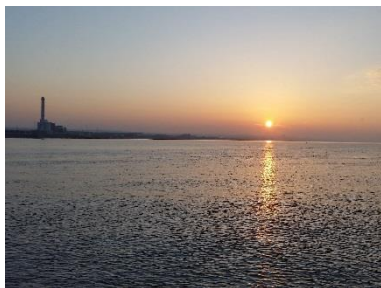


# Centuries of Sussex Seas

A summary of historic fishing activity in  
Sussex coastal waters



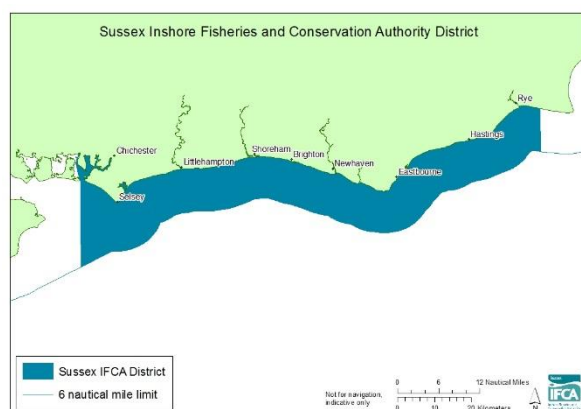
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## Introduction

In 2018-19, Sussex IFCA undertook an investigation to find out information on the historic fisheries along the Sussex coast. Museums and historic documents were searched and local fishers were interviewed. This report summarises the information found for five major ports; Selsey, Worthing, Shoreham, Brighton and Hastings.

The aim was to document this historic information and capture that which is still within living memory. This will help inform management decisions. It is important to not only protect the environment in its current day condition but to consider what it used to be like or what it might be in a future enhanced state. This is known as shifting baselines where the condition of the environment is measured against a particular point which may itself be degraded from a previous point. In this context, the condition of the marine environment includes the size and abundance of commercially important species. Protecting vulnerable and valuable habitats has socio-economic benefits, as well as environmental.



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## Selsey

The seaside town of Selsey was originally formed in the 6<sup>th</sup> century by the newly arrived Saxons. The name is a derivative of an Anglo-Saxon word Seolesige that loosely translated meant Seal Island. Initially Selsey was the Saxon capital for the newly formed kingdom of Sussex. Selsey was for many centuries an island. The peninsula that Selsey sits at the end of, was formed with the completion of the causeway in 1809. In 1086, at the time of the Domesday Book, Selsey had between 160-170 residents. For many years Selsey's remote and isolated location kept the population low. Archaeological excavations at Medmerry, unearthed a medieval fish weir. This suggests that fishing has been important to the area for many centuries. The impressive wooden structure measured 150 metres long and was designed to funnel and trap fish.

### 1700s

Throughout the 1700s, three professions were the main stay for the residents of Selsey. These included agriculture, smuggling and fishing. The fishers of Selsey, pulled their fishing vessels up and launched from the beach. Although this was true for the majority of time, if the weather conditions deteriorated then the Selsey fishers would often moor up their fishing vessels in Littlehampton Harbour. The Selsey fishing fleet had only a small number of large luggers during this period of time, these vessels would have operated in the nomadic drift net fisheries that dominated the Sussex fishing effort of the era. Another key fishery of the time for Selsey was the cockle fishery. Although, it is unclear whether this fishery was conducted by hand gathering or from a fishing vessels. The nomadic drift net fishing vessels would have embarked on two annual fishing trips, heading out first to the West in search of mackerel. After their return and a short time at home, the fishers would then set off to the East to target herring.

### 1800s

In 1801, the population of Selsey had grown to 564. The completion of the causeway and resulting connection with the mainland led to a rapid increase in the population of Selsey and by 1851 the population which had remained so low, for so many centuries had nearly doubled reaching 934.

The turn of the century also saw a large growth in the local shellfish fisheries. New grounds to the south of Littlehampton were targeted for lobster with static pots. Many of the fishers from Selsey, Bognor Regis and Littlehampton joined this fishery. Another key fishery of the area was the oyster fishery. At the beginning of the 1800s, the oyster fishery was quite small with fishers from Selsey targeting populations in Emsworth Channel, and the estuarine sections of the rivers Arun and Adur. This changed in 1816 when large beds were discovered in the offshore waters of Sussex. Alongside the shellfish fisheries, a small trawl fishery was also practiced by the fishers of Selsey. The fisheries of Selsey were dominated by shellfish landing through the first half of the 1800s. During the same time a small trawl fishery existed off of Selsey beach, the primary key species of this fishery were sole, plaice and turbot. Other species frequently caught by the trawl fishers of Selsey included; skate, cod, and whiting.

1861 saw the building of the new lifeboat station at Selsey, this was appreciated by the many fishers that made their living in the local coastal waters. The lifeboat at Selsey, often had a number of fishers within its crew. In 1897, Selsey became connected to Chichester with the construction of a tramline. By this time Chichester had already been connected to the national railway system. The new connection between Selsey and Chichester allowed the fishers of Selsey access to larger markets for their catch. The economic uplift that the tramline provided the fishers of Selsey was, like the tramline

relatively short-lived. Increasing competition from buses and an increasing road infrastructure reduced the profitability of the tramline and after 38 years the tramline eventually closed.

### 1940s

The fishers of Selsey all moored their fishing vessels to anchored moorings in the open water off the beach of Selsey. Small punts are used by the Selsey fishers to cover the short distance from the beach to their vessels. During times of poor weather and rough seas the fishers of Selsey would move their fishing vessels into Chichester Harbour for a safer mooring. This practice has continued to the present day.

At the end of the Second World War, most of the south coast inshore fisheries saw a significant increase in their catch per unit effort, and the Selsey fishery was no exception. The government prohibition on night time fishing during the war, combined with the dramatic reduction in off shore fishing effort caused by the conflict, allowed the fish stocks of the English Channel and Northern European waters, a period of recovery. For the first few years after the war all of the Sussex inshore fleets enjoyed vastly increased landings in comparison with their pre-war fishing efforts. This uplift experienced by the inshore fisheries was not long lasting. With a return to normal fishing practices both offshore and inshore, the catch rate of the inshore fleet began to diminish back to pre-war levels.

### 1950s

The majority of fishing effort during this time was targeted toward the crab and lobster fisheries. The key technique employed in this fishery was potting with pots being shot singularly. The pots used by the fishers of Selsey were constructed in the traditional fashion using willow, the willow would be cut and the pots made during the winter months. The crab and lobster fishing season for Selsey fishers, would begin in March and continue through until December. The lack of fishing effort during the winter months, led to a reduced annual exploitation rate, this ensured that the fishery was never fully exploited. The lobster fishers of Selsey, were able to control the maximum size of the lobsters they targeted by the size of the pot entrance. By creating pots with a smaller entrance the fishers were able to leave the very large breeding adults. These animals are generally more fecund and have a greater impact on recruitment than the younger and smaller members of the population.

#### Purposeful sinking

To keep the small wooden punts from drying out, periodically they would have to take them a short way out to sea and sink them to make the wood sodden, swell up and seal the small gaps between the planks. At low tide, the vessels would then be emptied, dried out and re-floated.

### 1960s

Throughout the 1960s the fishery at Selsey, was mainly split between netting and potting. Many of the smaller under seven metre fishing vessels would operate nets, this was predominately due to a lack of deck space and the size of the crab and lobster pots. The large vessels between seven and twelve metres would often operate both nets and pots. The crab and lobster fishery would begin in March and run through the year until just before Christmas. By the 1960s most of the fishers targeting crab and lobster were using steel framed inkwell pots, with each pot being shot singularly. With the crab and lobster fishery underway, many Selsey fishers would then also begin working static nets. The net static net fishery used a mixture of gill and trammel nets and would initially target plaice, as the water warmed and the soles moved inshore, then the net fishery would target this species. Throughout the summer months sole was the key target species, although landings of valuable bycatch species such as turbot, brill and skate were also common. From March in tandem with both the netting and crab and lobster fisheries a few of the Selsey fishers would also operate steel whelk pots. Although the whelk fishery extended from March to December, a drop off in the catch rate

occurred during the warmer months of the year. The landings of whelks would begin to increase around the end of September and would continue to improve through to Christmas. Around September, the species landed by the netters would change. As the inshore waters cooled the cod would move inshore and begin to dominate the landings of the static net fisheries. The dropping water temperature would also signal to the breeding bass populations of Chichester Harbour it was time to move further offshore. As this offshore migration occurred, some of the Selsey fishers would operate drift nets to target this species.

The flexibility of the inshore fishery at Selsey allowed them to maximise profits. Some Selsey fishers could operate across four separate fisheries during a single days fishing. This allowed them to respond and adapt to both the spatially and temporally variable fish populations and to fluctuations in the market value of different species.

During the last few years of the decade, a fleet of fishing vessels moved into the area from the south west coasts. These vessels operated in the crab and lobster fishery and signified a significant change to operational practices of the crab and lobster fishers of Selsey. The south west fishers did not shoot their pots individually, instead they shoot their pots in strings of between 20 and 40. This allowed the south west fishers to work a far greater number of pots in the course of their working day.

### 1970s

After a few years of witnessing the success of the south west fishers operating in this new way, the crab and lobster fishers of Selsey began to operate in a similar fashion. The shooting of multiple pots attached to a single line grew and soon all of the Selsey fishers had adopted this technique. This led to a vast increase in the amount of fishing effort applied to the crab and lobster fishery. However, the Selsey fishers still used the smaller entrances to their pots and did not work the fishery between December and March. These two measures will undoubtedly have reduced the impact that the large increase in fishing pressure had on the local crab and lobster populations

The multifaceted approach to fishing adopted by the Selsey fishers during the last decade, continued throughout the 1970s with the Selsey fishers operating across the four distinct fisheries of, crab and lobster, whelk, mixed species static net and drift net bass fisheries. The use of towed gear was never predominant at Selsey, this is mostly due to the rocky ground that surrounds the area.

Despite endeavouring to maximise their profits from the fishery, many Selsey fishers only worked part-time. Some took up work between the months of December and March, while the fishery was generally closed. Others had part time work in construction, engineering and retail that extended throughout the year to supplement their fishing income. Towards the end of the decade a new hand-gathering fishery developed around winkles. The fishery was only active on days with large tidal range. On these days, the fishers would walk the littoral zone and collect winkles for sale to a predominately local market.

### 1980s

The 1980s saw a number of changes to the dynamics of the Selsey fishing fleet. Initially, the Selsey fishing fleet continued operating in the same manner. The effort of the fishing fleet was divided between potting for crab, lobster and whelk and netting within a mixed species fishery. However, during this decade many new continental markets became available to the Selsey fishers. Improvements to the transportation of live crustaceans allowed the fishers of Selsey to send their catches of brown crab and lobster to the European markets. The improved transport links also resulted in a new fishery for spider crabs to be developed. The landings from this new fishery were often sent to French and Spanish markets. The increasing profits of the crab and lobster fishery caused many of

the Selsey fishers to concentrate their efforts toward this fishery. This in turn led to a reduction in effort in both the whelk and netting fisheries. The increased profitability of this fishery also led to many Selsey fishers operating their crab and lobster pots all year round. Another influential factor that impacted on the lobster fishery was an increase in the minimum landing size. The impact on earnings that occurred due to an increase in landing size was minimal and largely counteracted by the new growing continental markets. Many fishers have remarked that, in the years following this change in minimum landing size, the lobster fishery was strong and that fisher earnings increased from the sale of higher grade and larger lobsters.

About midway through the 1980s the market value of oysters increased. For the remaining half of the decade, every October 50% of the Selsey fishing fleet would enter Chichester Harbour and operate oyster dredges in Emsworth Channel.

In October of 1987 the great storm hit the south coast, causing significant damage to coastal regions. Many of the fishers operating crab and lobster pots lost their fishing gear. The resulting loss of earning and the requirement of replacing much of their fishing equipment was a significant blow to the fishers of Selsey. For many of the affected fishers it took a number of years for them to recover from these losses.

### 1990s

On 23<sup>rd</sup> January 1990, both the year and decade started in calamity for many of the Selsey fishers. The Burns day storm hit the south coast with wind speeds reaching over 100 mph. Due to the inclement conditions produced by the storm, the fishers of Selsey were unable to put to sea for over three weeks. As the storm abated and the seas calmed, the fishers could eventually return to sea. Any fisher that had fishing gear in the water during the storm lost it all. For many of the fishers who had just recovered from the financial hit created by the storm of 1987, this second knock to their earnings was nearly too much to bare.

At the turn of the decade the Selsey fleet saw the introduction of mono multi filament nets. These lighter and less bulky nets allowed fishers to work a greater number of nets through the course of their working day. These nets also fished significantly better than their predecessors as fish were less able to detect the presence of the nets.

During the 1990s, the South East Asian markets and in particular the Korean market for whelks saw rapid expansion. The availability of this market resulted in many Selsey fishers operating far more whelk pots. During the early expansion of this fishery most of the Selsey fishers were using steel whelk pots. These pots were gradually replaced with plastic pots, which were far lighter and cheaper than their metallic counterparts. The increasing whelk market and the established European markets for crab and lobster resulted in the fishers of Selsey concentrating their efforts primarily in these two fisheries and a further reduction was seen in the netting fishery. However, some fishers still choose to operate static nets alongside their crab, lobster and whelk pots, to target sole, turbot, brill and skate during the summer and cod during the winter. A decline in the Chichester Harbour oyster fishery during this decade, resulted in an increase in the bass drift net fishery that occurred between October and December.

### 2000s

The key fisheries for Selsey at the turn of the millennium, were the lobster, crab and whelk fisheries, with some effort being diverted toward the drift net bass fishery. Although the lobster, crab and whelk fisheries operated all year round, the landings of the lobster and crab fisheries were most abundant between March and September. The whelk fishery saw higher landings predominately during the



winter months. The high value of these fisheries provided a buffer to the Selsey fishers against the depression that afflicted many inshore fisheries during this time.

The first decade of the millennium saw another new fishery develop at Selsey, this was the cuttlefish trap fishery. This fishery has a strongly delineated season that starts toward the end of April and ends around the end of July. Selsey fishers were quite late to this fishery with many of the surrounding ports having adopted in during the late 1980s.

In 2007, a trial of lobster escape hatches was held with the lobster fishers operating out of Selsey. These fishers fitted escape hatches to the pots that they used to target lobsters and edible crabs. These escape hatches were small rectangles of plastic with an opening that was of a size that allowed the undersized lobsters to leave the traps, while retaining the landable catch. As a direct result of the trials conducted by the fishers of Selsey, lobster escape hatches became routinely used by all Sussex lobster pot fishers.

2014 heralded yet another catastrophic storm. This storm, like its predecessors swept away any fishing gear that was in use at the time. Once again, the fishers of Selsey faced the financial impact of replacing lost fishing equipment. This storm had further reaching impacts on the Selsey fisheries than the simple loss and replacement of fishing gear. The wind speeds and sea conditions caused substantial changes in the seabed topography, which in turn has resulted in result in a significant drop in the landings of lobsters by Selsey fishers.

A review of the Marine Management Organisation (MMO) landings data for Selsey allowed for the six most important by biomass species landed to by Selsey fishers. This data shows that for the period of 2012 to 2016 (inclusive) that the predominant fishery of Selsey is the whelk potting fishery (Table 1).

Table 1. The six most important species to the Selsey fishery by weight between 2012 and 2016 (inclusive). The tonnage reported represents the accumulated biomass landed over 5 years. The percentages presented were calculated as a percentage of all reported landings at Selsey.

| Species            | landings by trawlers |    | landings by netters |    | landings by potters |     | landings by all gear types |     |
|--------------------|----------------------|----|---------------------|----|---------------------|-----|----------------------------|-----|
|                    | Tonnes               | %  | Tonnes              | %  | Tonnes              | %   | Tonnes                     | %   |
| <b>Bass*</b>       | 0.27                 | 0% | 55.88               | 1% | 0.92                | 0%  | 77.43                      | 2%  |
| <b>Crab</b>        | 0.02                 | 0% | 6.18                | 0% | 614.57              | 14% | 620.91                     | 14% |
| <b>Cuttlefish</b>  | 0.47                 | 0% | 5.51                | 0% | 226.68              | 5%  | 232.73                     | 5%  |
| <b>Lobster</b>     | 0.01                 | 0% | 2.19                | 0% | 187.35              | 4%  | 189.65                     | 4%  |
| <b>Smoothhound</b> | 0.01                 | 0% | 51.40               | 1% | 2.13                | 0%  | 53.64                      | 1%  |
| <b>Whelks</b>      | 0                    | 0% | 12.49               | 0% | 3067.18             | 71% | 3079.96                    | 71% |

\*During the five years, 20.37 tonnes of Bass was landed by anglers.





## Worthing

The earliest records indicating that fishers lived in Worthing date back to the 1500s. Worthing was a small fishing village up until the early 1800s. The majority of catch landed by Worthing fishers during this time was sold locally. Although some markets were sought as far afield as Dorking in Surrey. In 1805, the population of Worthing was approximately 1000 people, this number would nearly double over the next ten years. One reason behind the expansion of the population was the influx of new fishers to the area and by 1814, the Worthing fishery had become a thriving industry.

### 1800s

Articles published in the Brighton Gazette throughout the 1830s, suggests that like many of the Sussex fishing fleets, the Worthing fleet was predominantly nomadic. During this time the Worthing fishing fleet boasted a number of large decked luggers. These fishing vessels, some measuring 50 foot in length would travel long distances in the pursuit of good catches. Alongside the large luggers the Worthing fleet was contained a number of smaller punts. The smaller vessels would operate much closer to Worthing. Two fisheries dominated the attention of the Worthing fishers the mackerel and herring drift net fisheries. The Worthing fishing fleet operated primarily within the English Channel, although records indicate that they travelled as far west as southern Ireland and into the North Sea in the East.

In early spring, often between March and April the larger vessels would head west and continue in that direction until they encountered the migrating mackerel shoals. During the spring and summer months mackerel travel East from the Atlantic Ocean through the English Channel and toward the end of summer they reach their spawning grounds in the southern North Sea. Once the Worthing fishing fleet encounters the mackerel they turn around and follow the mackerel along their migration route often as far as Dungeness. As the Mackerel season draws to a close the nomadic luggers of Worthing would return to their home port.

After a brief respite, during which the fishers would conduct any maintenance required on vessel and begin refitting the vessel for the following winter herring season. Once refitted the Worthing luggers would head out East in search of the herring. This journey would often take them past the Straits of Dover and into the North Sea. As with the mackerel fishery, once the Worthing fleet encountered the herring, often around October, they would about turn and follow them back toward Worthing. The Worthing fleet would return to their home port in time for Christmas.

Whilst the larger luggers were away targeting the migrating mackerel and herring stocks the smaller punts would be operating in the waters local to Worthing. These fishers would utilise a number of fishing techniques including the operation of towed, drifting and static gears. When towing fishing gear, the small punt fishers of Worthing would primarily target sole, plaice and turbot. Other species frequently caught by the fishers of Worthing included; skate, cod, and whiting. Other less frequent catches may include, gurnards, brill and both red and grey mullet. From about 1805, a shellfish fishery began to develop off the coasts of Worthing. This fishery used a small meshed trawl to target shrimps and static pots set in close proximity to the kelp beds to target crabs and lobsters. As the migrating mackerel and herring past close to Worthing the small punts would then join their larger lugger brethren in drift netting for these species. In 1816 a large oyster bed was discovered two to three miles SSW of Worthing. As this fishery was explored it provided another source of income for the local fishers.

1837, saw escalating tensions between the English and French fishers. This was due to the large number of French trawling vessels operating over the mackerel grounds close to the Sussex shoreline. This resulted in many Worthing fishers being unable to shoot their nets during the mackerel season. The Worthing fishers that did attempt to operate as usual, experienced significant losses with many nets being damaged beyond repair or lost, due to the activities of the French trawlers. This led to Captain Pechell a local member of parliament, petitioning parliament for a second time to enact a ban on inshore trawling activities and to provide better protection of local fisheries.

In 1845, Shoreham was connected to the trainline system. This allowed fish caught and landed to the local ports to be able to be sent to Billingsgate market. This led to the growth of both the local population and the fishing industry and by 1849 Worthing sported a population of over 6000. While the local fishing fleet had 25 large luggers in operation. This point in history may be considered the highlight of Worthing's fishery. By 1859 the fishery was beginning to decline, with much of the fishing activity being confined to the drift net mackerel and herring fisheries. The heavy reliance on the migrating herring and mackerel stocks, resulted in highly variable landings for the port. Between 1855 and 1864 the Worthing fishery reported total annual landings of finfish ranging from seven tons to 97 tons. Toward the end of the century, the annual landings of finfish at Worthing showed a slight increase. Between 1882 and 1891, the landings of finfish per year varied between 123 tons and ten tons. 1899 was a prosperous year for the fishers of Worthing with total landings of finfish for the year exceeding 170 tons.

#### Long skirts

When a good catch loaded the boat up to the gunnels, there would be so many fish that the boat could not be brought up the beach and the fishermen's wives would wade out to the boat and carry the catch up the beach in their skirts.

The number of people working as fishers from Worthing beach fluctuated through the last half of the 1800s, reaching its height in 1887 with 93 fishers and 17 boy ashores. These were employed on the four remaining luggers, now operating from Shoreham harbour and 13 small punts still being launched from Worthing beach. The boy ashore often helped to mend nets, helped with the launching and beaching of the fishing vessels and the sorting of the day's catch. By 1897, only one large lugger remained active from Shoreham harbour with just seven smaller vessels being launched from Worthing beach.

#### 1900s

By 1903, the last of the large luggers that had dominated the fisheries of Worthing for centuries had left the area. Although no records could be found, regarding the port to which this vessel was sold, it is likely that the last of the Worthing luggers had been sold to the fishers of Yarmouth to continue in the North Sea herring drift net fishery, as many of the Sussex luggers were at the time. The loss of the last lugger from Worthing led to an increase in the number of smaller vessels that were operating directly from Worthing beach with 14 being recorded as active in 1903. The reductions in both the size of the fleet and the number of fishers, impacted on the total landings of the Worthing fishing fleet. In 1903, the Worthing fleet landed 22 tons of finfish, during the same time frame Hastings and Brighton landed 1200 tons and 800 tons respectively. Between 1900 and 1930, the number of active commercial fishers operating from Worthing continued its steady decline, with less than 40 men and boys worked as fishers. Through the 1930s, fewer than 30 fishers worked from Worthing beach and by 1951 the Worthing fishing fleet employed less than 10 fishers.

On the 27<sup>th</sup> February 1901, a British vessel the SS Indiana collided with a German steamer the SS Washington in dense fog just south of Selsey bill. After making slow progress in an easterly direction, the SS Indiana eventually sunk close to shore, to the South East of Worthing beach. The wreck quickly

became populated with conger eels and lobsters. Large shoals of whiting and pouting also made the SS Indiana their home. This quickly became a popular spot for Worthing fishers when targeting these species.

Worthing fishers have always had to be dynamic in their fishing activities, responding to the seasonal and temporal variations in species abundance as well as the occasional occurrence of a variety of different species. One example of this kind of occasional fishery is the periodic arrival of large shoals of squid a few miles off of Worthing beach. The local fishers often refer to the squid as hissing sids due to the noise they make when hauled onto the decks of the fishing vessel.

After the Second World War many of the inshore fleets saw an increase in their landings. The increasing catches is likely to be the result of a prohibition of night time fishing activity causing significantly reduced exploitation rates during the war. The predominant fishing techniques utilised by the fishers of Worthing since the Second World War has been static nets such as, trammel or gill nets and potting.

### 1960s

During the 1960s cod was a key target species, with large numbers being landed through the autumn and winter months. The fisheries of the spring and summer months were dominated by catches of sole and plaice. Reports from some of the older members of the Worthing fishing community claim that as many as two dustbins a day of sole could be landed with a single fleet of cotton nets during the height of the sole season between March and June. The weight and bulkiness of the cotton nets placed restrictions on the amount of fishing effort any single fishing vessel could apply. With most vessels shooting only one fleet of nets at a time. A common practice of the Sussex inshore fishers was to haul the nets in the morning, then return to shore to empty and clean the nets on the beach. Once the nets were ready for the next fishing effort the fishers would return to sea in the afternoon and reshoot the nets ready for hauling on the following day. The cotton nets also required far higher levels of routine maintenance. Several times a year the nets would have to be thoroughly clean and then dipped in a linseed oil preservative and then hung out to dry. Many of the Worthing fishers would take their catch over to Brighton to be sold at the larger fish market. If these fishers failed to make a good return on the fish they sold, they would purchase some fish in Brighton to be sold for a profit in Worthing. Other species that were particularly abundant during this time included channel whiting and pollack. Unfortunately, these species were rarely targeted as their market value was so low that the cost of sorting, landing, and transporting the catch to market was often higher than the return generated at first sale.

### 1970s

The 1970s, saw an increase in the amount of towed fishing gear used in the area, in particular pair trawling became more frequent and many of the fishers claim that this had a massive detrimental impact on both the fish stocks and the sea bed. One fisher recalled that he could hear the trawl bouncing along the seabed through the hull of his vessel. The use of these trawls in the close inshore region had a gradual homogenising effect on the structural architecture of the seabed. This in turn significantly reduced both the abundance and diversity of the species normally prevalent within the region. The early 1970s also saw a large fleet of Belgium beam trawlers operating close to three mile mark all along the Sussex coasts in the pursuit of soles. The damage done to both the fish stocks and the seabed by this fishing metier led to a significant drop in catch rates for the inshore fleets operating in waters adjacent to the Belgium fleet.

## 1980s

During the 1980s, fishers from Worthing would often travel along the coast to Rustington to target plaice. Fishers using a single fleet of nets at this location, could land 2-3 boxes of high grade plaice, with each fish weighing between three and four pound. Cotton nets were still the only type of nets available to fishers and this was a strong limiting factor controlling the level of fishing effort for the area.

Historically, large kelp beds were present in the close inshore region along the coast of Sussex. Three different species of kelp were frequently recorded from Beachy Head in the East, to Selsey Bill in the West. A particularly dense bed of kelp occurred very close inshore between Shoreham and Bognor Regis. This kelp bed was so dense that it often required fishers to row for ten to fifteen minutes past the kelp before firing up their engines as the kelp fronds could become tangled around their propellers if they tried to use their engines. These kelp beds were highly productive regions and played host to a diverse range of marine organisms. The fishers of Worthing and other local ports found the productivity of the kelp beds highly profitable. One fisher recalled that during the summer months, he could shoot a single fleet of between eight and ten trammel nets in close proximity to the kelp beds and after a short soak time of between four and five hours he would be rewarded with between ten and fifteen stone of soles, as well as a box of high grade plaice and some large turbot. The same fisher, fishing in the same area in 2017, with 11 fleets of trammel nets landed just 2.5 stone of sole, a box of small to medium plaice and a few huss after a 48 hour soak time. During the winter months the kelp beds would hold large numbers of high grade cod. Some fishers reminisced over the days when it was a struggle to fit all of the cod from a single fleet of nets safely on-board the fishing vessel. The kelp beds also supported a successful shellfish fishery, with good catches of lobster being landed from pots shot in areas adjacent to the kelp beds. Unfortunately, today the kelp beds of Sussex are severely diminished. One reason for the loss of this important natural resource has been proposed by fishers local to the area. They claim, that after the storm of 1987 large amounts of kelp was washed ashore. This resulted in the thinning of the kelp, which allowed fishers to tow their trawls through this area. The damage imparted to the seabed and associated flora by this fishing technique is well documented, and it is believed that the trawling activity inhibited the recovery of the kelp beds. However, the timing of this event coincides with a general reduction in this habitat type across European waters and at a global scale. This more general reduction has been linked to both the warming and increasing eutrophication of the coastal waters. Whatever the cause, the loss of the kelp beds had a devastating effect on the abundance and diversity of marine species in the region. This in turn, had a negative impact on the profitability of the Worthing fishers.

## 1990s

The arrival of the 1990s heralded a number of technological advances within the fishing industry. Cotton nets were replaced with monofilament plastic nets. The new nets, were stronger, had a longer lifespan and a greatly reduced requirement for maintenance and preservatives. They also were much lighter and less bulky. Another improvement was the introduction and wide-scale uptake of motorised hydraulic deck haulers. These two advancements allowed fishers to vastly increase the amount of fishing effort any single fishing vessel could apply. Fishers were no longer restricted to working a single fleet of nets in a day, they now could work multiple fleets of net throughout the course of a day. The increasing fishing effort placed more pressure on the remaining fish stocks. Despite this vast increase in fishing effort fishers still struggled to make a living solely from fishing and many had to support their fishing with other jobs often in the construction and retail sectors.

A review of the landings data held by the marine management organisation (MMO), indicates that between 2012 and 2016 (inclusive), the most important species for the Worthing fishery by weight

was cod with 17.4% of all landings being attributed to this species. This was closely followed by plaice at 15.0% (Table 1).

Table 1. The twelve most important species to the Worthing fishery by weight between 2012 and 2016 (inclusive). The tonnage reported represents the accumulated biomass landed over 5 years. The percentages presented were calculated as a percentage of all reported landings at Worthing.

| Species                       | landings by trawlers |      | landings by netters |       | landings by potters |      | landings by all gear types |       |
|-------------------------------|----------------------|------|---------------------|-------|---------------------|------|----------------------------|-------|
|                               | Tonnes               | %    | Tonnes              | %     | Tonnes              | %    | Tonnes                     | %     |
| <b>Bass</b>                   | 0.16                 | 0.6% | 3.66                | 12.8% | 0                   | 0%   | 3.83                       | 13.4% |
| <b>Black Seabream</b>         | 0.02                 | 0.1% | 1.36                | 4.7%  | 0                   | 0%   | 1.38                       | 4.8%  |
| <b>Brill</b>                  | 0.09                 | 0.4% | 0.30                | 1.0%  | 0                   | 0%   | 0.39                       | 1.4%  |
| <b>Cod</b>                    | 0.12                 | 0.4% | 4.86                | 17.0% | 0                   | 0%   | 4.98                       | 17.4% |
| <b>Cuttlefish</b>             | 0.04                 | 0.2% | 1.21                | 4.2%  | 2.19                | 7.6% | 3.45                       | 12.0% |
| <b>Lesser Spotted Dogfish</b> | 0.03                 | 0.1% | 1.90                | 6.6%  | 0                   | 0%   | 1.93                       | 6.7%  |
| <b>Plaice</b>                 | 0.44                 | 1.5% | 3.87                | 13.5% | 0                   | 0%   | 4.31                       | 15.0% |
| <b>Pouting</b>                | 0.02                 | 0.1% | 0.26                | 0.9%  | 0                   | 0%   | 0.28                       | 1.0%  |
| <b>Smoothhound</b>            | 0                    | 0%   | 0.13                | 11.8% | 0                   | 0%   | 3.38                       | 11.8% |
| <b>Sole</b>                   | 0.58                 | 2.0% | 3.38                | 7.4%  | 0                   | 0%   | 2.69                       | 9.4%  |
| <b>Thornback</b>              | 0.05                 | 0.2% | 0.73                | 2.5%  | 0                   | 0%   | 0.77                       | 2.7%  |
| <b>Whiting</b>                | 0                    | 0%   | 0.34                | 1.2%  | 0                   | 0%   | 0.34                       | 1.2%  |



## Shoreham

The earliest recorded evidence of a fishing industry at Shoreham occurred in 1223, when a Shoreham merchant exported two ship loads of herring. The Shoreham fishery of this time was nomadic like the other Sussex fishing fleets. With vessels fishing as far afield as the Irish sea in the west and the North Sea in the east. At this time the Shoreham vessels would have been chasing the migrating herring and mackerel fish stocks. In 1385, a levy was applied to the sale of fish at various places along the coast including Shoreham. This tax was to improve coastal defences against a possible French invasion. Although it was claimed that good fishing could be had at Shoreham in the 1580s only four fishing vessels were recorded at Shoreham during this time. In comparison during the same year 30 vessels were recorded at Brighton, Rye had 20 operational fishing vessels and Hastings had 16 vessels. An oyster fishery in the Adur at Shoreham was first recorded in 1622, when the lord of the borough took a toll of 2d on every 1,000 oysters. The fishing industry at Shoreham was significantly disrupted by the presence of Spanish war galleys during the thirty year war. This led to a reduction in the fishing fleet until by 1670 only three fishers were recorded living in the area.

### 1700s

At the beginning of the 18<sup>th</sup> century, the Shoreham fishing fleet supported a large number of vessels. The larger of these vessels would have operated drift nets in a nomadic fashion chasing migrating fish stocks. These vessels would have headed East in the early spring searching for mackerel. The fishers of the nomadic fleet would return to their home port by midsummer, to refit their vessels in readiness to follow the second of their drift net fisheries, the North Sea herring. The smaller vessels unable to make the longer journeys would have stayed in local waters. These vessels would have targeted flat fish such as flounder and plaice and oysters from the harbour. Throughout the first half of the 1700s the fishing fleet at Shoreham was in decline. Between 1709 and 1757, the Shoreham fleet saw an 80% reduction in its fishing capacity.

### 1800s

From the turn of the century the fishers of Shoreham began to develop a shellfish fishery. Small mesh trawls were used to target shrimps and pots were used to target lobster and crab. A small oyster fishery existed within the lower parts of the River Adur. In 1816, the oyster fishery at Shoreham increased significantly with the discovery of large oyster beds to the SWS of Shoreham. By 1818, these newly discovered oyster beds had been extensively mapped and were found to cover an area of sea bed over 70 miles long and seven miles wide at its narrowest point. 1819, heralded a new era for the fishers of Shoreham, with the completion of the New Shoreham Harbour. The new harbour afforded the fishing vessels of Shoreham greater protection from the elements and allowed larger vessels to operate from the port.

In 1845, Shoreham was connected to Brighton by the railway system. This allowed the catch landed at Shoreham to be sold at Billingsgate market. This led to the growth of both the local population and the fishing industry. Access to the London fish markets resulted oyster fishery in particular, experiencing significant growth. During this time the oyster fishery was the predominate fishery of Shoreham and employed over 100 vessels in its endeavours. Special ponds were built in Shoreham Harbour, these were used to hold oysters in readiness for market. Oysters from Shoreham were sold locally, at the London markets and were even shipped overseas to the continent. During the 1850s the Shoreham oyster fishery sent over 20,000 tons of oyster per year by rail. Despite the dominance of the oyster fishery at Shoreham many of the large decked luggers still operated in the nomadic, seasonal, drift net fisheries. These fishers continued to target mackerel in the spring and summer and



herring in the autumn and winter. A small trawl fishery existed amongst the smaller Shoreham fishing vessels, this fishery would have targeted whiting, sole, plaice, and cod.

In the late 1850s, there were 60 oyster-beds in the Adur estuary. These beds were successfully claimed by the Duke of Norfolk. Over the next two decades, the Duke invested in the area building many houses for oyster dredgers and translocated a number of residents from his duchy into Shoreham and neighbouring villages to fish his oyster beds. The height of the Shoreham oyster fishery occurred around 1869. At this time, the oyster fishery utilised 295 fishing vessels, of these boats 18 exceeded 15 tons and some of the 18 even passed 30 tons. The largest of the fishing vessels of Shoreham were used to exploit the oyster beds furthest from the harbour. These vessels also operated in the scallop dredging fishery. The 295 fishing vessels used in the oyster fishery provided employment for 740 men and 89 boys. After its height in 1869, the Shoreham oyster fishery began to fall into decline. Reductions in the abundance of oysters in both the estuarine and offshore populations, led to fishers traveling further afield to maintain their landings of oyster. The increases in the distance covered by the oyster fishers caused reductions in the profitability of the fishery. The increasing costs combined with an increase in competition by steam powered vessels from other ports and a reduction in the demand resulted in a decline of the Shoreham oyster fishery. At the same time of the declining profitability of the oyster fishery, the drift net fisheries of Shoreham were also experiencing difficulties. The growth of the North Sea fisheries and the ability of the East coast ports to transport catches of North Sea herring to London by rail had reduced the profitability of the Shoreham drift net fisheries.

After years of decline, by the end of the 19<sup>th</sup> century the Shoreham fishery was ranked ninth in Sussex ports for the number of fishing vessels in operation and seventh for its economic value. The higher economic value is likely to be due to the proportion of oyster and scallop within the landings.

### 1900s

By the start of the 20<sup>th</sup> century, the local oyster populations that had brought some much prosperity to the area had crashed. This impacted not just the fishers but also the subsidiary industries that surrounded the fishery. This is evidenced by census documents from the time, these show that by 1905 the number of oyster merchants living in or around Shoreham had fallen to just one single operator. By 1909 this last remaining oyster merchant had also ceased trading. The demise of the oyster fishery combined with a restricted drift net fishery led to a massive reduction in the operational capacity of the Shoreham fishing fleet. By 1913, the fishing fleet had fallen to just 184 boats and 397 fishers. Many of these vessels were relatively small in size and required fewer crew to operate them.

In 1905, the Two Stroke Engine Company purchased a workshop in the Old Shipyard in Shoreham. This workshop manufactured marine suitable combustion engines for supply into the fishing industry. Over the next few years many of the under ten metre fishing vessels operating from Shoreham had the two stroke Dolphin engines fitted. The motorisation of the fishing fleet at Shoreham had many benefits for the fishers, the primary of these benefits being, it allowed them to fish in a wider range of conditions as they became less reliant on the speed and direction of the wind.

The introduction of motorised fishing vessels increased the number of vessels able to operate towed fishing gear. This led to an increase in the landings of trawl fish species, these included whiting, sole, plaice, and cod. Between the turn of the century and The First World War, Russia became an important market for herring and provided an important source of income for the reduced fishing fleet. This valuable market could accommodate large amounts of herring. This market provided a steady price for the sale of herring, with minimal fluctuations in price even when large amounts were landed.



Between the two World Wars, the Shoreham fishery experienced a decline, as did many of the inshore fisheries around the UK.

After the Second World War many of the inshore fleets along the south coasts of England saw an increase in their landings. The increasing catch per unit effort is likely to be the result of a prohibition on night time fishing activity during the war. This had significantly reduced exploitation rates during the war. The predominant fishing techniques utilised by the fishers of Shoreham directly after the Second World War was static gears such as, trammel or gill nets and potting. The most probable reason behind the increased use of static gears directly after the war is that static gears require less fuel than towed fishing gears, and the price of fuel in post war Britain was very high.

### 1960s

During the 1960s cod was a key target species for the fishers of Shoreham, with large numbers being landed through the autumn and winter months. The fisheries of the spring and summer months were dominated by catches of sole and plaice. During this time Shoreham fishers would use a single fleet of nets. The weight and bulkiness of the cotton nets placed restrictions on the amount of fishing effort any single fishing vessel could apply. Most of the inshore Shoreham vessels would only shoot one fleet of nets at a time. A common practice of the Sussex inshore fishers was to haul the nets in the morning, then return to shore to empty and clean the nets on the beach. Once the nets were ready for the next fishing effort the fishers would return to sea in the afternoon and reshoot the nets ready for hauling on the following day. The cotton nets also required far higher levels of routine maintenance. Several times a year the nets would have to be thoroughly clean and then dipped in a linseed oil preservative and then hung out to dry.

### 1990s

The 1990s was a time a large scale changes within the fishing industry the most influential factor was the introduction of multi-monofilament plastic fishing gear. In comparison with its forerunner cotton, this material was lighter, far less bulky and more resilient to the harshness of the marine environment. This allowed fishers to carry and work a far greater quantity of nets. Before the introduction of plastic nets, many of the Shoreham fishers had been restricted to working a single fleets of nets per day. Now, fishers were able to work multiple fleets of net per day this led to a vast increase in the amount of fishing effort that the inshore fishing fleet of Shoreham could apply. The new multi-monofilament fishing gear also fished much better than its predecessors as the target catch were less able to detect its presence.

In 1997, the Shoreham fishery had 26 operational fishing vessels, of these fishing boats 13 were operating full time. The fishery targeted both finfish and shellfish. Cod and whiting are the main fisheries in winter these are targeted with mostly trammel nets and otter trawls. The trammel nets are often shoot over areas of rocky seabed where trawling is not possible. Plaice are the key target species during the early spring months. This changes to become soles as the coastal waters warm in the summer months followed by turbot, brill, and rays as the summer progresses. At the end of the decade approximately six vessels were recorded targeting Lobster, and Edible Crabs with static pots. This fishery initially increased during the early half of the decade as the catches of traditional finfish reduced, this change in fisher behaviour is a well document event known as fishing down the food web. The premise behind the behaviour is that, as the higher tropic level species are removed due to fishing activity, fishers begin to target lower trophic levels to maintain their earnings.

The increasing market value of cuttlefish has allowed for the establishment of a cuttlefish net fishery. The inshore fishing fleet also records small but commercially viable catches of black bream, and bass. Some of the bass landed are caught in drift nets. Another technique used to target bass is pair trawling,

several of the Shoreham vessels operated pair trawls when targeting black bream, red mullet, cuttlefish, squid and bass. Less regular catches are also recorded by the inshore fleet these include grey and red mullet as well as gurnards. Mussels and Spider Crabs, are also fished for, these when caught are exported to French and Spanish markets. Four of the trawlers operating from Shoreham Harbour are large offshore boats, these vessels are restricted to operate beyond six miles from the coast. In February 1999, a fisher targeting cod three miles off of Brighton beach, landed a two metre porbeagle shark, this fish weighed approximately 180 Kg. Although this is not the first sighting of a porbeagle shark in Sussex waters, this species is rarely seen in the area.

## 2000s

Shoreham is the most important Sussex fishing port in terms of the value of its landings. This is largely driven by a number of large off shore scallop dredging vessels landing their catch to this port. The inshore fishing fleet is formed of vessels of less than 12 metres in length, which are not restricted to operating beyond six nautical miles of the shoreline. During the first decade of the millennium, Shoreham had 25 licensed fishing vessels within its inshore fleet, although only 13 were in full time operation. The first half of this decade saw an increase in the number of vessels operating beam trawls within the inshore region these vessels would have been targeting sole and plaice. Shoreham, like many inshore fisheries has a number of multipurpose vessels that can operate a number of gear types, these may include otter trawls, static nets and traps and pots. This multifaceted approach to fishing allowed the Shoreham fleet to make the most of the seasonal variability that occurred in the inshore fish communities. During early spring many inshore vessels targeted plaice using either towed gear over open seabed or nets when operating over rocky seabed. As the year progressed into summer, the same vessels would begin targeting sole. From the height of summer and into autumn the catch demography would change with more turbot, brill and rays being landed with the soles. The increasing value of cuttlefish during this time, led to more fishers targeting this species as it returns to its inshore breeding grounds. Cuttlefish were targeted with a mixture of static nets and specialist traps between April and July. Drift netting, a fishing technique that has been practiced from Shoreham for hundreds of years still occurred during the 2000s. The modern day drift net fisheries of Shoreham no longer targeted mackerel and herring, instead the key species for this fishery was bass and grey mullet. Despite an increase in effort through the 1990s the crab and lobster pot fishery has seen a steady decline in the catch per unit effort. This decline has continued since the end of the 1980s. The timing of the reduction in catch per unit effort for this fishery, correlates with the loss of the dense kelp beds that occurred in the close inshore region between Shoreham and Bognor Regis (see Worthing section). A number of the Shoreham vessels also operated whelk pots during this decade, these vessels are restricted in their effort by a Sussex IFCA byelaw that restricts the number of pots the a single vessels may use when targeting this species.

A review of the landings data held by the marine management organisation (MMO), indicated that between 2012 and 2016 (inclusive), the most important species for the Shoreham fishery by weight was scallops. The scallop fishery is targeted by large offshore fishing vessels utilising scallop dredges. The vast majority of this fishery occurs outside of Sussex IFCA's district, beyond six nautical miles from the shoreline. Over the five years, 64.7% of all landings to Shoreham port were attributed to this metier. The second most prolific fishery of Shoreham by weight is the whelk potting fishery. Other species landed to Shoreham were recorded as relatively low percentages. This is more a product of the dominance of the scallop fishery, than the underperformance of the other fisheries.

A review of the Marine Management Organisation (MMO) landings data for Shoreham allowed for the eight most important by biomass species landed to by Shoreham fishers. This data shows that for the

period of 2012 to 2016 (inclusive) that the predominant fishery of Shoreham is the scallop dredging fishery (Table 1). This fishery operates offshore, outside of the Sussex IFCA district.

Table 1. The eight most important species to the Shoreham fishery by weight between 2012 and 2016 (inclusive). The tonnage reported represents the accumulated biomass landed over 5 years. The percentages presented were calculated as a percentage of all reported landings at Shoreham.

| Species               | landings by trawlers |      | landings by netters |      | landings by potters |       | landings by all gear types |       |
|-----------------------|----------------------|------|---------------------|------|---------------------|-------|----------------------------|-------|
|                       | Tonnes               | %    | Tonnes              | %    | Tonnes              | %     | Tonnes                     | %     |
| <b>Bass</b>           | 62.78                | 0.3% | 152.66              | 0.7% | 0.05                | 0%    | 216.62                     | 1.0%  |
| <b>Black Seabream</b> | 370.42               | 1.6% | 8.31                | 0%   | 0.11                | 0%    | 378.90                     | 1.7%  |
| <b>Cuttlefish</b>     | 165.03               | 0.7% | 116.73              | 0.5% | 328.60              | 1.5%  | 629.92                     | 2.7%  |
| <b>Plaice</b>         | 755.10               | 3.4% | 115.07              | 0.5% | 0.80                | 0%    | 875.02                     | 3.9%  |
| <b>Scallops*</b>      | 35.45                | 0.2% | 0.49                | 0%   | 0                   | 0%    | 14565.06                   | 64.7% |
| <b>Sole</b>           | 350.97               | 1.6% | 164.30              | 0.7% | 0.21                | 0%    | 527.02                     | 2.3%  |
| <b>Whelks</b>         | 5.81                 | 0%   | 21.98               | 0.1% | 3975.45             | 17.7% | 4003.24                    | 17.8% |

\*All scallops are targeted using specific scallop dredges.



## Brighton

The bustling metropolis that is today's Brighton, is a far cry from its early days. Brighton started out as a small Saxon village in the 5<sup>th</sup> century AD, it was first known as Beorthelm's Tun and then Brighthelmstone before being known as Brighton. Early records suggest that fishing has occurred in Brighton for at least one thousand years. The Domesday Book the earliest censuses of the English population, reported that by 1086 Brighton already had a thriving fishing industry. Its records show that local fishers paid a tribute of 4,000 herring to one of the local manors.

On the 23<sup>rd</sup> July 1580, the first of two charters was drawn up and published, this was known as the Book of Ancient Customs specifying a series of legally binding customs and orders for the land-folk and fishers alike. The Book of Ancient Customs also contained a passage detailing restrictions on the type and size of hooks and nets permissible for Brighton fishers to use. At this time Brighton had one of the largest fishing fleets on the South Coast, with approximately 400 men and 80 vessels in operation. During this period of time the Brighton fisheries would have been largely driven by the summer mackerel and winter herring fisheries. By mutual agreement between the landmen and fishers of Brighton, the Book of Ancient Customs was revised on 2<sup>nd</sup> February 1618. The revised edition became known as the 'Second Town Book' or the 'Costumal' of Brighton.

### 1700s

During the 1700s the primary fisheries of Brighton were the summer mackerel and winter herring drift net fisheries. During the early part of this century, the dominant vessel used in these fisheries was a three masted lugger. However, during the 1730s many of the fishing luggers removed their main mast as it was largely unrequired for fishing activities. The removal of the mainmast led to increases in deck space which was largely favoured by the fishers of the time.

As with the other ports along the Sussex coast at this time, the Brighton luggers operated in a nomadic fashion. At the start of the year many of the vessels would head West in search of the migrating mackerel shoals, this journey at times took the vessels as far as the southern coasts of Ireland. Once the fleet had encountered the mackerel, often in the month of April they would turn back to an easterly course and follow the mackerel back to Brighton. The fleet would continue to follow the mackerel as far along the coast as Dungeness and sometimes Dover. Toward the end of July, as the summer mackerel fishery draws to a close the Brighton luggers would return to their home port. After a short time back at their home port, during which any maintenance and repairs of the vessel were completed. The vessel would then head out toward the East in search of the herring shoals this journey would often take the Brighton fishing vessels beyond the straits of Dover and in to the North Sea. Again once the target species, in this instance herring were encountered, then the fleet would turn around and follow the fish back toward their home port. When drift net fishing for both herring and mackerel, the fishers would set and haul their nets at night. Due to the diurnal movements of these pelagic species up and down through the water column, night time drift net fishing is far more effective than fishing through the hours of daylight. The first herring landings by Sussex fishers often occurred toward the end of September or the beginning of October and the landings would often continue until towards the end of December. The mackerel and herring drift net fisheries could at times provide vast quantities of fish with local newspapers reporting on single vessels landing as many as 80,000 fish in one nights fishing. Yet at other times the same fisher may cast their nets in to the same water and catch no fish. Alongside the operations of the large nomadic luggers, Brighton also played home to a number of smaller vessels, these vessels unable to make the long voyages regularly undertaken by the luggers, would operate in waters closer to Brighton. The smaller vessels would

operate a range of different fishing gears. As the shoals of seasonal mackerel and herring past close to Brighton the smaller vessels would join their larger comrades in drift netting for these species. Seine netting from the beach in smaller vessels for mackerel and sprat was also profitable. Outside of these seasonally delineated fisheries the smaller boats would often turn to trawling with key species being plaice in the early spring months and sole, turbot and brill during the summer. Many of the fishers operating smaller vessels would also use static pots to target lobster and crabs. Large cod with some weighing between 10kg and 13kg would often come inshore during the winter months.

## 1800s

The Brighton fishers continued to function as a nomadic fishery. Heading out to the west in January in pursuit of mackerel and returning to Brighton as the migrating mackerel passed that stretch of coastline. At the close of the mackerel season, the large luggers would be pulled up the beach for any required maintenance. Upon completion of the repairs, the Brighton lugger fleet would then plot a course for the North Sea in search of herring. By mid-December the fleet, following the shoals of herring would return to Brighton's beaches. During the beginning of this century, the Brighton drift net fishers experienced a number of consecutive years of poor catches. Conversely, during this time of low catches by the drift net fishing vessels, the smaller local boats that operated trawls between the seasonal local drift net fisheries had a number of years of high catches. This led to the growth of this fishery, over the following ten to fifteen years. Numerous reports indicate that large numbers of high quality fish were being landed by this sector the key reported species include sole, whiting, brill, turbot, skate and cod. In 1815 a local Brighton fisher, Mr John Bull landed a sturgeon, he supplied this royal fish to the crown and he was awarded two guineas for his honesty. The following year in October another Brighton fisher caught and landed a blue shark. The drift net fisheries of the time were strongly reliant, on not just the weather but also on the migratory routes taken by the target species. This was clearly evidenced in 1816, this was another really poor year for the nomadic mackerel drift net fisheries of Sussex, fishers of the time were reported saying that the mackerel fishery had not been this poor since 1779. During the same season the French fishers of northern France had a very strong season and were able to saturate the English markets with large amounts of mackerel.

### Bending in

At the beginning of the mackerel season in the spring, parties would be held on the beach and the nets and boats would be blessed by a clergyman, in a custom known as 'bending in' (short for benediction). On Good Friday, fishermen and their families could be seen skipping with ropes at the Fish Market and on the Level until the 1920s

In 1816, new oyster beds were discovered off to the south and south west of Brighton. Over the next few years, these newly discovered oyster beds were extensively mapped and were found to cover an area of sea bed over 70 miles long and seven miles wide at its narrowest point. This discovery combined with the increasing landings of oyster from the Emsworth Channel at Chichester went some way toward reinvigorating the flagging fishing industry. During the 1820s, the smaller vessels of Brighton had some success in the operation of seine nets. Key target species for this summer fishery were sand eels and mackerel. This was very beneficial to the fishers of Brighton who for most of the 1820s experienced very low catch rates in their nomadic drift net fishing efforts. Often the returns made at market for their catches were insufficient to cover the initial cost of outfitting the vessels for their long journeys. A number of cetaceans were recorded during this time, from dolphins becoming entangled in the drift nets to a large whale found floating offshore. The whale was towed by Brighton fishers to Brighton beach where it was butchered and its meat and blubber was sold to a local merchant for a great profit.

During the 1830s, the drift net fisheries both for mackerel and herring had a much needed increase in their landings and high catch rates were recorded for both herring and mackerel throughout the decade. The 1830s also saw a significant increase in the number of fishers utilising seine nets with small boats from the beach. The return of the large shoals of mackerel caused this fishery to become much more popular and profitable, with reports from the time suggesting that several thousand fish could be landed with each haul of the nets. The size of the landings from the seine net fishery caused concern among some members of the fishing community. In 1835, Captain Perchell proposed to parliament a bill to prohibit the use of seine nets from the beach to protect the breeding populations of certain fish species. This bill became known as the 'Brighton Fisheries Bill'. The bill also sort to prohibit trawling within the inshore region as it was believed to be causing significant damage to the marine environment and local fish populations. The bill was eventually passed in 1836, although by this time an amendment had removed the prohibition of seine netting from the beach. The removal of the prohibition on seine netting from the bill was driven by Captain Berkley he stated that "the effect of the clause could only be to deprive the poorer class of fishermen of their bread". The last half of the 1830s saw elevated landings for many of the trawling fishers of Brighton. With good landings of sole, whiting, and turbot being recorded by fishers across a number of years. In 1838, five of the nomadic Brighton luggers returned after a five-week fishing effort to Dorset. These boats landed over 35,000 mackerel which returned at market £309.

1837, saw escalating tensions between the English and French fishers. This was due to the large number of French trawling vessels operating over the mackerel grounds close to the Sussex shoreline. This resulted in a significant loss of earnings for many Brighton fishers with many being unable to shoot their nets during the mackerel season. Those fishers that did try to fish often suffered damage to, or the loss of their nets.

On the 21st September 1841, the first train rolled into Brighton train station. The opening of Brighton train station heralded a new era for Brighton and its fisheries. The ease with which people and goods could move between London, Brighton and other distant locations resulted in a large boost to the local economy. Over the next twenty years, the population of Brighton grew from 40,000 in 1841 to 65,000 in 1861. The increasing connectivity provided by the growing railway network proved to be a double-edged sword for the Brighton fisheries. Because, while the railway provided growth to local markets and increased access to more distant markets, which invariably led to an increase in income for the fishers of Brighton. The railway network also opened up billingsgate and other influential markets to the rapidly growing east coast North Sea fisheries. The lower wages routinely paid to the North Sea fishers allowed the operators of the North Sea vessels to undercut the prices of the Sussex fisheries. This process took some time to take affect and initially the railway provided a beneficial impact. Through the 1840s, the Brighton fishery continued to practice as it had done for many years. The fleet of nomadic decked luggers would still set off on its two annual voyages, heading west in the early spring and east in early autumn. The smaller local boats also continued their standard practices of trawling and netting with the key species changing through the seasons. February and March saw an abundance of plaice, as the year becomes warmer and spring turns into summer soles would become more abundant. Through the summer landings of turbot, brill, whiting and rays would increase. As autumn and winter begin to cool the English Channel, cod move inshore and became the target species. Although many fishes would operate trawls and static nets all year, some would join the luggers in shooting drift nets to target the migrating mackerel and herring shoals as they past close to Brighton's beaches. Seine netting from the beach was also prevalent with the smaller punts during the summer months and often rewarded fishers with high catches. Brighton also play host to a significant shellfish fishery with larger vessels dredging for oysters inshore and scallops further offshore. The smaller vessels that operated within the shellfish fishery often set pots to target crabs



and lobsters. The 1840s was a period of growth and prosperity for the Brighton fisheries with high landings being reported by both the nomadic and local fleets.

In 1849, the same newspaper reported that the Brighton trawl fishery was poor in January, strong in March and poor again in April. This highlights an issue that still rings true for the modern-day inshore fishers of Sussex. The issue being, that catches are highly variable and are often influenced by environmental factors beyond the fisher's control such as the weather or the speed and direction of the wind.

By the mid-1860s, the growth of the North Sea fisheries and the resulting increase in competition had caused the nomadic Brighton drift net fishing fleet to become unprofitable. Over the next decade many of the luggers were either sold into the expanding North Sea fishery, or the fishers themselves relocated with their vessels to east coast fishing ports. As the fishing effort expressed through the drift net fisheries reduced, trawling became the predominant form of fishing from Brighton. From the mid-1860s to the end of the 19<sup>th</sup> century the Fisheries of Brighton experienced a depression. During this time many fishers took up jobs in construction and retail to supplement their fishing income.

### 1900s

Between the turn of the century and the First World War the Russian market for herring provided an uplift to the entire English herring export market with an almost insatiable appetite for the small fish. The first decade of the 1900s also saw the introduction of combustion engines to the fishing fleet of Brighton. Although some concern and reticence existed amongst the older fishers, who expressed concern over fire at sea. Many appreciated the benefits of removing their reliance on sail and the speed and direction of the wind. The uptake of this new technology was relatively quick and in short order many of the smaller Brighton vessels were fitted with engines. The First World War saw an increase in the value of the inshore fisheries of Sussex as the larger offshore fisheries were restricted by the conflict. Between the First and Second World Wars the Brighton fishery experienced an interwar decline that affected many of the small inshore fleets of England. Changes in public tastes and the loss of some international markets, resulted in a large reduction in the market value for mackerel and herring. This in turn, led to decreases in drift fishing and reduced the distance undertaken to catch drift fish. During the 1920's Brighton fishers would travel between the Solent and Dungeness chasing drift fish. This practise stopped completely during the Second World War as night fishing became prohibited.

### 1930s

During the 1930s, in an attempt to reduce their rapidly rising fuel costs, many of the inshore beam trawlers swapped their heavy beam trawls for lighter otter trawls. Although this change was largely driven by economic reasons, it undoubtedly had huge benefits to the local marine ecology.

### 1940s

The wartime ban on night time fishing, combined with a reduction in the number of large offshore vessels operating in the mid-channel and North Sea reduced the fishing pressure on the commercial fish stocks. This allowed many of the commercial fish stocks a prolonged period of recovery. The resultant increase in fish populations generated dramatically improved catches for the inshore fleet. At the end of the War, with a return to normal large scale off shore trawling operations the inshore catches began to dwindle again.



In the late 1940's, many of the Brighton inshore fishers were reliant on the trawl fishery. The number of Brighton fishers operating Trammel nets declined after the war, this was due to the prohibitively expensive cost to produce the nets, as the cost of cotton had increased by over 450%.

## 1960s

Much of the fishing that occurred from Brighton beach during the 1960s involved the use of trammel nets. When operating within this fishery the fishers would shoot two fleets and work two fleets of day during a single fishing effort. Each fleet would be formed of ten nets and each net was approximately 50 yards long. The nets were made of cotton, this material required constant maintenance to ensure the sea worthiness of the nets. Cotton nets needed to be completely dry for storage and require regular treatments of a linseed oil preservative to stop the degradation of the material. Each year the trammel net fishery would begin at the end of March and continue until the end of October. A temporal variation in the abundance of different species led to a changing demographic in the landing of the Brighton fishers. At the beginning of the year's fishing, plaice would be the dominant species followed by sole. Other species frequently landed would include bass, whiting, turbot, brill and skates and rays. At the beginning of the season, the trammel netters would travel out to between four and six miles from the shoreline to shoot their nets. As the season progressed the netters would gradually move their nets closer to the shore, closely following the movements of the sole population. As well as moving inshore as the season progressed the trammel net fishing effort would also move from Shoreham in the West to Newhaven to the East.

The height of summer would see the spider crab population moving into the inshore region to moult and breed. Due to the damage that spider crabs can do to a trammel net, the inshore migration of this species would often result in a cessation of trammel netting. Fortunately, this often coincided with the passing of the migrating mackerel shoals and many fishers shifted their fishing effort into drift netting for mackerel. During the height of the mackerel drift net season fishers could expect to land an average of 40 stone (254 Kg) of mackerel per haul. As the mackerel past to the East and the spider crabs moved back off shore, trammel netting would again become the dominant fishery. The passing mackerel shoals provided a good opportunity for the fishers of smaller vessels. These fishers, would use their small fishing vessels to deploy seine nets, which would then be worked from the beach. Most of this fishing effort occurred on the beaches to the East of Brighton pier.

### Hogboats

Brighton fishermen used their own type of vessel known as a 'hogboat' or 'hoggie' which was especially suited to the particular local conditions. The boats had a very wide beam making them stable in rough seas and were easily hauled onto the shingle beaches. Some were even cut in half and used as homes on the beach by the poorest fishermen. The last one was burnt on a Bonfire Night in the late 1880s, but an excellent model of a Brighton hoggie may be found in the town's museum.

A small trawl fishery still existed at Brighton, these fishers would use otter and beam trawls to target flat fish, such as plaice, sole and skates and rays. Valuable bycatch species, of turbot and brill were also quite prevalent throughout the summer months. As the sea temperature dropped, the flatfish would move off into deeper water, and be replaced by cod as the dominant species within the landings of the Brighton trawl fishers. Alongside the larger trawl vessels many of the smaller punts would use towed gear over sandy seabeds to target brown shrimp.

During the 1960s, Brighton also hosted a small potting fishery. Fishers operating within this metier would shoot single pots to target crab and lobster. The crab and lobster potting fishery of Brighton

concentrated its efforts at the edges of the dense kelp forests to the south west of Brighton and the sublittoral chalk platforms to the East. Whelks were another species targeted by the potters of Brighton. Using specifically constructed metal whelk pots. These pots would often be worked alongside other fishing gear. The landings from the whelk fishery, were often sold locally and represented a small additional income to the fishers.

### 1970s

The seasonality and the types of fishing effort of the Brighton fisheries through the 1970s were very similar to the 1960s. Throughout this decade the trammel net fishery was the dominant fishery operating from Brighton, and the key target species of sole in the spring and summer and cod in the autumn and winter remained the same. Some changes in fishing practices did occur during this decade. The 1970s saw less effort in the mackerel drift net fisheries. Instead of drift netting many fishers opted to use either seine nets from the beach to target mackerel or otter trawls to target sole. During the 1970s a fishing practice known as Cinderella fishing became popular. This practice occurred toward the end of summer. Fishers would launch their fishing vessels and shoot their trammel nets by 21:00, after a short soak time of a couple of hours the fishers would haul their nets. If the nets were clear of spider crabs and weed then the fishers would reshoot their nets for hauling on the following day if the nets were full of spider crabs or seaweed then the nets would be brought ashore until the following night. The fishing effort would be finished by midnight, hence the name Cinderella fishing.

During the 1970s many vessels from the fishing fleet of Brighton had a dual purpose. These vessels were fitted out as pleasure boats and during the day would cater to the crowds of tourists visiting Brighton. After a day of taking tourists out to sea, a crew of fishermen, would then take the vessel out fishing and return to port by dawn to clean and prepare the vessel for its tourist duties.

### 1980s

During the 1980s, many new continental markets became available to the Brighton fishers targeting crab and lobster. Improvements to the transportation of live crustaceans, allowed Brighton fishers export their catches of brown crab and lobster to European markets. The improved transportation also resulted in a new fishery for spider crabs to be developed. The landings from this new fishery were often sent to French and Spanish markets. The increasing profitability of the crab and lobster fisheries, resulted in many Brighton fishers concentrating their efforts toward this fishery. This in turn led to a reduction in effort across other fisheries. During the mid-1980s the market value of cuttlefish started to increase. The development of this market resulted in the growth of an otter trawl fishery that targeted cuttlefish as they approached their inshore breeding grounds this fishery only occurred between April and July. The newly emerging fisheries, operated alongside the existing fisheries of Brighton.

### 1990s

The 1990s saw the introduction of multi-monofilament nets to the Brighton fishers. These nets were lighter, less bulky and required less maintenance than their cotton and nylon predecessors. This allowed fishers to work a far greater amount of gear through the course of their working day. This had a massive impact on the amount of fishing effort applied to the fish stocks. Previously fishers would work between one and two fleets of nets a day, with the new nets fishers could work as many as ten fleets of nets during a single fishing trip. The new multi-monofilament fishing gear also fished much better than its predecessors as the target catch was often less able to detect its presence.

Between 1992 and 1994, the Brighton fishery had 18 vessels between seven and twelve metres in length and approximately 10 smaller vessel under seven metres long. This was the number of vessels

that operated from Brighton, however a number of fishing vessels that were registered to the port of Brighton actually operated from Shoreham Harbour. During this time, sole and plaice provide the mainstay for the Brighton fishing fleet from early spring through to late autumn, with by-catches of other species such as turbot and rays. From autumn to early spring the fishery was dominated with landings of whiting and cod. During this decade a trawl fishery for sprats was developed with the catches from this fishery being used as fish meal. During the summer months a drift net and hand line fishery targeted bass, mullet and mackerel.

The mid 1990s also saw a change in the metier that targeted cuttlefish. This species during the 1980s was targeted with otter trawls with some effort applied from trammel netters. This effort was replaced by cuttlefish parlour traps. This fishery was highly successful in targeting the breeding population of cuttlefish as they returned to their inshore breeding grounds.

The mid-1990s also saw the opening of new Korean markets for whelks this led to a large increase in the effort that was applied to this fishery. During the growth of this fishery many fishers began to replace to the traditionally used metal whelk pots for much cheaper and lighter plastic versions.

The latter half of the 1990s continued in a similar fashion, with the main fishing efforts continuing as previously laid out. During this time approximately twelve fishing vessels were issued permits to operate in the crab and lobster pot fishery. These vessels would deploy between 50 and 300 pots. During the height of this fishing season an average catch for the 300 pots would be 1.5 tons of female brown crabs and 50 to 60 Kg of lobster per day.

## 2000s

At the beginning of the millennium the fishing fleet was represented by 35 fishing vessels ranging in size between 4.5 and 12 metres. All of the operational Brighton fishing vessels of this period spent some of their year deploying static gear, as either pots or nets.

The start of the fisher's year would open with the last month of the cod fishery. The Brighton cod fishery at this time was undergoing a steady decline, with reductions in both the overall landing and the catch per unit effort. The timing of this seasonal fishery was also reduced with the cod coming inshore later in the year and departing earlier, this may have been a result of warming sea temperatures. As the cod fishing closed, trammel netting or otter trawling for plaice followed on the fisher's yearly calendar this fishery would run until March. With the arrival of spring the sole fishery would start. The start of the sole season does not reduce the landings of plaice as they are often caught at the same locations with the same gear. At this time, sole becomes the key target species as it is of much higher value than the plaice. The trammel net and otter trawl fishery for sole and plaice continues in to the summer. Between April and July some of the effort applied toward the capture of plaice and sole is diverted toward cuttlefish. Since the start of the cuttlefish market in the mid-1980s the market value of cuttlefish had increased significantly. The uplift in income provided by the cuttlefish was very useful to Brighton fishers and helped to reduce the economic downturn produced by the dwindling cod fishery. During the cuttlefish season a number of the Brighton fishing vessels operate in a range of fishing metiers to target cuttlefish these include, otter trawls, trammel nets and specific cuttlefish traps. As the cuttlefish move offshore at the end of their breeding season, the diverted fishing effort returned to the sole and plaice fisheries. The sole and plaice fisheries had a number of valuable bycatch species such as turbot, brill and skate. As the landings of these valuable bycatch species increases some of the fishers divert their efforts toward specifically targeting turbot, brill and skate. At the height of summer, the spider crabs move inshore to undergo their moulting and breeding cycle. At this time most fishers would remove their nets from the water, as the crabs often cause significant damage to their nets. While the spider crabs are on the inshore grounds many of the

netters of Brighton would switch to drift netting and hand lining for bass, mullet and mackerel. The remaining netters would continue to target the mixed species flatfish fishery often with towed gear such as otter trawls. At the end of summer, with dropping sea temperatures the sole would move further offshore and be replaced by the incoming cod population. The cod fishery often starting around October would continue until January.

The shellfish fisheries of Brighton centred around three main species, whelks, brown crab and lobster. All fishing effort for these species utilised pots to target the catch. The whelk fishery operated all year round although it generally experienced a reduction in landings during the hottest months of the year. The uplift in market value for this species, resulted in the diversion of effort away from the flatfish fisheries on to whelks. The crab and lobster fisheries also operated throughout the year, although landings of lobster were always highest during the summer months.

A review of the landings data held by the marine management organisation (MMO), indicated that between 2012 and 2016 (inclusive) the most important species for the Brighton fishery by weight was sole with 28% of all landings being attributed to this species. This was closely followed by whelk at 24% (Table 2).

Table 5. The eleven most important species to the Hastings fishery by weight between 2012 and 2016 (inclusive). The tonnage reported represents the accumulated biomass landed over 5 years. The percentages presented were calculated as a percentage of all reported landings at Hastings.

| Species                       | landings by trawlers |    | landings by netters |      | landings by potters |      | landings by all gear types |     |
|-------------------------------|----------------------|----|---------------------|------|---------------------|------|----------------------------|-----|
|                               | Tonnes               | %  | Tonnes              | %    | Tonnes              | %    | Tonnes                     | %   |
| <b>Bass</b>                   | 0.49                 | 0% | 39.98               | 6%   | 0                   | 0%   | 84.72                      | 14% |
| <b>Brill</b>                  | 0.01                 | 0% | 10.72               | 2%   | 0                   | 0%   | 10.74                      | 2%  |
| <b>Cod</b>                    | 0.01                 | 0% | 24.19               | 4%   | 0.01                | 0%   | 24.36                      | 4%  |
| <b>Crab</b>                   | 0                    | 0% | 12.97               | 2%   | 0.31                | 0%   | 13.29                      | 2%  |
| <b>Cuttlefish</b>             | 0                    | 0% | 8.25                | 1%   | 5.75                | 1%   | 14.03                      | 2%  |
| <b>Lesser Spotted Dogfish</b> | 0                    | 0% | 16.98               | 3%   | 0                   | 0%   | 16.99                      | 3%  |
| <b>Lobster</b>                | 0                    | 0% | 1.62                | 0.9% | 6.56                | 0%   | 8.18                       | 1%  |
| <b>Plaice</b>                 | 0.56                 | 0% | 81.16               | 13%  | 0.21                | 0%   | 81.94                      | 13% |
| <b>Smoothhound</b>            | 0                    | 0% | 12.65               | 2%   | 0.01                | 0%   | 12.66                      | 2%  |
| <b>Sole</b>                   | 0.01                 | 0% | 175.30              | 28%  | 0.01                | 0%   | 175.32                     | 28% |
| <b>Thornback</b>              | 0                    | 0% | 7.98                | 1%   | 0.01                | 0.1% | 8.04                       | 1%  |
| <b>Turbot</b>                 | 0.02                 | 0% | 10.27               | 2%   | 0.                  | 0%   | 10.29                      | 2%  |
| <b>Whelks</b>                 | 0                    | 0% | 4.12                | 1%   | 146.10              | 24%  | 150.22                     | 24% |



## Hastings

Records suggest that Hastings has hosted a fishing industry since before the Norman invasion of 1066. The Domesday Book of 1086, suggests the presence of an established fishing fleet within the area. The type of fishing vessel used during this period is documented in a charter granted between 1140 and 1149, by the Abbot of Fecamp in Normandy. These vessels resembled the longships of northern Europe and were long, narrow, undecked vessels with a single mast with a square rigged sail. Hastings fishers were instrumental in the foundation of the North Sea herring fishery at Yarmouth.

### 1700s

Hastings has a long, rich, heritage of fishing. In the Late 1700s, two fishing techniques dominated the Hastings fisheries. Drift netting either for mackerel or herring depending on the time of year. The second fishery, often using smaller vessels involved trawling for flatfish such as plaice, sole, turbot and dab.

The majority of Hastings fishers used vessels much larger than today's boats, these vessels were called luggers and measured up to 55' in length, often with three masts and operated by a crew of eight to ten fishers. These vessels were used to fish both locally as well as further afield. In January the luggers would move along the coast in a westerly direction eventually reaching Land's End by early spring in the search for mackerel. Once encountered the Hastings fleet would follow the fish, and would return to Hastings by early summer. Upon their return, the Hastings fleet would be dragged up the beach for any maintenance work required. The vessels would then target mackerel in the waters local to Hastings.

Toward the end of summer, with a change of gear the luggers would be preparing to leave Hastings again, this time heading east toward the North Sea. The target species would be herring, in some years the luggers would travel as far as Scarborough, before encountering any herring. Once encountered the luggers would follow the herring along the coast south and back into the English Channel. The luggers would return to Hastings just before Christmas in time for a short break, and a change of gear before heading west again in search of mackerel. The size of the luggers allowed fishers to carry large amounts of nets up to 140 mackerel and 120 herring nets. The mackerel nets were 40 yards long and 10'9" deep, while the herring nets were 30 yards long and 11'7" deep.

The mackerel drift net fishery occurred locally between May and August, while drifting for herring was a winter fishery with the majority of local catches occurring between October and December. As with today's fisheries the seasonal variation of the fisheries was highly driven by sea temperature and the seasonality of the fisheries could be extended or reduced dependent on climatic conditions. Reports indicate that during warmer years mackerel could still be landed off of Hastings, as late in the year as October. Transversely, in colder years herring could be caught off of Hastings as late as April. Outside of these seasonal fisheries many of the smaller vessels would go trawling for flat fish. Much of the fish caught during this time was either sold locally, or transported to London. The ability of Hastings fishers to transport their catch to London before it spoiled, is the main reason that Hastings has operated as an important fishing port for centuries. The return fishers made on their catch was highly variable, and dependant on the amounts of fish landed. When large numbers were landed, the abundance on the fish market would drive down the prices. The low prices would often allow the poor access to quality protein often missing from their diet. With good prices for their catch a fisher could make between £5 and £10 in a nights work. With good catches one of the large luggers could earn up to £100 per nights fishing.

## 1800s

Records from 1804, indicate that the Hastings fishing fleet was comprised of 97 vessels ranging in size between four and fifteen tonnes. Although, due to the nomadic behaviour of the fishers, this value could vary from one year to the next. Alongside these large boats a number of much smaller vessels would have been in operation within the fisheries. The Hastings fishing fleet continued its nomadic behaviour of the 1700s through the first half of the 1800s. During this time the smaller vessels unable to operate in a nomadic fashion, would use drift nets to target the migrating shoals of either herring or mackerel when they passed close to Hastings. Outside of these months the smaller Hastings fishing vessel would use trawls to target sole, brill, turbot, plaice, and other species.

During the early half of the 1800s a number of more unusual species were caught by Hastings fishers these included a number of basking and angel sharks. These fish were landed and then presented to the public as curiosities. Fishers would remove the livers from these large elasmobranchs as a good source of oil, which when sold would fetch a high price on the fish market. The carcass of one angel shark was sold for £200 and the new owners displayed it at a number of events around the country.

Between 1810 and 1830, the fishers of Hastings suffered a number of very poor fishing seasons with very low catches by both the nomadic and local fleets. The worst affected by these years of poor catches were the nomadic luggers this was in part due to the higher operational costs associated with these vessels. In the 1830s a select parliamentary select committee was set up to review the fisheries of the English Channel and in August 1833 the committee concluded that the fisheries were in a depressed state and declining, It was reported that the fisheries had been declining since the peace treaty was signed in 1815, and that the rate of decline had rapidly increased over the last ten years. A Hastings fish merchant reported to the committee that between 1811 and 1833 the number of vessels operating from Hastings had fallen from 104 in 1811 down to just over 60 in 1833. This decline in fishing activity had led to the loss of work for over 200 men.

In 1833, the first groyne to the east of Hastings was planned and agreed. The construction of this groyne allowed for the aggregation of shingle and vastly increased the size of the beach, this increased the area which fishers could utilise. The first half of the 1830s was a profitable year for the fishers of Hastings with a large landings for both the trawl and drift net fisheries. Unfortunately, the catches of the last half of the decade were very poor. The mackerel season of 1835 had almost perfect conditions and this led to high catches by the Hastings fleet. Although this was a good year for mackerel, fishers had noticed that the abundance of mackerel was down. This led to a significant change in the fisher's practices, whereas before fishers would leave their gear in the water for between 12 and 24 hours, now they were having to leave the nets for up to 72 hours to land similar amounts of fish. In 1837 the landings of mackerel from the drift net fishers were so poor that a reduction in earnings of over £10,000 was seen across the whole fleet in comparison with the previous year.

During the late 1840s, the average Hastings fisher might earn between 35 and 40p per week. By 1863, this had risen to between 75p and £1.00. The wages were derived as a proportion of the catch with a share going to each crew member and one going to the boat.

The 1851 census recorded 262 fishers living in and around Hastings with 709 dependents. This meant 971 of the Hastings residents directly relied on the fisheries for a livelihood and sustenance. Although, when including all the subsidiary businesses and industries the number of people reliant on the Hastings fishing fleet was far higher.

Historically Hastings fishers built their own nets but overtime this industry became unpopular, with the majority of nets brought in from other areas such as Bridport. In 1858, Herring nets cost



approximately £2.10s each (£2.50) and mackerel nets cost £2 each. A trawl could be purchased for £4.10s (£4.50). A net or trawl would last for about three years before needing to be replaced.

Throughout the 1800s accurate counts of the number of operational vessels fishing from Hastings beach were rare. Often only a short periods of time were recorded accurately. The accurate counts have been derived from the Stade dues paid by each fisher. The dues were set according to the size of the vessel and were used by the local council to maintain the capstans used to haul the vessels up the beach. Four categorisations of vessel existed; 1<sup>st</sup> class 34-48 feet, 2<sup>nd</sup> class 24-34- feet, 3<sup>rd</sup> class 18-24 feet and the 4<sup>th</sup> class was made up of small vessels less than 18 feet. Each vessel would also pay a winding up fee each time the capstan was used. Only a small number of 4<sup>th</sup> class vessels were recorded in 1854 and none after this point in time, this is more likely to be a result of difficulties in collecting stade dues than a lack of under 18-foot vessels.

The growth of the national railway system through the 1850s and 1860s was extensive. As more towns along the east coast of England became connected, the transportation of fresh fish to the London markets from these ports became viable. By the mid-1860s, the growth of the North Sea fisheries and the resulting increase in competition had caused the nomadic Hastings drift net fishing fleet to become unprofitable. Another driver behind the reducing profitability of the Hastings fishing fleet, was an increasing number of vessels not local to Hastings landing and selling their catch at Hastings. Some reports indicate that as many as 55 nonlocal vessels were regularly landing catch at Hastings during this time. The increasing competition, both at the home and London markets proved too much for many of the Hastings lugger fishers. Over the next decade many of the luggers were either sold into the expanding North Sea fishery, or the fishers themselves relocated with their vessels to east coast fishing ports. In 1887, the last of the operational Hastings luggers was claimed by the sea. The loss of the last lugger signalled an end to an era for the Hastings fishing fleet that had extended back in time for many centuries.

With the demise of the lugger fishery, trawling became more popular, and by the mid-1860s trawling had become the most popular form of fishing for the Hastings fleet. This led to the creation of a new Hastings fishing vessel, these vessels fitted with two masts and measuring between 26 and 30 feet in length, could be safely hauled up the beach. The new smaller trawl vessels were more versatile than the older luggers. This allowed the fishers of Hastings to maximise their

#### Terminology

Herring were counted and sold in fours, not by weight

4 herring = 1 werp

32 werps = 1 long hundred (128 fish)

100 long hundreds = 1 last (12,800 fish)

Pudding nets = fouled or tangled nets (1797)

catches by operating a variety of gear types, targeting different species at different times of the year. The new vessels could tow a 28' beam trawl and also could be used to shoot drift nets for herring between October and January and mackerel drift nets in the summer. During this time the Hastings fishery expanded with between 600-700 fishers operating from Hastings. In 1886, the fish market handled approximately 2,352 tons of fin fish worth approximately £30,294. This was the largest landings recorded for the year between Brixham and Lowesoft and the 16<sup>th</sup> largest landings for England and Wales.

By 1888, the recent upturn in the Hastings fishery had been reversed, as evidenced by the second annual report of the sea fisheries inspector. This report documented, 465 fishers and 93 boy-a-shores working from 74 registered vessels (class 1-3) and 50 unregistered vessels. The declining trend in the Hastings fishery continued up until the First World War.



Steam trawlers were first used during the early 1880's, these vessels operated predominately in the North Sea. The Hastings fleet never used steam trawlers as the average vessel size at this time was 28' and they were not sufficiently sized to house the steam engines. Rye fishers however did use steam trawlers during this time, the first to be built was RX21 '*The Pioneer*'. The pioneer was 67' long and 15'6" wide. Many large nonlocal steam trawlers operated the outside grounds (beyond the 3-mile limit). Local steam trawlers operating out of Rye were disliked by the Hastings fishers in part due to their ability to operate in becalmed seas. The Hastings fishers, also felt that the steam trawlers were less selective and killed a lot of immature fish. In 1909 the Sussex Sea Fisheries Committee passed a byelaw prohibiting trawling from any vessel not powered by sail or oar.

A Hastings fisher 'Fred Toller Adams', worked aboard one of the Rye Bay steam trawlers in 1911 he claimed it was a good life, as he was out of the house for ten days at a time and earning 10 bob (50p) a week, he claimed that your food and 50p a week was better than £1 a week.

### 1900s

In 1903, 39 vessels were registered to Hastings beach, the majority of these were owned by three families. Between the turn of the century and the start of the First World War, the Hastings fishing fleet continued to experience a depression. This is mainly due to the large quantities of cheap fish from the North Sea steam trawlers. The crews of the North Sea steam trawlers were paid very low wages this allowed the vessel owners to sell the fish cheap which in turn suppressed the price of the catch landed by the Hastings fleet. As the depression took hold of the fishing community of Hastings, many turned to other forms of work. The construction of both the harbour and the tramway system provided employment to members of the fishing community. Some fishers also ran pleasure trips from Hastings pier in their own vessels or worked aboard larger pleasure boats. During 1913, a number of fishers and their respective families immigrated to Canada as the Canadian government needed fishers to work the great lakes.

Between the turn of the century and The First World War, the Russian market for herrings was an important income for the reduced fishing fleet. This is because the Russian market could accommodate any amount of herring and the normal reduction of earnings that occurred anytime a glut of fish were landed didn't occur.

The year-long fishery at Hastings fell into a regular routine for the 26-30' sailing vessels with trawling occurring between January and April. Mackerel drift netting occurred between May and July/August. This was followed by a few weeks of either fall mackerel drifting (at Ramsgate) or trawling. The end of the year between September and December the fishers would target herring with drift nets. Fisheries other than drift netting for herring and mackerel or trawling for flat fish and thornback rays existed in Hastings, these included seine netting mackerel from the beach. Longlining for dogfish was also a popular technique for the smaller boats (punts). Shrimp trawling using a smaller trawl and smaller mesh size was also quite common with Hastings fishers before the First World War.

### 1910s

At 09:20 am, on Tuesday April 21<sup>st</sup>, in 1914 the first motorised fishing vessel was launched from Hastings beach. Up until this point the Hastings fleet had relied almost entirely on sail. Previously in 1904, one fisher had tried to install an engine to the deck capstan to aid in hauling nets unfortunately this did not work. The use of small petrol driven engines to power the boats was quickly taken up the Hastings fishers. Within a relatively short period of time of about 18 months, most of the larger sail boats had, had engines fitted.

The introduction of motorised fishing vessels combined with the start of the First World War halted the decline of the Hastings fishery. The motorisation of the Hastings fishing fleet, vastly increased the number of fishing opportunities available to Hastings fishers, as they became less reliant on the speed and direction of the wind. Within three weeks of the First World War starting the price of fish sold at the Hastings fish market rose by at least a third. This meant that fishers could make a better return on their catch, sole could be sold for 10p per lb and high grade plaice could fetch as much as £1.20 per box.

### 1920s

Between 1919 and 1921 both the herring and mackerel seasons were very poor. In 1923, approximately 38 large fishing vessels operating from Hastings beach. However, by the late 1930's this had fallen to just 19. Census records from the time, show that that the number of fishers operating from Hastings beach fell by over 50% over two decades, from 326 fishers in 1911 to just 147 fishers by 1931.

In 1923 Will 'Ickle' Curtis caught 12 lasts of herring. This was one of the largest catches of herring ever recorded at Hastings beach. Unfortunately, the large amounts of herring drove the price down and he was unable to sell them all.

The interwar decline experienced by the Hastings fishery changed the pattern of fishing in Hastings. Originally fishers would trawl between January and April/May, drift for mackerel until late July or August. More trawling would occur up until October, then drifting for herring would carry the fishers up to Christmas. Some of the Hastings fleet trawled all year long. Smaller punts also used longlines and fished for sprats in the New Year.

Changes in public tastes and the loss of some international markets, resulted in a large reduction in the market value for mackerel and herring. This in turn, led to further decreases in drift fishing and reduced the long distance trips undertaken to catch drift fish. During the 1920's Hastings fishers would travel between Folkestone and Brighton chasing drift fish. This practise stopped completely during the Second World War as night fishing was banned.

### 1930s

The 1930's witnessed another shift in the fishing practices, for most of the Hastings fishing vessels. Many of the vessels that operated trawls swapped their old beam trawls for light otter trawls. This change is likely to have reduced the damage imparted on the structural heterogeneity of the seabed from the heavy beam trawl equipment. The change in fishing gear, is likely a result of increasing fuel costs, with otter trawls requiring far less fuel than their heavier beam trawl counterparts.

### 1940s

The Government ban on night time fishing during the war reduced the opportunities for fishers to operate. This combined with a reduction in the number of large offshore vessels operating in the mid-channel allowed the local fish stocks a period of recovery. The resultant increase in fish populations meant that the inshore catches improved dramatically. At the end of the War with a return to normal large scale trawling operations the inshore catches began to dwindle again.

In the late 1940's the majority (75%) of Hastings fishers were reliant on the plaice trawl fishery. Alongside plaice, other species were frequently landed by the Hastings trawl vessels these included cod, turbot, gurnard and conger eels. Trammel netting for soles also declined after the war, this was due to the prohibitively expensive cost to produce the nets, as the cost of cotton had increased by over 450%.

Longlining for dogfish was an important fishery for the smaller (punts) Hastings vessels. This fishery declined through the 1930's and 1940's and never revived after the war. During this period the only other successful fishery available to the Hastings fishers was a couple of weeks drift netting for sprats in the early January.

### 1950s

In the 1950's and early 1960's many Hastings fishers began to utilise trammel nets. Initially, this fishery was seasonal (spring and summer) and complimented the trawl fisheries. However, some Hastings fishers eventually swapped to trammel nets all year, as an alternative to trawl fishing. The 1950's also saw a change in the materials that could be used to fashion fishing gear synthetic fibres (nylon) could be used to make nets and ropes that were much stronger, lighter and more resilient to environmental conditions. However as with many of the inshore fishing fleets, most of the Hastings fishers continued using the more traditional nets made of cotton. Also, advancements in radio and echo sounding technologies allowed fishers to start installing them onto their fishing vessels.

### 1960s

By the early 1960's over fishing in the offshore areas had significantly depressed the inshore fisheries. In September 1964, the fishing limits were extended out from three to twelve nautical miles. The inshore six miles were exclusive to British vessels while between 6 and 12 nautical miles France and Belgium vessels were allowed to operate. However, the French and Belgian fleets did not take full advantage of the access and the reduced fishing effort beyond 6 nautical miles allowed for local fish stocks to recover. This in turn allowed the Hastings fleet to make a better living. The Hastings fleet was made up of approximately 36 vessels as a mixture of both the 'new modern trawlers' and a number of smaller punts, undecked vessels between 14' and 24'. The trawlers predominantly targeted plaice and sole. The smaller punts needed to be more flexible in their fishing effort and utilised a number of different fishing techniques a non-exhaustive list includes; spratting, trammelling, drift netting for mackerel and herring, Shrimp trawling and longlining. Although the herring fishery never recovered to its pre-war levels it was able to provide the smaller punts with a valuable source of income. The development of small powerful diesel engines allowed for bigger punts to be built, allowing for fishers to carry more nets.

### 1970s

In 1970, the Hastings fleet consisted of 16 big boats (under 10m) and between ten and twelve punts. By May 1982, the number of big boats had remained relatively constant at 15, while the number of punts had grown to 27. Alongside these vessels, two big boats and seven punts were also on the beach but not actively used. Another census of the fleet showed that by June 1984, the number of redundant boats had remained the same, as had the larger trawling vessels. The number of active punts had fallen to 23.

In the early 1970s, a Belgian fleet of large beam trawlers began working up close to the three mile mark targeting soles and plaice. This had a devastating effect on the Hastings fishers as sole and plaice were key target species of the Hastings fleet.

The rising price of fuel led more fishers from Hastings to turn to trammelling, as this fishing technique requires less fuel. This included the larger trawling vessels with many being outfitted for trammelling. Another reason for the increased interest in trammelling came from the introduction of hydraulic net haulers. These devices made the hauling of nets much easier and increased the number of nets that a vessel may work in a day.

## 1980s

During the 1980s all of the fishing nets used by the Hastings fishers were made of cotton. These nets were often purchased from net manufacturers based down in Bridport. The cotton nets were far heavier and bulkier than the multi-mono nets used today. This resulted in each vessel working fewer nets, often just 3 or 4 fleets of nets (24-32 nets). The use of cotton nets had other complications, the material would degrade quickly if it was left damp. Another issue with cotton nets was that if any fish or organic material was left in the nets, rodents would quickly chew through the netting causing massive damage to the net. This meant that before each net was stored it would have to be thoroughly picked clean and dried. A final complication in the use of cotton nets is the harshness of the marine environment, the corrosive nature of sea water meant that each net would have to be treated with a linseed oil preservative several times a year to ensure its longevity. There was also less variety in the mesh size used, with almost all fixed nets having a mesh size of between 100mm-125mm (4"-5").

## 1990s

During this decade the Hastings fleet saw the introduction of mono multi filament nets (6 x 1.5mm) and improvements to their hydraulic net haulers. These two changes allowed fishers to carry and work a far greater number of nets than they could do historically. During the 1990s many fishers would use 48 nets separated into 6 fleets of 8 nets. These nets would be deployed for between 24 and 48 hours.

The species landed by the Hastings fishing fleet during this decade is very similar to the species that have been landed for many years. A non-exhaustive list includes, cod, sole, turbot, brill and cuttlefish as the seasonal visitors to Hastings waters, and plaice, dab, flounder, rays and bass as year round residents.

Many of the Hastings fishers, would operate 150-200mm (6"-8") trammel nets between January and March. The main target species during these months was cod, although skate and turbot were also caught. The large mesh size used during this time severely restricted the number of smaller fish and by-catch caught in the nets. The main target species for the months of March and April were sole and plaice. When targeting sole the mesh size was 100mm (4"). If the target species was plaice the mesh size was slightly larger at 150mm (6"). During the earlier years of the 1990s a drift net fishery for herring still operated from Hastings between the end of December and March. The drift nets had a much finer mesh size of 1". This fishery was mostly conducted from the smaller punts that operated from Hastings beach. Unfortunately a reduction in market value of herring eventually caused this fishery to stop operating off of Hastings beach. Between April and July some of the Hastings fishers would operate cuttlefish traps. Those fishers that didn't operate within this specific metier continued using trammel or gill nets to target soles and plaice. After the cuttlefish season ended those fishers that operated cuttlefish traps would return to netting. From the end of July to October the key target species for the Hastings fishing fleet was sole and plaice, although a number of other species were often caught and sold at market these included dab, flounder, bass, huss, whiting and skate. The arrival of October heralded the arrival of the colder water species. The key targeted species between October and the end of the year was cod this was targeted for, with between 150-200mm (6-8") trammel or gill nets. Other species often caught and landed during these fishing efforts included turbot, brill and skate. When targeting cod many of the fishers would start shooting their nets in the waters to the East of Hastings and slowly move those nets westward as the cod season progressed until near the end of the season, the nets would be deployed at the western end of the shingle bank.

During the 1990s the Hastings fishers encountered a number of more unusual species that were not often seen by the inshore fishing fleet. A non-exhaustive list includes the marbled electric ray (*Torpedo marmorata*), angel sharks (*Squatina squatina*) and grey triggerfish (*Balistes capriscus*).

## 2000s

Between 2000 and 2019 the fishery has changed from one year to the next and as a mixed species fishery it is highly dependent on the arrival of seasonal species. Soles are the most profitable species for the Hastings fishing fleet. And over the last 9-10 years sole may be found on the ground all year round. The year round occurrence of Dover soles is a significant shift over previous decades, as this species was more commonly found only during the warmer months of the year. When targeting sole, many fishers use a mixture of gill and trammel nets with a mesh size of between 4" and 5". The trammel nets are often purchased as kit nets, these are a form of homemade trammel net. The nets are constructed of a mono multifilament (6 x 1.5mm) these nets are much stronger, lighter and more resilient than their predecessors (cotton). On average the number of nets used by any given vessel is between 64 and 80, with 8-10 fleets of nets being used and a fleet of nets consisting of 8 nets. Once deployed the nets are left on the sea bed for between 24 and 48 hours. The majority of fishing activity of the Hastings fleet extends from Rye Bay in the East, through to Eastbourne in the west.

Another shift can be seen in the arrival of cod to the inshore waters surrounding Hastings. Historically this fishery stretched from October to April. During recent years however, this window has shrunk significantly with the cod not appearing until December and moving back offshore by the end of January. When targeting cod, fishers would often use 6"-8" trammel or gill net. Since the introduction of quotas to the under ten fishing fleet in 2006, fishers rarely specifically target cod as they have a very small quota allocation for them. 8" trammel and gill nets are still used by Hastings fishers when targeting turbot. 8" trammel nets are highly selective for very large species, such as turbot in recent years the quota allocation for cod alongside other species such as bass and skate has been restrictively low and as such Hastings fishers rarely target them. These species are considered as valuable bycatch species and although they are not targeted it is not possible to improve the selectivity of the trammel nets to avoid these species. At the end of January as the cod moves back offshore, the fishers begin to target sole and plaice. These species are targeted with 4"-5" trammel and gill nets. Alongside the catches of sole and plaice, other species of flatfish are caught these include; dab, flounder, turbot and brill. Round-fish species that may also be caught during the operations of the mixed species fishery include; bass, whiting and huss amongst others. Landings of bass are restricted by the quota allocated to the Hastings fleet. A high grade whiting can fetch a fair return at about 20p per kilo. Huss however, has a low return and is often sold as pot bait for whelk and crab pots and is sold for about 1p per kilo. During April the cuttlefish move into their breeding grounds and are often targeted using specifically built cuttlefish traps. This fishery lasts for approximately 3 months, in July after their breeding season has ended the cuttlefish move both offshore and in a westerly direction. Only a few vessels operating from Hastings beach target cuttlefish using traps. During the cuttlefish season the vessels that operate traps within this fishery also target other species with other gear. From April to July many fishers will operate nets and otter trawls alongside the cuttlefish traps. The nets and otter trawls are used to target Predominately sole and plaice, but will also catch, cuttlefish, dab, flounder and bass. At the end of the cuttlefish season, the Hastings fishers will continue either netting or trawling. During the summer months of July and August the shoals of mackerel can be found in large numbers in the inshore region. Unfortunately, the market value of mackerel is often so low it is unfeasible to land and sell. In 2018, a Hastings fisher sent 60 Kg of mackerel to a French fish market for sale. After the sale of the mackerel, the fish market in question sent a bill of £34 to the fisher, as the revenue generated by the sale did not cover the cost of shipping, storage and sellers fees. Another species that can occur in high abundance in the waters surrounding Hastings, are herring. Much like the mackerel, herring achieve such a low price that it is often not worth landing them as the return generated by sale rarely exceeds the cost of landing, storing and transporting.

98% of the revenue generated by finfish landed at Hastings beach comes from four main species; cod, plaice, sole and skate. This figure is only part of the picture of the economics of the Hastings fishery as it excludes sale of shellfish such as crabs, lobsters, whelks and cuttlefish.

The deeper water found near Dungeness has been found by fishers to be an area where tope (*Galeorhinus galeus*) are often encountered. Although this area occurs just outside the Sussex IFCA district it is often frequented by fishers operating out of Hastings and Rye.

A number of Hastings fishers reported that large swathes of their usual fishing grounds are currently housing an abundance of small soles and this has led them to believe that this will be a useful fishery in future years. Another species that appears to be on the increase within the area is the tub gurnard, with landings of this species increasing for both the netting and trawling fisheries of Hastings.

Spider crabs are considered a nuisance species by the net fishers of Hastings as they can do large amounts of damage to their nets. Historically, these invertebrates only spent a brief period during the summer in the inshore region. Over recent years however, this species has been arriving earlier in the year and leaving later

Although many of the aforementioned species are only found in the inshore region at certain times of the year many can be found further offshore in deeper more stable water all year round.

A review of the landings data held by the marine management organisation (MMO), indicated that between 2012 and 2016 (inclusive) the most important species for the Hastings fishery by weight was plaice with 26.9% of all landings being attributed to this species. This was closely followed by sole at 23.2% (Table 5).

Table 5. The eleven most important species to the Hastings fishery by weight between 2012 and 2016 (inclusive). The tonnage reported represents the accumulated biomass landed over 5 years. The percentages presented were calculated as a percentage of all reported landings at Hastings.

| Species                       | landings by trawlers |       | landings by netters |       | landings by potters |      | landings by all gear types |       |
|-------------------------------|----------------------|-------|---------------------|-------|---------------------|------|----------------------------|-------|
|                               | Tonnes               | %     | Tonnes              | %     | Tonnes              | %    | Tonnes                     | %     |
| <b>Bass</b>                   | 60.61                | 4%    | 67.74               | 4.5%  | 0.03                | 0%   | 128.53                     | 8.5%  |
| <b>Cod</b>                    | 18.62                | 1.2%  | 36.48               | 2.4%  | 0.06                | 0%   | 55.16                      | 3.6%  |
| <b>Cuttlefish</b>             | 40.72                | 2.7%  | 46.48               | 3.1%  | 118.59              | 7.8% | 205.79                     | 13.6% |
| <b>Dab</b>                    | 15.45                | 1.0%  | 9.36                | 0.6%  | 0.02                | 0%   | 24.83                      | 1.6%  |
| <b>Flounder</b>               | 15.82                | 1.0%  | 13.66               | 0.9%  | 0.01                | 0%   | 29.50                      | 1.9%  |
| <b>Lesser Spotted Dogfish</b> | 35.16                | 2.3%  | 17.66               | 1.2%  | 0.06                | 0%   | 52.88                      | 3.5%  |
| <b>Plaice</b>                 | 196.15               | 12.9% | 210.87              | 13.9% | 0.57                | 0%   | 407.60                     | 26.9% |
| <b>Smoothhound</b>            | 22.56                | 1.5%  | 29.69               | 2.0%  | 0.05                | 0%   | 52.30                      | 3.5%  |
| <b>Sole</b>                   | 143.34               | 9.4%  | 207.66              | 13.7% | 0.91                | 0.1% | 351.92                     | 23.2% |
| <b>Thornback</b>              | 25.61                | 1.7%  | 31.68               | 2.1%  | 0.01                | 0%   | 57.32                      | 3.8%  |
| <b>Whelks</b>                 | 9.45                 | 0.6   | 5.14                | 0.3%  | 49.06               | 3.2% | 63.65                      | 4.2%  |

