

# "Sussex Bay" seafood branding pilot

# **project:** fishery sector baseline evidence

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# Contents

G	lossary	•••••		v
1	Inti	oduc	tion	1
	1.1	Purp	pose of the report	1
	1.2	Rep	ort structure	2
2	Gei	neral	overview of English Channel environment and offshore and inshore fisheries	4
	2.1	Geo	graphical context	4
	2.2	Fish	ery management	4
	2.3	Mar	ine environment	.10
	2.4	Suss	sex fishing industry	. 12
	2.4	.1	Fish stocks	. 12
	2.4	.2	Catches	.14
	2.4	.3	Fishing methods	. 16
	2.4	.4	Fishing fleet and value of landings	. 19
	2.4	.5	Fishing ports	.20
	2.5	Com	ıplexity	.23
3	Fisł	nery s	sustainability / environmental standards	. 24
	3.1	Mar	ine Stewardship Council certification and Fishery Improvement Projects	.24
	3.2	Mar	ine Conservation Society and the Good Fish Guide	.25
	3.3	Oth	er standards, guides and templates	.35
	3.4	Con	cluding remark	.36
4	Fisł	neries	s management systems focusing in on IFCA	. 37
	4.1	EU 8	& UK systems	.37
	4.2	Insh	ore Fisheries and Conservation Authorities (IFCAs)	. 38
	4.3	The	Sussex IFCA	. 39
	4.3	.1	The Committee	. 39
	4.3	.2	The Executive	.41
	4.3	.3	IFCA Operations	.42
	4.3	.4	Compliance and Enforcement	.48
	4.3	.5	The Compliance Risk Register and risk-based management	.50
	4.3	.6	Monitoring, inspection and research work	.52
5	Fish	neries	s of Sussex Bay – detailed: catch, landings, fleet, metiers	. 55
	5.1	Ove	rview of landings	.55
	5.2	Disa	ıggregated data	.56
6	Sup	oply c	hain issues	. 62
	6.1	Post	tharvest systems of Sussex Bay – ports & port infrastructure, port sales, traders	.62

6.1	.1	Seafood trade links along the supply chain	62				
6.1	.2	Consumer preferences and markets	63				
6.2	Sale	s channels	66				
6.3	Trad	ler network	68				
6.4	Seas	sonality	68				
6.5	First	t Hand Prices	69				
7 Fis	hery r	nanagement in the IFCA area: what has changed?	72				
7.1	Chai	nging policy	72				
7.2	Alte	red mandate in establishment of IFCAs	72				
7.3	Suss	sex IFCA innovations	73				
7.4	Add	ressing the recommendations of the 2010 "Navigating the Future" report	73				
7.5	In th	ne pipeline	75				
8 Im claimed	8 Implications for a Sussex Bay brand – what is and could be claimed, and what cannot be claimed						
Appendi	ix A –	Sussex IFCA Shellfish Permit Catch Returns Data Summary 2020	78				
Appendi	ix B —	Example data analysis of Shellfish Permit Catch Returns Data	82				
Appendi connecti	Appendix C – Fish Wholesalers and Seafood Processors based in Sussex or with a Sussex connection						

# Glossary

B <sub>lim</sub>	Biomass limit reference points define the danger zone for a stock, the point beyond which its reproduction is at higher risk, and therefore a state that should be avoided; the limit is almost always based exclusively on the stock's biological characteristics.						
B <sub>trigger</sub>	A biomass reference point that triggers a cautious response within the ICES MSY framework (see ICES Advice, Section 1.2 – https://www.ices.dk/community/Documents/Advice/Acronyms_and_terminology.pdf)						
Defra	Department for Environment, Food & Rural Affairs						
EEZ	Exclusive Economic Zone						
EMS	European Marine Sites are areas of the marine environment that have been designated for protection under European legislation and are either classed as Special Protection Areas (SPAs for bird species) or Special Areas of Conservation (SACs for habitats)						
ETP	Endangered, Threatened and Protected						
EU	European Union						
FIP	Fishery Improvement Project						
F <sub>msy</sub>	Fishing Mortality at Maximum Sustainable Yield						
FQA	Fixed Quota Allocation						
ICES	International Council for the Exploration of the Seas						
IFCA	Inshore Fisheries and Conservation Authority						
MCRS	Minimum Conservation Reference Sizes						
MCS	Marine Conservation Society						
MCZ	Marine Conservation Zone						
MLS	Minimum Landing Size						
MMO	Marine Maritime Organisation						
MPA	Marine Protected Area						
MSC	Marine Stewardship Council						

MSY Maximum Sustainable Yield					
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic				
SAC	Special Area of Conservation				
SPA	Special Protected Area				
SSB	Standing Stock Biomass				
TAC	Total Allowable Catch				
VMS	Vessel Monitoring System				
V-notch	in lobster conservation a V is cut into the tail of a female lobster carrying eggs, signalling that the animal should not be landed whilst the V-notch is visible (typically for a year or two) so that it is recognised as a breeding female				

#### **1** Introduction

#### **1.1** Purpose of the report

Adur and Worthing Councils (see **Fig 1**) are exploring the possibility of establishing a local / regional seafood brand – working title "Sussex Bay" – to be used in promoting the benefits of local inshore seafood and strengthen sales prices to fishermen and seafood traders and others along the supply chain. This forms a part of a wider "Sussex Bay" initiative that focuses on the restoration of Sussex marine and coastal habitats, with pathfinder projects in restoration of the west Sussex kelp beds, and coastal saltmarsh and wetland. "Sussex Bay" is taken to refer to

Fig 1 – District Council Areas of the County of Sussex



Source: www.adur-worthing.gov.uk/aboutthe-councils/neighbouring-councils/......

the coastal area (land and sea) within the West Sussex and East Sussex administrations, extending seaward to the 6nm territorial limit (i.e. that sea area managed by the Sussex Inshore Fisheries Conservation Authority (IFCA)).

The current work has been commissioned to provide a profile of the local fisheries, extended to identifying what information is available to demonstrate the sustainability characteristics of those fisheries. Background information is provided to inform this programme including fishery and environmental management systems, fisheries legislation, legal protections of the marine environment, fishing practices, compliance, fish quality, and post-harvest fish handling practices. It is presented in a format that does not expect the reader to have any particular prior knowledge of the fishing industry and fisheries management.

The immediate geographical focus of the work is the inshore fisheries within the geographical boundary of the Adur and Worthing council areas (the fishing communities of Shoreham and

Worthing), but given that it is an intention of this pilot branding programme to explore whether it could be applied more widely, and that these inshore fisheries fall within the management area of the Sussex Inshore Fisheries and Conservation Authority (IFCA) (see **Fig 2**), it is considered reasonable that the research should encompass the inshore fisheries of the whole of the IFCA managed area – from Emsworth and Selsey in the west, through Brighton and Newhaven, to Eastbourne, Hastings and Rye in the east – but with a particular focus on West Sussex, and on the Worthing, Shoreham, Brighton area.

Fig 2 – Sussex IFCA managed area

The research work is intended to identify the volume and species composition of fish landed to the area Source: Sussex IFCA website: www.sussexifca.gov.uk/limits-of-the-district

from which branded product might be sourced, and to highlight the extent to which the evidence might support any ecological, environmental or sustainability claims that brand managers might seek to make. It may be sufficient to simply designate the seafood and fisheries covered by a "Sussex Bay" brand to be fish that has been harvested from within the area managed by the Sussex IFCA. But the stated ambition is that the brand should specifically benefit inshore fisheries / fishermen, and highlight good practices and responsible and sustainable behaviour – and thus should recognise that not all fishing by inshore fishermen is limited to within the 6nm limit, and not all fish landed to

Sussex Inshore Fisheries and Conservation Authority District

Sussex ports and harbours is caught within 6nm of the shoreline, or indeed within the Sussex Bay area. In this context the complexity of the fishing industry and fisheries management is such that there are many pitfalls or trip-wires that branding managers might not be immediately aware of. Descriptions of the industry presented in the report are evidence based, and highlight where that evidence might support a branding claim and where not.

#### **1.2 Report structure**

The report is drafted to provide a reader that does not have prior knowledge of fishing, fisheries or fisheries management with an insight into the systems used to manage fisheries and how these are applied in the waters off the Sussex coast. In addition it takes the reader sequentially through descriptions of the fisheries and marine environment of the area and the evidence that is available on which management decisions are made, and which could be called upon to inform a branding of local seafood. It should be reiterated that the report is based on desk research and access to readily available reports and datasets only.

**Chapter 2** presents a brief graphics-rich overview of the fisheries and marine environment of the Eastern English Channel and the Sussex coast. It provides a foundation that allows critical appreciation and analysis of the further detail provided in later chapters.

In **Chapter 3** we look at recent examples of how seafood has been assessed as being responsibly sourced or coming from a well-managed fishery or from fishing practices that seek to minimise impact on the marine environment. The most thorough and comprehensive assessment and certification system is that of the Marine Stewardship Council (MSC), and this is described in outline only. Considered of greater relevance to the multi-species nature and small scale of the fisheries of the Sussex coast, the assessment methodology used by the Marine Conservation Society (MCS) in preparation of its popular Good Fish Guide is described, and illustrated with reference to how the MCS has assessed some 60+ fisheries that take place in the Sussex area. This illustrates some of the complexities of developing and defining what a particular seafood brand represents, and how this is communicated to the consumer.

**Chapter 4** focuses very much on the structure and operations of the Sussex Inshore Fisheries and Conservation Authority (the Sussex IFCA), which has specific responsibilities for managing the fisheries of the Sussex coastal waters out to 6nm. The profile highlights the IFCA's mandate, and how this is supported by the regulations it operates with and the work of its fishery and research officers. It describes how its responsibilities extend to the monitoring and management of fishing / environmental impacts, and how a mosaic of zonal fisheries management navigates a path between the commercial interests of fishermen and obligations to protect and conserve the marine environment.

We dig further into the available quantitative data to describe in **Chapter 5** what the available fish catch and landings statistics tell us about the local fishing industry, with a particular focus on the area managed by the IFCA and the activities of the fleets operating in that area, and how different gears are used to harvest different species of fish. The intention is to give the reader a better feel about what fish is caught and landed in the area and the volumes of fish that are available for sale.

**Chapter 6** is to do with how fish enters and is sold along the supply chain, and presents some simply thumb-nail sketches of the characteristics of demand and market for different fish species that are landed locally. It also indicates where further information can be gleaned on Sussex fish wholesalers.

In **Chapter 7** we return to the work of the Sussex IFCA to assess how well it can be considered to be managing the local fisheries, and what room there might be for further improvement. Much has changed over the last decade – all for the good – and there is every expectation that management and fishing innovation will continue to mean that seafood harvests from inshore waters are accomplished in ways that do not adversely impact the stocks of these species and better manage / reduce the impact of fishing techniques on the marine environment.

Finally in **Chapter 8** we offer some pointers as to how the information presented in the report might be used to support a "Sussex Bay" seafood brand, and caution where superficially simple claims might not, under scrutiny, be supported by the evidence.

# 2 General overview of English Channel environment and offshore and inshore fisheries

#### 2.1 Geographical context

The study target area is Sussex Bay, which for analytical purposes has been taken as the area of the Sussex coast between Selsey and Rye extending out to 12nm, the limit of the UK's Territorial Waters. The fisheries of the area out to 6nm are managed as an inshore area by the Sussex Inshore Fisheries and Conservation Authority (IFCA) under local Byelaws, but the area is also subject to overall control by the Marine Management Organisation (MMO) under primary and secondary UK and English legislation. Fisheries beyond 6nm, and out to the mid-line of the English Channel (the separation between the English and French Exclusive Economic Zones (EEZs)), are managed by the MMO which has jurisdiction for this offshore area.

The study area lies along the northern edge of the Eastern English Channel, the body of water extending from the Dover Strait in the east to the Western Approaches (an area notionally bounded by a north-south line drawn between Bournemouth and Cherbourg). This is a relatively shallow water area, deepening to the west and with a deeper channel extending roughly along the mid-line of the Channel. These features are indicated in **Figs 3 & 4**. Note that the area along the Sussex coast is particularly shallow, and is broadly equivalent to that area that falls within the management jurisdiction of the Sussex IFCA.





**Source:** Gupta S *et al* (2017) Two-stage opening of the Dover Strait and the origin of island Britain;

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4

The Dover Strait is one of the busiest sea-lanes in the world, which means that maritime traffic in the Eastern English Channel is also particularly high. On top of this, however, the English Channel is one of the most intensively fished areas along the European western seaboard, as illustrated in **Fig 5**. This is a graphic display of the averaged combined fishing tracks of all fishing vessels over 12m in length<sup>1</sup> for the period 2015 to 2018, adjusted for the time spent in any area and the engine power of these vessels (expressed as megawatt fishing hours). It illustrates a number of key features of the fishery economy and of fisheries management:

the graphics do not include any fishing activity by vessels under 12m in length<sup>2</sup> (noting that most of the fishing conducted in the study target area is by vessels under 12m in length);

all fishing vessels over 12m in length are required to operate with a satellite mediated Vessel Monitoring System (VMS) fitted that allows the remote recording of vessel activity (by reporting each vessel's position every hour it is possible to compute its location and direction and speed of travel, and so to impute whether it is fishing or steaming to and from fishing grounds);

for fishery management purposes, sea areas are broken into gridded statistical squares, referred to as ICES statistical rectangles;

ICES stands for the International Council for the Exploration of the Sea, which is an intergovernmental marine science organisation tasked with meeting societal needs for impartial evidence on the state and sustainable use of our seas and oceans – and which draws together information from the marine and fishery research organisations of its member countries, and provides independent advice on the management of the marine environment, including fisheries<sup>3</sup>;

ICES provides independent advice on the management of fisheries and fish stocks – including advice on setting Total Allowable Catches (TACs) (that proportion of a stock that it is considered responsible to fish per year) – with a focus on those stocks that span two or more national or international jurisdictions;

the UK, the European Union and third countries such as Norway, the Faroes and Iceland, are members of ICES, and are expected to jointly negotiate how TACs are sub-divided by them into national annual or multi-annual fishing quotas;

looking at the different fisheries illustrated:

 beam trawling is a preferred method for fishing flat fish such as sole and plaice (fish found on or very close to the seabed);

<sup>&</sup>lt;sup>1</sup> All such fishing vessels (over 12m in length) are required to carry a functioning satellite mediated transponder which allows remote monitoring of each vessel's location – which in turn allows tracking of all such vessels and estimation of when they are engaged in fishing and when not, which can then also be cross-referenced with catch records.

<sup>&</sup>lt;sup>2</sup> Licensing of fishing vessels in the UK traditionally recognises a dividing line between vessels of 10m&under and those over10m in length (the length of a vessel taken as the distance between verticals at the water line); across the European Union and some other western European countries, a dividing line is made between vessels under and over 12m in length – and under International Maritime Organisation (IMO) rules another distinction is made between all merchant vessels under and over 24m in length; satellite mediated monitoring of fishing vessels originally applied to vessels over 24m, then 15m, and later extended to vessels 12m and over. <sup>3</sup> Note that ICES provides independent scientific advice; that advice is sought and used by its member countries, but also by the North East Atlantic Fisheries Commission (NEAFC), which is the Regional Fisheries Management Organisation (RFMO) for the North East Atlantic (covering an area stretching from the southern tip of Greenland, east to the Barents Sea, and south to Portugal).





Source: p22; ICES Advice 2020 from ICES Fisheries Overviews, Greater North Sea ecoregion, published 30 November 2020

Note: Fishing effort data are only shown for vessels >12 m having vessel monitoring systems (VMS);

- bottom otter trawling is focused on fin fish found on or near the seabed, such as cod and haddock in the North Sea, but a wider range of finfish in the English Channel and Western Approaches; on muddy substrates it is also used to fish nephrops (langoustine, Norwegian lobster or Dublin Bay prawn), a method deployed particularly off the Moray Firth and Firth of Forth in Scotland, and off the Northumberland coast;
- bottom seining involves lighter gear and is particularly suited to fishing flat unobstructed seabed (mud, sandy, gravel) targeting a wide range of flat and round finfish;
- dredges refers particularly to fishing methods that involve raking the seabed, and in particular scallop dredging – most particularly fishing for king scallop;
- pelagic fisheries tend to fish the water column (i.e. not the seabed), focused on small shoaling fish species such as herring, mackerel, sardines and sandeels;
- static gear mainly refers to potting (mainly for crabs, but also for lobsters and whelks, and other shellfish), but also includes gill nets and trammel nets (used to catch finfish and some, spiny, crustaceans), but noting that this graphic refers to the larger vessels in this gear sector (most potting and static netting is done in inshore areas by vessels under 12m in length, though larger nomadic "vivier" potters or super-crabbers stay at sea for several weeks at a time and fish many times more pots than smaller vessels);

these VMS tracks of over 12m vessels also suggest that there is relatively limited fishing by the over 12m fleet component inside the 12nm limit – some limited beam trawl and otter trawl activity, some scallop dredging, and some potting by these larger vessels (noting that fishing inside the 6nm limit is limited, by Sussex IFCA Byelaws, to vessels under 14m).

**Fig 6** is a somewhat different spatial representation of fishing – focused on the inshore zone within the Sussex IFCA area. This is not based on the actual fishing tracks of vessels operating in the inshore zone, but is an imputed graphic representation based on sightings of fishing activity made by IFCA fishery officers as part of their regular duties when patrolling on IFCA patrol vessels.

These maps show relative observed fishing actively and have been adjusted to reflect different levels of patrol activity, and subsequently the likelihood of sightings. They do not represent activity that has not been observed / recorded and therefore cannot be regarded as definitive. They do, however, provide a clear understanding of the spatial extent of different fishing methods within the IFCA's district.

The distinction is important. Fishery patrol activities are managed to concentrate on those areas that are most heavily fished, those areas where inappropriate activity is more likely, where rules are more often broken, and where fishery / environment interactions and impacts are likely to be most damaging (i.e. essentially a risk-based approach to monitoring).

Whilst such information contributes to a better understanding of the fisheries of the area, a more accurate record of fishing activity would be provided by tracked data, and this is indeed in the offing. Vessel monitoring systems more appropriate to smaller inshore fishing vessels have been under test for some years, and there is now a concerted move to require their deployment on all under 12m vessels. Such systems tend to rely on either VHF (Very High Frequency) radio or mobile phone (GPRS – General Packet Radio Service) technology to record position every minute or so, and whilst there is

#### Fig 6 - Indicative spatial distribution of fishing effort from patrol vessel observations



**Source:** Sussex IFCA (2022) Sussex Inshore Effort 2017-2021 & Nelson K (2017) Identifying marine management priority areas by mapping environmental value & fishing intensity: L&iversity of Brighton MSc thesis

strong resistance from the industry for their deployment use of such systems will greatly assist management of fisheries and fisheries-environment interactions in inshore smaller scale fisheries.

Nonetheless good insights into the spatial distribution of fishing effort are evident when these data are layered one on top of the other (**Fig 7**). Much of this is dictated by the underlying bathymetry and geology of the area, recognising for example that the seabed shelves to deeper water south of Selsey Bill, south of Beachy Head, and south off Rye in the far east of the area. This is reflected to some degree in the distribution of trawling effort, with trawling concentrated in the shallower waters between Shoreham and Eastbourne in the western part of the area – an area also favour for





Source: adapted from the patrol vessel sightings data

**Note:** the Rye fleet operates a locally significant scallop fishery beyond the 3nm limit; this is not captured in patrol vessel sightings, but has been added to the graphic to better represent reality

Since March 2021 introduction of the new Nearshore Trawling Byelaw means that pair trawling cannot take place within 4km of the coast within the west of the IFCA District

fixed netting fishing (drift netting is rarely used in the IFCA area). But to the east, otter trawling is concentrated in deeper waters south of Rye, with static gears predominating in the rest of the

eastern half but with very little overlap with trawling or with each other – note location of fixed netting (near shore and further offshore), cuttlefish potting (near shore), and potting for crab and lobster.

Some limited scallop dredging is concentrated along the outer edge of the district south of Beachy Head forming a peripheral part of the mid-Channel scallop fishery which is mainly conducted by larger vessels outside the IFCA managed area. Another locally significant scallop fishery is exercised by the Rye fleet fishing beyond the 3nm limit; this is not captured in patrol vessel sightings, but has been added to the graphic to better represent the reality.

Observations of angling activity are not as comprehensive as could be, particularly so for recreational angling – which is wide spread right across the district. Commercial (and recreational) angling is concentrated in the western part of the district around the rocky outcrops that are the subject of protection in the Utopia and Kingmere Marine Conservation Zones (MCZs), inshore between Shoreham and Newhaven, and off Beachy Head.

The Kingmere area is a recognised and protected seasonal breeding area for black bream (seasonal concentrations are found on and to the north of the Kingmere area), hence the historic concentration of pair trawling effort just to the north and northwest of, and outside, the zone.

Potting for crab (and lobster) is concentrated in the nearshore and further offshore areas between these two MPAs, and seasonal trap fishing for cuttlefish takes place in the nearshore area between Bognor Regis and Brighton.

Potting for whelks, which is by far the most valuable product of the potting sector, takes place across large areas of the IFCA district, in areas to the east and south of the Selsey Bill promontory, and similarly to the east and south of the Beachy Head promontory, in areas where there is little activity by mobile gears.

Overall, the picture is of an ordered mosaic of fishing areas, where natural seabed and environmental features combine with the particular characteristics of different fishing methods to minimise competition between gears on the ground both in space and in time.

#### 2.3 Marine environment

The Eastern English Channel is one of the more heavily studied and researched areas of marine environment in western Europe – and in particular was the focus of a large and comprehensive environmental mapping study conducted by English and French research institutions in the early 2000s, the CHARM Project (Eastern Channel Habitat Atlas for Marine Resource Management, 2005).

The seabed geography of the area is predominately covered in waves of course sand interspersed with medium-fine sand with shell gravel and dotted with boulders and bedrock. The estuarine area around Chichester is predominately muddy, moving into pebbles / cobbles and waves of course sand further offshore. Inshore areas from Selsey to Shoreham and Eastbourne to Hastings have large stretches of pebbles, cobbles, empty shell and turf with boulders and bedrock out to approximately 2nm, where the dominant habitat becomes course sand waves and boulders further offshore. There are patches of mud with mixed turf south of Eastbourne and larger patches approximately 3nm offshore running from Rye to Dungeness. In general terms habitats outside the immediate nearshore zone become more sedimentary in nature the further east one is within the district.



**Source:** Nelson K (2017) Identifying marine management priority areas by mapping environmental value and fishing intensity

**Note:** colours follow the EUNIS standard. Figures in brackets are the proportion of the study area covered by the habitat.

Key to characterising the fish resources is an understanding of the habitats provided throughout the Sussex District and the Eastern Channel. The dominant habitat classes as identified by the European Nature Information System (EUNIS) classification system include kelp and red seaweeds to the west, circalittoral<sup>4</sup> coarse sediment and circalittoral fine sand throughout and to the east communities on soft circalittoral rock and circalittoral muddy sand are dominant. These support a diverse mosaic of habitat types as mapped for the Sussex District in an output of the study undertaken in 2007 titled Habitat Classification Using Video and Acoustic Techniques (Clark et al., 2007), and later updated in Nelson K (2017), as shown in **Fig 8**.

In the years immediately following this study the UK government instituted a number of research and engagement projects to review and extend the array of Marine Protected Areas (MPAs) within the UK EEZ, in line with international, EU and UK policy commitments on the subject. The project relating to the Eastern English Channel was called Balanced Seas, delivering marine conservation

<sup>&</sup>lt;sup>4</sup> Intertidal refers to that area of shoreline exposed between normal high and low tides; infralittoral refers to a transitional area of shallow water closest to shore areas subject to occasional exposure during spring tides where sea grass and green seaweeds are most common; circalittoral extends from the lower limit of the infratlittoral to the maximum depth at which photosynthesis is still possible

zones (MCZs) in the South-East. This reported in 2011, with recommendations for the establishment of a number of additional MCZs, a number of which have since entered into force.

In addition to these pieces of work the Sussex IFCA has also both undertaken and commissioned a wide range of marine environment and habitat and management studies, making this inshore area one of the most intensively researched areas around the British Isles. These have been and continue to be used to inform marine and fishery management in the area. **Fig 9** shows the range of Marine Protected Areas currently in place in the area.

### 2.4 Sussex fishing industry

#### 2.4.1 Fish stocks

The extent to which a fish population can be fished is determined by how much of the fish (biomass) can be taken out of the population in any given period without reducing the capacity of the overall population to replenish itself. Fish eat fish and fish die, and so under natural conditions a proportion of the population is removed "naturally". Management of fishing requires that the mortality brought about by fishing, plus natural mortality, are within limits that do not reduce the capacity of the overall population to replenish itself. This amount is referred to as Maximum Sustainable Yield (MSY), and is determined by modelling fish populations and the likely impact of fishing on them. For fish stocks managed on an international basis, the modelled MSY is used to determine a Total Allowable Catch (TAC). A TAC is usually set annually, but can be set within longer running parameters – a multi-annual TAC and/or limits on by how much the TAC can change between years. In such internationally managed fisheries the TAC is sub-divided into national quotas typically determined by negotiation, based to a large degree on historical fishing activity.

Other fish species / fish populations can and are managed on a smaller geographical scale – determined principally by whether or not management decisions applied at that scale can be shown to maintain populations in a healthy state and within sustainable parameters.

These differences are illustrated to an extent in **Table 1**. Here fisheries of the Sussex coastal waters are put in the context of the scale at which they are managed. Most fisheries are managed on the basis of stock assessment covering the whole English Channel, i.e. not just the English side of the Channel, and not at the scale covered by the Sussex IFCA.

stock unit	Species
English Channel	sole, plaice, brill, turbot, red mullet & black bream, cuttlefish, crab, lobster, scallops & whelks
English Channel & North Sea	bass, cod
North Sea	Herring
North East Atlantic	Mackerel
Chichester Harbour	Oyster

#### Table 1 – Examples of fish stocks and the scale of stock management





Source: Association of IECAs manning tool - http://www.association-ifca.org.uk/man/

Fig 10 – Graphic showing the ICES statistical rectangles 30E9 & 30F0 relative to the IFCA and Territorial water boundaries

3-2	Landres .		a former		
					$\bigcap$
2 7 21	30E9-NW	30E9-NE	30F0-NW	30FO-NE	30F1-NW
					$\sim$
	30E9-SW		30F0-SW	30F0-SE	30F1-SW
	29F9-NW/		29F0-NW/	29F0-NF	29F1-NW
Source: Associ	iation of IFCAs ma	ipping tool - http://v	vww.association-if	fca.org.uk/map/	

For species such as bass and cod the stock geography encompasses the English Channel and the North Sea combined. For herring, the relevant stock is managed at the level of the North Sea (including the herring found in the English Channel), whereas for mackerel it is management at the scale of the North East Atlantic. In a nutshell, these stocks cannot be effectively managed at the scale of Sussex Bay or the Sussex IFCA; decisions made at these small spatial scales do not have sufficient impact on the stock overall to impact overall stock status or constitute effective stock management. By contrast, management of Chichester Harbour oysters can be achieved at this scale. A similar situation would be possible with, for example, local whelk or cockle fisheries.

That is not to say that there are not plenty of elements of fishing that can be beneficially managed at a smaller scale (the maximum length of vessels, gears that can be used, the seasons that fishing can take place and the areas that are closed to fishing) simply that management of most fish stocks cannot be managed solely at a local level.

#### 2.4.2 Catches

Catch statistics are recorded by ICES statistical rectangle (a statistical gridding methodology applied right across the north east Atlantic). For the Sussex coast two such rectangles – 30E9 and 30F0 (illustrated in **Fig 10**, shown in red) cover the water area roughly out to the 12nm limit. From records of 2019 catches<sup>5</sup> by UK vessels landed into UK ports the fish caught in the area covered by these two statistical rectangles was valued at about £16M (**Table 2**). Half of this value was caught by vessels over10m in length and half by vessels 10m&under in length (noting that the catching capacity of larger vessels is many times that of smaller vessels, but also that a fishing trip for a larger vessel tends to be of several days duration up to a week or more, and that they are more likely to land catches to larger ports and ports outside the Sussex area; by contrast smaller vessels tend to go to sea and return to port on a daily basis, and are more likely to land to ports adjacent to the area they fish).

**Table 3** shows the same format, but for fish that was caught within the two ICES rectangles, but also landed to Sussex ports. This shows that about £4M of fish was landed to ports outside the Sussex area, and most of this comprised catches from the larger vessel (over 10m) fleet segment deploying mobile gears – with about £2.5M of the shortfall accounted for by otter trawling.

In general most of the catches of the 10m&under fleet took place within the area managed by the Sussex IFCA, and most of the catches of the over10m fleet were caught outside the 6nm limit. Note that not all of the catches by the over 10m fleet category caught in these two areas was landed into Sussex ports, but almost all of the fish caught by the 10m & under fleet was landed to Sussex ports. We emphasise this since it impacts on the degree of certainty that can be ascribed to a fish landed to a Sussex port as being a fish that was caught in Sussex Bay. Typically, any such claim would need to be supported by some process by which a Chain of Custody can be demonstrated – that evidence can be shown that an individual fish sold as "Sussex Bay" fish in a fishmonger's or restaurant is in all likelihood caught in Sussex Bay (i.e. that there is a coherent Chain of Custody between "net and fork").

<sup>&</sup>lt;sup>5</sup> For catches and landings we use statistics for the year 2019, and where appropriate couch these within a multi-year series – typically 2016 to 2020. We mainly use the year 2019 because it represents the status quo before the UK left the European Union and before the Covid pandemic, bearing in mind that fishing activity in the year 2020 may not have been typical.

In terms of species mix of catches shown in **Tables 2 & 3**, most of the value of catches by the 10m&under fleet comprised whelks harvested using pots (44%), and most of the value of catches, excluding pelagics, by the over10m fleet comprised scallops harvested by dredge (36%). The pelagic quotient comprised mainly horse mackerel (caught by a small number of large pelagic trawlers but not landed to Sussex ports, and mainly destined for export as bulk frozen fish), and smaller quantities of herring and mackerel, probably caught by smaller vessels, which overall accounted for 34% of the total value of catches by the over10m fleet.

		mobi	le gears		static gears				
	Otter trawl	Beam trawl	Demers al seine	Dredge	Pots and traps	Drift and fixed nets	Gears using hooks	Other passive gears	Grand Total
10m&Under	1,068	36	-	197	3,999	2,030	616	72	8,018
Demersal	952	33	-	4	4	1,780	612	-	3,385
Pelagic	1	-	-	-	0	19	4	-	24
Shellfish	115	3	-	193	<i>3,995</i>	231	0	72	4,609
Over10m	2,907	526	629	2,057	1,897	36	43	-	8,094
Demersal	382	486	326	40	2	36	43	-	1,314
Pelagic	2,168	0	19	-	-	-	0	-	2,187
Shellfish	358	39	283	2,017	1,895	0	0	-	4,593
Total	3,975	562	629	2,254	5 <i>,</i> 895	2,066	659	72	16,113

Table 2 – Value of catches in ICES rectangles 30E9 & 30F0 by UK vessels landed into UK ports, 2019, (£'000s)

Table 3 – Value of catches in ICES rectangles 30E9 & 30F0 by UK vessels landed into Sussex ports, 2019, (£'000s)

		mobile	egears		static gears				
	Otter trawl	Beam trawl	Demers al seine	Dredge	Pots and traps	Drift and fixed nets	Gears using hooks	Other passive gears	Grand Total
10m&Under	976	36	-	75	3,830	1,896	561	1	7,375
Demersal	867	33	-	3	5	1,668	557	1	3,134
Pelagic	1	-	-	-	0	17	3	-	22
Shellfish	108	3	-	72	3,825	211	0	-	4,220
Over10m	494	484	-	1,782	1,887	36	-	-	4,684
Demersal	344	448	-	32	3	36	-	-	864
Pelagic	4	-	-	-	-	-	-	-	4
Shellfish	146	36	-	1,750	1,884	0	-	-	3,817
Total	1,470	521	-	1,857	5,718	1,932	561	1	12,059

For the 10m&under fleet, sole, plaice and bass catches accounted for almost all the value of demersal catch (83%) and this mainly from netting and otter trawling for sole and plaice, and commercial rod and line fishing for bass. For the over10m fleet sole, plaice and bass accounted for a

smaller proportion of demersal catches (38%), the sole harvested by beam trawl, plaice by beam and otter trawl, and bass by rod and line.

Catches of crab, lobster, cuttlefish and squid by the 10m&under fleet (using pots, cuttlefish traps and netting) and scallops (mainly harvested by dredge) made up 88% of the value of all shellfish landings excluding whelks. Crabs, lobster and cuttlefish and squid made up 84% of shellfish catches by the over10m fleet if whelk and scallop catches are excluded.

More information on the species breakdown is shown in **Chapter 5**.

For the 10m&under fleet, potting is by far the most important fishing method due to the particular focus on harvesting whelks. Excluding potting for whelks, netting and otter trawling are of greatest significance, followed by the rod and line fishery for bass, and potting for lobster and crab.

For the over10m fleet, dredging for scallops is by far the most important fishery, followed by beam trawl fishing for sole and plaice, seining and otter trawling for squid and cuttlefish, and seining and otter trawling for a broad mix finfish (with red mullet and gurnard, relatively low value fish, of greatest overall value).

#### 2.4.3 Fishing methods

Fished organisms can be ordered into a small number of types or groups. Finfish can be ordered into pelagic (surface swimming) and demersal (bottom swimming), and sub-divided into large pelagic (tunas), small pelagic (mackerel, herring, sardines), demersal roundfish (cod, haddock, bass), and demersal flatfish (plaice, sole, brill, turbot). Shellfish are made up of crustaceans (lobster, crab, shrimp), cephalopod molluscs (octopus, cuttlefish, squid), bivalve (two shelled) molluscs (scallops, oysters, mussels), and gastropod molluscs (whelks, winkles).

Fishing methods / gear are typically divided into the categories of static and mobile (illustrated in **Table 4**).

Mobile gears that impact the seabed inevitably have a physical impact on the seabed – which can be from minor to severe. Mobile bottom set gears can be designed to be light weight (used particularly on flat sandy ground), or heavy weight (used on rocky ground) – with the weight provided by the nature of the ground rope (the line or lines at the front of the trawl net) and the material forming the bottom of the trawl (which in the heaviest trawls can include chains and chain meshes). There are mobile also gears that do not come into contact with the seabed.

The main bottom or demersal mobile gears used in the English Channel are otter trawlers (where the net is kept open by two otter boards that ski across the seabed, but pointing outwards), beam trawlers (where the net is attached to a fixed beam, which keeps the net mouth open but also rather limits the size of the net; typically two such nets are set each suspended from booms that are let out either side of the boat), and a dredge (much like the beam trawl, but where the net is replaced by 8 or 10 chain link purses, each fronted by a tined leading edge which digs into the seabed; typically two beams of pockets are set from booms let out each side of the vessel).

There are two principal mobile fishing methods that do not impact the seabed – mid-water trawling and purse seining – both typically used to catch pelagic fish (mackerel, herring, etc., but also tuna in warmer, tropical, waters). The former is specifically designed to work in the water column (i.e. above the seabed) – either at the surface or somewhere between the seabed and the surface – and is of such a construction that it would be damaged if it came into contact with the seabed (contact with the seabed does occasionally happen, particularly when used in shallow water areas, but it is not by

design). For purse seining the net is in the form of a curtain that hangs from floats on the sea surface. A drawstring runs along the bottom edge of the curtain. The net is set in a ring around a shoal of fish. When the two ends are brought together the drawstring is then tightened to close the net under the shoal of fish – forming a purse. The size of the purse is then steadily reduced to the point where fish are sufficiently concentrated to allow the use of a brail (essentially scooped up in a basket) to move them from the purse into the fishing boat. On larger pelagic vessels hydraulic pumps are used to move the fish from the net to storage tanks on the boat.

A variant of the encircling net and the trawl net is seining. Here a relatively light weight gear suspended from floats is set with the bottom rope touching the seabed. For a beach seine, for example, one end of the net it taken out from the beach and set in a circle. Once this end is returned to the beach the two ends are brought together and the seine slowly pulled into the beach (by hand). Scottish and Danish seining involves much the same process, but at sea. Both techniques involve laying out very long ropes and net on the (usually very flat, without obstacles) seabed. With Danish seining the fishing vessel is then anchored prior to hauling the net – a technique also referred to as anchor seining. With Scottish seining the net is dragged across the seabed whilst hauling in the ropes and net – a technique also referred to as fly-dragging or fly-shooting.

For static gears the main categories are gill nets, lining, and pots and traps.

Gear	Target species
Static gear	
gill nets (all types)	sole, plaice, turbot, brill, bass, cod, mackerel, herring, cuttlefish
mixed pots	lobster, crab
whelk pots	Whelks
cuttlefish traps	Cuttlefish
rod and line	Bass
handline	Mackerel
Mobile gear	
otter trawl	sole, plaice, turbot, brill, red mullet
pair trawl	black bream, bass
beam trawl	sole, plaice
mid-water trawl	mackerel, herring, horse mackerel
ring-net	Sardine
scallop dredge	Scallop
oyster dredge	Oyster

#### Table 4 – Fishing gears and examples of the species they target

The term gill nets includes gill nets, trammel nets, wreck nets, tangle nets, and drift nets:

- Gill nets are a curtain net set at the surface or mid-water or in touch with the bottom. When fish swim into the net those with small heads and larger bodies get their heads through the mesh but cannot withdraw them because the mesh gets caught behind their gill covers.
- A tangle net is much like a gill net, but set much more slackly such that a spiky fish or crustacean gets tangled in the net, the more it struggles the more tangled it gets.

- Trammel nets are a curtain of three nets, with the one in the middle having a significantly larger mesh than those either side, so that a fish can push the small mesh net through the large mesh net forming a pocket from which it cannot escape.
- A wreck net is a gill net or trammel net that is rigged to shoot over wrecks or hard ground places where it is impractical to fish using mobile gear.
- Drift nets are gill nets that are either not anchored to the seabed or only anchored at one end or attached to the boat leaving the net to drift with the tide or sea condition.

Lining refers to hook and line – including longlines, jigging, pole and line, and trolling:

- Longlines are lines of baited hooks that are set at the surface, below the surface or on the seabed and can be a few tens of metres in length up to several kilometres in length.
- Jigging uses a line of lures or feathers usually suspended vertically from the boat, and moved up and down to mimic a fish, shrimp or squid – for example feathering for mackerel, or jigging for squid.
- Pole and line is a technique used primarily to catch small tuna (bonito, skipjack tuna and small yellowfin and albacore), mainly in the tropics, though it is a technique used off Brittany and in the Bay of Biscay to catch albacore tuna.
- Trolling involves dragging a baited hook or lure behind the boat typically to catch large upper water column swimming fish; it is a technique deployed in the English Channel on a commercial basis to catch bass using a rod and line.

Potting involves setting one or more baited pots, with various designs used to target different species, but designed to allow shellfish or finfish to get in, but to have difficulty finding a way out:

- Crab pot the most common form of pot, but it comes in different shapes and sizes to suite different seabed conditions – more rugged designs when set amongst rocks or where currents are stronger – and can be set in fleets of from two to twenty, with smaller boats setting a hundred to several hundred pots, and much larger vessels (typically nomadic super-crabbers) fishing a thousand or more.
- Lobster pot lobsters tend to favour rocky substrate and more exposed sea areas and so the pots needs to be heavy and able to take a fair bit of battering by the sea; these pots catch brown crab as well as lobsters, with the mix of catch very dependent on the area fished.
- Nephrops creel nephrops, otherwise known as Norwegian lobster, Dublin Bay prawn, scampi or langoustine, is a crustacean that lives in burrows in a muddy or sandy-muddy substrate, and comes out of its burrow at night to feed; nephrops pots are much smaller than crab or lobster pots.
- Whelk pot whelk potting is usually conducted using fleets of baited small plastic tubs or bottles with a one-way mesh at the entrance; whelks are most commonly found on flat sandy or muddy substrate.
- Cuttlefish trap cuttlefish are seasonal visitors to the south coast of England when they congregate in breeding masses, when they can be fished by trap; traps tend to be large rectangular metal mesh affairs, and are set in strings of maybe six traps or more at a time.

Gear technology and design is a complex science and care needs to be taken in understanding exactly what type of gear is being used or referred to when describing fisheries. Guides on fishing gears can be accessed on the Seafish website (<u>www.seafish.org/responsible-sourcing/types-of-fishing-gear/</u> & <u>www.seafish.org/document/?id=9f2fcd97-8bef-4c28-9185-b219b8eedf8a</u>).</u>

#### 2.4.4 Fishing fleet and value of landings

The disposition of the Sussex fleet according to their listed home port is illustrated in **Table 5**. This shows the fleet listed at the beginning of 2022 comprised predominantly vessels of 10m & under in length (205 in number). All fishing vessels are required to hold a valid fishing licence (in this case Category A for quota species, and Category C for non-quota species). In addition, over10m vessels that dredge for scallops at some point in the year require a scallop permit, and any vessels that pot and/or net for shellfish at some point in the year need a shellfish permit. Note that many vessels fish with different gears at different times of the year.

All but four of the over10m vessels holding Category A licences are members of Producer Organisations (POs). The other four, plus the over10m vessels holding Category C licenses, plus all the 10m&under vessels are members of the Non-Sector (i.e. not in membership of POs) and are subject to direct management by the MMO.

	10m & under			over-10m				
Row Labels	Cat A	Cat A + shellfish	Total U10	Cat A	Cat A + scallop	Cat A + shellfis h	Cat C + shellfis h	Grand total
Itchenor/East Wittering	2		2					
Selsey	5	6	11				3	3
Bognor Regis		1	1					
Littlehampton	5	3	8					
Worthing	4		4					
Shoreham-By-Sea	21	18	39		6		1	7
Brighton	14	6	20					
Newhaven	12	12	24	1	5			6
Eastbourne	22	15	37			2	3	5
Hastings	15	17	32					
Rye	19	8	27		1			1
Grand Total	119	86	205	1	12	2	7	22

Table 5 – from the 2022 vessel list – vessel numbers by home port, identifying vessels with scallop & shellfish licences

The listed disposition of the fleet needs to be recognised as a characteristic rather than a definitive statement of where individual vessels fish from or land to. Because licensed fishing vessels are free to land to broadly any port of their choice, and often land to ports other than their home port, and similarly there are vessels based elsewhere that periodically (or commonly regularly or seasonally) land to Sussex ports – particularly where fishing opportunities vary across the fishing year. Nonetheless, and in general, smaller vessels are more likely to operate from and to their home port than larger vessels.

As to landings, MMO datasets indicate that in 2019 fish of a "first hand value"<sup>6</sup> of £25M were landed to Sussex ports. This is shown in **Table 6**, and is compared with equivalent data for 2009. 80% of this value is of shellfish (scallop and whelks), and the remainder of finfish – comprising predominantly sole, plaice and bass.

Note that a large proportion of this value is accounted for by fish caught outside the two ICES squares off the Sussex coast (30E9 and 30F0).

	Row Labels	Demersal	Pelagic	Shellfish	2019	2009
1	Itchenor/East	28	0	0	29	
	Wittering		-	-		
2	Chichester Harbour					
3	Selsey	115	0	682	797	746
4	Bognor Regis	0	0	8	8	43
5	Littlehampton	50	0	149	200	123
6	Worthing	5	1	0	6	29
7	Shoreham-by-Sea	897	4	15,921	16,822	2,215
8	Brighton	416	1	42	459	453
9	Newhaven	949	6	1,029	1,984	1,135
10	Eastbourne	533	10	2,487	3,030	1,454
11	Hastings	470	6	109	585	645
12	Rye	851	1	270	1,122	1,171
	Grand Total	4,318	29	20,696	25,043	8,014

Table 6 – Comparison of value of landings (£'000s) to Sussex ports & harbours, 2019 and 2009

**Note:** the major uplift in value of landings to Shoreham are accounted for by particularly high levels of landings from large scallopers

#### 2.4.5 Fishing ports

The fishing ports, harbours and beaches of the Sussex coast are both mixed in scale and type – with the Hastings fleet launched and retrieved from a steeply shelving pebble beach, the Shoreham fleet operating from an industrial port handling bulk materials alongside a deep water fish quay, and the Brighton fleet operating from within a large leisure marina.

The fishing ports of the Sussex coast comprise, listed in order from west to east:

#### West Sussex

Itchenor/East Wittering Chichester Selsey Bognor Regis Littlehampton Worthing Shoreham-by-Sea Brighton

#### East Sussex

Newhaven Eastbourne Hastings Rye

<sup>&</sup>lt;sup>6</sup> First hand refers to the first point in the supply chain where fish is sold – typically a direct sale to a fish trader or wholesaler, or a sale through a port auction, or a sale under contract.

Licensed UK fishing vessels are registered to an administrative port, but are broadly free to operate from and land to a wide range of ports. They tend, however, to operate mainly from one port, their home port – and vessel statistics record both the administrative port and the home port of any particular vessel.

Port	Numl active (2	per of vessels L)	Main landing area (2)
	2009	2022	
Chichester Harbour	10	22	tidal moorings
Emsworth	4	2:	tidal moorings
Selsey	30	14	beach
Bognor Regis	3	1	beach
Littlehampton	7	8	tidal moorings
Worthing	8	4	beach
Shoreham	36	39	harbour
Brighton	14	20	marina
Newhaven	30	24	tidal moorings
Eastbourne	25	37	marina
Hastings	26	32	beach
Rye	27	27	tidal moorings
	220	210	

 Table 7 – Key Sussex Port characteristics

Simple thumbnail sketches of each port / harbour are listed below (2011 town population shown in brackets) – based on information collated for the Navigating the Future study<sup>7</sup>. Vessel numbers are taken from the 2022 fleet database based on nomination of "Home Port", but as described elsewhere this may differ slightly from the number of vessels actually operating to and from any port. Note that vessels catching quota species need to have quota entitlement, or access to such entitlement, sufficient to cover those catches.

<sup>&</sup>lt;sup>7</sup> In 2010, Sussex IFCA, along with the Marine Stewardship Council (MSC), published Navigating the Future: Developing Sustainable Inshore Fisheries. The document set out three criteria: sustainable fish stocks, minimal environmental impact, and effective management of the fishery. The report includes the pre-assessment of 26 fisheries to the MSC standard, as well as a set of recommendations and an action plan, which specifically sets out the need for species-specific research and management plans. (see the introduction to "Specific Species Fisheries Information Reports – <u>https://secure.toolkitfiles.co.uk/clients/34087/sitedata/files/Research/Species-Specific-Fishery-Information-Reports.pdf</u>)

**Chichester Harbour and Emsworth (population 29k):** Fishing is very small-scale, covering potting, netting and a limited oyster dredge fishery. Outside the harbour fisheries are focused on potting for whelk and lobster, as well as net fisheries (gill, trammel and drift) for sole, plaice, rays, bass, turbot and brill. Inside Chichester Harbours there is a small-scale but locally important fishery for native oyster, but low stock levels have prevented fishing in recent years. The Harbours are a nursery area for bass, amongst other species.

**Selsey (population 11k):** The 2022 fishing vessel list indicates 11 10m&under Selsey-based fishing vessels (half holding shellfish licenses), and 3 over10m vessels (each holding a shellfish license). These all use moorings offshore from the eastern beach, providing protection in the lee of Selsey Bill. Fishing is a combination of potting for lobster, crab and whelk, and netting (gill, trammel and drift) for sole, plaice, rays, bass, turbot and brill. Seasonally there is a trap fishery for cuttlefish.

**Bognor Regis (population 64k):** The local fleet is now listed as one small vessel – most likely involved in potting and netting.

**Littlehampton (population 56k):** This fleet comprises about 8 vessels, most engaged in netting on rough and, from May onwards, weedy ground to take bass, mullet and flatfish, with cod and some rays after September. Bass are also caught on lines, a method which is used when weed becomes a problem for netting. Charter boats take out angling parties to wrecks for bass, rays and black bream or for mackerel or turbot. Other vessels focus on shellfish, setting pots for brown crabs and lobsters, taking occasional by-catches of velvet and green crabs.

**Worthing (population 109k):** The fishing activity of four vessels is minimal in winter, with cod, whiting, herring and sprat being occasionally landed. Plaice, sole and other flatfish and crustaceans are caught from early spring in trammel and tangle nets set from low water mark out to 7 miles offshore.

**Shoreham (population 48k):** Shoreham is an important base for visiting vessels and attracts seasonal visitors who target offshore (outside 6nm.) scallop fisheries. The port is a base to a number of >10m trawlers / scallopers who target fisheries throughout the District and outside of the 6nm limit. These fisheries are predominantly associated with sole, plaice, lemon sole. About 20 boats less than 10m work from Shoreham harbour and use trammel nets during the winter for cod and whiting in rocky areas inaccessible to trawlers. Plaice are caught in tangle and trammel nets and trawls in February/March, followed by sole and then turbot, rays and brill through summer until autumn. Cuttlefish are caught in fixed nets and traps during May and June, and bass and mullet are taken in fixed and drift nets.

**Brighton (population 230k):** Brighton supports a large fleet of some 20 10m%&under vessels. Most tend to focus on using trammel and tangle nets for sole and plaice from early spring through to late autumn, with a by-catch of turbot and rays. If spider crabs prevent set netting, effort may switch to drift netting for bass and mullet. 1-2 boats use drift nets during the winter for herring and a few may set gill or trammel nets for cod and whiting. 1 vessel targets lobsters and crabs on a full time basis. and many of the fleet fish for whelks at some time in their fishing year.

**Newhaven (population 13k):** A large fleet of 30 vessels operates from Newhaven, including 6 over10m vessels. The larger vessels operate from jetties along the Ouse Estuary, the smaller from pontoons towards the river mouth. Five of the larger vessels carry scallop dredging licences, and twelve (half) of the smaller vessels carry shellfish licences. The whelk fishery is important to this port's fishing fleet, alongside potting for crab and lobster, complemented by a number of trawlers, netters and scallop dredgers that fish inshore. The port had been a base for pair trawlers fishing on a

bass and black bream fishery in the west of the District in spring. Many of the smaller boat fleet set gill nets during the winter for cod, whiting, lemon sole and plaice. From spring onwards, tangle and trammel nets are used for flatfish, especially plaice and sole, and gill nets are set around wrecks for cod, pollack and ling.

**Eastbourne (population 109k):** Most of the 42 vessels are 10m&under with five vessels over10m vessels. All the larger vessels hold shellfish licences, and a little under half of the smaller fleet hold shellfish licences. Whelk fishing is by far the mainstay for the majority of this fleet and there is an important offshore crab fishery. In the spring cuttlefish are exploited using traps and lobster pots are set extensively on the inshore reef platforms and offshore sandstone complexes. These techniques are complemented by netting activity – setting gill and trammel nets within 6 miles of the coast from autumn through winter for cod and whiting, and occasional drift nets for herring and sprats. In spring, sole and plaice are targeted using both trammel and tangle nets, and larger mesh tangle nets are set for rays, turbot, brill and crustaceans. Gill nets are also set around wrecks. Line caught bass is also targeted by some vessels.

**Hastings (population 91k):** Fixed netting has been the main activity of 32 vessel 10m&under fleet which are launched from and retrieved to this steeply shelving pebble beach. A little over half of the fleet hold shellfish licences, the remainder focussed on net fishing. Trammel and gill nets are set for cod and whiting during winter (subject to quota), and a few boats use drift nets for herring, beginning around October, and for sprat in January and February. A number of the vessels are multi rigged for trawling and scalloping. From spring onwards, trammel and tangle nets are set for flatfish, particularly sole, plaice and rays, and take an important by-catch of other species such as turbot, brill, dabs, dogfish, cuttlefish and crustaceans. Bass and mullet are caught in fixed and drift nets. Nets are set over wrecks for a variety of species including cod, pollack, whiting, bass and ling. In the spring traps and nets are set for cuttlefish and the isolated reefs support a small scale lobster fishery.

**Rye (population 5k):** The 27 10m&under vessel fleet comprises mainly trawlers, with 8 vessels holding shellfish licences. These operate from the purpose built quay facilities to fish for flat fish in the summer and most switch to scallop dredging in the winter months. The majority of this fishing is upon the muddy sand and gravel within the 6nm eastern extent of the Sussex IFCA District and eastern most part of the Kent & Essex IFCA District. The netting fleet use gill, tangle and trammel nets for sole, plaice and cod, and drift nets for herring, sprats and bass. The smaller boats fish within Rye Bay whilst the larger ones set nets out to the middle of the English Channel.

### 2.5 Complexity

Management of the marine environment and fisheries exploitation is a complex and at times confusing patchwork of jurisdictions, regulations and practices incorporating input controls (licensing, technical specifications, activity limits), and output controls (amount of fish that can be caught and landed, size of fish that can be landed). Monitoring nature, natural cycles, and the health of ecosystems, habitats and species populations is essential to informing the design and application of management systems. Two key outputs of such management are a healthy and sustainable marine environment and the landing and distribution of a wide range of fish and shellfish species harvested responsibly and within limits that allow the maintenance of optimal and healthy fish stocks. Further information on these systems is provided in the following chapters.

## **3** Fishery sustainability / environmental standards

#### 3.1 Marine Stewardship Council certification and Fishery Improvement Projects

Considered the "gold standard" of fishery sustainability / environmental standards is that of the Marine Stewardship Council (MSC). The MSC is an international non-profit organisation that for over 20 years has been working with fisheries, seafood companies and scientists to help protect the oceans around us, and safeguard seafood supplies.

In its 2021 Market Report on MSC UK and Ireland it stated that "While the number of labelled products sold in the UK and Ireland decreased from 1,642 in 2019/20 to 1,560 last year, driven largely by the suspension of all North East Atlantic mackerel fisheries, the variety of sustainably sourced species available to consumers increased – up to 45 compared to 33 six years ago" [https://www.msc.org/docs/default-source/uk-files/uk-and-ireland-market-report-2021.pdf].

The MSC standard and assessment methodology provides an evidence-driven systematic and transparent process to allow the statement that a fishery that is certified to the standard has been assessed as "well-managed". This is no superficial statement. It is supported by a wealth of evidence, and measurement of several hundred characteristics of the fishery, and involves a process that takes a minimum of 18 months, and often much longer.

Assessment of fisheries to the MSC standard are undertaken by Conformity Assessment Bodies (CABs) that are accredited to carry out MSC Fishery and Chain of Custody Standard assessment and certification. These CABs (of which there are currently 29 worldwide) are accredited by the independent oversight body Assurance Services International (ASI).

At its core the fishery is assessed against three principles – P1: sustainable fish stocks, P2: minimising environmental impact, and P3: effective fisheries management. It is difficult to describe in simple terms just how complex this process is, and it might be most helpful to direct the reader to a relevant Public Certification Report for an English Channel fishery. One such is that for The Poole Harbour Clam & Cockle Fishery certified in 2018 available at https://cert.msc.org/FileLoader/FileLinkDownload.asmx/GetFile?encryptedKey=V7aN5jrxclZPZEsPEj 9Y7GZv5HwXi4RxpcCprbB792LwvrfIHNgFTGeQh3km76+W. This is a 254 page report, and includes 15 pages of scoring tables. The original certification lasts for five years, and the status of the fishery, and progress in implementing any improvement plan specified, is subject to an annual surveillance procedure.

Larger retailers, caterers, seafood processors and wholesale distributors have well-developed seafood sourcing standards and specifications that they apply in their purchasing decisions. These are informed by company Corporate Social Responsibility (CSR) policies (now largely superseded by Environmental, Social and Governance (ESG) policies). Many of the largest companies include a requirement that the seafood they purchase is sourced from a fishery that is certified to the MSC standard; failing this, a fishery should be participating in an internationally recognised and monitored improvement programme, known as a Fishery Improvement Programme (FIP) (see for example those monitored by the Fishery Progress online platform – <a href="https://fisheryprogress.org">https://fisheryprogress.org</a> or by the Project UK programme managed by Seafish – <a href="https://fisheries-improvement-projects/">www.seafish.org/responsible-sourcing/uk-fisheries-improvement-projects/</a>. FIPs follow the same sort of structure as the MSC assessment methodology.

To get a feel for the detail that is involved in entering and progressing through a FIP, the reader is directed to the Project UK brown crab and European lobster FIP entry on the Fishery Progress website – <u>https://fisheryprogress.org/fip-profile/uk-brown-crab-and-european-lobster-pottrap.</u>

Access to the detail will require simple registration, but allows a good insight into the practicalities of FIP management.

The bar for achievement of MSC certification (and indeed FIPs) is particularly high, and not for the faint-hearted. The standard has been developed and tested for application to a wide range of fisheries, large and small, and both data-rich and data-poor. For some small and medium sized fisheries the economic benefits of certification may not balance out the direct and indirect costs of assessment (for example in the case of Hastings fishermen), but this is not the only reason that fisheries (and supply chain members) seek MSC certification. As previously indicated, certain markets may be closed to fisheries if they do not have MSC certification or participate in a recognised FIP – processes that formally recognise "good practice".

In the area of the English Channel and the Western Approaches a number of fisheries have been certified to the MSC standard (though a number of these have subsequently lapsed). These include:

- The Poole Harbour Clam & Cockle Fishery
- Cornish hake gill net
- FROM Nord North Sea and Eastern Channel pelagic trawl herring
- Cornwall sardine, UK
- Normandy and Jersey lobster
- Hastings fleet pelagic herring (withdrawn)
- Hastings fleet Dover sole and Plaice (withdrawn)

Project UK FIPs that are currently underway that involve fisheries in the English Channel and Western Approaches include:

- Channel scallops
- Place and lemon sole (North Sea)
- Monkfish (Western Seas and Channel)
- Crab and lobster (Western Channel)

#### 3.2 Marine Conservation Society and the Good Fish Guide

A lighter touch approach has been taken by the Marine Conservation Society (MCS), a UK not-forprofit campaigning organisation fighting for a cleaner, better protected, healthier ocean. As a part of its public engagement programme it has developed the Good Fish Guide – available online and as an app (www.mcsuk.org/goodfishguide/) – that signals to consumers whether their seafood choices are affecting the environment by – signalled by identifying fish as "a good choice" through to "fish to avoid" (www.mcsuk.org/goodfishguide/how-ratings-work/). The basis of scoring particular species and fisheries has evolved significantly from the first edition of the guide published in 2002, and has become more sophisticated and specific over time.

Scoring is once again set against three broad characteristics – stock status, management, and capture method – with well-developed measurement guidelines (<u>www.mcsuk.org/ocean-emergency/sustainable-seafood/about-the-good-fish-guide/how-our-good-fish-guide-ratings-work/</u>), including separate guidelines on wild capture, aquaculture, fishing methods, and MPAs. There is also a Good Fish Guide for Businesses online tool.

The Good Fish Guide offers a simpler (relative by comparison to that used by the Marine Stewardship Council) set of metrics to both measure fisheries against its standard and communicate the nature of that measurement to the consumer.

Scoring of the three characteristics are combined in a weighted formula to produce the primary score in the range 1 to 5 (an overall combined score of the sum of – stock status score multiplied by 6, the management score by 5, and the fishing method by 4).

Core score		Overall Rating	Combined criteria score					
1	Best	Dark Green (Best Choice)	Less than 2.5					
2	Choice	Light Green (Good Choice)	Between 2.5 and les than 5					
3	Think	Yellow (OK)	From 5 to 7.5					
4	ININK	Orange (Fishery requires improvement)	Between 7.5 and less than 10					
5	Fish to Avoid	Red (Avoid)	10 and more, up to max. of 15					

Table 8 - MCS scoring matrix

**Source:** MCS Good Fish Guide – introduction to seafood ratings (2017) – https://media.mcsuk.org/documents/Introduction\_to\_MCS\_Seafood\_Ratings\_Oct17.pdf

27 species of commercially significant fish caught in the eastern English Channel appear in the Good Fish Guide, covering 41 fisheries exploited using mobile gear and 31 fisheries exploited using static gear. 7 of these fisheries have been scored specifically for the area under Sussex IFCA management.

Of the 65 fisheries listed:

- 0 are listed "1: best choice";
- 7 are listed as "2: good choice",
- 17 as "3: OK";
- 27 as "4: fishery requires improvement", and
- 14 as "5: avoid".

The actual scoring – listed by fishing area, gear method and species – is shown in **Table 9**. These details are transcribed from the data presented in online Good Fish Guide (<u>www.mcsuk.org/goodfishguide/</u>).

#### Notes:

Note that some of these assessments relate specifically to the area managed by the Sussex IFCA, some for the eastern English Channel beyond 6nm (i.e. outside that managed by the Sussex IFCA), and most are assessed on a wider basis, including the English Channel.

Whether or not the species / fishery is subject to management by quota is indicated in the final column in the table.

Table 9 - MCS scores				gear type																
for fisheries relevant to the Eastern English Channel	fishing area			mobile				static				MSC assessment								
	Sussex IFCA (<6nm)	English Channel (>6nm)	English Channel East	Bottom trawl (otter)	Bottom trawl (beam)	Net (demersal seine)	Net (pelagic trawl)	Net (purse seine or ring)	Dredge	Net (gill or fixed)	Net (drift)	Hook & line	Hook & line (pole & line)	Pot, trap or creel	MCS score		stock status	management	capture method	Oliota
king scallop															3		0.25	0.5	0.75	
black bream															3		0.5	0.5	0	
black bream															3		0.5	0.5	0	
brown crab															3		0.5	0.5	0	
European lobster															4		1	0.5	0	
common Cuttlefish															4		1	0.75	0	
common whelk															4		1	0.5	0.25	
										•										
brown crab															3		0.5	0.75	0	
black bream															4		0.5	0.75	0.5	
black bream															4		0.5	0.75	0.5	
black bream															4		0.5	0.75	0.5	
black bream											-				4		0.5	0.75	0.5	

0.75

0.75

0

1

1

0.25

4

4

**European lobster** 

king scallop

common cuttlefish						5	1	1	0.5	
common cuttlefish						5	1	1	0.75	

plaice					2	0	0.5	0.5	Q
whiting		MSC			2	0	0.5	0.5	Q
		certifi							
		ed							
herring		neet			2	0	0.5	0.5	Q
herring			MSC		2	0	0.25	0.5	Q
			certifi						
			ed						
sprat			neet		2	0	0.5	0.25	0
herring					2	0	0.5	0.5	0
herring					2	0	0.5	0.25	
whiting	 				2	0	0.5	0.25	
lomon colo					3	0.25	0.5	0.75	Q
					5	0.25	0.5	0.5	
					3	0.25	0.5	0.75	Q
megrim					3	0	0.75	0.5	Q
lemon sole					3	0.25	0.5	0.75	Q
plaice					3	0	0.5	0.75	Q
megrim					3	0	0.75	0.75	Q
lemon sole					3	0.25	0.5	0.25	Q
lemon sole					3	0.25	0.5	0.5	Q
brill					3	0.25	0.5	0.5	Q
sea bass					3	0.5	0.75	0	
velvet swimming crab					3	0.5	0.75	0	
sea bass					4	0.5	0.75	0.5	
grey gurnard					4	0.5	0.75	0.5	
Dover sole					4	0.75	0.5	0.5	Q

witch			4	0.5	0.75	0.5	Q
lesser spotted dogfish			4	0.5	0.75	0.5	
spotted ray			4	0.5	0.75	0.5	Q
thornback ray			4	0.5	0.75	0.5	Q
undulate Ray			4	0.75	0.5	0.5	Q
lesser spotted dogfish			4	0.5	0.75	0.75	
spotted ray			4	0.5	0.75	0.75	Q
thornback ray			4	0.5	0.75	0.75	Q
undulate Ray			4	0.75	0.5	0.75	Q
sea bass			4	0.5	0.75	0.25	
Dover sole			4	0.75	0.5	0.25	Q
horse mackerel			4	1	0.5	0.25	Q
sea bass			4	0.5	0.75	0.75	
Dover sole			4	0.75	0.5	0.5	Q
thornback ray			4	0.5	0.75	0.5	Q
Atlantic cod	FIP -		5	1	0.75	0.5	Q
	stage						
red mullet	Ĵ		5	1	0.75	0.5	
small eyed ray			5	0.75	0.75	0.5	Q
European squid			5	0.5	1	0.5	
veined squid			5	1	1	0.5	
Dover sole			5	0.75	0.5	0.75	Q
blonde ray			5	0.75	0.75	0.75	Q
red mullet			5	1	0.75	0.25	
Atlantic cod			5	1	0.75	0.5	Q
red mullet			5	1	0.75	0.5	
grey mullet			5	1	0.75	0.5	
small eyed ray			5	0.75	0.75	0.5	Q

The overall species assessments used to inform the scoring of these fisheries is summarised in **Table 10**, with the date at which the latest assessment was undertaken by the MCS entered at the end of each cell.

#### Table 10 – The Good Fish Guide species assessments used in the scoring of each species fishery.

#### **Demersal roundfish**

**Atlantic cod** – North Sea cod is below safe biological levels and there is no management plan in place to help it recover to sustainable levels. Therefore, it receives a critical fail for stock status and is a default red rating. Atlantic cod is listed by OSPAR as a threatened and/or declining species. **Jul-21** 

**Whiting** – North Sea and eastern English Channel whiting is not overfished and not subject to overfishing. There are some management measures in place, but catch limits are not set in line with scientific recommendations. Catch limits have been exceeded in recent years, indicating that there need to be improvements in enforcement and compliance. There is a potential for damage to the seabed by trawling, and bycatch of unwanted species. Bycatch of North Sea cod, which is at very low levels, is of particular concern. However, in the certified component of the fishery, vessels have implemented additional measures to improve monitoring and reduce bycatch. Jul-21

**Sea bass** – The combination of slow growth, late maturity, spawning aggregation, and strong summer site fidelity increase the vulnerability of seabass to overexploitation and localised depletion. Spawning stock biomass (SSB) for this stock has been declining since 2005 and is now only slightly above B<sub>lim</sub> (if the stock falls below B<sub>lim</sub>, its ability to reproduce may be impaired). The stock is not, however, being subject to overfishing, as fishing pressure has been reduced by a series of management measures. Seabass are not subject to EU TACs (Total Allowable Catch) or quotas. Total removal by commercial and recreational fisheries are not well documented, which are consistently and significantly higher than is advised. Fishing with hook and line (handline, tolling, lures, rod and reel) is one of the most sustainable and species selective fishing methods available, and has no impacts on the seabed. **Jul-21** 

**Black bream** – Black bream are a data limited species in the English channel and their stock status is unknown. There is concern for the biomass due to a lack of stock data, however, landings have been stable and they are not a major commercial species, therefore, there is no concern for fishing pressure. Black bream are vulnerable to exploitation due to their unique life stages. To learn more see <u>www.mattdoggett.com/the-blackbream-project/</u>. There is very little management to protect black seabream in European waters. In the Sussex IFCA district, the Kingmere Marine Conservation Zone (MCZ) was set up to protect the largest known spawning aggregation of black bream in the UK. Handlining is a low-impact fishing method which is very selective and undersized fish can easily be returned to the sea. It also has little impact on the environment. **May-21** 

**Red mullet** – The sustainability of red mullet varies and there are no Best Choice options. Mullet from Cornwall are **OK** but need improvements. Red mullet from anywhere else is a **Fish to Avoid**, so check the label to find out where it was caught. **Nov-19** 

**Grey gurnard** – Gurnards are non-quota species and are often discarded due to low market demand. This stock is data limited and there are no reference points to indicate whether biomass is at a sustainable level. The mature biomass index has declined in recent years and therefore, there is concern for the biomass. ICES estimates that fishing pressure is within sustainable levels and therefore there is no concern for fishing pressure. More research is needed to obtain a better understanding of the impact of fishing on the stock and provide information for its sustainable management. There is no specific management in place for this stock, including no catch limits, which is of concern for such a data limited species. No minimum landing size or seasonal closures are in place. Otter trawlers interact with the seabed and can modify bottom topography and cause damage and removal of some biogenic features including vulnerable marine habitats and benthic communities. They can also encounter occasional bycatch of vulnerable species. **Jun-21**
**Grey mullet** – There is no formal stock assessment of grey mullet and the status of the stock is unknown relative to reference points. There is little information available on mullet abundance in UK waters as there is a lack of data collection on the species. There is concern for biomass and concern for fishing pressure. Considering their vulnerable life history attributes, there is a lack of general management for grey mullet. There is no minimum conservation reference sizes (MCRS) for any species of grey mullet, but in England the IFCAs may set MCRS for fish caught within their six nautical mile limit. Grey mullet tend not to be a major commercial species but when fished commercially, they are a target or bycatch species which are mostly caught with gill nets, set close to the shore. Gillnets can entangle harbour porpoise and small sharks and may cause habitat impacts when lost or anchored to the sea floor. **Nov-19** 

#### Demersal flatfish

**Dover sole** – Eastern English Channel sole stock has been benchmarked in 2021 which has altered the perception of the stock. There is now concern for the stock and fishing pressure has an increased risk. Management includes a mixture of catch limits and technical measures and some specific measures were brought in some years ago in response to the poor stock status. Gill netting tends to have few habitat impacts, but bycatch can also be an issue with this gear. Bycatch of harbour porpoise in the North Sea and Eastern Channel is not considered to be a threat to the population, but localised depletion may be an issue in some areas. **Oct-21** 

**Lemon sole** – This stock is data limited. There is no concern for biomass and no concern for fishing mortality. There are no reference points available for biomass, however, the index of relative population size in this assessment has decreased in comparison to previous years by less than 20%. Fishing pressure is also below the proxy for  $F_{MSY}$ . The stock is currently managed under a combined total allowable catch (TAC) with witch and while this is considered insufficient to manage catches, ICES have advised that the removal of the TAC for lemon sole would present a low risk of the stock being exploited unsustainably. Benthic seines do interact with the seabed and have the potential to cause some damage to sea floor habitats, but the majority of the interaction comes from ropes which have a lighter impact than otter and beam trawl fisheries.

There is a Fishery Improvement Project (FIP) in place for some UK fleets that are making progress towards being eligible for Marine Stewardship Council (MSC) certification. Jul-21

**Plaice** – The plaice stock in the Eastern English Channel is in a good state, and fishing pressure is below  $F_{MSY}$ . A single catch limit is in place for both Eastern and Western English Channel plaice. Plaice is caught in a mixed fishery targeting sole, with 80mm mesh size. This leads to a large number of plaice being discarded because this mesh size is not matched to the lower size limit for plaice. Otter trawlers interact with the seabed and can modify bottom topography and cause damage and removal of some biogenic features including vulnerable marine habitats and benthic communities. In the Eastern Channel, scars related to bottom trawling are difficult to identify due to predominant sandy sediments. Otter trawls can also encounter occasional bycatch of vulnerable species. Jul-21

**Brill** – Brill in this area is mainly landed as bycatch in beam trawl and pulse beam trawl fisheries for plaice and sole, particularly in the North Sea. Scientific advice for this stock indicates that it's likely that the stock is not at risk as ICES assesses that fishing pressure on the stock is below the F<sub>MSY</sub> proxy and spawning stock size is above the MSY B<sub>trigger</sub> proxy. Management of turbot and brill is under a combined species Total Allowable Catch (TAC) which prevents effective control of the single-species exploitation rates. Despite this, catches of brill in recent years have been below the recommended level. Beam trawls can encounter high levels of bycatch, occasionally including endangered, threatened and protected (ETP) species (e.g. sharks and rays). Beam trawlers interact with the seabed and can modify bottom topography and cause damage to seafloor habitats. **Jul-21** 

**Witch** – While this stock is currently not in an overfished state, the approach to setting Total Allowable Catches (TACs) has allowed significant overfishing to take place throughout the history of the fishery. In addition, management is not following scientific advice as there is a combined TAC with lemon sole: a single-species TAC would be preferable. Witch is taken as bycatch in the mixed-species demersal otter trawl fishery.

Bottom trawling can have impacts on the seabed and bycatch a wide variety of species. Jul-20

**Megrim** – Two species of megrim are landed to west of Britain and in the Bay of Biscay, megrim (*Lepidorhombus whiffiagonis*) and four-spot megrim (*L. boscii*). The former is more common and the only one assessed. Megrim in the Celtic Sea, West of Ireland, and Bay of Biscay is in a very healthy state, at highest ever levels, and for the first-time fishing pressure is within sustainable limits. Megrim are mainly caught as part of the targeted fishery for hake, anglerfish, Nephrops and others, and as bycatch in fisheries for demersal species such as cod and haddock. Management measures are in place, but as catch limits apply to both species this hinders the ability to prevent overexploitation of either species. Trawling can have habitat impacts specifically on the seabed and contribute to high levels of bycatch. Demersal otter trawls use doors to hold nets open that penetrate the seabed, resulting in the abrasion of habitat features. Jul-20

#### Pelagic

**Herring** – The North Sea Autumn Spawning stock is fully fished and harvested within sustainable limits. The steep decline in stock observed since 2016 has stalled and biomass is above MSY  $B_{trigger}$ . Fishing pressure has been at sustainable levels since 1996. Some appropriate management measures are in place for North Sea and English Channel herring. However, recent catches (average from 2017-2021) have been higher than scientific recommendations. Midwater trawling has low levels of bycatch and is unlikely to affect the seabed. However, herring is an important prey species for cod, therefore removals by fishing could prevent recovery of the depleted North Sea cod population. **Dec-21** 

**Horse mackerel** – This is a data limited stock, and trends are used to indicate its state. Trends suggest that there is concern for the biomass and fishing mortality. The North Sea horse mackerel stock is in a poor state and harvested unsustainably. There is no precautionary management plan in place for this stock. The fishery is managed by an annual Total Allowable Catch (TAC) limit which has been consistent with scientific advice in recent years, but, it has not always limited annual catch. Bycatch of Endangered, Threatened and Protected (ETP) species, and other non-target species has not been reported within this fishery. Habitat impacts from pelagic trawling is deemed to be very low. Jul-20

**Sprat** – This stock is data deficient but there are reference points for biomass and fishing pressure. The biomass in 2020 was estimated to be well above the target level (MSY  $B_{trigger}$  (Istat)) and the fishing pressure (measured through harvest rates) was well below the target level. No management plan exists for this stock but there is a Total Allowable Catch (TAC) for sprat in the English Channel. Sprat is a short-lived and an important prey fish species for many marine species. The effects of the sprat fishery on these species is unknown. Sprat is caught by pelagic trawls which do not have any significant habitat impacts. Bycatch is negligible and impacts on protected, endangered or threatened species has not been observed in this fishery. Jul-21

## Sharks & rays

**Lesser spotted dogfish** – Lesser spotted dogfish in the North Sea ecoregion are data limited. There is no concern for the fishing pressure or biomass. Lesser spotted dogfish in this area are poorly managed and management requires significant improvement. There is no total allowable catch or minimum landing size in place. Otter trawlers interact with the seabed and can modify bottom topography and cause damage and removal of some biogenic features including vulnerable marine habitats and benthic communities. Otter trawls can also encounter occasional bycatch of vulnerable species. **Nov-21** 

**Blonde ray** – Blonde ray in the Southern North Sea and Eastern English Channel is data limited. There is no concern for the biomass, due to an increase in stock-size indicator, but there is concern for fishing pressure as landings are consistently above scientific advice. Blonde ray in this area are poorly managed. A joint Total Allowable Catch (TAC) is in place for skates and rays but this method of management has been deemed unsuitable. Beam trawls interact with the seabed, modifying bottom topography including damage and removal of some biogenic features and interacting with vulnerable marine habitats and benthic communities. They can also encounter a high amount of bycatch, potentially of vulnerable species. **Nov-21** 

**Small eyed ray** – There are thought to be localised concentrations of small-eyed ray in the English Channel. It is not known if small-eyed rays in this area are overfished and there are no indicators to determine any trends in biomass. Any small-eyed ray caught in VIIe must be promptly released. There are no other specific management plans in place for skates and ray in these waters. They are managed under a total allowable catch (TAC) for many skates and rays and greater protection is needed. Demersal otter trawling is associated with discarding of unwanted fish and sometimes catches endangered, threated and protected (ETP) species but capture rates can be reduced with appropriate gear modifications. **Oct-20** 

**Spotted ray** – Spotted ray in the North Sea, Skagerrak, Kattegat, and Eastern English Channel is data limited. There is no concern for the biomass, as although the stock-size indicator has decreased, it remains above the long term average. There is also no concern for fishing pressure. A joint Total Allowable Catch (TAC) is in place for skates and rays but this method of management has been deemed unsuitable. Otter trawlers interact with the seabed and can modify bottom topography and cause damage and removal of some biogenic features including vulnerable marine habitats and benthic communities. **Nov-21** 

**Thornback ray** – Thornback ray is the most abundant skate species in these waters. The stock is data limited but there is no concern for the biomass as the stock-size indicator has increased, and no concern for fishing pressure as landings have been in line with scientific advice. Thornback ray in this area are poorly managed. A joint Total Allowable Catch (TAC) is in place for skates and rays but this method of management has been deemed unsuitable. Otter trawlers interact with the seabed and can modify bottom topography and cause damage and removal of some biogenic features including vulnerable marine habitats and benthic communities. Otter trawls can also encounter occasional bycatch of vulnerable species. **Nov-21** 

**Undulate Ray** – This stock is data limited. There are no reference points for this stock and therefore, it is unknown if the stock is overfished. However, since 2011 there has been a consistent increase in the stock size indicator and a significant decrease in the fishing effort. The EU had designated the Undulate Ray as a Prohibited Species for commercial fishing vessels in ICES areas VI, VII, VIII, IX and X but the fishery is open to a small amount of landings in this area. Undulate ray has also been listed as an endangered species globally and as near threatened in Europe. Demersal otter trawls can impact the seabed through abrasion of habitats and can catch endangered, threatened and protected (ETP) species. **Nov-20** 

## Crustaceans

**European lobster** – In the 'Southeast South Coast', fishing mortality is above the level required for maximum sustainable yield for both sexes. The biomass of both sexes is low, just above the minimum reference point. Management measures in place include a ban on the landing of berried and v-notched lobsters, and a minimum conservation reference point of 87mm carapace length. Management in this area includes a 300 pot limit inside the 3nm limit, and a total maximum of 600 pots within the 6nm limit. Pot fishing is considered sustainable as it is selective for larger individuals and has minimal impact on the surrounding environment. **Dec-20** 

**Brown crab** – This stock is data limited and the status of the brown crab stock in the Eastern English Channel is currently unknown. There is concern for biomass and no concern for fishing pressure. Landings per day appear stable and brown crab has a low vulnerability to fishing pressure. Management measures in place include a ban on the landing of berried and soft crabs, and a minimum conservation reference size of 140mm carapace width. Management in this area includes a 300 pot limit inside the 3nm limit, and a total maximum of 600 pots within the 6nm limit. Pot fishing is considered sustainable as it is selective for larger individuals and has minimal impact on the surrounding environment. Jan-22

**Velvet swimming crab** – In the UK, velvet crabs traditionally were caught as bycatch and subsequently discarded, as they were considered to be pests. Velvet crabs are traditionally consumed by southern European nations, France and Spain. However, the populations in these areas significantly declined in the 1980's due to overexploitation and an infection, caused by dinoflagellate *Hematodinium* spp, called the Pink Crab disease where their meat turns pink and tastes bitter. Their declines in these regions resulted in a commercial

development in UK and Irish spider crab fisheries.

This rating covers England, Wales and the Isle of Man because there is a lack of data regarding the stock in these areas.

Most of the velvet crab landings are exported, as there is no market for them in the UK. However, the scale of exports and imports is unknown. Very few fishers solely target velvet crabs, though there are a few target fisheries when velvet crabs are in abundance, at certain times of the year.

Pressure for the stock may further increase, as a 2016 study in the Bay of Seine has suggested that PCB and dioxin levels in velvet crabs are higher than European thresholds. Therefore, the ANSES (National Agency for Safety) have recommended that the consumption of velvet crab from this area to be forbidden. **Jun-18** 

#### **Cephalopod molluscs**

**European squid** – With an increase in Common squid in the English Channel, there is currently no concern for biomass. However, landings in the English Channel have continued to rise without limits. Therefore, there is concern for fishing pressure. In UK waters, squid fishing is unregulated and no appropriate management is in place for these fisheries. Towed fishing gear, including demersal otter trawls, is associated with damage to seabed flora and fauna, non-target bycatch and discarding of juvenile fish. **Feb-21** 

**Veined squid** – There are indicators that veined squid biomass in the English Channel is at low levels, so there is concern for stock biomass. Fishing pressure is also of concern as landings have continued to rise without limits. In UK waters, squid fishing is unregulated and no appropriate management is in place for these fisheries. Towed fishing gear, including demersal otter trawls, is associated with damage to seabed flora and fauna, non-target bycatch and discarding of juvenile fish. **Feb-21** 

**Common cuttlefish** – An ICES assessment for English Channel cuttlefish was carried out for the first time in 2020, but had high levels of uncertainty. MCS therefore continues to assess the stock using data limited (Route 2) methodology. The ICES assessment indicated that the stock was likely to have been overfished and subject to overfishing. Common cuttlefish have low to moderate vulnerability to fishing pressure but species resilience is unknown.

No EU regulations, catch quotas or minimum conservation reference size (MCRS) apply to cuttlefish despite its importance in terms of landings volume and value. Consequently, fishers can land any number of cuttlefish at any size, including juveniles. In the UK, inshore fisheries are managed by one of ten Inshore Fisheries Conservation Authorities (IFCAs). In some IFCAs, permits exist that restrict the number of traps or pots that can be deployed by each vessel.

The impact of cuttlefish trapping on the seabed is low, and this method is generally selective. Nov-20

#### **Bivalve molluscs**

**King scallop** – There is a lot of uncertainty about how healthy the king scallop stock is in the eastern English Channel (north). However, it appears that the stock is not subject to overfishing, and that stock size may have increased in recent years. Therefore, there is no concern for fishing pressure or biomass.

Some management measures are in place to control the size of scallops that can be caught, the number of vessels allowed, and the fishing gear that may be used. Management within 6 nautical miles of the English coast is stricter than for fishing further offshore, but still lacks formal catch or effort limits to ensure that stocks stay at healthy levels.

Scallop dredging can be very damaging to seabed habitats and species. In this area it mainly takes place on sand, gravel, and pebbles or cobbles. There are vulnerable species here, including reefs, seagrass beds and horse mussel beds, but dredging is banned from protected areas and inshore zones. There could be some concern for bycatch, although bycatch levels are thought to be low in this fishery.

A Fishery Improvement Project (FIP) is working to improve areas of concern in this fishery, including research into the health and size of the stock and impacts on the seabed. Improvements have been made but more

needs to be done, especially to improve management and habitat impacts.

Avoid eating scallops below their legal minimum landing size (10cm) and during their breeding season (April to September). Jun-21

#### Gastropod molluscs

**Common whelk** – Whelk populations in English waters are largely unknown and localised stock assessments are needed. Although there is limited data available on whelk stocks, the data that does exist indicates that there could be concern for biomass levels. Whelk populations within Sussex IFCA district, in the Eastern English Channel are likely to be subject to overfishing. There is little known about the species resilience to fishing pressure and vulnerability, but, the recent and significant increase in exploitation of whelk fisheries alongside the life history characteristics of the species, high larval mortality from urchin predation, occurrence of stocklets in small spatial scales, together suggests whelks are particularly vulnerable to overfishing, and possibly more so for certain localised populations. Some management measures are in place, including a Minimum Landing Size (MLS), fishing effort limitations and gear restrictions within the district. However, the current MLS is too small to protect the whelk stock in the Sussex IFCA district and further management measures and population monitoring is required, particularly as whelk landings have increased substantially in recent years. Pots generally cause a very low impact to the seabed and bycatch is negligible. Jun-20

# **3.3** Other standards, guides and templates

Many organisations are involved in promoting improved fishery and ocean management, and several of these have become involved in developing, advocating and/or supporting different forms of assessment of fisheries – the MSC being the most visible international standard, and the MCS a particularly assessable UK consumer purchasing tool.

Amongst these other organisations, the following are worthy of mention.

Table 11 – Sources of	other information on FIPs	
	· ·	

name	website	Description
Fishery Progress	https://fisheryprogress.org	FIPs online tracking tool
Sustainable Fisheries Partnership (SFP)	https://sustainablefish.org/ https://sustainablefish.org/how-we- work/fishery-improvement-projects/	work with stakeholders throughout the supply chain to improve fishing and aquaculture and advance sustainable seafood production created and maintains <u>FishSource</u> , a one-of-a- kind public online resource with profiles on thousands of fisheries and dozens of aquaculture regions
FishSource	https://www.fishsource.org/about	Created and maintained by SFP
Seafish	https://www.seafish.org/responsible -sourcing/	publishes the Guide to Sustainability and Responsible Sourcing; and runs the Responsible Fishing Vessel Standard (RFVS); and the Responsible Fishing Ports Scheme
WWF	https://www.worldwildlife.org/pages /fishery-improvement-projects-fip	
Low Impact Fishers	https://lifeplatform.eu/	

of Europe		
Seas at Risk	https://seas-at-risk.org/what-we- do/ocean-use/low-impact-fisheries/	
Sustainable Seafood Coalition	https://www.sustainableseafoodcoal ition.org/	The <u>SSC Codes of Conduct</u> are voluntary agreements on responsible sourcing and labelling, developed by SSC members.

# **3.4 Concluding remark**

The MSC, FIPs and MCS use similar metrics to assess the status and "sustainability" (in its loosest sense) of a fishery – the health of the stock, the impact of fishing on the environment, and how well the fishery is managed. If a brand is to make any claim as to the sustainability associated with a particular fish or fishery, then it will necessarily need to be able support such a claim with reference to one or more of these metrics. In the following chapters we look in a little more detail at how well these fisheries are managed – both in terms of fishing activity, but also in terms of managing the impact of fishing activity on the environment.

# 4 Fisheries management systems focusing in on IFCA

# 4.1 EU & UK systems

Management of UK fisheries falls under the mandate of Defra (Department for Environment, Food and Rural Affairs), with day to day management in England in the hands of the specialist agency the Marine Management Organisation (MMO), and executed in line with ruling primary and secondary legislation (laws established at UK and/or devolved administration levels). Much of this continues to align with European Union legislation, despite the UK having left the EU as of 1<sup>st</sup> January 2020; but where it is not aligned, separate replacement UK or English legislation is in place. There are transition arrangements with the EU which will operate through to mid-2026; transition arrangements have some but limited impact on inshore fisheries.

The MMO manages the quota allocation in England and also monitors the amount of fish caught to ensure quota limits are not exceeded. It manages vessel licencing, required for commercial vessels to legally sell their catch, and is the consenting authority for marine activities such as aggregate extraction and marina development. It is the lead fisheries authority between 6 and 12 nautical miles offshore.

Fishing activity in the UK is regulated under a complex system of management. Up until the UK exited membership of the European Union, the main management policy was the Common Fisheries Policy (CFP) (European Council Regulation No. 1380/2013). Management of UK fisheries is now subsumed in UK law, but these still, to the greater extent, parallel those laws and principles captured in the CFP.

The European Union's original Common Fisheries Policy, first introduced in the 1970s, managed fisheries and aquaculture with the aim of maximising an economically viable industry while minimising environmental impacts. The CFP has been revised several times, most recently in 2014. This latest update of the CFP set dates for bans on fish discards, a legally binding commitment to fish at scientifically assessed sustainable levels and decentralised decision making (and one that is currently continued under EU / UK transition arrangements).

Under the CFP, total allowable catches (TAC), as well as stock recovery measures, limit the amount of certain species which can be landed in ports with the aim of keeping catch levels appropriate for sustainable stocks. TACs are agreed by EU Member States and third countries (of which the UK is now one) each year with scientific advice from the <u>International Council for the Exploration of the Seas</u> (ICES). Each contracting party is allocated a proportion of the total allowable catch for each stock (and in the case of EU Member States, each Member State is subsequently allocated a national quota).

Since the UK is no longer bound by the CFP it receives a national allocation as an independent and sovereign nation (as does, for example, Norway and Iceland). The UK's quota is divided between England, Wales, Scotland and Northern Ireland. England's quota allocation is managed by the Marine Management Organisation (MMO) and there are specific quota management rules for fishing vessels. Transition arrangements applying through to 2026 mean that **most** of the former systems applied to UK fisheries under the CFP continue to apply during the transition period.

Article 17 of the new Common Fisheries Policy requires Member States to use 'transparent and objective criteria' when allocating fishing opportunities. Social, economic and environmental factors should be considered, including contribution to the local economy, impact of the fishing activity on the environment and historic catch levels. Member States should support fishers who are using techniques which reduce environmental impact.

In England, quota is allocated to Producer Organisations in proportion to the number of fixed quota allocation units (FQAs) held on over-10-metre (vessel length) licences that are held by members of a Producer Organisation. This system is referred to as "sector management".

Quota available for vessels over 10m but not a member of a Producer Organisation or vessels under 10m is held centrally by the MMO and usually managed on the basis of monthly catch limits. This form is referred to as "non-sector management". The MMO also sets blanket monthly per vessel species quota limits for vessels 10m&under.

Article 2 of the new (2014) Common Fisheries Policy states that an ecosystem-based approach to fisheries management should be implemented. The negative effects of fishing activities on the whole marine ecosystem should be minimised and degradation of the marine environment should be avoided. This ecosystem-based approach is also adopted by the UK.

In addition to the CFP, European Council Regulation (EU) 2019/1241 sets out technical measures which define when, how and where fishing can take place and this, with the annual TAC regulations, forms the basis of EU management measures. Currently these have largely been adopted by the UK as part of the withdrawal agreement. This system of technical measures is also adopted by the UK in primary and secondary legislation.

It is worth repeating that most elements of fisheries management established through the Common Fisheries Policy continue to apply in one form or another under UK and/or international law – though recognising that EU laws, and thus the CFP, do not have jurisdiction with regard to the EU except in dealing with the UK as an independent third country.

# 4.2 Inshore Fisheries and Conservation Authorities (IFCAs)

The UK has jurisdiction within the UK EEZ (Exclusive Economic Zone) (a concept that gained international recognition in the 1970s), and has always had exclusive jurisdiction over its Territorial Waters (those waters out to 12nm from the shoreline). This means that the UK government has always had national control of management of inshore fisheries and, by association, the inshore sector.

Nonetheless, UK law does recognise historical rights (i.e. long established agreements and practice), which means that certain foreign registered fleet components are allowed to fish within UK Territorial Waters (usually within the 6 to 12nm zone, but exceptionally also in the 3 to 6nm zone). These historical rights are a source of considerable friction with the UK industry, but have relatively limited direct impact. Where the consequences of historical rights are of much greater significance are in the matter of quota allocations with, for example, France having the lion's share of English Channel cod quota – based on the fact that France traditionally fished far more of this species in this area than English fishermen.

From the late C19<sup>th</sup> inshore fisheries have been managed by Sea Fisheries Committees (SFCs). In the latter half of the C20<sup>th</sup> SFCs have been the jurisdictions of the adjacent local councils – which have been responsible for funding these bodies (with some additional input by central government). As a form of devolved management, and particularly given this particular funding model, there was and remains considerable variation in the scale and operational capacity across these bodies (and their successors).

SFCs were replaced in 2011 by Inshore Fisheries and Conservation Authorities (IFCAs) – in which environmental management has been given greater significance in the responsibilities of the bodies and their institutional structures. In addition, management and forward planning systems have been

strengthened / standardised, minimum expected performance requirements better defined, and some additional financial burden accepted by central government (contributing to some capital spend and supporting certain projects and structural initiatives).



# Fig 11 – Boundaries of the Sussex IFCA (note bathymetry – shallow to the west and east, deepening off Beachy Head)

## Source: Sussex IFCA 2020/21 Annual Report

Management is achieved in compliance with international and national legislation and regulations, complemented / extended by such local Byelaws as might be considered appropriate. Whilst the MMO retains the upper hand in management of all fisheries, including inshore fisheries, in practice inshore management in England is firmly under the control and management of ten IFCAs, of which the Sussex IFCA is one – with one core exception. Responsibility for the routine collection of catch and landings statistics – through paper and electronic logbooks, and sales and purchase receipts – rests with the MMO, as does the responsibility for monitoring the accuracy of these figures against fishing records (the tracks of all over 12m vessels are remotely monitored as part of the satellite mediated Vessel Monitoring System (VMS); and tracking of under12m vessels using inshore VMS is under test).

## 4.3 The Sussex IFCA

## 4.3.1 The Committee

The IFCA works closely with the <u>Marine Management Organisation</u> which has a similar yet distinct role. The IFCAs manage sea fisheries resources and the marine environment from territorial baseline points (otherwise described as datum on HO charts) mean high water out to six nautical miles. They have powers under the Marine and Coastal Access Act 2009 to develop, create and enforce their own byelaws to manage the exploitation of sea fisheries resources within their districts, including

within Marine Conservation Zones. For more information on the IFCA as a group see the <u>Association</u> of IFCAs website.

Like all IFCAs, the Sussex IFCA has a governing committee. This consists of members from West Sussex, East Sussex and Brighton & Hove councils, the Marine Management Organisation (MMO), Environment Agency, Natural England and stakeholders appointed by the MMO. Committee composition has changed from SFC formats with the addition of greater representation from environmental interests, and representation from recreational fishermen. This reflects in particular increased responsibilities and obligations in monitoring and managing the marine environment and the impact of fishing activities on this environment, with a focus on Marine Protected Areas (MPAs) of which there 16 partially or fully within the management area of the IFCA.

The appointed members of the Authority are acquainted with the needs and opinions of the fishing community of the district and have knowledge of or expertise in marine environmental matters.

The Authority consists of 21 members as follows:

- 7 elected representatives of the constituent funding councils
- 11 individuals, appointed by the Marine Management Organisation (MMO), acquainted with the needs and opinions of the local fishing community, and those with knowledge of, or expertise in, marine environmental matters
- 1 representative of the Marine Management Organisation (MMO)
- 1 representative of the Environment Agency (EA)
- 1 representative of Natural England (NE)

The Department for Environment, Food and Rural Affairs (Defra) issues guidance to support the IFCA in carrying out its role, which can be viewed <u>here</u>.

Legislation pertinent to the governance and duties of Sussex IFCA include the <u>Marine and Coastal</u> <u>Access Act 2009</u> and the <u>Sussex IFCA Order 2010</u>.

The <u>Marine and Coastal Access Act 2009</u> Part 6, section 153 (1 & 2) and section 154 (1) details the duties of the IFCAs.

The IFCA must:

- seek to ensure that the exploitation of sea fisheries resources is carried out in a sustainable way;
- seek to balance the social and economic benefits of exploiting the sea fisheries resources of the district with the need to protect the marine environment from, or promote its recovery from, the effects of such exploitation;
- take any other steps which in the authority's opinion are necessary or expedient for the purpose of making a contribution to the achievement of sustainable development;
- seek to balance the different needs of persons engaged in the exploitation of sea fisheries resources in the district;
- seek to ensure that the conservation objectives of any Marine Conservation Zones in the district are furthered.

These duties are embodied in a nationally shared Vision to *lead, champion and manage a* sustainable marine environment and inshore fisheries, by successfully securing the right balance

between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.

## 4.3.2 The Executive

The Sussex IFCA executive comprises a staff complement of thirteen (illustrated in **Fig 12**) – two senior managers, two administrative staff, three Fishery Officers, three dedicated to management of the IFCA patrol vessels, and four dedicated to conservation & research (assisted from time to time by students (conducting research projects) and volunteers).

All Officers carry the status of "Inshore Fisheries and Conservation Officer" and the post holder is issued with an Inshore Fisheries & Conservation warrant card. Officers may also be joint warranted with relevant authorities that manage the marine environment.

The IFCA budget for 2020/21 was £1M drawn from its three local councils – West Sussex Council, Brighton & Hove City Council and East Sussex Council – of which 65% went to staff costs, 23% to operating costs, 2% to research, and 10% to funding (depreciation and reserves).



Staff operate from a centrally located coastal office base in Shoreham-by-Sea.

The IFCA operates two patrol vessels – the Fishery Patrol Vessel "Watchful" (and its daughter vessel "Delta One"), and the Fisheries Patrol Vessel "Merlin". "Watchful" is an 18-metre aluminium alloy vessel of bespoke design engaged primarily in inshore and offshore compliance, but also supporting the research activities of the IFCA. "Merlin" is a RIB (Rigid Inflatable Boat) owned by the IFCA and

built with support from the Environment Agency. It provides a compliance platform for both agencies; its shallow draught and waterjet propulsion make it ideal for inshore joint operations.

The activities and programme of the IFCA are guided by a range of governance, planning and reporting exercises (available on the IFCA website). These include:

## Governance

Standing Orders

## Planning

Four Year Plan (latest is 2020 to 2024) & Annual Planning Objective (latest is financial year 2022 to 2023)

Compliance and Enforcement Plan

## Performance

Annual Report

Annual Research Report

## 4.3.3 IFCA Operations

The main instruments of fisheries management and management of the marine environment are international and national agreements, legislation and regulations. These are augmented by a number of local Byelaws (**Table 12**) – for example in effort controls (registration, permits, access), fishing effort (e.g. pot limits), and technical measures (gear specification, minimum landing size, spatial restrictions). In addition to its fishery management obligations, including managing the impact of fishing on MPAs, the IFCA has responsibilities to monitor and enforce fishing restrictions, and shares responsibility for monitoring the status of the MPAs, with a particular focus on those features for which the MPA was established.

## Table 12 – Local fishery related byelaws

## • Vessel Length Byelaw

 establishing the maximum permitted length of vessel (14 metres overall length) allowed to fish within 6 miles of baselines.

## • Nearshore Trawling Byelaw 2019

establishing areas (over 300 km<sup>2</sup> nearshore) where trawling is banned within the Sussex
 District, including the area covered by the kelp restoration project.

## • Fishing instruments Byelaw

- establishing permitted fishing methods within the Sussex District covering restrictions on scallop dredging within 3nm of the coastline, and on pair trawling in the western part of the district.
- Fixed Engines Byelaw 1994 -
  - establishing detailed rules for the placing of fixed nets (fixed engines) in the Sussex District.
     (new Byelaw with Defra for confirmation)

## • Scallop Closed Season Byelaw

exclusion of scallop fishing within 6 miles of baselines between June and October.

•	Shellfish Permit Byelaw 2015
	<ul> <li>contains a range of conditions in the form of technical measures to manage crustaceans, gastropod and cephalopod fisheries within the Sussex IFCA District, and provisions enable and specify the charging of permit fees and associated equipment for commercial and recreational permits.</li> </ul>
•	Chichester Harbour Oyster Permit Byelaw
	<ul> <li>establishing restrictions on the taking of oysters and clams in Chichester Harbour</li> </ul>
•	Minimum Legal Sizes
	<ul> <li>Currently going through approvals process</li> </ul>
•	Application To Fish For Scientific Or Breeding Purposes
	<ul> <li>establishing a provision for taking of sea fish for scientific purposes within the Sussex District;</li> <li>a provision now routinely included as an element in any new Byelaw.</li> </ul>
•	Chichester Harbour European Marine Site (Specified Areas) Prohibition of Fishing Method Byelaw 2013
	<ul> <li>Establishes protections for seagrass beds</li> </ul>
•	Marine Protected Area Byelaw
	<ul> <li>Byelaws specific to the fisheries management in each Marine Conservation Zones, contains a detailed management schedule for each MCZ in the IFCA District</li> </ul>

**Note:** The date of a Byelaw is not necessarily the date it was introduced, but rather the date when it was approved by the Authority prior to public consultation; it cannot enter into law until it has progressed through an engagement and consultation leading to approval by Defra, which can be some years later

In addition to the above there is a Statutory Instrument that limits bass fishing within designated bass nursery areas of Chichester Harbour. There are also Byelaws covering the management of 16 Marine Protected Areas (MPA) in or intersecting the IFCA managed area, each of which has been established to protect one or more marine features or habitats. Each comes with a management plan that may include limits on what fishing, if any, can take place within the boundaries of that MPA. The IFCA has a shared responsibility for monitoring and enforcing compliance with these fishing restrictions.

Table 13 lists the MPAs and key zonal fishing restrictions, and their locations are shown in Fig 13.Further details on the MPAs and the restricted fishing zones are available on the Sussex IFCAwebsite, but also on <a href="https://jncc.gov.uk/mpa-mapper/">https://jncc.gov.uk/mpa-mapper/</a>, the Joint Nature Conservation Committeeand Natural England website, Wildlife Trusts websitewww.wildlifetrusts.org/marine-protected-areas/englandandthegovernmentwebsitedesignatingMCZshttps://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england.The main basis of designation of each area is listed in Table 14.

Fable 13 – Listing of Marin	Protected Areas in or	r impinging on the Sussex IFCA area
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		area km <sup>2</sup>	no. of assess ments	no. of gear / feature	no. of mngmt measur	status	regulator
				ions	es		
Mari	ne Conservaton Zones			10113			
1	Offshore Overfalls MCZ	595	MMO	n/a	3	MCZ	SxIFCA / MMO
2	Utopia MCZ	3	1	n/a	5	MCZ	SxIFCA
3	Selsey Bill & the Hounds MCZ	16		n/a	1	MCZ	SxIFCA
4	Pagham Harbour MCZ	3	1	n/a	4	MCZ	SxIFCA
5	Kingmere MCZ	48		n/a	1	MCZ	SxIFCA
6	Beachy Head West MCZ	24	1	n/a	5	MCZ	SxIFCA
7	Beachy Head East MCZ	195		n/a	2	MCZ	SxIFCA
Euro	pean Special Protection Areas (SPAs)						
8	Solent & Dorset Coast SPA	866			7	SPA	SoIFCA & SxIFCA
9	Chichester & Langstone Harbours SPA	58	40	361	7	SPA	SxIFCA & SoIFCA
10	Pagham Harbour SPA	6	15	210	4	SPA	SxIFCA & SoIFCA
11	Dungeness, Romney & Rye Bay SPA	425	43	230	3	SPA	K&E & Su IFCAs
Euro	pean Special Areas of Conservation (SACs)						
12	Solent Maritime SAC	113	81	509	8	SAC	
13	Dungeness to Petit Levels SAC	31	4	6	3	SAC	
14	inshore no trawl zone						SxIFCA
15	inshore no scallop dredging zone (0-3nm)						SxIFCA
15	seasonal inshore no scallop dredging zone (0-						SxIFCA
16	seasonal no pair trawling zone						SxIFCA

**Source:** <u>http://www.association-ifca.org.uk/map/</u>

#### Notes:

- SxIFCA Sussex IFCA; SoIFCA; Southern IFCA; K&EIFCA Kent & Essex IFCA
- quantitative data and detailed site profiles are from Natural England
- Offshore Overafalls MCZ MMO has not introduced management of this site as yet; there are no specific MPA regulations in this MCZ
- Sussex IFCA has comprehensive management in all but one (Beachy Head East) MCZ in accordance with MaCAA s154 (Marine and Coastal Access Act) which states that:

Protection of marine conservation zones

- 1. (1)The authority for an IFC district must seek to ensure that the conservation objectives of any MCZ in the district are furthered.
- 2. (2)Nothing in section 153(2) is to affect the performance of the duty imposed by this section.
- 3. (3)In this section
  - a) "MCZ" means a marine conservation zone designated by an order under section 116;
  - b) the reference to the conservation objectives of an MCZ is a reference to the conservation objectives stated for the MCZ under section 117(2)(b).
- Beachy Head East was the last to be designated and management is under development in planning year 2022

#### Fig 13 – Basis of zonal marine management within the Sussex IFCA



Source: adapted from screen grabs from http://www.association-ifca.co.uk/map/

Note: numbers refer to those used in Table13

# Table 14 – Basis of designation of marine protected areas and no fishing zones

Mari	ne Conservaton Zones	
1	Offshore Overfalls MCZ	This site hosts the geomorphological remains of an ancient river valley that once flowed through the Channel before it flooded to separate England from the mainland continent. Sandwaves here are important for bony fish, sharks and rays.
2	Utopia MCZ	Within Utopia, rocky reefs create beautiful, intricate and diverse communities of corals, sponges and anemones. Over 15 species of sponge have been recorded and corals such as dead man's fingers are common.
3	Selsey Bill & the Hounds MCZ	Remarkable and unusual outcrops of limestone and clay are captured within this area. The Hounds limestone reef lies in relatively shallow water (0- 8m) and is covered by a fascinating array of sponges, sea squirts and soft coral.
4	Pagham Harbour MCZ	This small area is one of just three places in the UK, where the exceptionally rare Defolin's lagoon snail occurs. This minute snail lives in the spaces between small pebbles in the site's shingle spit at the harbour mouth.
5	Kingmere MCZ	This site has been designated for the rock and chalk habitats found here, as well as to protect the black seabream. Kingmere's rocky habitats provide shelter and a solid foundation for species to cling to.
6	Beachy Head West MCZ	This area protects some of the best examples of subtidal chalk gullies and ledges in the South-East, an unusual feature in the British Isles.
7	Beachy Head East MCZ	Sandstone reefs provide a surface for encrusting animals including sponges, anemones and sea squirts to colonise. Ross worms form living reefs and blue mussel beds provide habitat for other species.
Euro	pean Special Protection Areas (SPAs)	
8	Solent & Dorset Coast SPA	To protect breeding areas for terms – 9th largest Sandwich tern population in the UK, 7th largest common tern population in the UK and 4th largest little tern population in the UK
9	Chichester & Langstone Harbours SPA	Protection of habitat for a wide range of water birds
10	Pagham Harbour SPA	Protection of breeding habitat for common and little tern, and habitat for dark-bellied brent goose

		and ruff
11	Dungeness, Romney & Rye Bay SPA	Protection of a wide range of breeding, wintering and passage assemblies of birds
Euro	pean Special Areas of Conservation (SACs)	
12	Solent Maritime SAC	Protection of estuary, spartina and Atlantic salt meadow habitats
13	Dungeness to Petit Levels SAC	Protection of wide range of coastal features including salt marshes, tidal rivers, dunes, shingle beaches
Fishi	ng zones	
Fishin 14	ng zones inshore no trawl zone	Protection of nearshore marine environment
Fishin 14 15a	ng zones inshore no trawl zone inshore no scallop dredging zone (0-3nm)	Protection of nearshore marine environment Protection of seabed communities
Fishin 14 15a 15b	inshore no trawl zone inshore no scallop dredging zone (0-3nm) seasonal inshore no scallop dredging zone (0-6nm)	Protection of nearshore marine environment Protection of seabed communities Protection of fish breeding and nursery areas
Fishin 14 15a 15b 16	ng zones inshore no trawl zone inshore no scallop dredging zone (0-3nm) seasonal inshore no scallop dredging zone (0-6nm) seasonal no pair trawling zone	Protection of nearshore marine environment Protection of seabed communities Protection of fish breeding and nursery areas Protection of black bream breeding areas
Fishin 14 15a 15b 16 17	ng zones inshore no trawl zone inshore no scallop dredging zone (0-3nm) seasonal inshore no scallop dredging zone (0-6nm) seasonal no pair trawling zone shellfish permit scheme – 0-3nm	Protection of nearshore marine environment Protection of seabed communities Protection of fish breeding and nursery areas Protection of black bream breeding areas Limit of 300 pots per vessel

The Sussex IFCA has implemented a range of measures to support the nature of these protections in a patchwork of fishing zones shown in **Table 15**.

In 2016, the Authority introduced a comprehensive suite of management measures for pot and trap shellfish fisheries under the Shellfish Permit Byelaw. The inshore controls built upon existing measures, such as minimum sizes, and introduced effort limitation, better selectivity for juvenile stock and protection of berried lobsters. The Byelaw effort and gear restrictions enable effective controls on the impacts of fishing activity on the District's shellfish populations and help achieve more productive and sustainable fisheries through improved stock management. A copy of the Sussex IFCA Shellfish Permit Catch Returns Data Summary for 2020 is shown at **Appendix A**, and examples of more detailed data analysis at **Appendix B**.

In 2019 the Authority revised its no trawl fishing zones with a Nearshore Trawling Byelaw. The nearshore no trawl zone now extends the full length of the district out to between 750metres and 1km, but out to 4kms along the coast between Selsey Bill (including the Selsey Bill & The Hounds MCZ).

#### Table 15 – Zonal fishing management measures

#### Permit to fish – permit or authorisation

• only vessels under 14m in length are allowed to fish within the Sussex IFCA district.

#### Gear exclusion zones

- use of mobile gear within the nearshore no trawl zone is banned as a general protective measure;
- similarly use of scallop dredging within 3nm of the coastline is banned as a means of reducing the impact of mobile gears on the seabed;

• In additional to the District wide nearshore trawling restrictions, pair trawling is restricted to inside the western part of the district from Shoreham to Chichester Harbour, and prohibited throughout the district east of Shoreham Harbour breakwater.

#### Seasonal closures

A number of seasonal measures are in place to protect breeding areas:

- thus scallop dredging is banned within the whole of the IFCA managed area (out to 6nm) for the period 1<sup>st</sup> June to 31<sup>st</sup> October;
- pair trawls can only be used from 1<sup>st</sup> April to end of June;
- sea bream breeding grounds are also protected in the Kingmere MCZ, based around a fourpart zonation, with a general (seasonal exceptions) prohibition on use of mobile gear, and seasonal prohibitions on use of static gear.

#### Effort controls

A shellfish permit scheme is in operation across the IFCA district – affecting all fishing with pots (for crab, lobster, whelk, cuttlefish)

- all vessels fishing with pots must be issued with a permit to do so by the IFCA
- all pots must be marked with a unique numbered tag issued by the IFCA
- a pot limit of 300 applies to all commercial vessels fishing within 3nm of the coastline
- a pot limit of 600 applied to all commercial vessels fishing within the 3 to 6nm area
- all vessels so licensed are required to submit catch records.

## 4.3.4 Compliance and Enforcement

The IFCA aims to achieve compliance with fisheries regulations that underpin the sustainable utilisation of its fisheries in the Sussex District by encouraging fishers to voluntarily comply with fisheries laws and operating an effective deterrent against non-compliance. It does this in partnership with other marine enforcement organisations including the Marine Management Organisation, The Environment Agency and the Police. An effective way to ensure voluntary compliance is to increase the knowledge and understanding of the regulations and the overarching sustainability and conservation goals of the IFCA. The Authority does this by providing:

- education and advice through our website, brochures, land and sea based patrols, school and fishing club liaison, partnerships and projects advice;
- involving stakeholders in development of management; and
- involving stakeholders in compliance through use information received used within internal compliance and intelligence processes.

Getting more stakeholders involved in the development of fisheries management regulation and delivery of services allows greater understanding, acceptance and compliance with the rules. It also ensures those rules are appropriate to that fishery. Through its local management and funding structures, the Authority helps to put local authorities, local communities, local businesses and individual citizens in the driving seat, allowing them to play a bigger part in the protection and enhancement of their inshore marine environment. An effective way to provide incentives for compliance, for those who may intentionally flout the regulation, is to operate a clear and visible deterrent. The Authority does this by:

• developing clear fisheries management regulations;

- effective monitoring and surveillance through land and sea based patrols and targeted operations; and
- penalising offenders with warnings, fines (Financial Administrative Penalties) and prosecution.

Examples of the specific types of compliance issues that the IFCA tackles are illustrated in **Table 16**.

## Table 16 – Types of fishery compliance issue most commonly addressed by the IFCA

## Removal of Undersized fish and shellfish

 Removal of undersized fish can have a deleterious effect on the fish stocks by removing animals before they have had a chance to reproduce. A consequence of the removal of undersized fish may be growth overfishing. One type of growth overfishing occurs when animals are harvested at an average size that is smaller than the size that would produce the maximum yield per recruit. This can reduce the yield in fisheries and is associated with economic impacts.

## Fishing within a Prohibited Area

Protected Areas may be used to manage ecosystem overfishing. Marine Protected Areas are "Any area of the intertidal or sub tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment." (IUCN). Examples of marine protected areas include Marine Conservation Zones, Special Protection Areas, and Special Areas of Protection (amongst others). Protected areas may also be used or be associated with fisheries stock management benefits e.g. where they protect resources from exploitation at particularly vulnerable periods in their life history, or where they protect essential fish habitats from degradation or recovery.

## Fishing within a Prohibited Period

• Restricting the time that fishing can occur is used to reduce fishing effort and therefore mortality. Management by this mean can also be applied as an aid to compliance. Limiting the amount of time when a fishery is exploited influences the economic potential of a fishery and in so doing alters the types of fisheries which may be undertaken.

#### Fishing within a Prohibited Season

Management measures which create prohibited season (temporal restrictions) are used to
protect resources from overexploitation at times when a species is particularly vulnerable to
overexploitation or degradation. Examples of such times include when fish congregate to
spawn.

## Fishing with a Prohibited Method/Technique

 By restricting certain fishing methods and techniques it is possible to reduce fishing effort to avoid growth, recruitment or ecosystem overfishing. This may be achieved by restricting larger, more efficient and/or damaging methods or by restricting certain gear configurations i.e. net mesh sizes so as to control the type of size of fish caught.

#### Fishing with Prohibited Gear Configuration/Quantity

• By restricting certain fishing methods and techniques it is possible to reduce fishing effort to avoid growth, recruitment or ecosystem overfishing. For example, this may be achieved by restricting the length of fishing net which may be used.

#### Removal from the fishery

• Restrictions on the removal of fish from the fishery may be as a consequence of a harvest control rule i.e. so as to avoid recruitment overfishing. Examples include the establishment of Total Allowable Catches (and their associated quotas), or to close fisheries in the advent of disadvantageous economic or resource conditions. They may also be used to ensure complete prohibition where species are unable to support economic harvest; this may be due to the animals' life history or prior overfishing.

Enforcement of the Sussex IFCA Nearshore Trawling, Shellfish Permit and Marine Protected Area Byelaws are key tasks for IFCA officers. The marine operations team conducted patrol activity targeting compliance risks, such as unmarked potting gear and the correct tagging of pots at sea (Table 17). Regular patrols in the inshore area ensured compliance by the fishing industry with regards to the new Nearshore Trawling Byelaw. The enforcement team leading patrols on land continued to conduct successful premises landing and inspections. Particular attention was also given to bass regulations and prohibited methods such as drift netting.

Table	17 –
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Category	Q1	Q2	Q3	Q4	total
Sea patrols	28	23	19	22	92
Vessels inspected at sea	0	5	0	0	5
Vessels monitored at sea	599	329	407	313	1648
Shore patrols	35	26	29	18	108
Port visits (on shore patrols)	70	40	56	24	190
Shore inspections	53	30	32	5	120
Verbal warnings	5	3	0	10	18
Written warnings	0	0	1	2	3
FAPs	0	0	0	0	0
Court prosecutions	0	1	0	0	1
Offence reports	0	0	0	0	0
Information reports	51	96	101	103	351

Source: Sussex IFCA 2019/20 Annual Research Report

**Note:** 2020/21 inspection stats are not representative (much reduced) due to impacts of Covid and associated

As part of its enforcement duties, officers

inspect fishing gear at sea. When officers find infringements, they have powers to seize fishing gear for evidential purposes. However, they also engage in the collection of lost gear which is returned to fishermen. Lost ghost gear including strings of pots and fishing nets, pose a pollution risk to the environment and a threat to wildlife; where this is found officers try to retrieve it and enable safe disposal.

#### 4.3.5 The Compliance Risk Register and risk-based management

The Compliance Risk Register provides the IFCA's focus for enforcement activities and is a keystone

document forming part of the Compliance and Enforcement Plan. The Register identifies priorities for enforcement responses and operational plans that make the best use of resources and provide the best possible protection for sea fisheries sustainability and the marine environment. This approach reflects the different fishing activity risks that occur throughout the year. Priorities can be set for enforcement activity during each quarter of the year commencing.

#### Fig 14 – Risk-based matrix





Fig 15 – Development of a risk-based methodology to assist compliance and enforcement planning

Source: plots adapted from Nelson K (2017) Identifying marine management priority areas by mapping environmental value and fishing intensity; MSc thesis, University of Brighton The overall risk level for each fishery is calculated as a product of the impact and likelihood levels (risk = impact x likelihood). From this product, which is called the Risk Value, each issue can be assigned a Risk Ranking, depending upon where a risk value falls within one of a number of predetermined categories. Colour coding denotes the overall risk level for each fishery and fishing method and gives guidance on whether the risk is low, medium or high as in the following figure (**Fig 14**). This makes it a simple procedure to highlight within the risk matrix how regulatory enforcement will be prioritised.

For example, for a risk where there is a major threat to the marine environment or stock and the likelihood is a common occurrence, a risk ranking of 20 is scored (impact 5 x likelihood 4) categorised as high risk and action would be necessary. Or, for a risk where there is no immediate threat to the marine environment or stock but it could occur, a risk ranking of 3 is scored (impact 1 x likelihood 3) categorised as medium risk and therefore light touch approaches such as education, self- regulation or even taking no action and just monitor the situation could be considered.

Over the last decade the IFCA has initiated and collaborated in a range of research projects to better define and inform fishing / marine environment interactions – and which can be added to the mix when developing the Compliance and Enforcement Plan. Example outputs from this work are illustrated in **Fig 15**.

## 4.3.6 Monitoring, inspection and research work

In researching the Sussex fisheries in the run-up to the 2011 Navigating the Future report it was evident that the Sea Fisheries Committee (SFC) as it was then had, ahead of this time, collaborated in a wide range of research work mapping the environment and fisheries within the area under its management – often in great detail. This information was used to inform its operational management – to its benefit – and put it in a very strong position when with the formation of the IFCAs it assumed a greater environmental management mandate. This has continued in the decade since, with an ambitious programme of monitoring and surveillance activities by the IFCAs fishery officers and research team, continuing to add to the research record of the organisation.

The priorities of its activities are listed in its forward programme as:

- Implementing new byelaws on hand gathering, minimum sizes and elasmobranch protection
- Managing hand gathering fisheries within the IFCA's district
- Exploring the use of bag limits within recreational fisheries to improve the sustainability of specific species
- Building evidence and consulting with stakeholders to create effective management on Tranche 3 Marine Conservation Zones (MCZ) and European Marine sites
- Implementing new Marine Protected Area byelaw and Regulation for Tranche 3 MCZs and European Marine Sites
- Reviewing Tranche 1 MCZ management
- Reviewing the Shellfish Permit regulations
- Focussing on the ecosystem approach to sustainable fisheries
- Collecting evidence to drive decision making
- Enforcing existing byelaws on a risk basis

- Working in partnership
- Support with partners, toward a greater understanding of marine archaeology and historic wreck protection within the IFCA's District

This builds on the significant body of work already completed or ongoing, illustrated in Table 18.

Sustainable marine         Shellfish permit monitoring         Lobster sampling         Whelk sampling         Oyster stock monitoring         Species specific management plans         Fishing vessel effort         Netting activity         Trawling activity         Ecosystem interactions         Anglers' activity – black seabream         Kingmere Marine Conservation Zone (MCZ) management monitoring         Beachy Head West MCZ management monitoring         Pagham MC2 and EMS monitoring         Utopia MCZ monitoring         Offshore Overfalls MCZ management development         Selesy Bill and the Hounds MCZ management development         Beachy Head East MCZ management development         Solent European Marine Site (EMS) management development         Dungeness, Romney Marsh and Rye Bay EMS monitoring         Anchoring impacts on sensitive habitats         Interactive habitat map         Assessing natural capital         Habitat enhancement         Bycatch – seahorses         Marine plastic litter         Elasmobranch evidence         Sussex by the Sea (Wild Coast Sussex)		Project
Shellfish permit monitoring         Lobster sampling         Whelk sampling         Oyster stock monitoring         Species specific management plans         Fishing vessel effort         Netting activity         Trawling activity         Trawling activity         Ecosystem interactions         Anglers' activity – black seabream         Kingmere Marine Conservation Zone (MCZ) management monitoring         Beachy Head West MCZ management monitoring         Pagham MCZ and EMS monitoring         Utopia MCZ monitoring         Offshore Overfalls MCZ management development         Selesy Bill and the Hounds MCZ management development         Beachy Head East MCZ management development         Solent European Marine Site (EMS) management development         Dungeness, Romney Marsh and Rye Bay EMS monitoring         Anchoring impacts on sensitive habitats         Interactive habitat map         Assessing natural capital         Habitat enhancement         Bycatch – seahorses         Marine plastic litter         Elasmobranch evidence         Sussex by the Sea (Wild Coast Sussex)	Sustainable marine	
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Sussex by the Sea (Wild Coast Sussex)		Elasmobranch evidence
		Sussex by the Sea (Wild Coast Sussex)

Table 18 – Recent and ongoing monitoring and research activity

socio-economic

Value of marine environment and fisheries

In addition, the IFCA has and continues to collaborate in a wide programme of research to bring about and maintain the Sussex Kelp Regeneration Project and bring about the establishment of the related Inshore no Trawling Zone, listed in **Table 19**.

#### Table 19 – research projects relating to the establishment of the Kelp Forest Restoration Project

- Baited Underwater Video (BRUV) Surveys to monitor mobile species use of habitat over time
- Environmental DNA and species habitat use project Sussex IFCA purchased a water sampler over this period to take samples for eDNA analysis from the towed video transect sites. These will be analysed in partnership with the University of Sussex to get a picture of the species communities associated with different habitats
- Potting and netting studies to estimate changes in CPUE and species composition
- Lobster stock assessment data collection and study (literature review and biometrics)
- Socio-economic benchmark assessment
- Fish and shellfish plankton surveys as an indicator of recruitment
- Kelp restoration feasibility study
- Fish Intel project setting up of acoustic arrays around the UK with Sussex as a potential pilot.
- Placement student working on the detection of kelp using satellite imagery

# 5 Fisheries of Sussex Bay – detailed: catch, landings, fleet, metiers

# 5.1 Overview of landings

In the following statistical examination of the Sussex fishing industry we have taken 2019 as our core year, on the basis that this was the year prior to Britain exiting the European Union and the emergence of the Covid emergency, both of which had considerable adverse impact on the fishing industry, making fishing activity in 2020 somewhat unrepresentative (statistics for 2021 had not been published at the time this work was undertaken). To look at trends, however, we have looked at a five year series, and included 2020 figures.

In 2019, landings to Sussex ports were valued at about £25M, of which £7.7M was caught by the 10m&under fleet. As illustrated in **Fig 10** the Territorial Waters (out to 12nm) largely coincides with the areas represented by the two ICES rectangles 30E9 & 30F0, and a little less than half of this area comprises that area managed by the Sussex IFCA. Accordingly, if we only take landings of fish that are caught within ICES rectangles 30E9 & 30F0, the overall value falls from £25M to £12M, but the landings to Sussex ports of fish caught in this area by the 10m&under fleet falls from £7.7M to £7.4M. So it is reasonable to suggest that most catches of the 10m&under fleet landed to Sussex ports are caught within Territorial Waters, but also that most (but not all) catches of the 10m&under are made within the area under IFCA management (i.e. out to 6nm).

	all squares	IFCA sq	all squares	IFCA sq
Port	Over10m	Over10m	U 10m	U 10m
Emsworth	-	-	2	0
Itchenor/East Wittering	-	-	29	29
Selsey	215	197	583	533
Bognor Regis	-	-	8	8
Littlehampton	-	-	200	200
Worthing	-	-	6	6
Shoreham-by-Sea	14,481	2,508	2,341	2,341
Brighton	-	-	459	417
Newhaven	1,303	917	680	677
Eastbourne	1,266	1,012	1,764	1,758
Hastings	14	-	571	537
Rye	60	52	1,062	876
Total	17,339	4,684	7,705	7,381

#### Table 20 – Value of landings to Sussex ports, 2019 - £'000s

When looked at over a five year period, landings to Sussex ports of fish caught in ICES rectangles 30E9 & 30F0 have remained very stable – at around £11M a year – whilst those landed to Sussex ports but caught outside these two rectangles have varied considerably, from nearly £14M in 2018 to £5.4M in 2016. Generally speaking larger vessels travel further to fishing grounds / fish a wider area and have greater discretion over where they land to. And still larger vessels (large scallop dredgers, super-crabbers, and large whitefish vessels – beam and trawl) operate on a more nomadic basis, moving grounds (and sea areas) more often and landing to the most convenient large port rather than to their home port.

This has some significance for a branding operation focused on inshore / small-scale fishing. It would possible to say that most fish landed to Sussex ports by the 10m&under fleet is caught locally – within the Territorial Waters (i.e. out to 12nm). It would be harder to make the same claim for the over10m fleet component.

If it were an ambition to embrace a larger proportion of catches made to Sussex port within any "Sussex Bay" brand, the evidence would suggest that it could be reasonable to suggest that landings by day boats (boats that leave and return to port within a 24 hour period) to Sussex ports are most likely to have caught their fish within the Territorial Waters off Sussex – though this may be slightly less convincing. This could be said with greater conviction if the statement were applied to all day boats under 14m in length landing to Sussex ports, since no vessels of 14m or over are authorised to fish in the IFCA managed area.

Breaking these figures down to individual ports, between half and two-thirds of landings, by value, are landed to Shoreham (at between £8M and £17M), and the larger part of the inter-year variability in landings of fish caught outside rectangles 30E9 & 30F0 is also down to landings to Shoreham. Eastbourne has the second highest value of landings (consistently just under £3M a year), followed by Newhaven (just under £2M), Rye (a little over £M) and Selsey then Hastings (around £0.5M each).

Of landings caught in ICES rectangles 30E9 & 30F0 and landed in Sussex ports, a little over half of landings to Shoreham are from the over10m fleet (£2-2.5M), about 30% of landings to Eastbourne are from the over10m fleet (£1M)), a little over half of landings to Newhaven are from the over10m fleet (£1M), and nearly a third of landings to Selsey are from the 10m&over fleet (£0.3M). For the rest, most landings are made by the 10m&under fleet – to Emsworth, Itchenor / East Wittering, Bognor Regis, Littlehampton, Worthing, Brighton, Hastings and Rye.

# 5.2 Disaggregated data

In terms of landings of fish to Sussex ports caught in ICES rectangles 30E9 & 30F0 (shown in **Table 21**), most by far derives from pots & traps (£5.7M), followed by fixed nets (£1.9M), then dredge (£1.9M) and otter trawl (£1.5M). Distinguished by fleet component (**Fig 16**), potting and trap fishing generates most revenues for both under (£3.8M) and over 10m (£1.9M) fleets, but then netting dominates in the 10m&under component (£1.9M), whilst dredge (scallops) dominates for the over10m fleet (£1.8M).

Taking this down to the species level, **Tables 22 & 23** shows the mix of species deriving from each gear type by fleet component. The top most important species, by value, are highlighted. Key findings are:

• For both fleet components most of the landings from **potting and traps** are whelks – the 10m&under (£3.1M); over10m (£1.3M). These are followed by crab (£0.4M) and lobsters (£0.2M) for the over10m fleet, and by lobster (£0.3M), crab (£0.2M) and cuttlefish (£0.2M) for the 10m&under fleet (£) fleet component.

- Netting is a minor gear type for the over10m fleet, but the second most important gear for the 10m&under fleet. For the latter, the key species are sole (£0.8M), plaice (£0.3M) bass (£0.2M) and turbot (£0.1M).
- Otter trawling yields a wide range of species, but is particularly important for the 10m&under fleet, landing plaice (£0.3M) and sole (£0.3M), whereas for the over10m fleet the most valuable catch element is squid (£0.1M), followed by plaice and sea bream.

Gear	10m & under	Over 10m	Total £
Otter trawl	979	494	1,473
Beam trawl	36	484	521
Dredge	75	1,782	1,857
Pots and traps	3,830	1,887	5,718
Drift and fixed nets	1,899	36	1,934
Gears using hooks	561	-	561
Other passive gears	1	-	1

Table 21 – Landings value (£'000s) by gear and length group from 30E9 & 30F0 (2019)



Fig 16 – Landed value (£) by gear and length group from 30E9 & 30F0 (2019)

- **Beam trawling** is of minor significance for the 10m&under fleet, but is used to target sole (£0.3M) for the over10m fleet.
- Similarly the use of **dredges** is of minor significance for the 10m&under fleet (£0.1M, mostly scallop), but of highly significant for the over10m fleet (£1.8M, mainly scallops).
- Hook fisheries, mainly rod & line, is a significant gear type for the 10m&under fleet, focused on bass (£0.6M).

It should be noted, however, that these fisheries yield a wider range of species at lower volumes / values that might offer possibilities for more locally focused marketing initiatives.

Species Name	Beam trawl	Dredge	Drift and fixed nets	Gears Other using passiv hooks gears		Other Otter passive trawl gears		Total £	Species % of total
Whelks			79,820			2,795	3,052,623	3,135,238	42.5%
Sole	19,378	916	842,573	1,428		306,193	930	1,171,417	15.9%
Bass	237		152,731	551,937		8,690	357	713,952	9.7%
Plaice	8,211	208	297,234	161		329,177	121	635,113	8.6%
Cuttlefish	1,432	10	76,148	47		43,498	217,688	338,824	4.6%
Lobsters	484	1	8,374	108		1,085	307,287	317,338	4.3%
Crabs	48	11	35,447			1,662	245,631	282,800	3.8%
Thornback Ray	1,073	355	91,950	280		47,062	60	140,780	1.9%
Turbot	1,767	1,158	106,466	88		26,425	83	135,988	1.8%
Scallops	1,102	71,861	161			3,050		76,174	1.0%
Squid	66	22	8,808	74		55,629	8	64,607	0.9%
Sea Breams			12,792	708		37,279	62	50,842	0.7%
Brill	179	76	27,951	32		9,300	89	37,627	0.5%
Smoothhound		8	28,554	289		6,620	34	35,505	0.5%
Cod	36		27,382	236		5,300	63	33,017	0.4%
Gurnard		4	10,567	3		18,378	7	28,958	0.4%
Lemon Sole	573	30	4,380			15,917	19	20,919	0.3%
Gurnards - Red	1,053	23	3,724	14		13,365	4	18,183	0.2%
Lesser Spotted	221	1	8,039	31		7,383	9	15,685	0.2%
Mackerel			9,065	3,351		1,027	3	13,445	0.2%
Undulate Ray			11,494	112		1,802		13,407	0.2%
Whiting	73		2,990	3		7,953	1	11,020	0.1%
Pollack			7,759	1,278		123		9,160	0.1%
Small-eyed Ray			6,944			1,459		8,403	0.1%
Herring			8,287	6		13		8,306	0.1%
Red Mullet	47		3,443	4		4,218	3	7,715	0.1%
Monkfish	244	67	1,318			4,560		6,188	0.1%
Mullet – Other			5,142	51		736	14	5,943	0.1%
Blonde Ray			4,236		1,473			5,709	0.1%
Gurnards - Grey			370	0		5,136		5,505	0.1%
Spider Crabs			2,157		233		2,183	4,573	0.1%
Other species		1	9,952	541	1,191	7,967	3,159	22,811	0.3%
Total £	36,224	74,752	1,896,258	560,782	1,191	975,508	3,830,438	7,375,153	100%
% total £	0.5%	1.0%	25.7%	7.6%	0.0%	13.3%	51.9%	100.0%	

# Table 22 – Landings value (£) by gear type for 10m and under from 30E9 + 30F0 (2019)Green shading denotes top 10 species

Table 23 – Landings value ( $\pounds$ ) by gear type for over 10m from 30E9 + 30F0 (201	.9)
Green shading denotes top 10 species	

Species name	Beam trawl	Dredge	Drift and fixed nets	Otter trawl	Pots and traps	Total £	Species % of Total £
Scallops	3,191	1,747,447	11	236	2,359	1,753,245	37.4%
Whelks			0.2	55	1,322,943	1,322,998	28.2%
Crabs	38	4	113	1,288	402,767	404,210	8.6%
Sole	272,785	4,855	30,086	12,181	922	320,829	6.8%
Plaice	98,771	2,515	174	58,722	12	160,195	3.4%
Lobsters	379	35		758	151,147	152,318	3.3%
Squid	2,236	42		103,433		105,711	2.3%
Cuttlefish	24,795	2,282	81	39,687	3,270	70,115	1.5%
Sea Breams	7	0	7	66,949		66,964	1.4%
Thornback Ray	15,438	424	709	39,775	94	56,440	1.2%
Turbot	16,701	14,458	738	11,932	40	43,869	0.9%
Lemon Sole	10,370	333	142	25,941	39	36,824	0.8%
Brill	13,370	2,412	1,399	4,310	276	21,766	0.5%
Lesser Spotted Dog	55	7	60	18,547	20	18,688	0.4%
Gurnard	7,542	42	84	10,693	9	18,370	0.4%
Red Mullet	311	2		16,990	6	17,308	0.4%
Monks or Anglers	5,249	7,339	116	4,086	45	16,835	0.4%
Bass	1,487	21	50	13,699		15,256	0.3%
Smoothhound	1		7	12,983		12,991	0.3%
Gurnards – Red	1,321			10,566		11,886	0.3%
Whiting	61	4	2	9,952	1	10,019	0.2%
John Dory	215	12		7,373		7,600	0.2%
Queen Scallops	5,480	154		17		5,651	0.1%
Cod	1,639	23	80	2,804	13	4,559	0.1%
Undulate Ray			82	4,124		4,206	0.1%
Mackerel	<0.1			3,650		3,651	0.1%
Spotted Ray	432		65	2,140	11	2,649	0.1%
Mullet – Other				2,602		2,602	0.1%
Spider Crabs				714	1,644	2,358	0.1%
Small-eyed Ray	887		643	791	29	2,350	0.1%
Other species	1,733	12	1,200	7,179	1,532	11,655	0.2%
Total £	484,495	1,782,421	35,848	494,179	1,887,178	4,684,120	100.0%
% of total £	10.3%	38.1%	0.8%	10.6%	40.3%	1	

**Table 24** shows the value of landings from the 10m&under fleet by species and by port – which shows the importance of Shoreham and ports east in landings of sole, bass and plaice, and Selsey and Eastbourne in crabs, and Selsey in lobster.

From this dataset we also show the seasonality on the value of landings for these key species – **Fig 17**.

Species Name	Emsworth	Itchenor / East Wittering	Selsey	Bognor Regis	Littlehampton	Worthing	Shoreham- by-Sea	Brighton	Newhaven	Eastbourne	Hastings	Rye	Total £
Whelks	-	-	64	-	115	0	1,866	38	19	958	20	55	3,135
Sole	-	18	13	-	6	0	133	132	222	196	175	276	1,171
Bass	-	4	78	-	10	1	26	169	117	190	63	55	714
Plaice	-	1	3	-	5	1	42	13	71	54	161	284	635
Cuttlefish	-	0	25	-	20	0	100	2	31	89	62	9	339
Lobsters	-	0	224	7	5	-	18	1	1	59	0	1	317
Crabs	-	0	105	1	8	-	54	1	3	109	1	1	283
Thornback Ray	-	2	7	-	3	0	11	3	12	32	25	46	141
Turbot	-	0	0	-	1	0	20	35	27	25	8	20	136
Scallops	-	-	2	-	-	-	0	0	0	0	0	74	76
Squid	-	-	0	-	-	-	6	0	50	4	1	3	65
Sea Breams	-	0	1	-	7	0	4	0	38	0	0	0	51
Brill	-	0	1	-	0	0	11	9	12	4	1	1	38
Smoothhound	-	1	3	-	12	1	3	0	6	4	2	3	36
Cod	-	0	0	-	2	0	6	5	10	7	1	2	33
Gurnard	-	-	0	-	0	0	6	2	5	3	4	8	29
Lemon Sole	-	-	0	-	-	-	1	0	11	2	1	5	21
Gurnards - Red	-	0	0	-	0	-	2	0	1	0	0	15	18
Lesser spotted dog	-	-	0	-	0	0	3	0	5	2	1	4	16
Mackerel	-	-	0	-	0	1	2	1	3	2	5	0	13
Undulate Ray	-	0	0	-	3	1	7	1	2	0	-	-	13
Whiting	-	0	-	-	0	0	1	0	4	1	1	4	11
Pollack	-	0	0	-	0	0	7	1	0	0	0	0	9
Small-eyed Ray	-	1	-	-	-	-	4	2	0	1	-	0	8
Other species	0	1	4	-	2	2	7	3	27	15	3	8	72
Total £	0	29	533	8	200	6	2,341	417	677	1,758	537	876	7,381

Table 24 – Landings value by port for species of landings from u10 vessels into Sussex IFCA ports from 30E9 + 30F0 in 2019.



# 6 Supply chain issues

# 6.1 Postharvest systems of Sussex Bay – ports & port infrastructure, port sales, traders

## 6.1.1 Seafood trade links along the supply chain

The typical supply chain structure for seafood is:

- fisherman land to a central facility (harbour / port) where the fish is sorted ready for sale;
- the fish is offered for sale through a port auction, or by pre-arranged contract, or by direct negotiation these arrangements are either made by the vessel owner or for larger vessels by the the vessel owner's agent;
- a sale is agreed and the product is delivered to the buyer's premises for re-packing / processing / distribution;
- the buyer may sell:
  - directly to the consumer (as fishmonger, or through online or similar sale), or
  - to catering (delivery to restaurants, pubs, etc.) and
  - retail outlets (principally delivery to fishmongers), or
  - to a range of intermediaries (processors, wholesale distributors (who distribute to retail and catering outlets), or the central depots of retail and catering chains), or to other markets (for example auction markets at other ports in England or on the near continent, or distribution to wholesale markets such as Billingsgate-London, Boulognesur-Mer, Rungis-Paris, Merco-Madrid).

Vessel owners need to sell their catch promptly, they need to sell all that they catch and land, they need to sell it at an acceptable market price (i.e. the price received should reflect market conditions), and they need to receive prompt cash payment (typically by the end of the week) so that they can meet operating expenses and pay out crew share. They need to achieve this week-in week-out across the year. And in doing so they need to be sure that the fish remains in its best possible condition along the supply chain (it doesn't lose its value along the supply chain) – i.e. it needs to be iced from the time it is caught, kept at a low temperature along the supply chain, and handled in a way that does not bruise or otherwise damage the fish.

The fishing industry is impacted by a range of seasonal cycles – in weather, fish breeding cycles, consumer demand (high for example in the run-up to Christmas and Easter), fish quality (oil content and amount and condition of flesh varies across the year), and when catch rates are good (and poor). In the run-up to Christmas, when demand factors push prices up, poor weather can mean that many (and particularly smaller) boats cannot put to sea, so that tight fish supplies also push prices up. Conversely, in the middle of the year when weather and fishing conditions are more favourable, many more part-time fishermen put to sea, which in turn can lead to a glut (over-supply) in landings of certain species of seafood, leading to depressed market prices. Each fishing business has to navigate a route through such factors to ensure profitable operation.

Fishermen are free (within certain administrative boundaries) to sell to whoever they wish. But in the absence of port based fish auctions (there are none in South East England) marrying buyers with sellers can be a trickier task – where the building of long-term relationships, and the trust that comes with this, becomes particularly important. Conversely, losing that trust can prove a very

expensive matter – and both traders and fishermen have long memories. As a result new entrants to the market are typically given a bit of a rough ride and have to prove their worth (not least in being able to pay their suppliers and their bills promptly) – and staying in business and taking custom away from the established traders, or conversely failing and breaking trust with the boats that have been supplying fish, are particularly sensitive areas.

## 6.1.2 Consumer preferences and markets

English consumers, including those in the South East of England, have a preference for seafood species that are not typically caught or landed nearby, preferring instead the likes of cod (mainly from north of the British Isles – Northeast Atlantic and Barents/Norwegian Seas), tuna (from the tropics), salmon (farmed fish from Norway, Scotland or Chile), warm water prawns (farmed from south and south-east Asia), and haddock (from the Northeast Atlantic and Barents/Norwegian Seas). Conversely, there are many parts of the world – and notably nearby markets on the continent – that show a distinct preference for many of the fish species that are caught by the British fishing industry, and where consumers are prepared to pay higher prices than British consumers. As a consequence, the UK imports the greater proportion of the seafood that is consumed in the UK, and exports the greater proportion of the fish that is caught in UK waters. Many British consumers do eat a wide range of seafood species, including those caught and landed to British ports, but not often. Species other than the UK's top five most consumed species (cod, tuna, salmon, shrimp, haddock) are most likely to be consumed outside the home – in cafés, pubs, restaurants, guest houses, hotels.

The top ten species (by value) landed to Sussex ports and harbours are:

1 Sole	2 Scallops	3 Plaice	4 Bass
5 Whelks	6 Turbot	7 Rays	8 Sea breams
9 Crabs	10 Lobsters		

In general, continental consumers, both in the north and south, are prepared to pay well for top quality seafood – including all of the top ten seafood species landed to the Sussex coast. By contrast, UK consumers tend to be more price-conscious when it comes to seafood, and thus buy lower cost seafood species. It is also the case that UK consumers expect to see a large piece of fish on their plate, or a large amount of shrimp or other shellfish. Likewise many are put off by being served whole fish or shellfish or fish with the head still on. Continental consumers favour quality over quantity, and will often favour a smaller fish or a smaller cut of fish.

The takeaway messages are that seafood traders can often make more money exporting fish to the continent than selling the same fish in the UK (though recognising that Brexit related border checks and delays have significantly increased the costs of doing business with the continent), and that UK consumers are conservative in their seafood choices and eating habits. But there are also UK consumers that are adventurous, seek out high quality seafood, are prepared to favour locally caught seafood, and are prepared to pay higher prices for freshness. Providing for this part of the market involves much lower volumes of fish, involves delivery systems that can handle multiple small order volumes, and delivery systems than can supply a wider range of seafood species than might be normal – but these are features that can favour short supply chains and locally caught product.

In the following are described key features of the markets and demand for the top ten species of seafood landed to Sussex ports.

**Sole, plaice and turbot:** Sole, plaice and turbot are well liked by the British consumer, but mainly eaten as a special treat – at a restaurant / hotel, less so in the home. All are presented as regular fare on upper end restaurant menus. But – sole and plaice are very popular in France, Belgium, Holland and Spain, and most of the south coast landings of these species have traditionally been shipped to these markets, and command premium prices. Larger sizes of plaice (and to a degree sole) are less in demand on the continent, and there is some preference for larger fish by the British consumer.

Prior to January 2020 a well-developed and well-oiled transport system operated along the south coast to markets on the continent, collecting product from each port and trader along the south coast. This remains so today, but the increased bureaucracy associated with post-Brexit border controls is likely to have encouraged traders to direct more of the product to the UK market.

Turbot (along with Brill) is very much a high-end restaurant fish popular with chefs and restaurateurs – and sells at a distinct premium, domestically and on the continent.

**Scallops and whelks:** Demand for **scallop** meats (in this context we are referring to king scallop) is high, most particularly in the restaurant and catering trade – in both the UK and on the continent. But demand, and thus price, is high, to the extent that lower cost frozen product from Canada and South America offers stiff competition. Most of the UK product is caught by a relatively small sized fleet of large nomadic scallop dredgers that move from ground to ground around the UK to take advantage of the best catch rates.

The (offshore) Channel scallop fishery, running from off the coast of Devon up into the eastern English Channel off Kent, is one of the main scallop fisheries of the UK. Product is landed to the south coast ports of Shoreham, Brixham, Plymouth and Newlyn, and shipped whole to processing plants in South West England, and also to plants in South West and North East Scotland. The adductor muscle is cut out of the shell and is traded as fresh or frozen product, in the UK and to the continent. Chefs at top-end restaurants tend to prefer to source dive-caught in-the-shell scallops which they can process in their own kitchens. For the rest, restaurateurs, multiple retailers and consumers get to choose from fresh, frozen or thawed product hailing from various sources.

Rye is a notable location for the landing of inshore caught scallops from the under 14 metre fleet (in fact most vessels are under 10 metres), and there is an annual Rye Scallop festival / week which celebrates this – <u>https://www.visitryebay.com/things to do/festivals in rye/scallop festival/rye-scallop-festival/</u>.

Whilst **whelks** have, along with pickled cockles, winkles and cooked shallow water shrimp, formed part of a traditional regional market in east London and the Thames Estuary, the quantities sold to this market are minute. By far the biggest demand for whelks is in South Korea, where the pickled and sliced meat is commonly served as an accompaniment to beer drinking. Most of the UK catches are exported to this market – as cooked and frozen meats. The significant current scale of the fishery for whelks off the Sussex coast is impressive – but is matched by similar fisheries in other parts Britain which have grown in size over the last two or three decades to meet this demand. Significant growth of the Sussex fishery raises some concern about over-fishing. Minimum landing size limits and a whelk potting permit scheme are in place in Sussex, but this falls short of, at present, adaptive management of this fishery and local stock.

**Seabass and sea bream:** Seabass and sea bream are popular table fare, made all the more popular from UK exposure to Mediterranean cuisines, though the firm white flesh of the seabass has always been sought after whenever it could be sourced. Today, most seabass and sea bream sold in the UK

is farmed fish, produced from large aquaculture ventures in the Mediterranean (mostly in the eastern Mediterranean).

Black sea bream forms seasonal breeding congregations off the Sussex coast, variously and more widely concentrated north of Kingmere MCZ throughout the area from Shoreham to Selsey. They are targeted by seasonal pair trawler activity, and are a very important sport fish for the charter angling sector from April to end of June. Concern about the sustainability of this fishery has brought greater scrutiny and some cut-back on the scale of fishing effort. Product from this fishery is distributed to south east England (mainly as a restaurant fish, but also through fishmongers) and to the near continent.

Seabass is a sport fish highly sought after by sea anglers. It has also, in recent decades, been commercially harvested seasonally using pair trawls. The EU has banned the offshore bass pair trawl fishery from Jan to April to prevent targeting of offshore spawning stocks. Bass is caught, however, as a bycatch of the bream pair trawl fishery (where a low bycatch limit of 5% applies – https://www.legislation.gov.uk/uksi/2021/1429/regulation/10/made. The main fishery for sea bass is now a commercial rod & line fishery – often undertaken from the same boats that take recreational anglers out at weekends (note that such vessels need to be both licensed to fish commercially but also licensed to carry passengers, which involves compliance with quite different set of conditions, which allows them to take recreational anglers). Wild-caught seabass tend to be larger than farmed seabass, and are highly sought after by restaurateurs and fishmongers, and fetch a high price. Farmed bass tend to be darker and duller in colour to the wild-caught fish which has an almost white underbelly and silvered sides.

**Rays:** A variety of rays is caught in Sussex coastal waters in net and trawl fisheries. Rays are cartilaginous fish, and lay eggs (mermaids purses), making them particularly vulnerable to overfishing. Limits, through the quota, system, are in place on how much can be caught, but in general harvests are at or within fishing limits. Ray wings are particularly popular in French cuisine (much product is exported to France), but also regularly presented on UK restaurant and hotel menus, and in fish and chip shops. Undulate ray that are normally a protected species of ray are subject, as part of licence conditions, to specific catch limits within area VIId due to their local abundance in the Eastern Solent and along the Sussex coast.

**Crabs and lobsters:** Whilst lobster is a popular restaurant dish in the UK it is treated very much as a luxury item – which means that it is expensive – which means that most UK lobster is directed, live, to the high end restaurant trade, or it is exported to France, Spain, Portugal and Italy. Lower priced lobster – live, but more commonly frozen – is imported from Canada.

Consumption of edible or brown crab is most popular in France, where live crab is regularly presented in large tanks for sale in French supermarkets, and presented cooked, in the shell, as part of large and popular platters of mixed whole shellfish. A large proportion of UK crab is exported to France.

Over the last couple of decades brown crab has become a particularly popular and sought after delicacy in China (where it has extended the range and volume of crab species regularly available on the market and in restaurants). Live crab are regularly packed for air shipment to China and have proved a welcome and lucrative additional market outlet for this species. But in the last couple of years UK brown crab has become embroiled in tensions over reciprocal trade and tariff controls between the UK and China, and Chinese authorities have assessed the head meat in UK brown crab has having unacceptably high levels of cadmium – have significantly curtailed trade (although some appears to be airfreighted via Holland).

Large volumes of edible crab are harvested by a small fleet of large UK nomadic vivier potters or super-crabbers that fish the waters around the British Isles. These go to sea for several weeks at a time, have several thousand pots in the water at any given time, and shift grounds as catch per unit effort falls off. Much (but not all) of this product is directed to a small number of crab processors in the UK where a range of products are produced ranging from white meat, brown meat, crab mince, prepared claws, crab cakes, etc., through to dressed crab. UK production from the inshore and coastal potters tends to peak in the summer months when the full-time fleet is joined by part-time operators. The raised volume leads to glut supply conditions and prices fall. It is at this time that the crab processors will buy up additional supplies at glut prices, which are then frozen for processing out of season.

Dressed crab and crab meat is popular amongst British consumers, particularly eating out and when visiting the seaside – often consumed in salads and in sandwiches. A fair proportion of these products supplied to cafes and restaurants are generated by smaller and cottage-scale processors.

**Cuttlefish and squid:** Breeding concentrations of cuttlefish are found off the south coast of England, including Sussex, across the months of May and June. These are generally caught in large wire traps, washed and frozen for export mainly to Italy.

Long-finned loligo squid are available across the year coast. There is a market for these in southern Europe and the Far East, but these markets are more commonly supplied from industrial scale squid fisheries around the world, including the Falklands.

The Italian for cuttlefish is seppie (Latin *Sepia* spp). The Spanish for squid is calamari. They are cooked in similar ways – flash fried / grilled, or slow cooked as a stew. Various forms of cooked squid and cuttlefish are familiar to British consumers, mainly from holidaying in the Mediterranean.

**Miscellaneous fish species:** A wide range of seafood species are caught in net and trawl fisheries, various dogfish (rock salmon), pouting (bib), cod, gurnard, lemon sole, whiting, dabs, founders, red mullet, grey mullet, John Dory, monkfish, red gurnard, conger eel, pollack, as well as mackerel, herring, sprat, horse mackerel. All of these make good eating fish. Cod, lemon sole, whiting, red mullet, John Dory, and monkfish are highly prized restaurant fish – which find ready sale (in the South East and on the continent). Dogfish, pouting, gurnard (tub and grey), red gurnard, dabs, flounders, and grey mullet are less well known. Many of these species are caught in small volumes, and thus are less attractive to larger traders, and may present additional opportunities for sale through smaller outlets and as the product of local inshore fisheries.

# 6.2 Sales channels

With few exceptions, all sales and purchases at first hand (the first point in the supply chain where the ownership of the fish changes hands) need to be recorded and data provided to the authorities. To engage in commercial sale and/or purchase of fish, businesses need to be registered to do so under the Registration of Buyers and Sellers. Data collected through sales receipts is checked against fishing vessel logbook data as a normal part of fishery management Monitoring, Control and Surveillance systems. This is not a public database.

Examination of this dataset, in anonymised form, indicates that for Sussex, particularly noting the absence of an open market pricing mechanism as would be provided through a port auction, first-hand sale is most often logged between the vessel owner and his agent / wholesaler – as illustrated in **Tables 25 & 26**.
Landing port	Total Number buyers	Buying from 10m & under	Buying from over 10m	
Emsworth	2	2		
Itchenor	3	3		
Selsey	15	10	9	
Bognor Regis	2	2		
Littlehampton	9	9		
Shoreham-by-Sea	19	4	16	
Brighton	4	4		
Newhaven	8	7	4	
Seaford	1	1		
Eastbourne	9	8	4	
Hastings	4	4		
Rye	7	7	1	

#### Table 25 – Number of buyers by landings port in total, and by vessel length group, 2019:

These data indicate competition for product in most ports (though recognising that some buyers are very specialised in their interests – for example the specialist areas of whelks, scallops, crabs and lobster. Overall, the data indicate 57 traders are active in these first hand purchases, but that again there is specialisation – here in that most traders either handle product from the 10m&under fleet or the over10m fleet; only twelve traders (out of 57) buy product from both fleet components.

Table	26 -	– N	umber	of	buyers,	buying	from	vessels	landing	into	Sussex	ports,	by v	/essel	length	group
2019.																

Vessel length group	Number of buyers
10m and under	19
over 10m	26
u10 & o10	12
Total	57

There is also considerable concentration in buyers, as illustrated in Table 27.

#### Table 27 – Number of ports that buyers trade in.

	When buying from	When buying from
	10m & under	over 10m
Average number of trading ports	2	1
Minimum number of trading ports	1	1
Maximum number of trading ports	7	2

Delving into the statistics still further, there are five traders that each conduct more than £1M of business with the Sussex industry – three focused exclusively on the larger vessels, two purchasing more from smaller vessels. Eight traders are responsible for 75% of purchases. At the other extreme, 22 of the 57 traders conduct less than £10k of business with the Sussex industry; mostly with the

smaller elements of the sector. And 19 traders conduct several hundred thousand pounds worth of business, split evening between purchases from the under and over 10m fleet segments.

## 6.3 Trader network

To handle fish – as in fish traders, wholesalers and processors – business premises must be registered with and approved by local government environmental health teams, and recorded on the Food Standards Agency (FSA) register of licensed premises. The FSA dataset is public access and can be downloaded (<u>https://www.food.gov.uk/business-guidance/approved-food-establishments</u>). Local Councils keep a register of licensed premises and details of inspections and infringements.

A quick trawl through online business directories and web searches shows some 64 fish wholesalers with Sussex addresses or connections, and six registered seafood processors (shown in **Appendix C**). Not all of these will buy fish from Sussex ports, though most will source some product from UK fisheries including from the main fish auctions and processing centres (Brixham, Plymouth, Newlyn; Humberside & northeast Scotland). Some of these may trade in imported fresh, frozen and preserved seafood only. Others, notably located in or near Crawley, are likely to be primarily involved in handling air freighted product.

Over half the traders that make first hand purchases from the Sussex fishing fleet are likely to be amongst those listed in **Appendix A**, but not all those listed will source product from the Sussex industry – and we caution that this list is only drawn from a relatively superficial internet search for fish wholesalers.

## 6.4 Seasonality

Seasonality is a key feature in the supply of fish to the market, in the economics of vessel and fleet operation, and in the prices achieved for the different species at different times of the year.



#### Table 28 – Seasonality of Fishing Effort by Principle Species

**Source:** South Coast Dredging Association (2008) South Coast Regional Environmental Assessment: Fisheries Activity Report

#### Table 29 – Total landed weight (t) by month for u10, 30E9 + 30F0 in 2019 for the top 7 value species.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
sole	7	11	17	12	14	10	12	11	12	14	11	4
plaice	19	33	65	69	36	29	37	36	32	29	20	4
bass	3		0	5	7	4	9	12	9	10	11	5
cuttlefish	0	0	1	30	61	14	13	5	1	1	0	0
crabs	4	2	3	7	18	12	22	14	11	14	15	9
lobsters	1	1	2	2	2	4	4	3	2	1	1	1
whelks	277	197	166	164	235	301	373	164	78	37	74	65

Shading highlights landing >10% total annual landings for that species in 2019.

**Tables 28 & 29** show seasonality of landings – **Table 28** showing a compilation of seasonal patterns compiled a little over ten years ago, and **Table 29** showing the seasonality of landings by the 10m&under fleet based on logbook data. They both provide useful indications of variability of landings across the year. Note also that both the public access landings data set and the closed Buyers and Sellers dataset capture monthly data.

#### 6.5 First Hand Prices

**Fig 18** shows seasonal variation in prices for key species, taken from the Buyers and Sellers dataset, which can be compared with **Fig 17** which shows seasonal variation of the value of landings by the 10m&under fleet to Sussex ports. In general, prices hold up well – reflecting the interplay of both the seasonal variations in demand and changes in availability (balance between catchability and fishing opportunities).

	Over 10m purchase prices							
LandingPort	crab	lobster	plaice	sole	whelk			
Selsey	2.69	13.95	1.21	9.66	1.40			
Shoreham-by-Sea	1.89	15.73	1.93	10.07	1.54			
Newhaven	1.42	11.82	2.18	10.94	1.64			
Eastbourne	2.57	15.49			1.41			
Rye	1.00	12.00	2.00	9.77				
Average £/kg	1.91	13.80	1.83	10.11	1.50			
	1	0m & und	ler purch	ase pric	es			
LandingPort	1 crab	0m & und lobster	ler purch plaice	ase pric sole	es whelk			
LandingPort Selsey	1 crab 2.34	0m & und lobster 13.22	ler purch plaice 1.38	ase pric sole 8.15	whelk			
LandingPort Selsey Shoreham-by-Sea	1 crab 2.34 2.11	0m & und lobster 13.22 14.68	ler purch plaice 1.38 1.88	ase pric sole 8.15 10.18	<b>whelk</b> 1.40 1.51			
LandingPort Selsey Shoreham-by-Sea Newhaven	1 crab 2.34 2.11 1.51	0m & und lobster 13.22 14.68 13.34	ler purch plaice 1.38 1.88 2.01	ase pric sole 8.15 10.18 10.42	<b>whelk</b> 1.40 1.51 1.27			
LandingPort Selsey Shoreham-by-Sea Newhaven Eastbourne	1 crab 2.34 2.11 1.51 1.84	0m & und lobster 13.22 14.68 13.34 13.65	ler purch plaice 1.38 1.88 2.01 2.04	ase pric sole 8.15 10.18 10.42 10.89	whelk 1.40 1.51 1.27 1.36			
LandingPort Selsey Shoreham-by-Sea Newhaven Eastbourne Rye	1 2.34 2.11 1.51 1.84 1.51	0m & und lobster 13.22 14.68 13.34 13.65 10.31	ler purch plaice 1.38 1.88 2.01 2.04 1.90	ase pric sole 8.15 10.18 10.42 10.89 9.18	es whelk 1.40 1.51 1.27 1.36 1.26			
LandingPort Selsey Shoreham-by-Sea Newhaven Eastbourne Rye Average £/kg	1 2.34 2.11 1.51 1.84 1.51 <b>1.86</b>	0m & und lobster 13.22 14.68 13.34 13.65 10.31 <b>13.04</b>	ler purch plaice 1.38 1.88 2.01 2.04 1.90 <b>1.84</b>	ase pric sole 8.15 10.18 10.42 10.89 9.18 9.76	whelk 1.40 1.51 1.27 1.36 1.26 <b>1.36</b>			

Table 30 – Sale price comparison u10 vs o10 – no big difference between sale prices for top species by value (for both u10 and o10) (buyers only)

Source: Buyers and Sellers dataset

#### Fig 18 - Average first hand prices paid for key species landed to Sussex ports, 2019



Source: Registration of Fish Buvers & Sellers dataset

Despite the absence of port auctions in South East England, it would seem that price formation mechanisms are in play and consistently so – and likely to be drawn from prices achieved at port auctions across the UK and near continent, and prices relayed daily across the trader network reflecting market conditions and demand (traders routinely handle and interpret market intelligence – gleaned mainly through their daily phone conversations with other traders and clients).

A further indication that these forces are in play, and can be seen to work, is evident from the data presented in **Table 30**. This is a comparison of the sales prices reported from first hand transactions for product landed by the 10m&under and over10m fleet segments. This shows that on average there is little difference in the prices paid for product from the two fleet segments. This can be interpreted in various ways. Primarily the market (at first-hand sale) does not appear to recognise any significant difference in the product from these two fleet segments. Another way of expressing this is that the market does not appear to differentiate between product from the inshore / smallboat / low impact fleet and that from larger and more industrial scale operations.

## 7 Fishery management in the IFCA area: what has changed?

## 7.1 Changing policy

The reform of the EU Common Fisheries Policy in 2014 has led to greater focus on managing fishing / environmental interactions, increased focus on low impact fishing, and modification of the quota management system by placing greater emphasis on the need to land what is caught (and thus catch what you need) and so reduce wasteful (and unnecessary) discarding. Whilst the UK has left membership of the EU it was a key champion of the changes brought about in this reform exercise, and the intended policy shift is still in place in management of UK fisheries.

This shift in policy should have given positive support to small scale and inshore fishing, but in practice there is little evidence of this. And the combination of the changing (and arguably less attractive) economics of fishing, an aging workforce and poor recruitment to the sector, plus very evident increased development pressure on port, harbour and beach infrastructures (to the general detriment of fishing infrastructures), has resulted in significant changes across the Sussex fishery sector – some positive, but mostly negative.

## 7.2 Altered mandate in establishment of IFCAs

The Sussex IFCA was formed in 2011 to replace the former Sussex Sea Fisheries Committee, reflecting a repositioning of inshore fisheries management to extend beyond managing fishing and fisheries to embrace raised responsibility and obligation for management of the marine environment. This has involved a significant shift in the composition of the IFCA board, but perhaps of greater import a significant reallocation of IFCA resources to managing fishery / environment impacts, and monitoring an increased array of Marine Protected Areas.

Over the last decade there has also been increased activity in the areas of cable laying / replacement, marine aggregate extraction, and more recently offshore windfarms, all of which have impacted on where and how marine resources are managed, which again impacts on IFCA activities.

In 2009/2010 The Sussex Sea Fisheries Committee commissioned consultants to assess how the SFC could improve management of the fisheries within its district. For this, consultants used the Marine Stewardship Council (MSC) environmental standard "assessment methodology" as an audit tool (summary report published as "Navigating the Future"). This represented a significant and novel approach to its management obligations (a productive approach that was then rolled out across England and Wales under Project Inshore), but also reflected the unusual extent to which the SFC was involved in researching and promoting research activity into the local marine environment, its fisheries and how these interacted. Such innovation has continued across the subsequent decade.

From its establishment in 2010 the Sussex IFCA applied a strategic sustainable and ecosystem-based approach to the development of its future management. A review of existing management was conducted, and the Sussex fishing community engaged in a process to identify management priorities. These priorities were assimilated with the Authority's new duties to manage Marine Protected Areas and formed the foundation for its work over the subsequent decade.

In 2010 the UK government launched four project initiatives to involve the fishing industry in helping identify where best to establish a network of Marine Conservation Zones in coastal waters around England and Wales (and conversely to identify where MCZ formation would fall short of accommodating both fishing and conservation interests). The project for the Eastern English Channel, "Balanced Seas", resulted in the addition of seven MCZs to the existing array of four

European Special Protection Areas (SPAs) and three European Special Areas of Conservation (SACs) – the management of which would involve establishment of restrictions on the type, scale and seasons in which fishing activity might take place within the MPA boundaries.

## 7.3 Sussex IFCA innovations

In addition and complementing these, the ongoing review of IFCA Byelaws further developed the zonal management of fisheries by maintaining fishing within the IFCA district to vessels of not more than 14m in length, and establishing additional fishing restrictions on when and where mobile fishing gears could be deployed – impacting scallop dredging, bottom trawling and pair trawling. These have had significant positive impacts on control of overall fishing effort within the district, and resultant reduction in the impact of mobile gears on seabed communities.

In 2016 the IFCA introduced a Shellfish Permit Byelaw which requires all vessels fishing with pots and traps within the district to hold a permit to do so, to mark all pots and traps with uniquely numbered tags, and to regularly submit detailed returns on the composition, size and location of all catches. This provides the IFCA with greatly improved information on these fisheries, the yields from these fisheries, and changes in catch per unit effort. The scheme has now been in operation for five years, and the information provides the possibility that more active and adaptive management of these fisheries may be possible in the near future.

Developing further the environmental mapping and monitoring work undertaken by the Sussex SFC, and continued by the Sussex IFCA and its research collaborators from 2010 onward, focus turned to further protecting essential fish habitats and marine biodiversity, linking this with reversing the degradation of the kelp beds found nearshore off the West Sussex coast, and in doing so supporting small scale inshore fisheries. This has resulted in the substantial expansion of the no-trawl zone along the West Sussex coast captured in the Nearshore Trawling Byelaw of 2019. The nearshore no trawl zone now extends the entire length of the IFCA district out to between 750 metres and one kilometre, and out to four kilometres along the West Sussex coast between Selsey Bill (including the Selsey Bill and the Hounds MCZ) and Shoreham (where the kelp beds were concentrated). The Authority is a key member within a wider partnership that is taking forward the 'Sussex Kelp Restoration Project' – including long-term monitoring to record the recovery of kelp related habitats and associated marine species communities. The nearshore prohibited trawling areas also includes the natural harbours of Chichester, Pagham and Medmerry.

All of these inshore management activities establish and communicate clear boundaries of behaviour on how fishing activity is to be conducted within the IFCA district, and the fishery management mosaic that has been developed is based on, and evidenced by, a rolling programme of monitoring and research aimed at informing a balanced approach to fishermen's commercial interests and marine conservation. To encourage and ensure compliance with these rules, IFCA officers conduct a programme of at-sea and shore-based inspections, and active monitoring of any impacts of legal and illegal fishing activity within MPA boundaries. Efforts are made to allocate IFCA officer and research resources wisely and cost-effectively, partly based on various forms of risk assessment – where fishery infringements are most likely to take place, where biodiversity value is greatest, and where the adverse impacts of fishing activity on the marine environment are likely to be most damaging.

## 7.4 Addressing the recommendations of the 2010 "Navigating the Future" report

Has the IFCA taken on board the conclusions and recommendations of the 2011 "Navigating the Future" report, and is there more that it can and should do?

As a general statement the IFCA has made substantial progress in strengthening its management and control of fisheries within its area, and has not only embraced the added responsibilities and obligations required to manage the newly established Marine Conservation Zones but has continued to pioneer new evidence-based approaches to management of fishing impacts on the marine environment. The 2010 report, which was explicitly focused on using the MSC assessment methodology as an audit tool, assessed that the fisheries of the Sussex area were managed in a manner commensurate with the scale and nature of those fisheries and in line with the zonal nature of the fleet and the opportunist nature of much of the fisheries conducted (where many of the smaller vessels switch gear to meet seasonal fishing opportunities available to them). These statements continue to apply.

In addition, its innovations in monitoring and research into the marine environment and the impact of fishing on that environment were considered commendable, but there was an expectation that more could be done in converting this into effective management measures – an expectation given greater emphasis with a recasting of the mandate of the newly formed IFCAs to given additional priority to managing the impacts of fishing on the environment.

The report further highlighted the need to have greater information on the fish stocks being exploited, and to have management systems that included ability to vary fishing activity and effort in light of that information – though its went on to say that whilst some fish stocks could be effectively managed within a local regime (i.e. bounded by a six mile seaward limit) for others such an approach lacked credibility. Key species where it was indicated that action might be considered appropriate included crab, lobster, bass, seabream, red mullet, cuttlefish, whelks, scallops and native oysters. As referenced at various points in this report there are very few opportunities to manage a stock at a local level – and in responding to this the IFCA has sought to identify and apply pragmatic workarounds to achieve improved management of fisheries. In this the IFCA has been able to move forward on each of the above – as indicated in the following examples – whilst also substantially reducing the impacts of fishing on the environment:

- The main shift in both sustainable fisheries (s153 MaCAA 2009 duties) and MPA (s154 MaCAA 2009 duties) management has been to place still greater emphasis on zonal management with direct impacts on containing the deployment of mobile gears in large areas of the district including designated MCZs, through establishment of no-go areas and seasonal closures of other areas impacting scallop fishing, pair trawling for bass and seabream.
- The IFCA has introduced a Shellfish Permit scheme that has now been in operation for five years which provides much enhanced information on crab, lobster, whelk and cuttlefish pot and trap fishing. This sets pot limits for each of the fisheries crab and lobster pots: 300 per vessel inside the 3nm limit, and 600 per vessel within 6nm; whelk pots: as for crab and lobster pots; cuttlefish pots: maximum of 300 pots within 6nm.

There may be opportunity for further change in the future, but it is worth pointing out the exceptional and innovative nature of the Sussex initiative amongst IFCAs, and note that no management of offshore potting effort through pot numbers is yet applied in any UK waters. In which context, management at larger scale is being progressed under Project UK, which is working with partners to take the crab and lobster fisheries of the Western Approaches through to full MSC assessment (a similar exercise is underway for Channel scallop fisheries).

The case for local management of effort in the whelk fisheries may be stronger.

- The Native Oyster dredge fishery of Chichester Harbour has been the subject of regular monitoring for many decades, but this has been enhanced in recent times, and the Byelaw covering this fishery updated. In addition this area is also regularly surveyed as a recognised nursery area for a wide range of fish species of commercial value in their adult form.
- Substantially enhanced management and monitoring of MPAs is in place including additional zoning and application of mixed seasonal fishing restrictions in different areas.
- There has been significant expansion of the nearshore no trawling area between Shoreham and Selsey Bill which in turn led to the establishment of the Sussex Kelp Restoration Project to reestablish the complex biodiversity of these degraded kelp beds – including an enhanced monitoring programme.

All of the above are considered progressive, timely and appropriate responses to local circumstances and make fulsome use of the information, argumentation and recommendations arising not just from the "Navigating the Future" report, but from the many other research reports undertaken and/or commissioned by the IFCA.

## 7.5 In the pipeline

In addition to the above, Technical Measures stipulating gear parameters and Minimum Landing Size Limits that apply to UK fisheries are already in place under UK Primary and Secondary legislation. Nonetheless the IFCA has drafted a comprehensive Minimum Landing Size Byelaw which applies to all fishers (both recreational and commercial) operating within the IFCA district and better meets local conditions and complements other controls within the district. This draft is currently progressing through the approvals process.

The Sussex IFCA also has both a New Netting Permit Byelaw 2019 and a new Hand Gathering Byelaw 2021 in the final stages of approval and development respectively. These new Byelaw regulations are based upon its MaCAA 2009 s153 and s154 duties and provide a clear system of management for all passive netting activity and any hand gathered harvesting (including bivalves) from the intertidal areas intended for sale into the human food chain. Both Byelaws apply to both commercial and recreational activities.

The introduction of an inshore vessel monitoring system (iVMS) for all vessels under12m in length operating in England and Wales is now in hand (<u>https://www.gov.uk/guidance/i-vms-type-approval-programme</u>). The legislation is in place, and there is expectation that this system will become standard in 2023. This may allow for much more accurate monitoring of fishing activity in the district and, together with greater use and analysis of the catch log-book and Registration of Buyers and Sellers datasets, might encourage exploration of additional adaptive management measures.

In summary the Sussex IFCA has, in accordance with its s153 sustainable fisheries duties, implemented a comprehensive suite of Byelaw management measures as planned since its establishment. The Byelaws reflect recommended and required fisheries management improvements identified in the "Navigating the Future" project in 2010 and further legal requirements in respect the management of inshore marine protected areas.

## 8 Implications for a Sussex Bay brand – what is and could be claimed, and what cannot be claimed

Any fisheries or seafood branding exercise faces an inevitable trade-off between the boldness of the sustainability claims that are made and the extent of the fleets / fishery products that can be included. Bolder environmental sustainability claims are only likely to achieve market credibility if they are used judiciously, where clearly warranted – for example for lower impact fishing gears targeting more abundant or less vulnerable species.

	High Assurance Model	Low Assurance Model
Fleet & Gear	Potential for tighter definition on certain fleets, gears or stocks: i.e., inshore vessels, inshore waters, low impacting gears, abundant stocks	Less ability to define certain fleets, gears or stocks. All fleets and gears likely to be included.
Brand sustainability claims	Potential for clearer and more explicit sustainability claims.	Little or no ability to make sustainability claims. Promotion must be more generic.
Brand advantages	Likely to provide a market advantage for certain products. Greater potential to build Sussex brand.	Less market advantage for products. More limited potential for some positive regional publicity.
Product labelling	Potential for product labelling for particular species from particular fleet segments.	Less potential for product labelling.
Traceability / CoC requirements	On-going requirement to verify product comes from defined fleets, gears or stocks.	No requirement for on-going verification of product.
Costs	On-going auditing requirement. On-going marketing requirement to maximize brand advantages	No on-going auditing requirement.

#### Table 31 – Does a branded fish come from the source the brand claims?

By contrast, if all fleets are to be included within a more regional branding exercise then there is less potential to make environmental sustainability claims (because of the inclusion of more impacting gears or depleted resources) and any positive branding may therefore need to be more generic (for example: telling the story of the industry or the regional management that is in place). Exactly where the threshold lies between what can be claimed to be "environmentally sustainable", or some equivalent term, and what cannot is a topic for further consideration and will depend upon the sustainability criteria that are used. Different schemes already define sustainability according to different criteria. However, regardless of which sustainability criteria are used, the same basic trade-off is likely to be faced.

Where explicit sustainability claims are made, careful consideration must be given to how to provide assurance to these claims within the market. Any claim which provides a potential market advantage may inevitably create an unwanted incentive for fraud, through mis-labelling or product substitution. Even a relatively simply claim such as "Fish from Sussex Bay" will need to be supported to by some assurance system to ensure that the consumer really is getting fish from Sussex Bay. For bolder claims, which provide greater market advantage, the system of assurance needs to be more robust.

## Appendix A – Sussex IFCA Shellfish Permit Catch Returns Data Summary 2020



### Sussex IFCA Shellfish Permit Catch Returns Data Summary 2020

The Sussex Inshore Fisheries and Conservation Authority's purpose is to develop sustainable inshore fisheries whilst providing appropriate protection for the marine environment and the fisheries resources it supports.

Conservation Authority In 2016, the Authority introduced a comprehensive suite of management measures for pot and trap shellfish fisheries under the Shellfish Permit Byelaw. The inshore controls built upon existing measures, such as minimum sizes, and introduced effort limitation, better selectivity for juvenile stock and protection of berried lobsters. The Byelaw effort and gear restrictions enable effective controls on the impacts of fishing activity on the District's shellfish populations and help achieve more productive and sustainable fisheries through improved stock management.

The Sussex IFCA Shellfish Permit Byelaw requires all permit holders to provide shellfish catch and fishing effort information to support inshore shellfish fisheries. This catch returns data is a vital part of shellfisheries' management and helps the IFCA to gather the evidence needed to make future management decisions. The Authority understands that permit data may also be of interest to permit holders, providing a better understanding of the fishery in the context of their own detailed knowledge. Trends such as seasonality of different fisheries and catch rates might be of particular interest for future planning.

Catch data submitted will enable Sussex IFCA and others to better understand the seasonality of the shellfish fisheries and changes over longer time periods. The data will also help to understand the changes in catches and the status of stocks in response to the levels of fishing effort within the fisheries.

#### Overview

- Since October 2016, (the introduction of the Shellfish Permit Byelaw) to the end of December 2020, 58% of the total 250 permits were assigned to commercial fishermen, with 42% to recreational.
- 13% of these permits expired in 2019 and were not renewed during 2020 (10% recreational and 3% commercial).
- There were 55 active recreational permits and 94 active commercial permits during 2020.
- A total of 1209 tonnes of shellfish was reported being landed on catch returns in 2020. 99% of landings were from pots and 1% were from nets and trawls.
- The four main species landed were whelks (82%), cuttlefish (11%), edible crab (6%) and lobster (1%).
- Very few spider crabs or prawns and no velvet swimming crabs were reported as being landed.



## **Spatial variation**

#### **Total landings**

- Lobster and edible crab landings were greatest in 30E9West and whelk and cuttlefish landings were
  greatest in 30F0West.
- Landings were lowest for all shellfish species in 30F0East. Almost no (<0.01 tonnes) lobster or edible crab were landed in 30F0East.

#### Landings per unit effort

- The weight of each targeted species per pot, or landings per unit effort (LPUE), was calculated by dividing the total weight of each species by the number of pots hauled used to target that species.
- Lobster LPUE was greatest in 30F0East. Whelk LPUE was greatest in 30F0West. Edible crab and cuttlefish LPUE was greatest in 30E9West.
- Lobster LPUE was lowest in 30E9West and edible crab in 30F0West (excluding 30F0East). Whelk and cuttlefish LPUE was lowest in 30E9East.



#### Seasonality

- Lobster landings were highest in the summer and lowest in the winter months.
- Edible crab landings were highest in June and July and lowest over winter.
- Whelk landings were highest during January, March and April, with 26% landed in April. Whelk landings were decreasing throughout the summer and were lowest in September and October. The rise in sea temperatures causes the whelks to move to deeper, cooler waters.
- The cuttlefish season is primarily between April and June, coinciding with seasonal migrations into the shallower coastal waters to breed. 48% of cuttlefish landings were in April.



#### Annual variation in landings for lobster, edible crab, whelk and cuttlefish







#### Comparisons with previous years

#### **Total landings**

- Lobster landings have gone down from 41 tonnes in 2017, 32 tonnes in 2018, 19 tonnes in 2019 to 11 tonnes in 2020.
- Edible crab landings have gone down from 178 tonnes in 2017, 179 tonnes in 2018, 158 tonnes in 2019 to 66 tonnes in 2020.
- Whelk landings were highest in 2019 (1259 tonnes) than in the previous two years and 2020.
- Cuttlefish landings were higher in 2020 (138 tonnes) than in the previous three years.

#### Landings per unit effort

- Lobster LPUE has gone down from 0.08 kg/pot in 2017 to 0.06 kg/pot in 2020.
- Edible crab LPUE in 2020 (0.37 kg/pot) was lower than the previous three years; 2019 0.44kg/pot, 2018 0.45 kg/pot and 2017 0.38 kg/pot.
- Whelk LPUE was higher in 2020 (1.82 kg/pot) than the three previous years.
- Cuttlefish LPUE was much higher in 2020 (2.86kg/pot) than the three previous years, and there were 25% fewer vessels landing cuttlefish than in 2019.





## **Appendix B** – Example data analysis of Shellfish Permit Catch Returns Data

The following graphics show fishing effort, species catches and species catch per unit effort for the crab and lobster pot fishery over the five years of the scheme to date, segregated into the four zones of the Shellfish Permit Byelaw. The first graphic focuses on landings of edible crab, and the second on landings of European lobster.

Note that the histograms in the first column of each graphic are the same – the two principal target species of this fishery are crab and lobster.

Note the considerable variability in effort between years – most evident in ICES sub-rectangle 30E9 west. This shows marked fall-off in effort from year to year, though returns for 2020 and 2021 are likely to be unrepresentative of trends given the impacts of Covid and exit from membership of the EU. Across this time series CPUE for crab catches in ICES sub-rectangle 30E9 west have held up well, whereas there has been a marked fall-off in CPUE recorded for lobster in the same area.

Note also the particularly high landings of crab in the second half of the year in ICES sub-rectangle 30F0 west in years 2017, 2018 & 2019.





# Appendix C – Fish Wholesalers and Seafood Processors based in Sussex or with a Sussex connection

Chiches	ster			
	C1 Realisations (2020) Limited	fish wholesalers	Chichester	PO19 1ED
	Sealsea Fish & Lobster Ltd	fish wholesalers	Chichester	PO20 OSY
	Selsea	fish wholesalers	Chichester	PO20 OSY
	D & D Fisheries	fish wholesalers	Chichester	PO20 9BS
Littleha	impton			
	Browns Seafoods	fish wholesalers	Littlehampton	BN17 5DF
	Sussex Fish Sales Ltd	fish wholesalers	Littlehampton	BN17 5DF
	Ampr Trading Ltd	fish wholesalers	Littlehampton	BN17 7BS
Worthi	ng			
	Matrix Foods Limited	fish wholesalers	Worthing	BN11 1QR
	Forest Fine Foods Ltd	fish wholesalers	Worthing	BN13 3QZ
	Parkers Foodservice Ltd	fish wholesalers	Worthing	BN13 3QZ
Lancing	g / Shoreham-By-Sea			
	Aymes International Limited	fish wholesalers	Lancing	BN15 8AF
	Off The Dock Ltd	fish wholesalers	Lancing	BN15 8AF
Brighto	n & Hove			
	Pished Fish Limited	fish wholesalers	Brighton	BN1 1AX
	Premier Fine Foods Limited	fish wholesalers	Brighton	BN1 1WN
	Rhumveld UK Ltd	fish wholesalers	Brighton	BN1 4DU
	Ozsu Fish UK Limited	fish wholesalers	Brighton	BN1 4ST
	Bmac Intgernational Trade Ltd	fish wholesalers	Hove	BN3 2AF
	Fish To Your Door Ltd	fish wholesalers	Hove	BN3 2BB
	Atariya Food Limited	fish wholesalers	Hove	BN3 2DL
	Fish Galore Limited	fish wholesalers	Hove	BN3 2DL
	T & N Enterprises (London) Limited	fish wholesalers	Hove	BN3 2DL
	Bagelman Limited	fish wholesalers	Hove	BN3 2EB
	Fish Galore	fish wholesalers	Hove	BN3 2PA
	Huny Beest Ltd	fish wholesalers	Hove	BN3 3DH
	Aegean Seafoods	fish wholesalers	Hove	BN3 3PB

	Shoreham-By-Sea Oyster Company Ltd	fish wholesalers	Hove	BN3 7GA
	Pestle Ltd	fish wholesalers	Henfield	BN5 9SQ
	Kent Foodservice Limited	fish wholesalers	Lewes	BN8 6JL
	Mcb Seafoods Limited	fish wholesalers	Brighton	BN9 OBX
	Brighton & Newhaven Fish Sales Limited	fish wholesalers	Brighton	BN41 1WF
	Fish	fish wholesalers	Brighton	BN41 1WF
	Monteum Ltd	fish wholesalers	Shoreham-By-Sea	BN43 6RE
Newha	ven			
	Bickerstaffs	fish wholesalers	Newhaven	BN9 9BP
	West Quay Fisheries Ltd	fish wholesalers	Newhaven	BN9 9BP
	Direct Seafoods Colchester	fish wholesalers	Colchester	CO4 9TZ
	Charlie's Wiltshire Trout Limited	fish wholesalers	Petworth	GU28 9LP
	Black River Caviar UK Ltd	fish wholesalers	Midhurst	GU29 0BQ
Eastbo	urne			
	Flyr Limited	fish wholesalers	Eastbourne	BN21 3YA
	Norvik Ltd	fish wholesalers	Eastbourne	BN21 3YA
	Beach Fish	fish wholesalers	Eastbourne	BN22 7NU
	Southern Head Fishing Co. Limited	fish wholesalers	Eastbourne	BN23 2DL
Hasting	35			
	Hastings Fish CIC	fish wholesalers	Hastings	TN34 3DW
	Hastings Fishmarket Enterprises Ltd	fish wholesalers	Hastings	TN34 3DW
	P H Fish	fish wholesalers	Hastings	TN34 3DW
	The Smoke Shed (Hastings) Limited	fish wholesalers	Hastings	TN34 3DW
	Jackson Fish Wholesalers	fish wholesalers	Hastings	TN35 4PP
Rye				
	The Boathouse Fisheries Limited	fish wholesalers	Bexhill-On-Sea	TN39 5ES
	Rye Fishing, Fuel and Flake Ice Company Ltd	fish wholesalers	Bexhill-On-Sea	TN40 1EZ
	Cranbrook Fishmongers Limited	fish wholesalers	Bexhill-On-Sea	TN40 1RG
	Sea Dragon Direct Ltd	fish wholesalers	Wadhurst	TN5 7DL
	Botterells	fish wholesalers	Rye	TN31 7IT
Inland				
	Nsj & Co Enteprise Ltd	fish wholesalers	Crawley	RH10 1XX

	Rossmore Oyster Ltd	fish wholesalers	Crawley	RH10 4TA
	George Tabor Limited	fish wholesalers	Crawley	RH11 9AH
	The Pure Oyster Company Ltd	fish wholesalers	Crawley	RH11 9AH
	Pure Seafood & Pure Oyster Co.	fish wholesalers	Peas Pottage	RH11 9AH
	Iberinnovatives Ltd	fish wholesalers	Horsham	RH13 5JG
	T Quality Limited	fish wholesalers	Burgess Hill	RH15 9TJ
	The Fresh Fish Shop Ltd	fish wholesalers	Haywards Heath	RH16 1DR
	Monster Foods Group Limited	fish wholesalers	East Grinstead	RH19 1RL
	Arctic Traders	fish wholesalers	Pulborough	RH20 1ER
	S J Fishing	fish wholesalers	Pulborough	RH20 1PS
	Frozen Fish Direct Ltd	fish wholesalers	Feltham	TW14 0XQ
Other				
	Direct Seafoods Colchester	fish wholesalers	Colchester	CO4 9TZ
Bognoi	r Regis			
	T24 Seven Limited	processor	Bognor Regis	PO21 1EU
	Selsey Shellfish Direct Ltd	processor	Bognor Regis	PO21 1DD
Inland				
	Springs Smokeries Ltd	processor	Henfield	BN5 9LN
	John Ross Jr Limited	processor	Midhurst	GU29 9NQ
	Charlie's Smokehouse Ltd	processor	Pulborough	RH20 1BS
	Fins & Forks Limited	processor	Pulborough	RH20 4BN