

Sussex inshore fisheries



PART I: The inshore fishing activity off the Sussex coast: a description of the methods and spatial extents, 2004-2007.

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Report citation

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References

Gray, M.J. 1995. The coastal fisheries of England and Wales, Part III: A review of their status 1992-1994. MAFF Fisheries Research Technical Report, No.100. Lowestoft: Directorate of Fisheries Research.

Figure I. observations of fishing activity

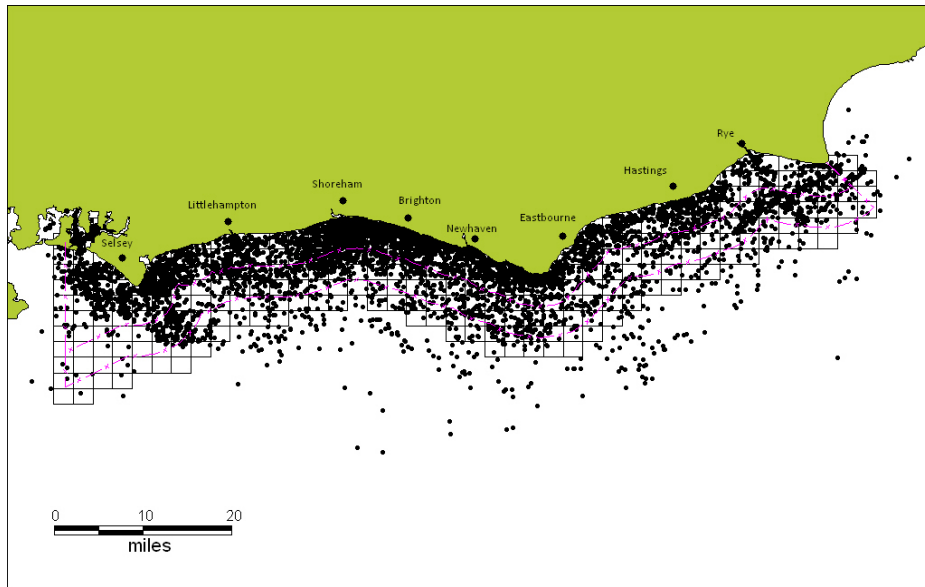
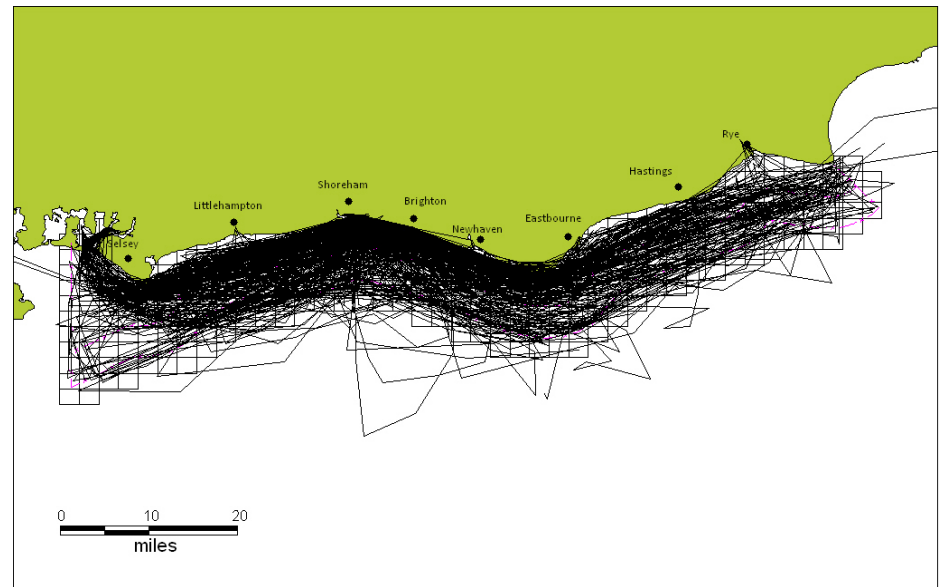

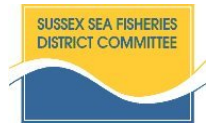


Figure II. patrol vessel activity

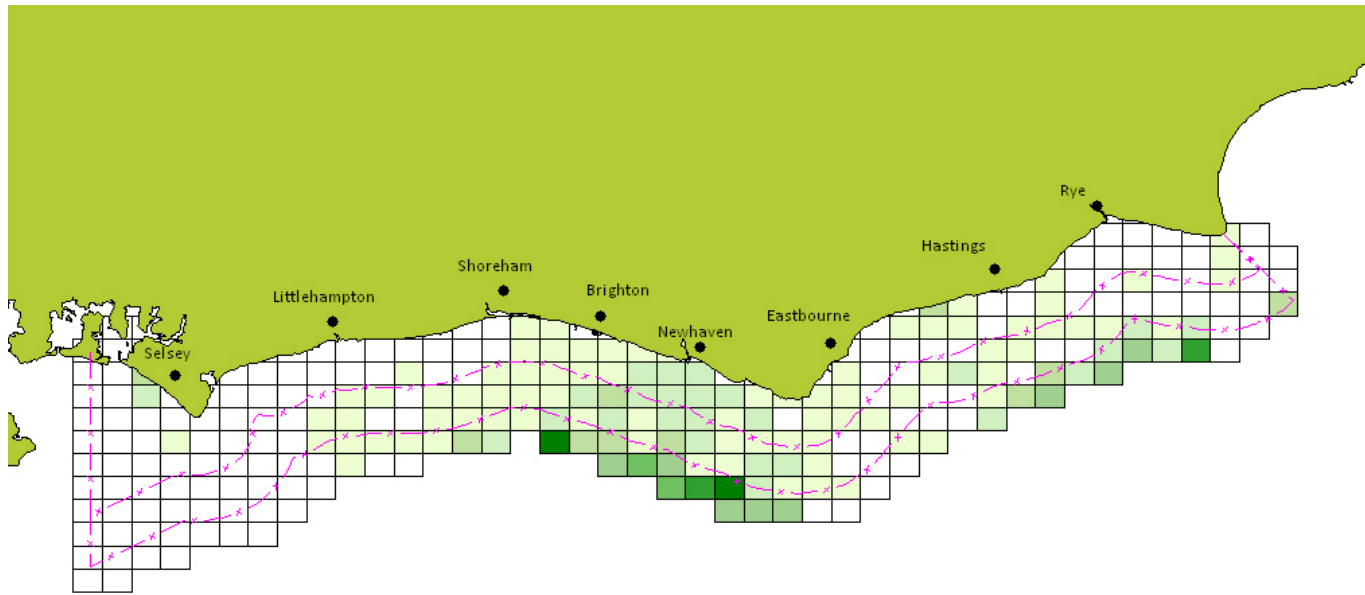


Since 2004 the Sussex Sea Fisheries Committee has, whilst undertaking fisheries patrols, collected data on all the fishing activities that they have observed. Some 6000 sightings of fishing activity were analysed between 2004 and 2007 (see figure I); the results are presented here. So as to ascertain the relative importance of areas of the seabed to certain fishing types (i.e. potting and trawling etc.) this sightings data has been simplified and grouped onto a grid. This gives each grid rectangle (cell) a value which corresponds to the number of sightings of fishing, by type, that have been observed in that cell. Each cell is 1/400th of an ICES subrectangle (c.3nm²)

So as to remove the sightings bias that occurs as a result of where patrols originate and terminate a further calculation is undertaken to attribute each cell with a value that corresponds to the number of patrols undertaken through the cell (see Figure II). This creates a model of effort based on the assumption that all fishing vessel will be observed if a patrol craft passes through the cell. So as to describe relative fishing effort, without the effort bias, the number of sighting of each fishing method are divided by the number of patrols per cell. The results are those that are presented in the tables that form this report.

<p>Legend</p> <ul style="list-style-type: none"> 1/400th of an ices subrectangle Fishing vessel sighting Patrol vessel path 	<p>Notes</p> <p>Datum: WGS84 Dates Surveyed: 2004-2007 Total Number of Patrols: 395 Total Number of Sightings: 7169 FPVs: Watchful Sea harrier</p> <p>Map Document 2004_to_2007_relative_activity_by_method. tab (MapInfo TAB file).</p>	<p>Survey location</p> 	 <p>Unit 6, Highdown House, Shoreham Airport, Shoreham-by-Sea, West Sussex, BN43 5PB 01273 454407</p> <p>Prepared by: Robert Clark rclark@sussex-sfc.gov.uk</p>	<p>Scale Nautical Miles</p> <p>Drawing Title Analysis of inshore fishing activity: relative fishing effort derived from fisheries patrols.</p> <p>© Sussex Sea Fisheries Committee, 2008</p>
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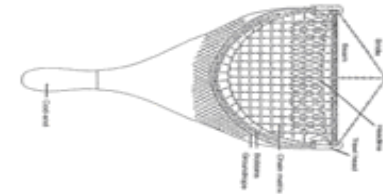
Beam trawl activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort



Method description

Beam trawls target mainly flatfish, including plaice, sole, turbot and brill. Other ground feeding fish such as codling, gurnard and cuttlefish may be caught. The substrate over which the gear is towed is usually sand and shingle, however slightly 'harder ground' can be worked with the aid of wheels on the beams. The addition of flip up footropes also facilitates the working of slightly harder ground. Furthermore the use of 'chain matrices' or 'stone mats' reduce the wear on the trawls.

Beam trawls are towed either astern of the vessel on the smaller boats, or, more commonly, from derricks forward of amidships on the larger boats. National legislation limits the engine power of beam trawlers, and the length of the beam is also restricted. Those vessels not fulfilling the requirements have to fish outside of 12nm miles.



Legend

- 1.17 to 1.34 (2)
- 0.91 to 1.04 (3)
- 0.65 to 0.78 (4)
- 0.39 to 0.52 (9)
- 0.26 to 0.39 (16)
- 0.13 to 0.26 (42)
- 0 to 0.13 (178)

□ 1/400th ICES sub-rectangle
 = number of observations / number of patrols
 (=N. sightings)

Notes

Datum: WGS84
 Dates Surveyed: 2004-2007
 Total Number of Patrols: 395
 Total Number of Sightings: 7169
 FPVs: Watchful
 Sea harrier
 Map Document
 2004_to_2007_relative_activity_by_method.
 tab (MapInfo TAB file).

Survey location



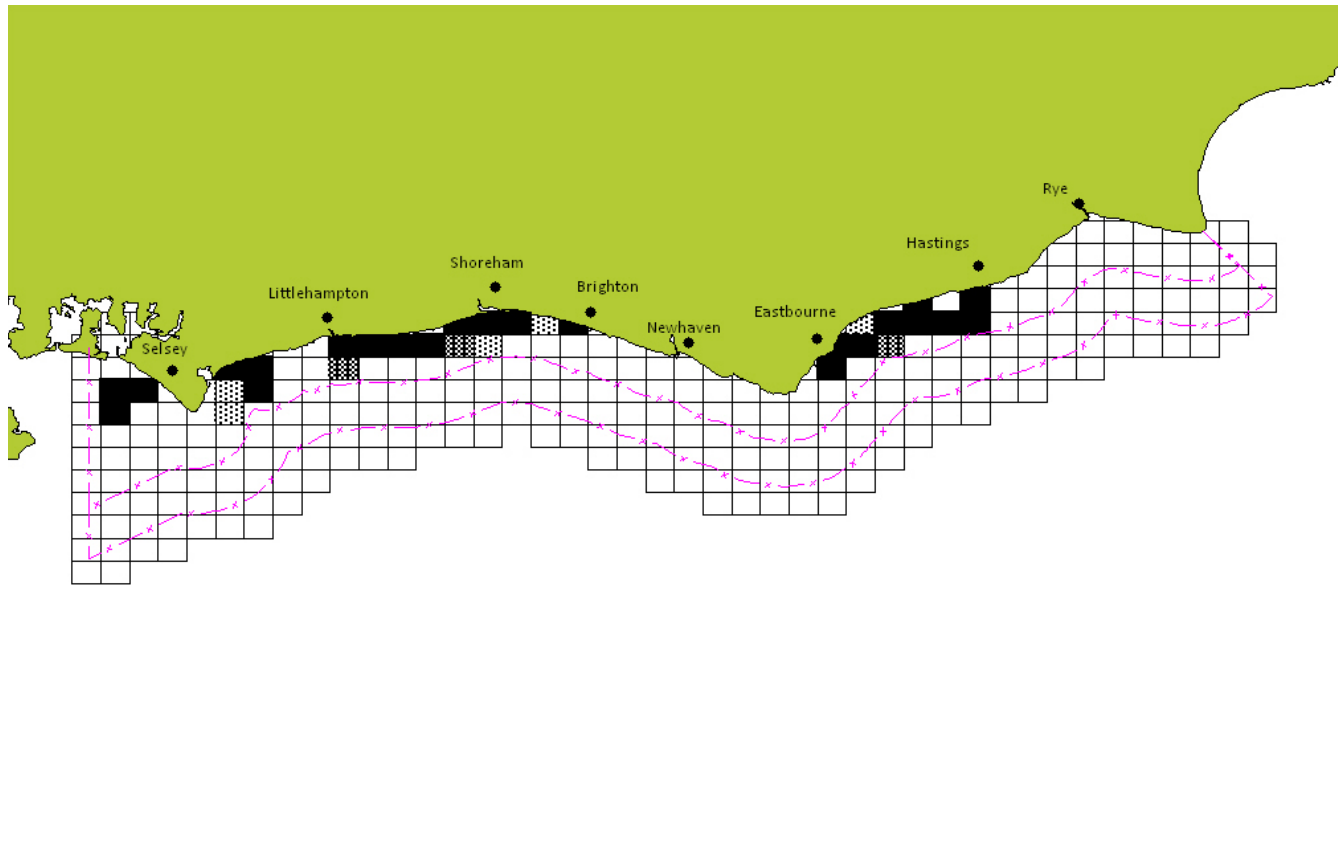
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Drawing Title
Beam trawl activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.

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Cuttlefish trapping activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.



Method description

Cuttlefish (*Sepia officinalis*) are targeted in traps during the spring off the Sussex coast. Cuttlefish traps are fished in strings of upto 20 traps. The traps are baited with a live female cuttlefish, or a white ceramic tile, the purpose of which is to attract the breeding molluscs. The cuttlefish congregate inshore to breed and the fishery targets the cuttlefish as they are spawning.

Cuttlefish are also caught using beam trawls, fixed nets and stern trawls, these fisheries target y0 pre-recruits and the spawning biomass.



Legend

- 3.3 to 100 (23)
- 2.4 to 3.3 (5)
- 1.5 to 2.4 (3)
- 1.4 to 1.5 (1)
- 1.1 to 1.4 (1)
- 0.5 to 1.1 (1)
- 0.4 to 0.5 (2)
- 0.3 to 0.4 (5)
- 0.2 to 0.3 (4)
- 0 to 0.2 (16)

□ 1/400th ICES sub-rectangle
= number of observations / number of patrols (=N. sightings)

Notes

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Survey location



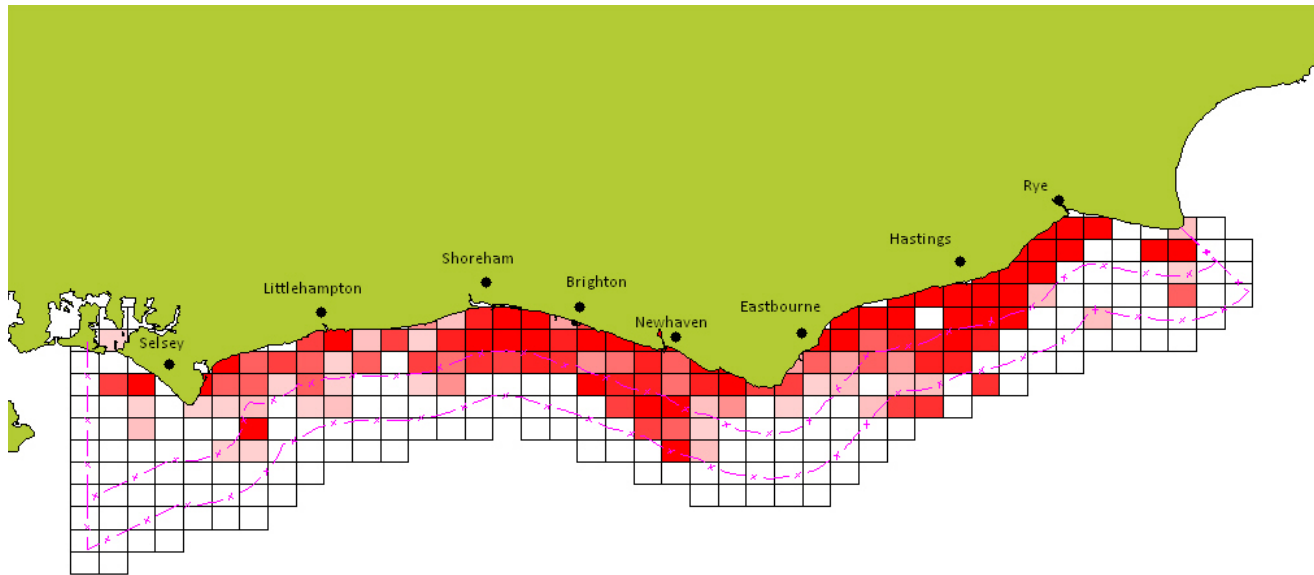
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Drawing Title
Cuttlefish trapping activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.

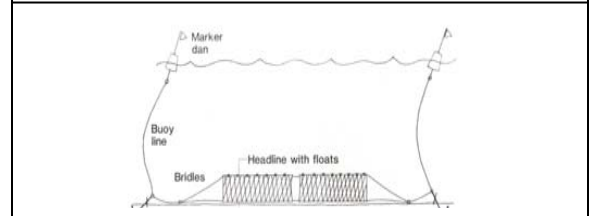
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Fixed net activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.



Method description

There are a variety of types of nets deployed off Sussex, the most common is the trammel net. The trammel net is constructed of three 'sheets' of nets, the outer nets are rigged one each side of the inner mesh panel. These nets have a cork line (top line) and lead line (bottom line). The nets sit or 'swim' in 3 to 8 feet of water. The fixed net only fishes on the slowest run of the tide. Fish targeted in this manner are plaice, sole, cod and cuttlefish. Gill nets and tangle nets are also used for targeting fish such as cod; these nets are fished in a similar manner to trammel nets but are rigged from a single sheet that sits vertically on the seabed. Nets are usually made from monofilament, although nylon is essential when targeting spider crabs, due to the abrasion caused by this crab during entrapment. The fixed net vessels work various styles and combinations according to the season; gill nets for cod in the winter and trammel nets for plaice and sole in the early spring. In the spring / summer season trammel nets are set for plaice, cuttlefish and sole and gill nets for bass. In the autumn trammel nets are set for plaice and sole and gill nets set for bass and cod.



Legend

■ 0.24 to 2 (80)
■ 0.16 to 0.24 (28)
■ 0.14 to 0.16 (11)
■ 0.11 to 0.14 (23)
■ 0.09 to 0.11 (15)
■ 0.08 to 0.09 (8)
■ 0.07 to 0.08 (9)
■ 0.06 to 0.07 (9)
■ 0.04 to 0.06 (35)
■ 0 to 0.04 (37)

□ 1/400th ICES sub-rectangle
 = number of observations / number of patrols
 (=N. sightings)

Notes
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Drawing Title
Fixed net activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.
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Oyster dredging activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.



Method description

In the Sussex District oyster dredging is exclusively conducted inside Chichester Harbour. Oyster dredges have a fixed flat bar across the forward section of the dredge. This bar digs the oysters out of the seabed, they are then collected in a bag behind the bar.

Oyster dredging is typically associated with fishing vessels less than 10 metres. One or two oyster dredges are typically towed from the stern of the vessel. There is limited commercial bycatch associated with this fishery, though clams are also sometimes caught.



- Legend**
- 43.6 to 100 (7)
 - 7.7 to 43.6 (2)
 - 2.9 to 7.7 (3)

□ 1/400th ICES sub-rectangle
 = number of observations / number of patrols
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Notes
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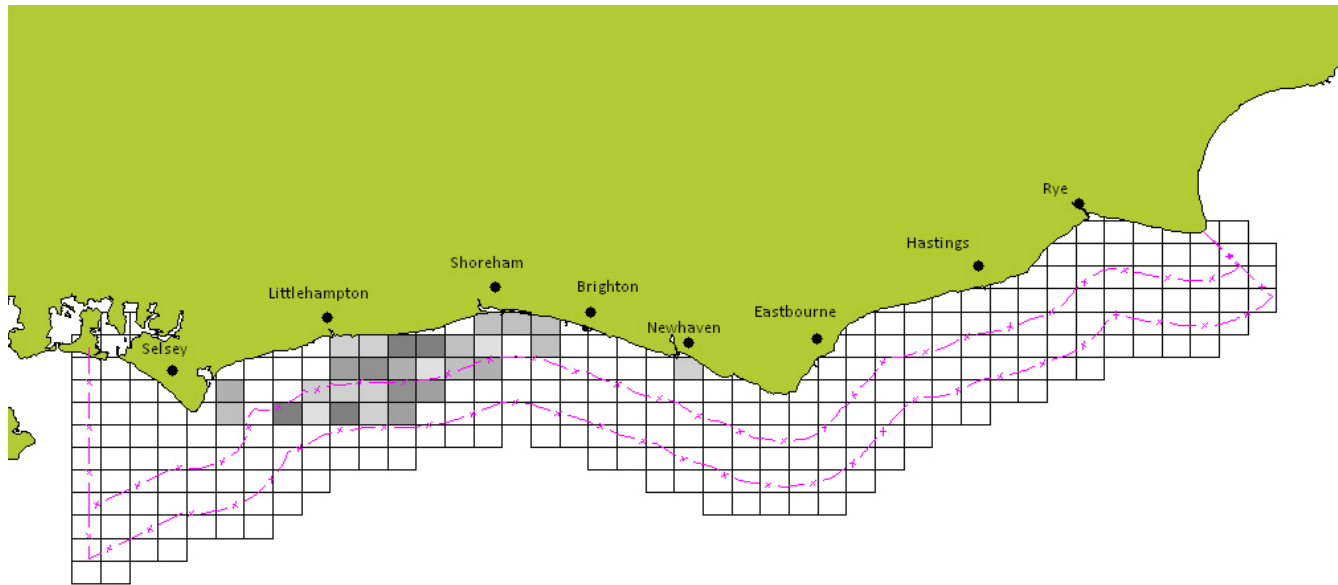
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Drawing Title
Oyster dredging activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.

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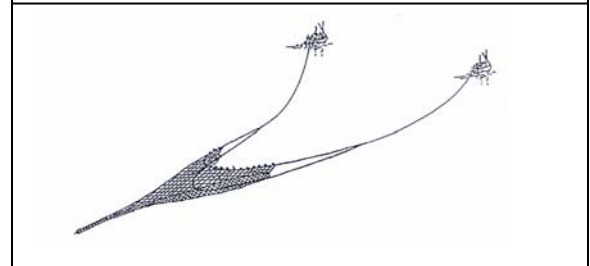
Pair trawl activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.



Method description

The pair trawl is made from hardwearing gear, but instead of the otter boards it is the two vessels that open the trawl. This method allows the net to be towed at a greater speed than if operated by a single boat, this means that faster moving fish can be caught. In Sussex this method is used primarily for bass and black sea bream. Nets are often adapted semi-pelagic single boat trawls.

The fishery is seasonal and confined to spring, when black sea bream congregate in large numbers to lay their eggs. Bass and to a lesser extent coastal cat sharks are also caught in this method. Bycatch associated with the bream fishery can include skates and rays, wrasse and cod etc.



Legend

■	66.3 to 100	(4)
■	55.1 to 66.3	(5)
■	39.2 to 55.1	(7)
■	28.4 to 39.2	(5)
■	22.5 to 28.4	(6)
■	14.2 to 22.5	(7)
■	10.1 to 14.2	(5)
■	3.6 to 10.1	(7)
■	0.5 to 3.6	(5)
■	0 to 0.5	(7)

□ 1/400th ICES sub-rectangle
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Notes
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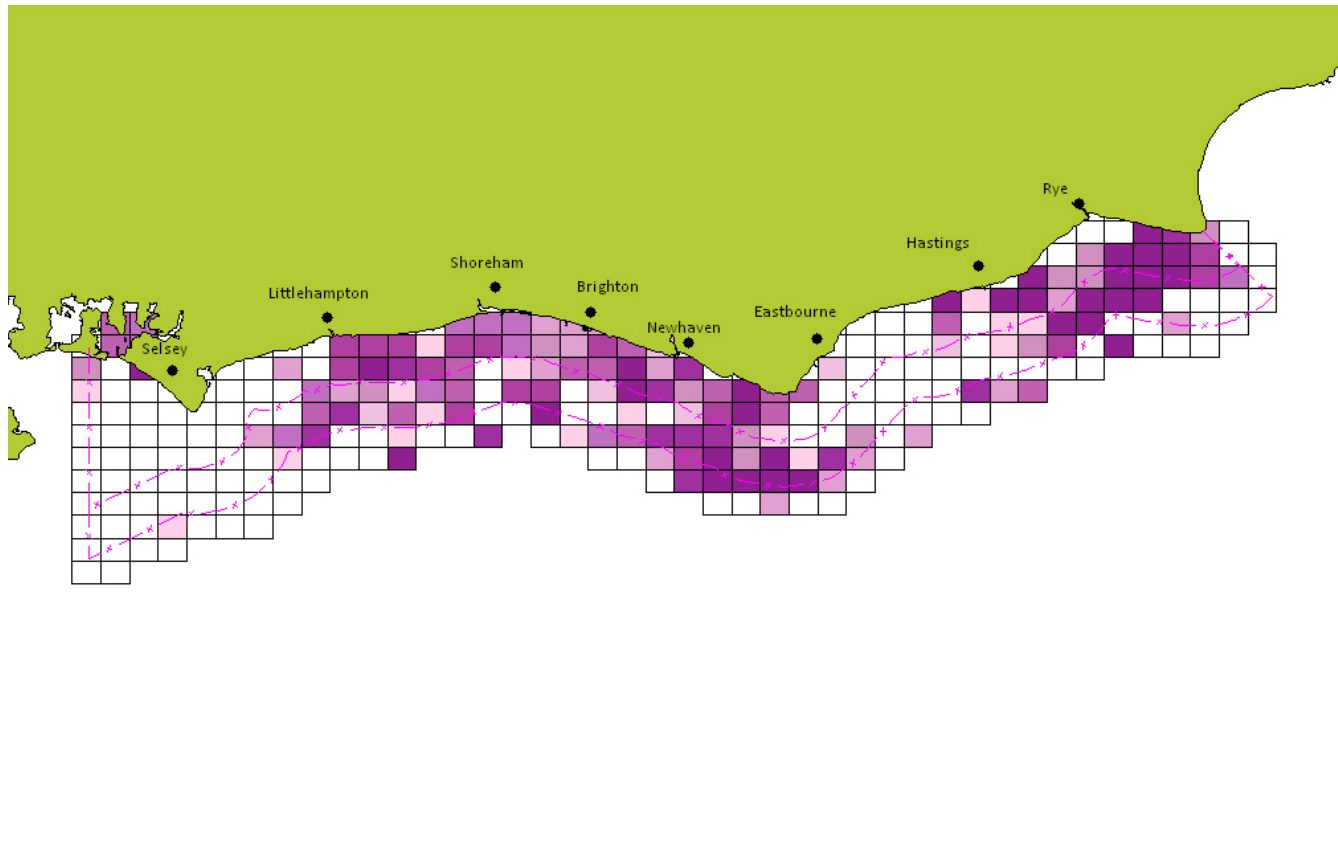
Prepared by:
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Drawing Title
Pair trawl activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.

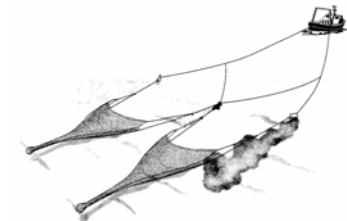
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Stern trawl activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.



Method description

There are two types of towed gear used off the Sussex Coast, they are: rock hopper otter trawl and small footrope otter trawl. The effort map does not discriminate between these two types of trawls. The rock hopper otter trawl is normally used in conjunction with steel otter boards and wire bridles these trawls target cod, whiting, lemon sole, squid, cuttlefish, and bass. Larger sole, skate and dogfish are also caught. This gear can be worked on the grounds with harder substrates such as the fisheries off Dungeness, Beachy Head, Worthing and Selsey. The small footrope otter trawl uses wooden otter boards. Wire or combination wire bridles are also used but they are longer than the rock hopper rig typically 60 to 100 fathoms. The main species targeted with this method are plaice, sole, codling, cuttlefish and any other demersal species. This trawl cuts through the top layer of the soft sea bottom and the tickler chain digs the fish out. This rig is used predominantly to the east of the District due to the softer seabed.



Legend

Dark Purple	68.7 to 100 (59)
Medium-Dark Purple	44.6 to 68.7 (27)
Medium Purple	30.2 to 44.6 (27)
Light Purple	19.4 to 30.2 (29)
Very Light Purple	10.7 to 19.4 (27)
Lightest Purple	3.1 to 10.7 (29)
White	0.7 to 3.1 (28)
White	0.3 to 0.7 (16)
White	0 to 0.3 (35)

□ 1/400th ICES sub-rectangle
 = number of observations / number of patrols (=N sightings)

Notes
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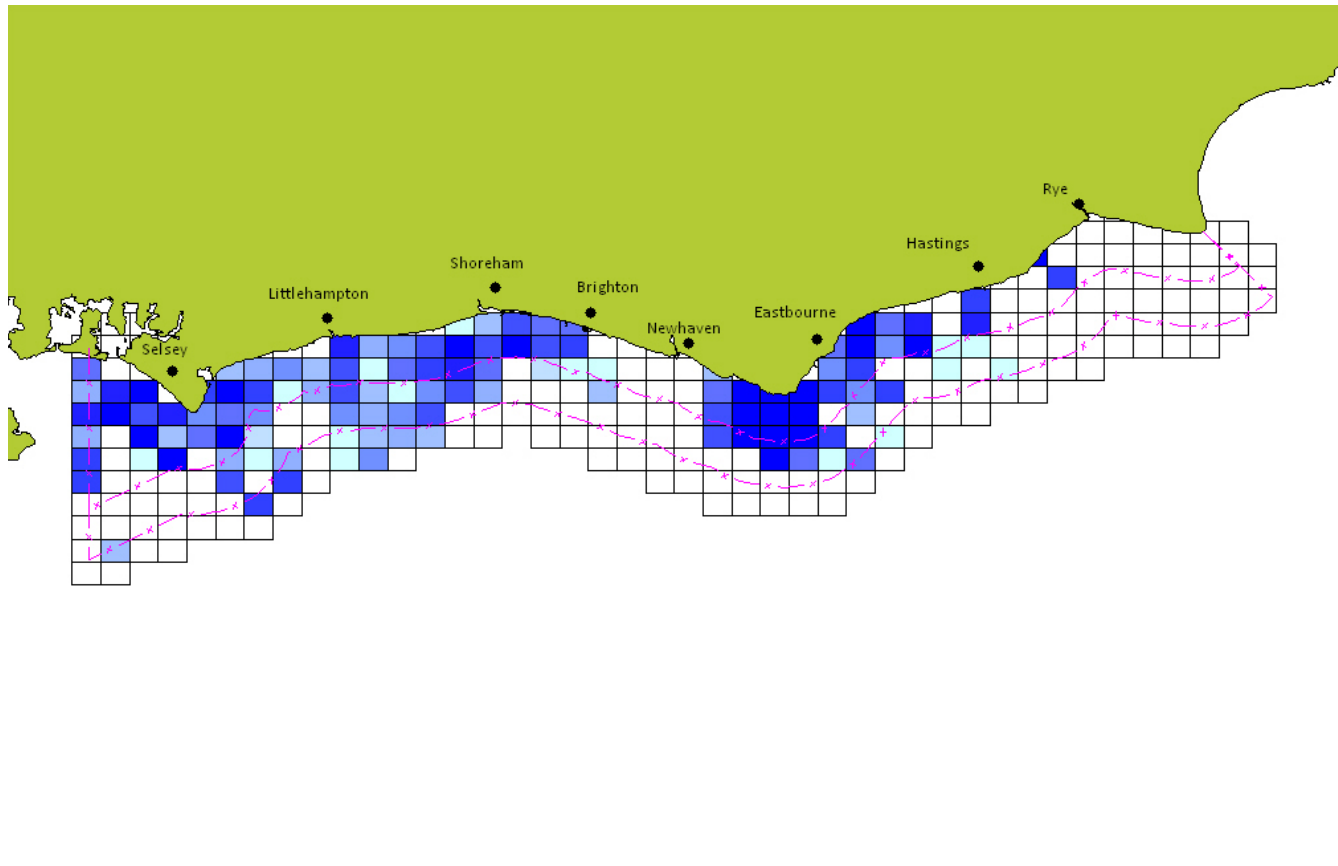
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Drawing Title
Stern trawl activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.

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Whelk Potting activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.



Method description

Whelks are targeted in either reclaimed 25-litre drums that are weighted at one end with concrete or in purpose designed pots. The pots are shot in strings in a similar fashion to lobster pots. Whelk pots are baited, typically with crab or 'dogfish'. Netted dogwhelks and hermit crabs are caught as bycatch.

Whelks are targeted on 'softer' ground; the extensive gravel deposits found in the eastern channel provide the ideal substratum.



Legend

Dark Blue	55.6 to 100	(37)
Medium-Dark Blue	35.9 to 55.6	(23)
Medium Blue	25 to 35.9	(22)
Light Blue	13.4 to 25	(24)
Very Light Blue	6 to 13.4	(23)
Lightest Blue	2.6 to 6	(22)
White	0.9 to 2.6	(24)
Very Lightest Blue	0.3 to 0.9	(16)
Lightestest Blue	0.2 to 0.3	(5)
White	0 to 0.2	(37)

□ 1/400th ICES sub-rectangle
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Whelk Potting activity, observed by Sussex SFC, between 2004 and 2007, relative to patrol effort.

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