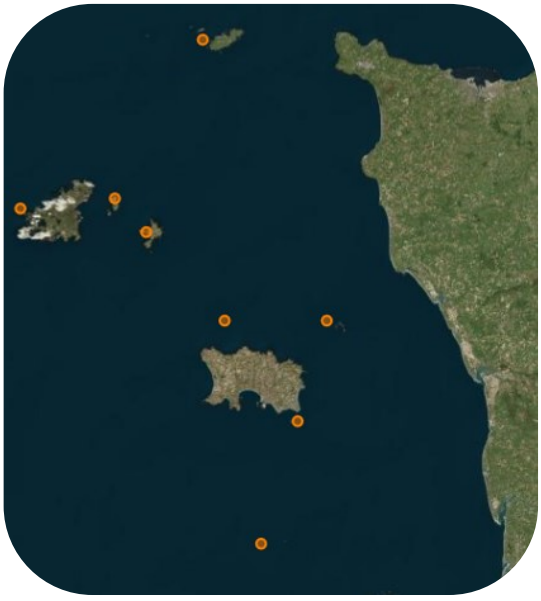
AN OVERVIEW. The Ramsar Convention is an intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. Jersey has four designated Ramsar sites which have been in place since 2000 (Jersey South-east Coast) and 2005 (Les Écréhous, Les Minquiers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

JERSEY'S RAMSAR MANAGEMENT AUTHORITY.
Throughout 2020 Jersey's Ramsar Management Authority (RMA) met on four occasions to continue working towards the objectives set out within the Ramsar management plans. Minutes for these meetings can be found here.

The RMA is chaired and managed independently but the Government of Jersey provides logistical and other support to the group. Due to Covid-19, most of 2020 RMA meetings took place via video link. The RMA's achievements for 2020 included:

- The delivery and proportion of Jersey's Ramsar sites at the World Wetlands Day event organised by Marine Conservation Jersey.
- Delivery of the Channel Islands' Ramsar Code of Conduct for publication in 2020.
- Deployment new signage for the Ramsar Sites based on the code of conduct.
- Consultation on usage and potential pollution issues in association with Ramsar sites.
- Review and update of Ramsar site management plans. This has progressed to the drafting stage.
- Sign placement at St Catherine's Breakwater to ensure appropriate behaviour is followed when visiting Les Écréhous.

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)

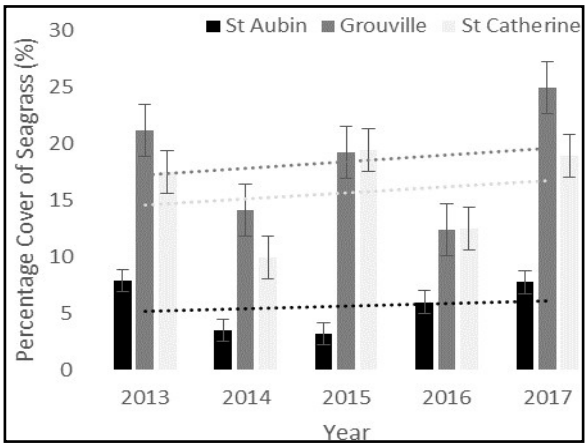
AN OVERVIEW. Under various international agreements, Jersey is obliged to monitor and assess the status of critical marine habitats and species. For certain species, specific monitoring programmes are well established (e.g. cetaceans) or part of wider reporting obligations (e.g. fishing vessel logsheets 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

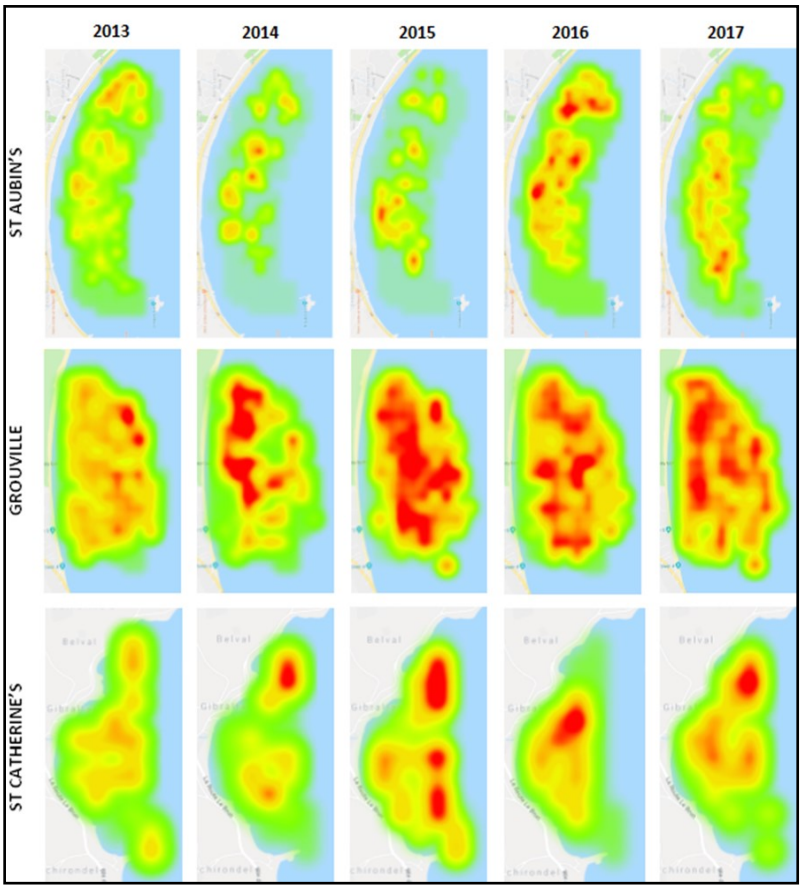
Seagrass fulfils an important ecological function in the marine environment. It is associated with high biodiversity, acting as a nursery area for commercial species, and as an important food source for wading birds. However, it is vulnerable to disease, pollution and disturbance and as such all European 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.

The initial five year study period (2013 to 2017; see below) reached the following conclusions: (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; and (4) An average increase in seagrass percentage cover across all three sites, despite significant annual variation.

Annual monitoring continues to occur at St Aubin, Grouville and (when resources permit) St Catherine. Seagrass has continued to expand in Grouville but is more variable at St Catherine and St Aubin.



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



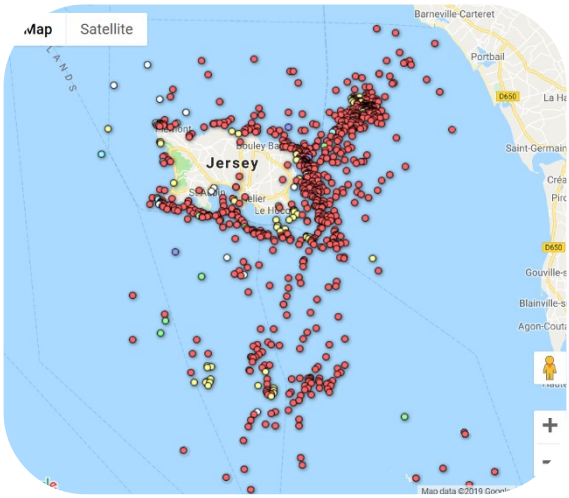
Heatmap showing the density of intertidal Z. noltii in St Aubin's Bay, Grouville and St Catherine's Bay. Red = greatest density. Green = lowest density.

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 2020 there were six 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 2020 the CPODs had been operational for 3,521 days and had collectively recorded over 3,805 dolphin and porpoise encounters consisting of more than 230,000 click trains. 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	1
Common Dolphin	2
Porpoise	1
Unidentified Dolphin	3
Grey Seal	2

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

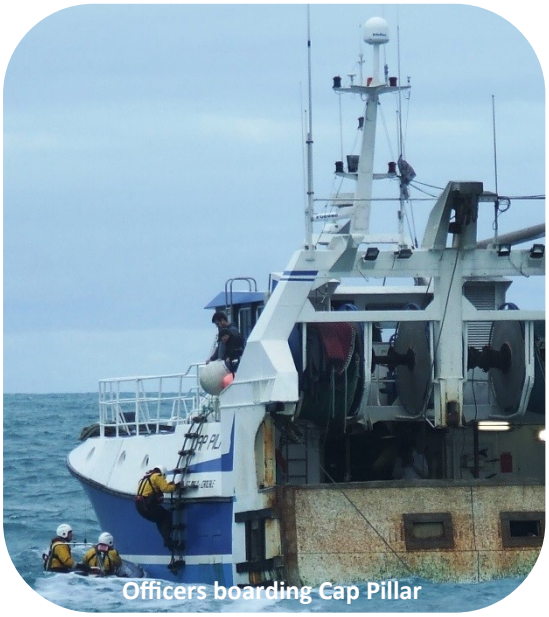
Measurement data and other information (such as species, location, etc.) are collected from stranded dead marine mammals. To obtain these data Marine Resources coordinates with British Divers Marine Life Rescue, the Department for Infrastructure, Société Jersiaise and Jersey Coastguard. In 2019 there 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

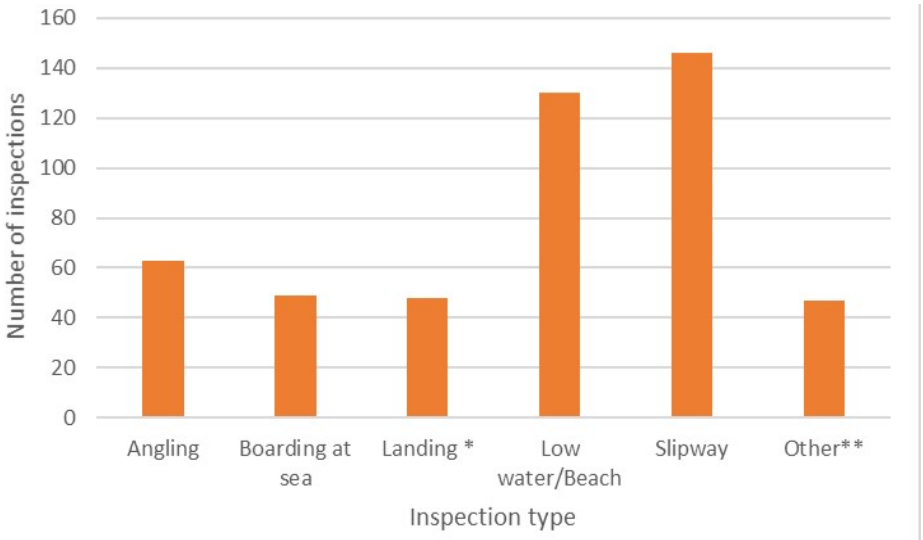
OUR ROLE. Fisheries officers carry out routine inspection checks along our island's coast, from piers and low water areas on-island, to offshore reefs, and to the limits of our shared fishing zones. Officers regularly board local and French vessels, both recreational and commercial. Checks are conducted 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 2020 a total of **483** inspection checks were conducted by Marine Resources officers. This is average, the decreased number of boarding at sea is a reflection of the Covid pandemic impacting patrols.

Of these inspections, **90%** were shore based, including angling inspections and low-water checks on the beach. **49** boardings at sea were conducted (excluding gear checks). A majority of our checks were conducted during work hours but over one third (**36**%) took place outside of government core work hours (09:00 - 16:00) or at weekends.



The number of inspections, separated by type. The checks are dominated by boardings at sea, low water and slipway checks and angling checks, usually on piers or headlands.

** 'Landings' including both at St Helier, and across other outlaying harbours such as those along the north coast.*

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

OFFENCES. The year 2020 produced 49 recorded offences against Jersey and French fishers from the recreational and professional sectors. Offences included fishing out of season, undersized animals and unmarked fishing gear. Outcomes varied from written warnings to fines**.** Several cases were still being progressed at the start of 2021.

ENFORCEMENT
FPV *NORMAN LE BROCQ*

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

During 2020 the FPV *Norman Le Brocq* clocked up 269.38 hours at sea across 56 days and a total of 1,832.96 nautical miles . This figure excludes a period at the end of the year (September onwards) when the vessel was sent for its refit. During this time, the patrol responsibilities were taken over by the FPV *Ecrehou.* Duties at sea included:

TASK*	COUNT	NOTES
Patrol	17	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	38	The large number of research trips was a combination of Departmental annual research projects in addition to assisting a PhD study.
Delivery	3	Delivery trips this year were made to facilitate the refit tenure and included final delivery to the boatyard
Training	2	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.

ENFORCEMENT
FPV *ECREHOU*

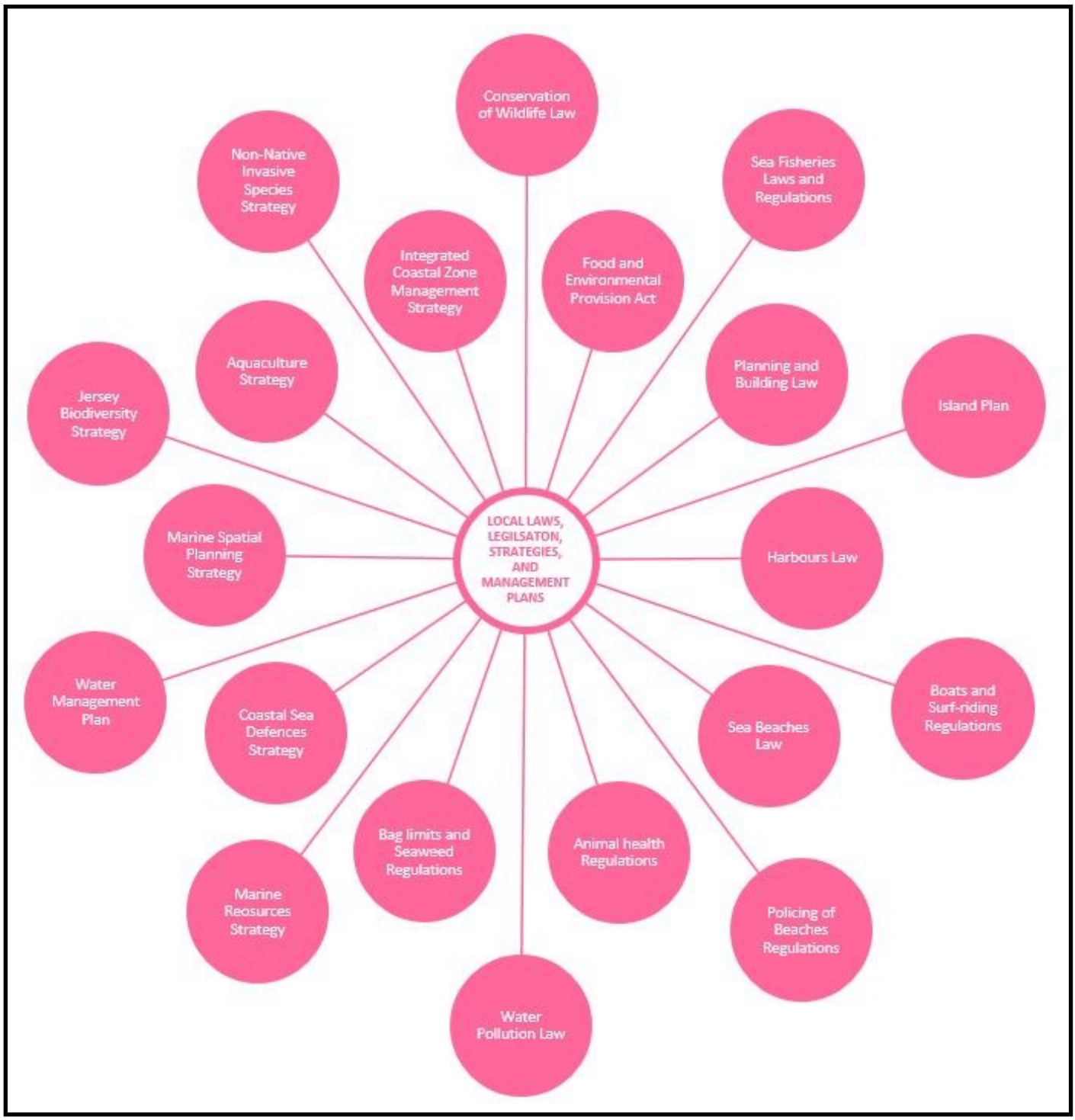
THE BOAT. The Ecrehou, built in 2020 with an overall length of 6.8m and a crusing sped of 25-30 knots has an important role within the fisheries team in fisheries patrols and enforcement. As part of the Goverments of Jersey's assets she is available to other departments including Customs and Immigration and the Police. Her primary purpose is to act as a rapid response vessel to allow officers to quickly reach anywere within Jersey territorial waters.

During July 2020, the marine resources team took delivery of the FPV *Ecrehou.* During the latter half of the year, the Ecrehou clocked up 99.3 hours at sea across 45 days.

TASK*	COUNT	NOTES
Patrol	24	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	5	The large number of research trips was a combination of Departmental annual research projects in addition to assisting a PhD study.
Delivery	0	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	4	Regular training requirements include familiarisation and routine training.

* 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

Atlantic blue fin tuna

Following increased interest in targeting Atlantic blue fin tuna (ABFT) both commercially and recreationally, the minister for Environment signed an ministerial decision to protect Atlantic blue fin tuna (*Thunnus thynnus*) stocks within Jersey waters. The decision amended the Conservation of wildlife (Jersey) Law 2000 to include Atlantic blue fin tuna on the list of species that cannot be caught in jersey waters. This applies to all vessels in Jersey territorial waters and includes those from the UK and France.

Atlantic blue fin tuna is currently listed as “endangered” by the International union for the Conservation of Nature (IUCN) Red List. This change came into effect during the summer of 2020.

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 2020 the closed season was set to the default dates of 1 September to 15 October and the Spider Crab (2020) Order reflecting the fact there were no JAC or JMC meetings during 2020.

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 has operated since 2018 and continued through 2020 with physical meetings in Paris and Jersey and virtual meetings by telephone and video. However, in late December 2020 the negotiation of a Trade and Cooperation Agreement between Jersey and the EU included provision for the termination of the BoGA at the start of 2021.

What is the Bay of Granville Agreement?

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

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

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

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

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

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

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

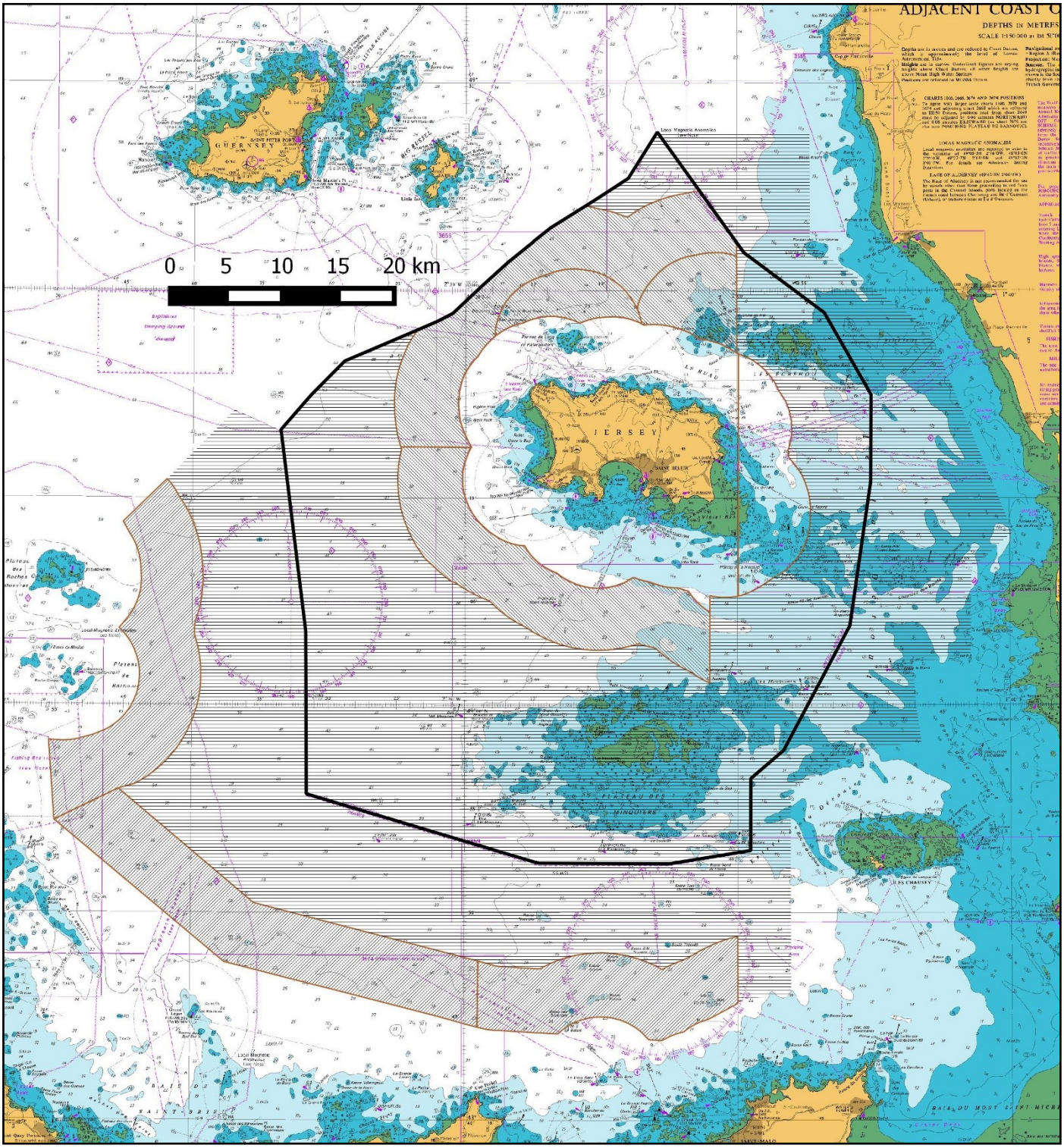
The JAC is the usual entry point for any items or propositions concerning fisheries management within the BoG Area. The JAC meets three times a year usually in Granville (February), Jersey (July) and St Malo (October). It is the role of the JAC to discuss and examine issues and, if possible, make jointly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

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

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

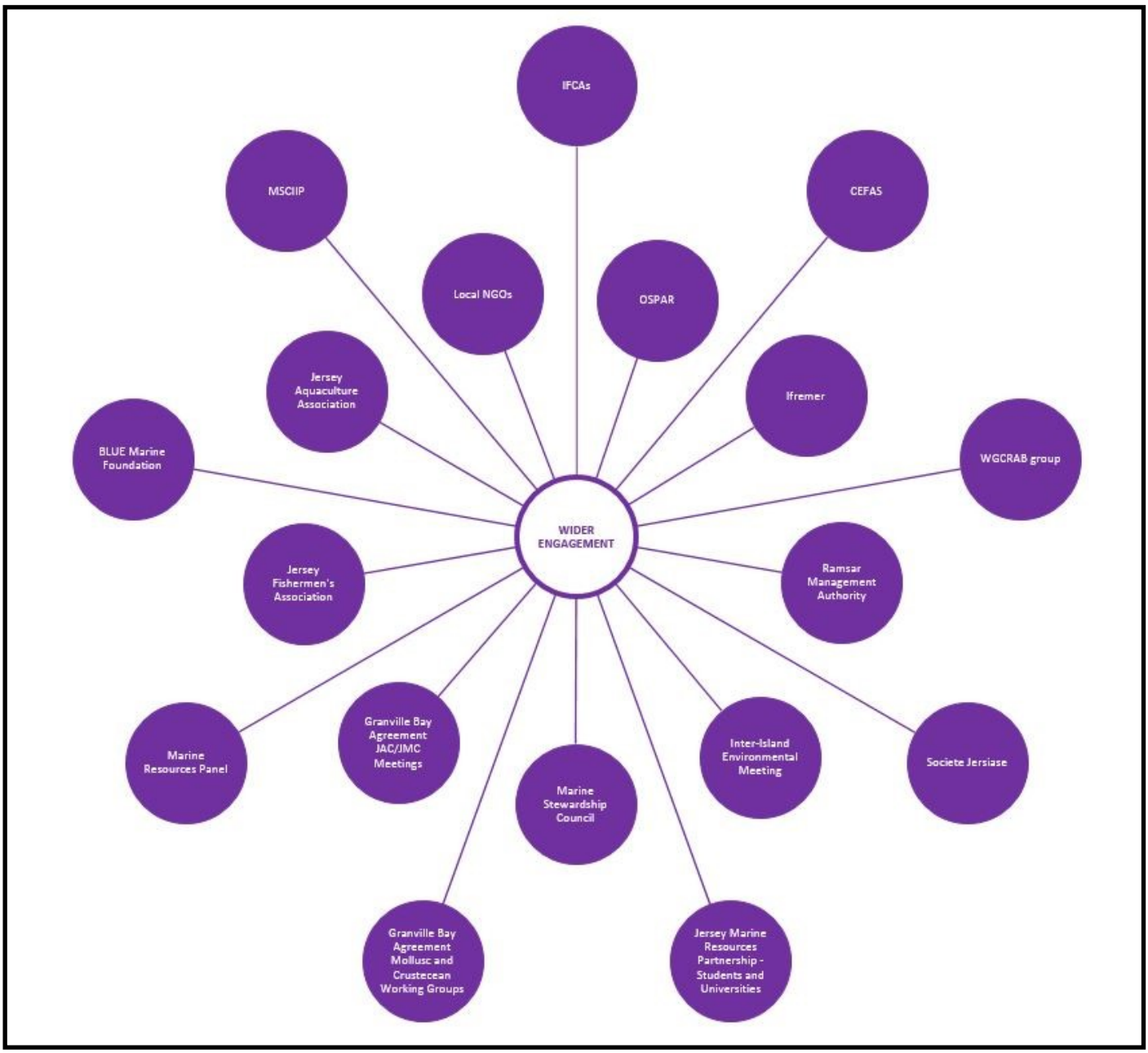
Outside of defining the responsibilities of the JAC and JMC, the BoGA defines the administrative and regulatory framework that relates to other matters such as jurisdiction, supervisory procedure, access arrangements and emergency and arbitration processes. There is no termination clause in the BoGA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

The BoGA formed the backbone of fisheries management during 2020 but on the 27 December the Government of Jersey voted to accept the terms of a Trade and Cooperation Agreement (TCA) negotiated between Jersey and the European Union. The TCA derives from the Brexit process and, as part of its fisheries provision, includes termination of the BoGA on the 1 Jan 2021. The new management framework this creates will doubtless be discussed in the 2021 Annual Report.



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 fishers 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

New Entrants	The Panel was asked to provide comments on the positioning of a new 0.2 ha holding area.

CAPTURE FISHERIES

Research projects	The Panel received an update regarding 2020 research projects including habitat sampling, cetacean monitoring, eDNA sampling, blue carbon assessment an individual species assessment (brown crab, scallops, bream, bass and lobster).
Permits	Ongoing discussions were ongoing regarding a permitting scheme I relation to effort control
Bass	Bag limits for commercial fishing vessels were queried, offices would continue to monitor the situation.
Blue fin tuna	A draft Blue fin tuna report was circulated along with the possibilities of a scientific study raised. Ongoing investigations would continue.
Whelk	Suggested management proposals were discussed.

ENVIRONMENT

Brexit	Continued updates were delivered throughout the year.

Safety at sea

Safety at sea	Ports of Jersey decided to delay the implementation of the Jersey Fishing Vessel Code due to the pandemic. To aid in costs it was suggested that the Rural Economic Strategy could support this. The code was required to aid in preventing fatalities at sea.

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

WIDER ENGAGEMENT
STUDENT PROJECTS

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

2020 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 2020, dissertations were finalised for a variety of projects including baited remote underwater video systems (BRUV's) comparing local species assemblages, ray and shark egg cases findings and marine mammals sightings. Unfortunately due to Covid-19 restrictions, field work was not possible until late in the summer. This hindered the development of practical research projects, in its place desk based statistical research was undertaken. In addition to this, the department took on a number of interns, locally and abroad to supplement placements which had fallen through due to Covid.

Additionally, links have continued to be cemented 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. Work which was carried out in 2019 was repeated during 2020 to aid in building up an understanding of the ecology of the offshore reefs. 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.

Fieldwork for this project is coming to an end, however ongoing analysis will continue 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 March 2021.

SPECIES	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Dog cockles	1830	1610	1395	1370	1338	0	0	0	0	80	137
Brown Crab	408880	478533	507056	436120	386031	305807	348500	310353	287252	170941	126424
Crayfish	0	5	47	7	33	46	121	2	11	6	4
Cuttlefish	2090	3772	5989	2689	2065	5773	6053	4372	7934	10971	14104
Green Crab	0	0	0	0	0	0	0	0	20	1236	0
Velvet Crab	837	296	247	319	297	258	218	296	287	317	180
Lobster	225536	268218	249163	225994	237229	256921	241460	243150	193503	155374	111289
Octopus	7	0	0	0	0	0	22	2	2	0	3
Ormer	941	242	230	89	10	23	277	0	7	643	809
Praires	0	0	0	0	0	0	210	0	0	0	2960
Prawns	0	63	69	1	116	0	26	3	29	0	24
Queen Scallops	1020	0	0	0	0	0	300	150	0	0	0
Scallops [1, 2]	404552	349658	342786	335332	387331	280018	319731	296741	275021	337986	249203
Spider Crab	173289	148556	110298	81645	87727	95519	121751	208828	289229	301743	199293
Squid	50	123	63	421	239	631	480	498	631	389	297
Whelks	497410	377622	430368	512058	303701	268921	544237	345980	838926	735443	179440

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 have been corrected and any differences were minor.

APPENDIX II
COMMERCIAL LANDINGS: WETFISH

These figures are for commercial landings by Jersey vessels and are in kilogrammes. They are correct as of March 2021.

Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Blonde Ray	25593	25573	60657	76488	86747	66848	74170	34370	52655	46343	60801
Dogfish	9225	10126	11761	10104	8525	2367	6354	9730	7154	6634	7769
Wrasse	100	454	1957	1543	3823	4485	5169	5588	7248	4502	4321
Black Sea Bream	26856	17954	107173	31253	23141	21858	7869	3823	9847	3052	4796
Lesser Spotted Dogfish	3430	800	10258	11443	12796	19494	10735	3600	9500	7590	4860
Mackerel	7351	6550	7945	8564	6639	3077	2714	3476	3436	2100	5227
Conger Eels	3578	3276	2093	1979	1635	1075	2550	2753	3194	2069	1649
Pollack	8771	21059	9227	8445	6327	4663	2452	2300	1689	1066	1673
Smooth Hound	3132	612	14636	17587	10927	25200	8280	1803	5070	3340	2178
Whiting	2762	117	252	495	3024	2804	1012	1624	1391	787	746
Brill	3928	6610	2336	3414	4172	3971	1843	1584	1393	1629	1711
Bass	14077	17324	11537	13366	10929	8960	7306	1483	1476	6649	7542
Bull Huss / Greater Spotted Dogfish	2623	1445	139	46	426	223	1042	1323	859	2238	1700
Plaice	2951	5016	2421	2702	2159	2156	1427	1245	803	936	647
Turbot	896	3029	2070	2468	2035	2331	924	1186	680	543	652
Grey Mullet	2529	2202	1527	2552	2378	2199	2416	789	932	2154	2975
Dover Sole	1585	1768	1279	2382	1093	1007	951	755	1594	696	672
Angler Fish / Monkfish	153	1170	41	348	844	1226	576	477	258	466	601
Red Gurnard	0	855	2707	2839	2899	2683	2866	438	1940	1243	1304
Sand Sole	245	910	706	595	1052	1192	831	434	379	234	1109
Tope	30	270	660	429	290	345	2599	280	181	40	306
Pouting	1604	1150	1085	1480	850	1100	910	261	870	332	469
Red Mullet	195	430	698	323	235	128	182	194	133	254	235
Snipe / Garfish	1	1	1	100	4	13	35	138	42	18	0
Horse Mackerel	3	0	185	190	148	269	0	114	191	28	280
Undulate Ray	2183	0	0	0	0	0	40	65	960	1702	95
Lemon Sole	0	0	11	0	1	0	0	61	57	0	31
Grey Gurnard	783	85	0	0	0	0	26	46	48	6	51
Trigger Fish	8	0	1	0	5	3	3	43	0	2	3
Ling	209	478	572	374	331	184	37	30	0	3	93
Sand Eels	311	15	13	19	17	5	30	22	31	8	31
Cod	251	302	8	2	459	28	55	20	25	194	10
Gilt-head Bream	60	0	550	7	0	0	120	18	20	254	562
Thornback Ray	104	62	238	25	13	10	190	10	21	76	0
Sea Trout	1	0	2	0	6	0	1	1	0	0	1
Historic - Skate/Ray	10448	14594	0	0	13	0	0	0	0	0	0
Small-eyed Ray	4582	1071	1478	823	489	1187	0	0	10	5	0
Porbeagle Shark	300	0	0	0	0	0	0	0	0	0	0
John Dory	9	11	5	65	5	6	28	0	64	49	433
Shad	6	0	0	0	0	0	135	0	0	5	0
Spurdog	0	37	0	8	5	0	0	0	0	0	0
Herring	0	0	40	0	0	0	0	0	0	2	4
Flounder	0	0	3	0	0	0	2	0	0	0	0
Haddock	0	0	0	0	0	0	0	0	44	0	0
Saithe	2	0	0	0	0	0	0	0	0	0	0

APPENDIX III
COMMERCIAL FISHING EFFORT

These figures are for commercial landings by Jersey vessels . They are correct as of March 2021.

GEAR NAME	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Diving	673	357	711	700	723	758	393	1407	1659	2436	1656
Dredge	1867	3801	3472	3171	4318	2970	4418	4106	4058	3164	2539
Angling	3184	4233	3845	6400	2752	2768	2042	2403	2818	2105	2950
Long Lines	11820	14470	9911	7491	1168	2200	3972	909	2518	8200	13000
Low Water	0	0	0	0	2	2	0	0	0	40	100
Gillnet 090 - 099	72010	85827	132240	191278	141060	109196	106245	32703	21165	1571	7884
Gillnet 100 - 119	19239	19954	24756	11700	15820	6570	8140	22322	16100	51095	85545
Gillnet 120 - 219	6540	11410	6640	6750	2200	8360	11800	3574	5900	3400	1000
Historic Gill Net	200	7504	0	0	0	0	0	0	0	0	0
Historic Mesh	8230	4050	0	0	0	0	0	0	0	0	0
Historic Tangle 100	1600	12	0	0	3	0	0	0	0	0	0
Historic Tangle 120	4700	3300	0	0	0	0	0	0	0	0	0
Historic Tangle 130	5000	640	0	0	0	0	0	0	0	0	0
Historic Tangle 90	0	0	0	0	0	0	0	0	0	0	0
Historic Trammel	3000	2550	0	0	0	0	0	0	0	0	0
Seine Netting 080 - 099	0	0	0	1500	0	0	0	0	0	0	0
Tangle 220+	107984	61048	31630	55521	82040	113070	60720	50232	76579	56570	62249
Trammel 090 - 099	5500	4900	6150	37450	1704	8136	9600	11173	360	0	0
Trammel 100 - 119	13800	4340	14000	9800	20800	28900	19301	13009	7500	6791	8102
Trammel 120 - 219	3600	2000	23060	0	11060	1000	2638	416	1190	13001	11493
Trammel 220+	8800	0	3800	5300	24202	6640	0	8117	13600	19142	2100
Cuttlefish Pots	153	588	837	626	653	1080	1131	972	3648	4626	3959
Fish Traps	0	0	235	320	268	437	331	143	0	18	0
Green Crab Pots	0	0	0	0	0	0	0	0	0	0	0
Prawn Pots	0	0	0	440	0	0	24	96	631	0	75
Whelk Pots	174558	134748	181775	238773	129053	131786	192215	146561	336190	348213	141444
Creels	185918	205896	200393	141078	133786	139041	105776	114810	122412	99435	72015
D Pots	9743	8445	14934	15768	25037	26584	24206	33357	29148	95069	89472
Ink-Wells	191920	211200	245721	261830	211559	195921	174760	254333	255074	242795	177773
Parlour Pots	1356367	1452853	1403837	1397155	1300286	1258174	1398436	1509818	1397108	1157461	898472
Beam Trawl 080 - 099	0	12	0	0	0	12	60	0	0	0	0
Otter Trawl Bottom 080 - 099	3201	3797	3090	2062	1262	3320	2040	994	1335	1206	1415
Otter Trawl Mid-water 080 - 099	0	0	0	1036	555	1245	585	12	28	0	0
Pair Trawling Bottom 080 - 099	0	0	0	44	0	0	0	0	0	0	0
Pair Trawling Mid-water 080 - 099	172	801	4140	0	909	340	0	0	0	0	0