

Summary of commercial marine fishing by English and Welsh vessels ≥ 10 metres LOA for 2004

A.J.R. Cotter, G. Course, J. Ashworth,
R. Forster, R. Enever, D. Goad, R. Bush,
S. Shaw, R. Mainprize, and C. Garrod

Summary of commercial marine fishing by English and Welsh vessels ≥ 10 metres LOA for 2004

A.J.R. Cotter, G. Course, J. Ashworth, R. Forster,
R. Enever, D. Goad, R. Bush, S. Shaw, R. Mainprize, and C. Garrod

This report should be cited as: Cotter A.J.R., Course G., Ashworth J., Forster R., Enever R., Goad D., Bush R., Shaw S., Mainprize R., and Garrod C., 2006. Summary of commercial marine fishing by English and Welsh vessels ≥ 10 metres LOA for 2004. Sci. Ser. Tech. Rep., Cefas Lowestoft, 134: 93pp

Acknowledgements and disclaimer

Cefas observers travelled on English and Welsh registered commercial fishing vessels as guests of the owners and crew of these vessels. We are grateful to the many members of the fishing industry who allowed us to observe their fishing operations and who provided hospitality and advice.

The Cefas marine fisheries observer team was funded by the European Commission (EC Data Collection Regulation 1639/2001) and the Department of the Environment, Food, and Rural Affairs (Defra) of the UK government. No statement in this report should be construed as official policy of either of these departments.

We are grateful to Andrew Pillar (Interfish), Jon Lansley (Cornwall Fisheries Resource Centre), Paul Trebilcock (Cornish Fish Producer Organisation), Sam Davis (Cornwall Sea Fisheries Committee), and Spike Searle (Invest in Fish South West) for comments on a draft of this report. However, responsibility for the content remains with the authors.

© Crown copyright, 2006

This publication (excluding the logos) may be re-used free of charge in any format or medium for research for non-commercial purposes, private study or for internal circulation within an organisation. This is subject to it being re-used accurately and not used in a misleading context. The material must be acknowledged as Crown copyright and the title of the publication specified.

This publication is also available at:

www.cefas.co.uk/publications/techrep/tech134.pdf

For any other use of this material please apply for a Click-Use Licence for core material at www.hms0.gov.uk/copyright/licences/core/core_licence.htm, or by writing to:

HMSO's Licensing Division
St Clements House
2-16 Colegate
Norwich
NR3 1BQ
Fax: 01603 723000
E-mail: licensing@cabinet-office.x.gsi.gov.uk

Contents

Abbreviations, terms, and notes **5**

Summary **7**

1. Introduction **9**

2. North East Region **12**

2.1	Introduction	12
2.2	NE Effort and landings	13
2.2.1	Defra FAD statistics	13
2.2.2	General observations	13
2.2.2.1	Amble, Blyth, N. Shields, and Hartlepool	13
2.2.2.2	Whitby and Scarborough	14
2.2.2.3	Bridlington	14
2.2.2.4	Hull and Grimsby	14
2.3.	Observer programme	19
2.3.1	Observer effort	19
2.3.2	Summarised results	19
2.3.3	Factors affecting discarding	25
2.4	Fishing industry views	25
2.5	Points of biological interest	25
2.6	Points of fishery interest	25

3. East Region **26**

3.1	Introduction	26
3.2	Effort and landings	27
3.2.1	Defra FAD statistics	27
3.2.2	General observations	27
3.3.	Observer programme	32
3.3.1	Observer effort	32
3.3.2	Summarised results	33
3.3.3	Factors affecting discarding	33
3.4	Fishing industry views	33
3.4.1	King's Lynn shrimpers	33
3.4.2	Lowestoft beamers	35
3.4.3	Leigh-on-Sea otter trawlers	35
3.5	Points of biological interest	35
3.6	Points of fishery interest	35

4. South East Region **36**

4.1	Introduction	36
4.2	Effort and landings	36
4.2.1	Defra FAD statistics	36
4.2.2	General observations	37
4.3.	Observer programme	40
4.3.1	Observer effort	40
4.3.2	Summarised results	40
4.3.3	Factors affecting discarding	41
4.4	Fishing industry views	41
4.5	Points of biological interest	41
4.6	Points of fishery interest	41

5. South West Region **44**

5.1	Introduction	44
5.2	Effort and landings	46
5.2.1	Defra FAD statistics	46
5.2.2	General observations	47
5.2.2.1	Beam trawling	47
5.2.2.2	Demersal trawling	47
5.2.2.3	Scallop dredging	48
5.2.2.4	Fixed netting	48
5.2.2.5	Long-lining	48
5.2.2.6	Pelagic trawling	49
5.2.2.7	Potting	49
5.3.	Observer programme	55
5.3.1	Observer effort	55
5.3.2	Summarised results	55
5.3.3	Factors affecting discarding	61
5.4	Fishing industry views	62
5.4.1	Trawlers from north Devon and Cornwall	62
5.4.2	Beam trawlers from Brixham	62
5.4.3	Otter trawlers from Brixham	63
5.4.4	Falmouth Bay otter trawlers	63
5.4.5	Beam trawlers from Newlyn	63
5.4.6	Fixed netters	63
5.4.7	Scallop dredgers	63
5.5	Points of biological interest	62
5.5.1	Mammals	62
5.5.2	Invertebrates	62
5.5.3	Fish	62
5.6	Points of fishery interest	63

continued

Contents

6.	North West Region	66
6.1	Introduction	66
6.2	NW Effort and landings	67
6.2.1	Defra FAD statistics	67
6.2.2	General observations	67
6.3.	Observer programme	73
6.3.1	Observer effort	73
6.3.2	Summarised results	73
6.3.3	Factors affecting discarding	73
6.4	Fishing industry views	73
6.5	Points of biological interest	73
6.6	Points of fishery interest	73

7.	NE Atlantic Region	77
7.1	Introduction	77
7.2	NE Atlantic Effort and landings	78
7.2.1	Defra FAD statistics	78
7.2.2	General observations	79
7.3.	Observer programme	88
7.3.1	Observer effort	88
7.3.2	Summarised results	88
7.3.2	Factors affecting discarding	88
7.4	Fishing industry views	88
7.5	Points of biological interest	88
7.6	Points of fishery interest	88

8.	Discussion	93
-----------	-------------------	-----------

Abbreviations, terms, and notes

Anglerfish	Defra's FAD does not distinguish the different species of anglerfish whereas Cefas marine observers do. In this report, "anglerfish" means Monk (<i>Lophius piscatorius</i>) and white anglerfish (<i>Lophius budegassa</i>). The latter is usually relatively scarce.
beam trawl	Trawl net held open by a large heavy beam and fitted with shoes (skids) to slide over the sea floor. Used mainly for flatfish and (with smaller mesh) shrimps.
Cefas	Centre for Environment, Fisheries, and Aquaculture Science, an agency of Defra - www.Cefas.co.uk
Defra	Department for the Environment, Food, and Rural Affairs, UK government - www.Defra.gov.uk/fish
demersal	Term meaning associated with the sea floor. See also 'pelagic'.
demersal trawl	Trawl net usually held open with otter boards and floats. Includes twin rigs (a double trawl net having a rolling weight between), and pair trawls (towed by two vessels and without otter boards) but, as used by Defra FAD, excludes beam trawls.
FAD	Defra's Fishing Activities Database.
Fixed nets	Nets fastened to the sea floor. Includes gill nets, tangle nets, and trammel nets.
ICES	International Council for the Exploration of the Sea – www.ices.dk
LOA	Length overall, ie. between extremities in connection with a vessel. This is usually slightly longer than 'registered' length.
MLS	Minimum landing size for a fish species.
m	metre
Nephrops	Also called prawns. Both terms are used in this report.
pelagic	Term meaning associated with the water column above the sea floor. See also 'demersal'.
Rays	Defra's FAD does not distinguish the different species of rays whereas Cefas marine observers do. In this report, "rays" are intended to mean cuckoo (<i>Raja naevus</i>), spotted (<i>R. montagui</i>), starry (<i>R. radiata</i>) and thornback (= roker, <i>R. clavata</i>) rays.

Summary

This report summarises marine fishing activities during 2004 by commercial fishing vessels $\geq 10\text{m}$ LOA registered in England and Wales, as seen by the Cefas sea-going observer team of 8 based at Lowestoft, Scarborough, Whitehaven, Weymouth and Newlyn. The report was prepared for two reasons: (1) to pass on knowledge about fishing learned at sea during 2004 to others associated with, or interested in the fishing industry, and (2) to assist planning of the Cefas catch sampling programme in future. Because Cefas observers were restricted for practical reasons to vessels $\geq 10\text{m}$ LOA during 2004, the focus of this report is on that sector, even though there were many smaller vessels ($< 10\text{m}$ LOA) operating around our coasts.

The observers' main task was to monitor discarding and retention of fish in accordance with the Data Collection regulation 1639/2001 of the European Commission, as well as associated fishing effort at sea. The fisheries were split into 6 regions: the NE of England, the East, the SE, the SW and S Wales, N Wales and the NW, and the 'NE Atlantic' relating to English and Welsh vessels operating overseas. Each regional section gives background on the main fishing ports and markets in the region, the main types of fishing in 2004, officially recorded fishing effort and landings, fishing activities in terms of days absent (at sea) by port and by individual vessel, as well as comments by the observers on perceived influences on fishing. There is then a summary of the activities of, and results from the observer programme, fishing industry views, and other technical points learned relating to fishing or fish biology.

Official Defra statistics imply that fishing effort by English and Welsh vessels $\geq 10\text{m}$ LOA declined in most regions and in most gear categories in 2004 relative to 2003. Part-time or virtually inactive boats occurred in many fishing ports. On the other hand, landings of many species remained similar or increased slightly, suggesting that some species were being fished more efficiently in terms of landings per unit of effort. In some cases, fishers varied their target species because of a down-turn in the species they usually fished.

Cefas observers achieved a reasonably even coverage of much of the English and Welsh fishing fleet $\geq 10\text{m}$ LOA, including vessels operating overseas, during 2004. Roughly 0.5% of trips made were observed for many, but not all gear categories in the 6 sampling regions. Discarding was observed to be highly variable during 2004, as usual, with more than 50% discarding of the catch (in terms of numbers of fish) being commonly observed for a few commercial species. Discarding was seen to vary with gear type from place to place, and is known to vary with other factors, e.g. the varying occurrences of fish, different fishing and catch processing methods, and due to damage occurring during fishing. The report makes an assessment of the contributions of vessels $< 10\text{m}$ LOA to total landings and effort by the fishing fleets in the 5 coastal sampling regions, and finds that the $< 10\text{m}$ vessels were often more significant than vessels $\geq 10\text{m}$ LOA.

1. Introduction

The Centre for Environment, Fisheries, and Aquaculture Science (Cefas) has been sending trained observers to sea on commercial fishing vessels to observe fishing and sample catches since 1994. Cefas observers are in a unique position to learn much about our national marine fisheries including the individual views of members of the fishing industry. This report is intended to serve two purposes:

- to pass on a summary of that knowledge to members of the industry, the fisheries science and management communities, and to interested members of the public, and
- to gain an overview of English and Welsh marine fishing that will assist with planning of the observer programme in future years.

Since the observer programme is currently focussed on vessels greater than or equal to (\geq) 10 metres registered length (RL) for practical reasons (see below), this report correspondingly gives most attention to that sector even though much fishing around our coasts is carried out with smaller vessels. The report summarises information for 2004 but includes some for 2003 or earlier if this is thought to provide helpful background. Basic information and official statistics about the fisheries are also presented to provide perspective. Further background, including fuller information about the < 10 metre sector, is obtainable from Pawson et al. (2002)¹.

Observations of catches at sea allow direct recording of the retained and discarded components of the catch together with the associated fishing effort and conditions. They therefore allow a more complete estimate of the quantities of fish caught by a fleet than can be obtained from just the landed component as recorded in official statistics. Observed quantities caught can also be related to observed fishing effort to give accurate measures of catch per unit effort (CPUE). Total catch and CPUE are both important quantities for fish stock assessments undertaken by the International Council for the Exploration of the Sea (ICES). Better knowledge of fishing activities, of different fishing gears, and closer liaison with the fishing industry are other benefits of the programme.

Discards often include numerous small fish that may not be landed legally because they are smaller than the minimum landing size (MLS). They may also include fish that are over-quota, of low market value, of poor quality, or which were damaged during fishing e.g. by seals and seabirds. Discards of most whitefish species are returned

to the sea dead and thus represent lost productivity. They may also cause environmental problems on the sea floor. Shellfish, rays and dogfish, and some flatfish are more likely to survive the capture and discarding processes depending on the fishing technique, the duration of the haul, and other variables.

Early trips by Cefas observers were confined to the trawl fisheries of the NE coast of England. Since 2002, funding from the European Commission (EC) in relation to the EC Data Collection Regulation 1639/2001², and from the Department of the Environment, Food, and Rural Affairs (Defra) has enabled sampling to be extended to most types of fisheries all around the English and Welsh coast as well as to English and Welsh registered vessels operating from other countries. In 2004 there were 8 sea-going observers, based at Scarborough, Lowestoft, Weymouth, and Newlyn, plus a sampling manager based at Whitehaven.

The design and conduct of the Cefas observer programme is based on stipulations in EC regulation 1639/2001. Section E(1)b and Appendix III specify that estimates of discarding of fish at sea are to be made for the following categories of commercial marine fishing vessel (see table below):

Mobile gears	Beam trawls
	Demersal trawl and seines
	Pelagic trawl and seines
	Dredges
	Polyvalent
Passive gears	Gears using hooks
	Drift and fixed nets
	Pots and traps
	Polyvalent
Polyvalent gears	Combining mobile and passive gears

In addition, estimates of discards are required for four length-over-all (LOA) categories of vessel:

- less than 12 metres (m)
- 12 to less than 24 m
- 24 to less than 40 m
- greater than or equal to 40 m.

¹ Pawson, M.G., Pickett, G.D., and Walker, P. (2002). The coastal fisheries of England and Wales, Part IV: A review of their status 1999 – 2001. Cefas Technical Report, Science Series, No. 116 (83pp).

² Obtainable at http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/L_222/L_22220010817en00530115.pdf

Appendix XII of the regulation specifies the frequency of estimation of discards for each species. Broadly speaking, estimates must be annual for the primary commercial species, and 3-yearly for the secondary species. The requirements for shellfish species are generally lower because discards from potting are usually alive and can be caught again. In the case of trawl caught shellfish, survival depends on the type of fishing gear in use, the length of tow, and other variables.

The restriction of the Cefas observer programme to vessels ≥ 10 m RL during 2004 was because <10 m vessels have restricted space and conditions for working, many of them work only part-time making them difficult to schedule in a sampling programme, and because they need not comply with the standards of marine safety set for ≥ 10 m RL. Many EC regulations governing the reporting of fishery statistics pertain to vessels ≥ 10 m LOA, LOA being generally slightly longer than RL. This report therefore uses the 10 m LOA cut-off point for tables and illustrations of most fishery statistics. However, in addition, one table of effort by gear, and one figure of landings by species are provided for each coastal regional section to show the relative importances of over and under 10 m vessels, as indicated by official Defra statistics. Brief comments are given on fishing by the smaller vessels but special research has not been carried out on them for this report.

Cefas chooses fishing trips for observation in each quarter of the year by, firstly updating a list of all currently registered ≥ 10 m vessels, then drawing a sample of these at random. The sample may include a vessel more than once because sampling is, in statistical terms, 'with replacement'. The vessels drawn are allocated to the gear groups noted above and to observer regions. The observers then try to arrange trips on the list of vessels based in their region in the order of drawing until sampling quota for each gear group have been met for the quarter. This randomised process is designed to allow all fishing trips made by vessels covered by the regulation an approximately equal chance to be sampled, to spread sampling effort evenly through the year, and to minimise the statistical bias in the catch sampling statistics estimated. The regions used (fairly flexibly) by the observer team in 2004 were

- NE English coast
- E coast
- SE English coasts
- SW English and S Welsh coasts
- N Welsh and NW English coasts
- 'NE Atlantic', i.e. English and Welsh registered vessels based outside England or Wales.

The same regional organisation will be found in this report. Each section gives background on the main fishing ports and markets in the region, the main types of fishing in 2004, officially recorded fishing effort¹ and landings², fishing activities in terms of days absent (at sea) by port and by individual vessel, as well as comments by the observers on perceived influences on fishing. There is then a summary of the activities of, and results from the observer programme, fishing industry views, and other technical points learned relating to fishing or fish biology. Difficulty was experienced in obtaining information to the same depth and on the same subjects in all of the regions. We therefore apologise for a somewhat uneven coverage of the different regions but felt that this was preferable to removing large amounts of potentially useful information from the text covering the best known. In practice, the most detail is given for the most active regions, namely the SW and NE, because our observers spent most time sampling there.

Quantities discarded are reported as estimates for the observed trips. They are estimates (subject to sampling error) because many catches have to be sampled, and sampling of all catches is not always possible on a trip. Raising factors have to be estimated based on relative volumes of sample and catch, and on number of hauls fished and number sampled, respectively. The percentage of the catch discarded is also given so that the quantities retained can be estimated if needed. "Retained" fish are the same as those landed at the end of the trip unless some were taken for food on board, or were subsequently discarded to make space for higher value fish ("high-grading"). The trip level quantities obviously depend on the fishing effort applied during the trip as measured by days at sea, number of hauls, and hours of fishing (or, less satisfactorily, hours of immersion for static gears). Comparisons between trips should therefore take effort into account. Presentation of quantities and effort separately, rather than of CPUE figures, was chosen for this report because the reader may judge the reliability and generality of the figures given from the numbers of fish and the amount of fishing effort observed, and may very easily estimate CPUE from the figures given if required. It should however be emphasised that the numbers of fishing trips observed for one gear category within one sampling region in 2004 were

¹ We did not use the officially recorded hours of effort for fixed nets because of doubts about the consistency of the recording method used.

² Readers requiring more detailed presentations of official fishery statistics can obtain them via <http://statistics.Defra.gov.uk/esg/publications/fishstat/default.asp>.

often small and that sampling variability was therefore high due to high variability of discarding practices among different crews, over different fishing grounds at different times, and between different trips and boats. In short, the precision of discard estimates given for small numbers of fishing trips is likely to be low. Standard errors were not calculated because they too would have been estimated with low precision and could be misleading.

Observers were not usually able to carry or operate marine balances on English and Welsh commercial fishing vessels for practical reasons and had, therefore, to reckon quantities of fish by counting and measuring only. This contrasts with the estimation of landings for official logbooks which is done in terms of weight or volume and, unfortunately, prevents a direct comparison of observed quantities discarded with declared quantities landed. Discards are converted to weights in this report

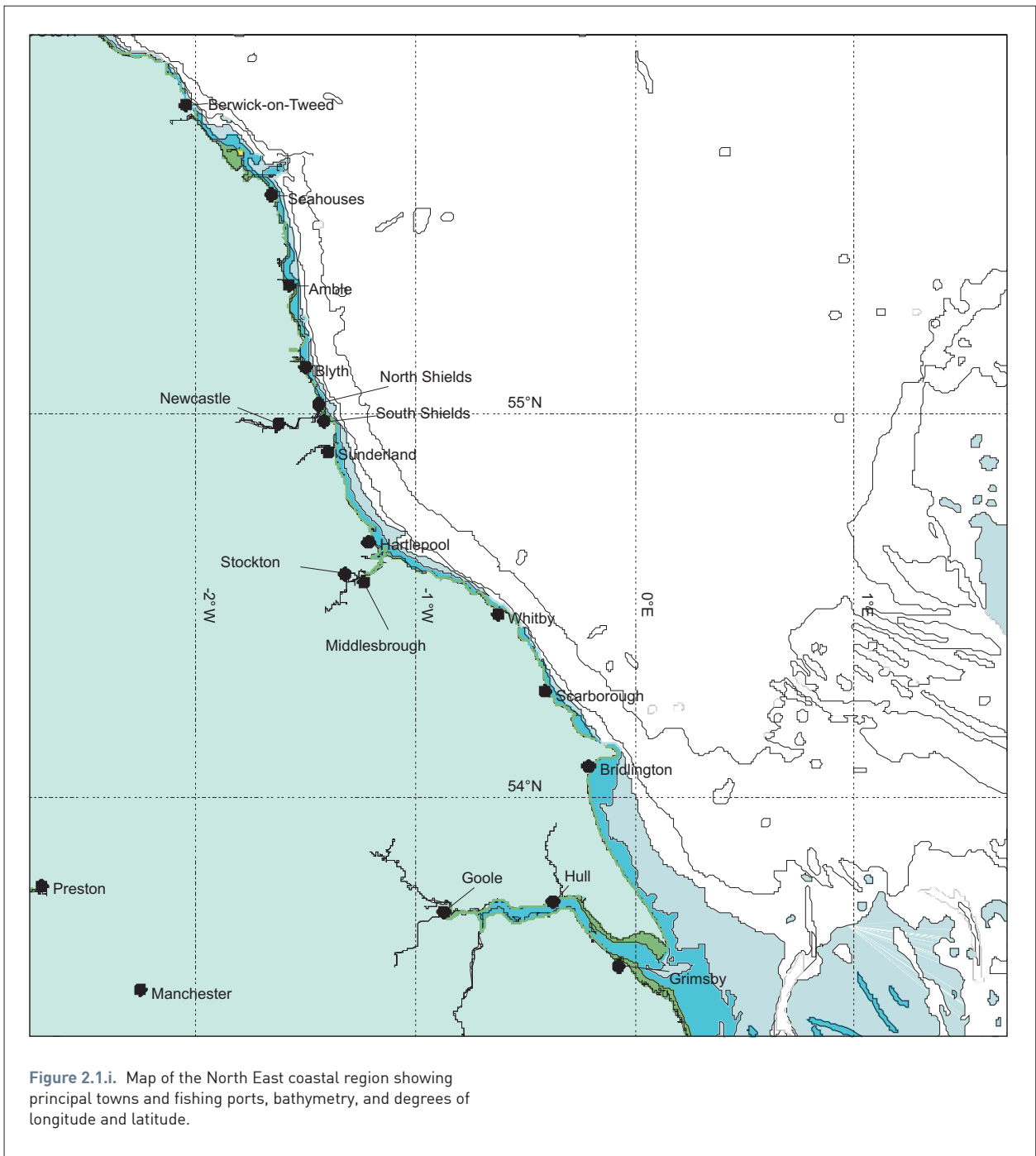
by applying empirical length-weight relationships that are functions of season and ICES division. The accuracy of the formulae is not well known for 2004 and may be quite poor depending on conditions for growth. A suggested accuracy is +/- 25%. Landed weights on the other hand are converted to numbers by the application of length frequency distributions sampled in the port markets, as is done annually for assessments of the stocks. Those detailed results may be obtained from fish stock working group reports published on www.ices.dk. Official statistics on fishing effort and landings by whole fishing fleets, as given in this report, may be used to raise discarded quantities for observed trips to estimates for the whole fleet but interpretation and use of the results should be carried out with considerable caution because of the likelihood of low sampling precision.

2. North East Region

2.1 Introduction

The NE region is here defined as all ports from Berwick-on-Tweed to Grimsby and Immingham. A map of the NE region, the principal towns and fishing ports, and bathymetry is shown in Figure 2.1.i. Major fish markets existed in 2004 at Whitby, Scarborough, Grimsby, and Hull.

The main fisheries in this region during 2004, as in previous, recent years, were trawling in coastal waters for cod, whiting, Nephrops, and some flatfish, plus potting for lobsters and crabs. Most of the trawlers were otter trawlers but twin-rig and pair trawling took place as well. The Nephrops fishery is a winter fishery and many vessels changed to target white fish in the summer, or travelled to



Nephrops fisheries available in summer months elsewhere, e.g. off Scotland or the west coast. Distant water trawlers operating from Hull targetted saithe, cod, and redfish. Netting, dredging and seining also took place.

2.2 NE Effort and landings

2.2.1 Defra FAD statistics

Tables 2.2.i and 2.2.ii show official Defra data for four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports along the NE coast for 2003 and 2004 respectively. Comparison of the two years shows that fishing effort generally decreased in all gear groups. Cefas observers noted that several Nephrops trawlers switched from single to twin rigs during 2004. They also noted that effort in the Demersal trawl category included distant water fishing by large vessels that were unavailable to Cefas observers during 2004. Also shown in table 2.2.ii are the numbers of days absent from port by vessels < 10 m LOA during 2004. The data indicate that potting and trapping, followed by Nephrops trawling, and netting were the most actively used gears amongst these smaller vessels. More days were recorded spent at sea for potting, netting, and lining by vessels < 10 m than by vessels ≥ 10 m while nearly as much Nephrops trawling was carried out by vessels < 10 m than by vessels ≥ 10 m.

Figure 2.2.i shows the distribution of fishing effort for vessels ≥ 10 m LOA by landing port and gear along the NE coast in 2004 measured as days absent from port. The more northerly ports, from Hartlepool to Seahouses were mainly engaged in Nephrops trawling on the nearby grounds. Demersal trawling was relatively unimportant except at Whitby and Scarborough. Potting was important at Bridlington. Fixed nets and beam trawling were both relatively insignificant.

Figure 2.2.ii indicates the different levels of fishing activity by vessels ≥ 10 m LOA landing to ports along the NE coast in 2004. Activity is measured by days absent from the landing port. North Shields, Whitby, Bridlington, and Grimsby had the largest numbers of full time vessels, with, for example, 18 vessels operating between 101 and 300 days at Bridlington. The same ports also had the largest numbers of vessels operating less than or equal to 10 days per year, although it should be noted that some of these would have been active vessels from other ports or regions that were merely visiting the NE.

Figure 2.2.iii shows landings of a selection of commercially important species by vessels ≥ 10 m LOA to ports in the NE region in 2003 and 2004, separated by gear group. A multiplicative (logarithmic) scale is used

to reveal the wide range of values as Kg of live weight equivalents. The landed quantities were mostly slightly up or down in 2004 compared to 2003 with no general trend apparent. The main landings of beam trawlers to the region were common shrimp, followed by plaice and sole. Demersal trawlers brought back mainly cod, haddock, whiting, and saithe, but also substantial quantities of plaice, Nephrops, lemon sole, rays, and squid. Note that much of the roundfish would have been taken by distant water trawlers operating outside UK waters. Nephrops trawlers landed Nephrops in largest quantities as expected, and other species similar to those landed by the demersal trawls but in substantially smaller quantities. Fixed netters (Figure 2.2.iii, 2nd panel) landed more cod than other species, though in much smaller quantities than the trawlers. Seiners landed large amounts of plaice, followed by lemon sole. Vessels using pots and traps landed mainly edible crab, lobsters, common shrimp (in 2003 only, and possibly a result of miscoding the species as 'CSH' instead of 'CRH' for hen crab), and cod. Vessels using dredges took primarily scallop and queen scallop (Figure 2.2.iii, 3rd panel).

Figure 2.2.iv shows the relative importance of the landings in 2004 shown in Figure 2.2.iii for vessels ≥ 10 m LOA relative to the whole fleet, i.e. including vessels < 10 m. Around 50% of the sea bass and lobster were taken by the smaller category of vessels. They also landed significant amounts of sole, Nephrops, and crab.

2.2.2 General observations

Observers' comments on the fisheries of the NE coast are here organised by ports.

2.2.2.1 Amble, Blyth, North Shields, and Hartlepool

These are the main Nephrops ports due to their location adjacent to the grounds where Nephrops are caught. Most vessels from these ports trawl for Nephrops but during slack prawn fishing some vessels may change over to a larger mesh size allowing them to target fish. From all these ports there are a number of smaller vessels, often less than 10-meters, that use pots (static gear) for crabs and lobsters year round. Some have salmon licences that they use in the summer season.

Most of the larger vessels target prawns all year round working from North Shields over the winter. Some work off north and west Scotland in the spring, or at the Silver Pits in the southern North Sea in the summer. Typically these vessels are twin- or multi-rig vessels. Local, smaller vessels exploit the prawn fishery only over winter (typically October to April). Some skippers will work out of Eyemouth

or Port Seaton in the early summer months to extend their Nephrops season. The reciprocal of this also occurs with some Scottish vessels fishing from more southerly ports during the winter, predominantly from North Shields.

Skippers of vessels remaining in their local ports and targeting fish over the summer took various approaches to the limitations imposed by the Days-at-sea regulations in 2004. [These regulations restricted the number of days a vessel may spend at sea depending upon the type of gear being used.] The choice of approach took in a number of factors including the ratio of fish to prawns in catches, the price of the fish being caught, and the number of days at sea they would gain or lose by opting for a different gear type. Some vessels continued to work 80mm to gain more days, some opted for both 80 and 120mm, and some worked only 120mm allowing them to land a higher percentage (>5% by weight) of cod. The target species for vessels trawling over the summer months were mixed – predominantly whiting catches that were limited by quota. As a result, some vessel owners had to lease quota.

Under-10m vessels typically varied their gear with season because they operated out of the home port all the year round. They worked a variety of gears not limited to, but including fixed nets, pots, lines, trawls, and gear for salmon fishing. Usually pots were targeting brown crab and lobster in the summer, while nets and lines were used to target cod in winter. A few netters targeted turbot in the summer months with reasonable success.

2.2.2.2 Whitby and Scarborough

In 2003 and 2004 most fishing vessels in these ports were in the 10 to 20 meter LOA size range. They mostly trawled for fish, targeting cod, haddock, whiting and flatfish on inshore grounds. In 2004, there was an extremely poor start to the year with many vessels not going to sea. Later in the year, a fishery for cod usually supported by the arrival of herring to spawn failed to materialise. Whiting were however seen in large numbers. Pair trawling for roundfish was taken up by several boats in 2004. A few over-10m vessels from Whitby targeted Nephrops all year round. Others fished the three main 'hot spot' fisheries: one being the summer nephrops fishery in the silver pits, the second being the winter Nephrops inshore fishery off Shields and Hartlepool, and the third being saithe, pollack and other fin fish in the Norwegian fishing zone in spring and early summer. Scallop dredging, once a traditional occupation for medium sized vessels in Scarborough, was not profitable in 2004 because of especially heavy dredging during 2003. Scarborough saw many vessels being sold or decommissioned in 2003 and 2004 due to,

according to one member of the fishing industry, "lack of fishing opportunities, ever tightening quotas and rules and regulations". In 2005 there were only three 18m LOA and two 15m LOA trawlers in Scarborough. This led to less fish being landed and the infra-structure ashore suffering.

The under 10m fleet in 2004 could be split into two groups: vessels that worked static gear, and trawlers. The main static gears worked were pots for crabs and lobster, nets for cod and sole, and lines used in winter for cod. These vessels accounted for a large proportion of the shellfish landed locally. Many vessels were working around 400 pots, hauling 250 each day. Some of the larger <10m vessels were working up to 1200 pots, hauling 400 to 800 pots each day. Some vessels joined a producer's organisation (PO) allowing them access to over-10m quotas. These were mainly used for the winter cod fishery. The under 10 m trawlers fished local inshore grounds mostly during daytime. Fishing methods varied. Numbers of these vessels dropped to 4 in Scarborough by the end of 2004.

2.2.2.3 Bridlington

By 2004, most of the fleet based at Bridlington had changed to working pots year round, targeting brown crabs, lobsters and whelks. There were around 50 vessels ranging from under 10m to 18 m LOA. Fishing trips tended to be up to 3 days and up to 60 miles offshore. Some of these vessels had up to 2000 crab pots as well as numerous whelk pots. This vast area of pots made a non-mandatory no-trawling zone east of Bridlington to 30 miles offshore and south to Cromer. Only on occasions of extremely poor potting did some vessels change over to trawling. The last four dedicated Bridlington trawlers moved to Scarborough some years before 2004. Some smaller vessels in Bridlington fished with nets and lines on the winter cod fishery. Also, bass fishing with static nets close inshore was successful for some. Sea trout were taken as a by-catch.

2.2.2.4 Hull and Grimsby

Hull can be called home to only one fishing company with four distant water trawlers in 2004, ranging from 40 up to 70 m LOA. Two were capable of freezing and two were dedicated fresh fish vessels. This fleet could fish most of the north eastern hemisphere including off Greenland, Iceland, Faeroe Islands, North Norway, South Norway, as well as in UK waters. The company contributed a large amount of fish to UK landings in 2004 including cod, saithe, mock halibut and red fish (Norway haddock).

Grimsby on the other hand had a quite diverse fleet of ships. During 2004, it was home to shrimp beamers, potters, netters, trawlers, and seine netters. This small fleet targeted grounds throughout the southern North Sea. When fishing was poor some netters and potters moved

round to fish in the Channel. The three main trawlers usually fished for flatfish but on occasions switched to prawns or fishing in the Norwegian zone. Over the several years prior to 2004, Grimsby and Hull saw the sale and decommissioning of many vessels.

Table 2.2.i. NE Region, 2003. Four measures of commercial fishing effort for vessels $\geq 10\text{m}$ LOA landing to ports between Berwick and Grimsby. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Beam trawl	12	404	685	5603
2003	Demersal trawl	87	3226	6711	75048
2003	Dredge	10	254	412	3420
2003	Drift and fixed nets	12	352	357	-
2003	Gears using hooks	3	8	40	1572
2003	Nephrops trawl	64	4066	4823	37927
2003	Pots and traps	53	4957	6252	3208595
2003	Seine	7	75	582	6745

Table 2.2.ii. NE Region, 2004. Four measures of commercial fishing effort for English and Welsh registered vessels $\geq 10\text{m}$ LOA landing to ports between Berwick and Grimsby. Also shown (in brackets) are days absent for vessels $< 10\text{m}$ LOA. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2004	Beam trawl	9	266	482(0)	4218
2004	Demersal trawl	64	2149	5233(264)	58864
2004	Dredge	7	92	211(37)	1319
2004	Drift and fixed nets	10	292	329(561)	-
2004	Gears using hooks	2	3	8(214)	2250
2004	Nephrops trawl	47	3234	3853(2316)	29312
2004	Pots and traps	50	4530	6121(7563)	3189867
2004	Seine	6	41	436(0)	4447

Figure 2.2.i. NE Region, 2004. Days absent from port by commercial vessels $\geq 10m$ LOA fishing the main gear types and landing to the ports shown. Source: Defra FAD.

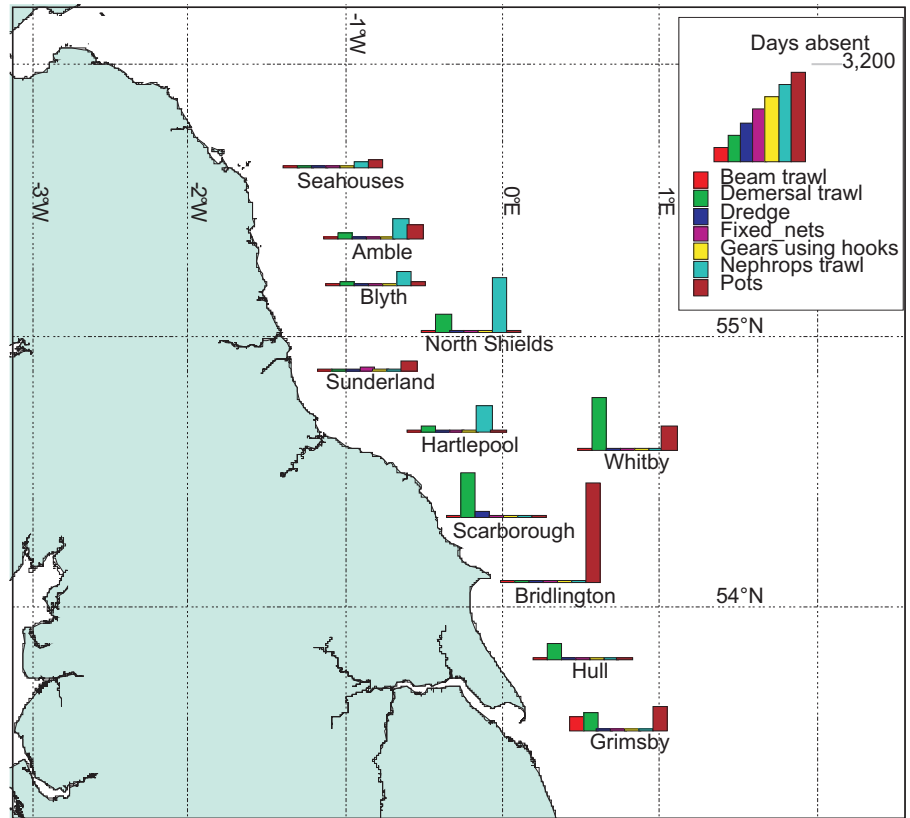
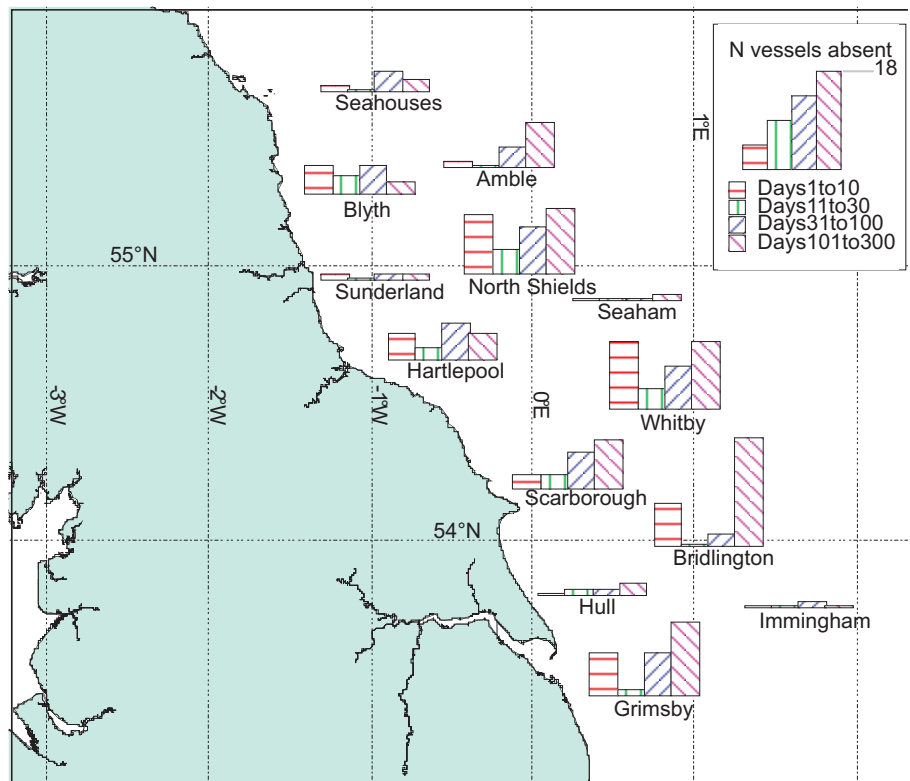


Figure 2.2.ii. NE Region, 2004. Numbers of vessels $\geq 10m$ LOA with different levels of fishing activity measured by Days absent from landing port. Source: Defra FAD.



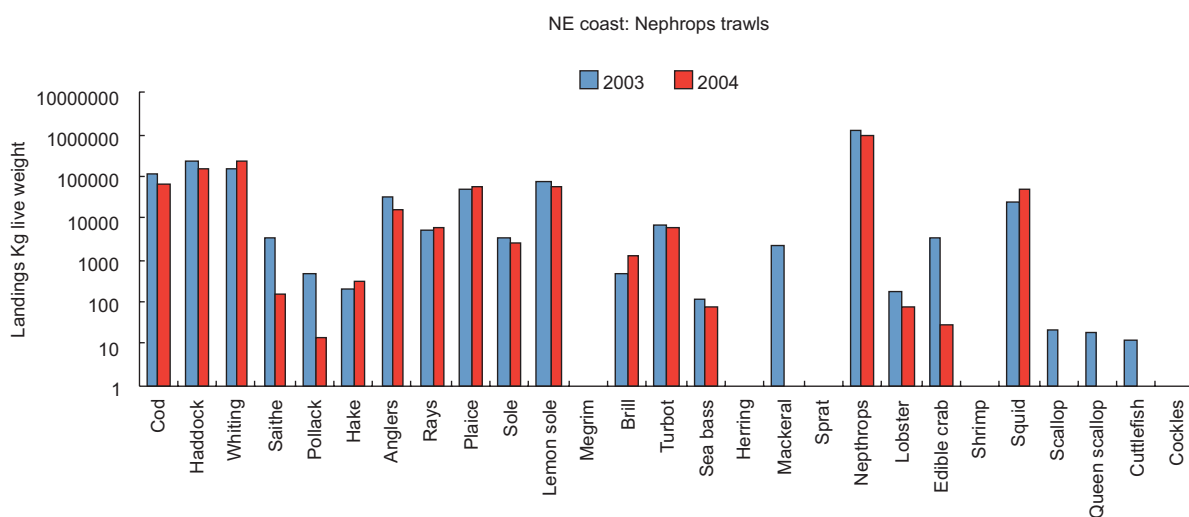
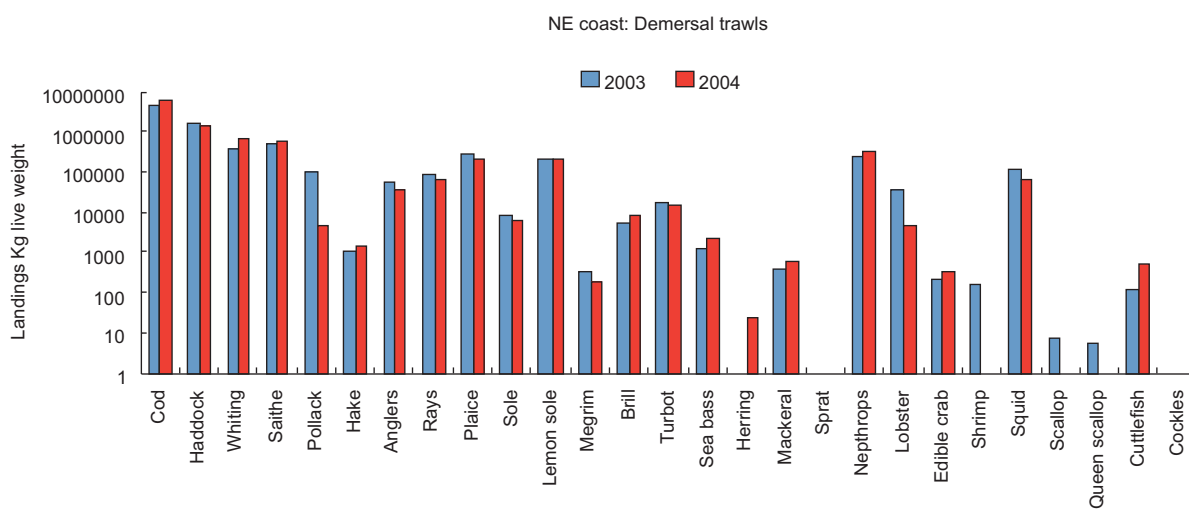
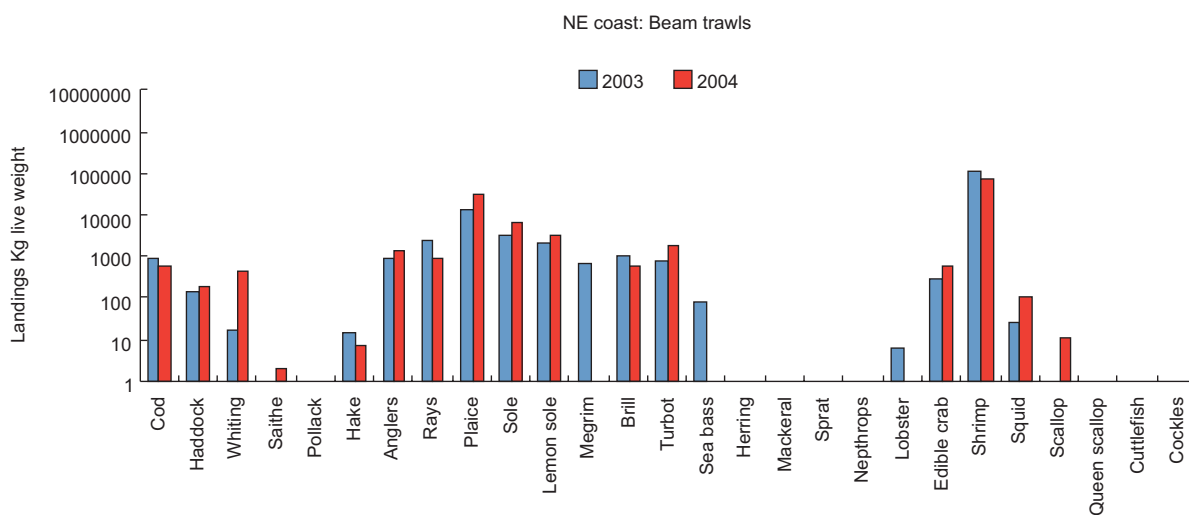


Figure 2.2.iii. 1st panel. NE Region, 2003, 2004; vessels ≥ 10m LOA. Landings of selected commercial species as live weight equivalents by gear group. Note multiplicative vertical scale. Source: Defra FAD.

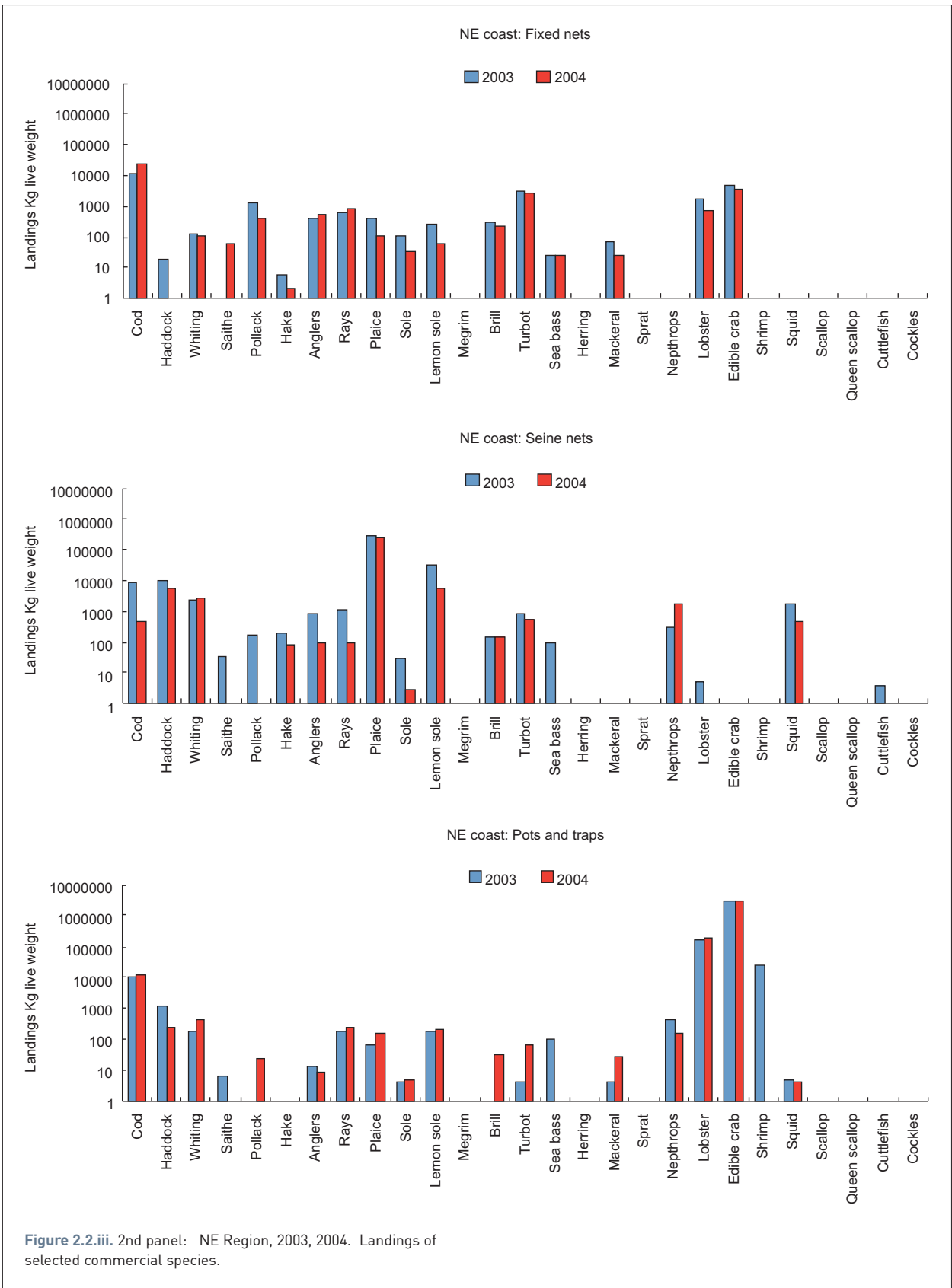
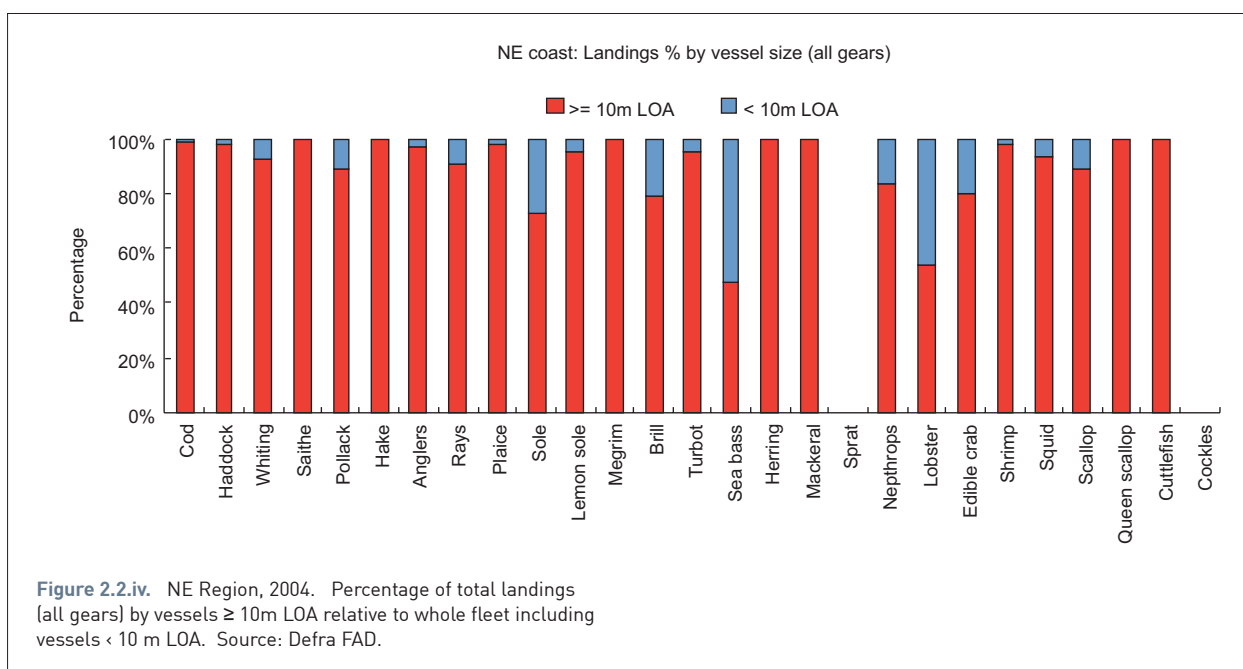
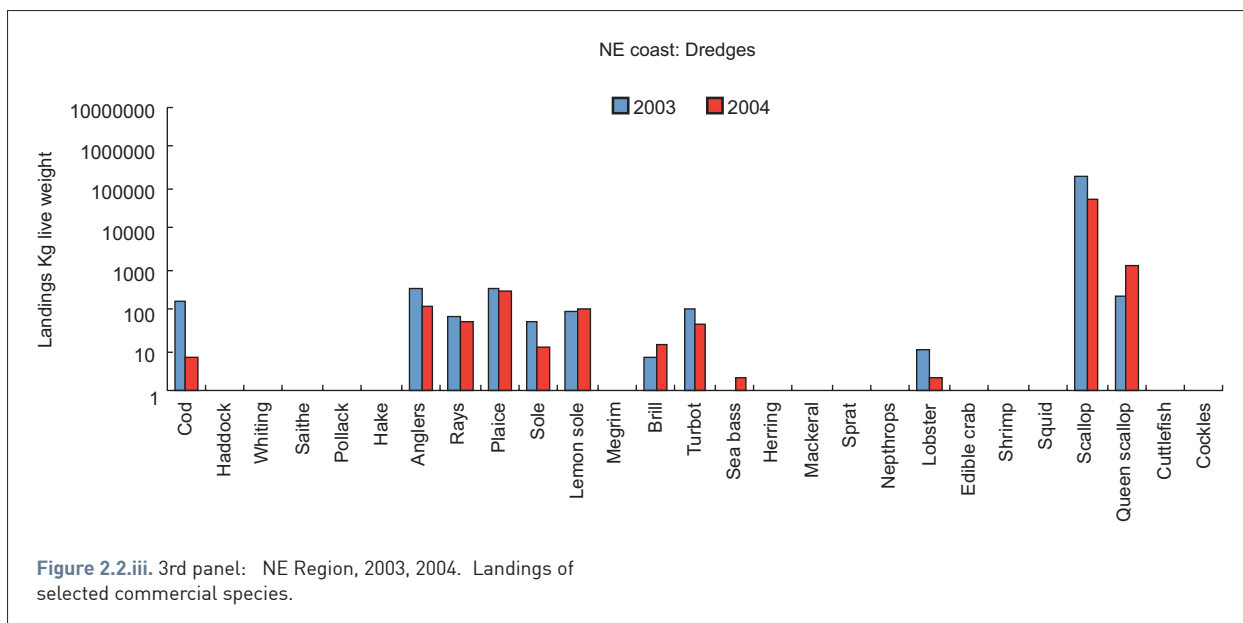


Figure 2.2.iii. 2nd panel: NE Region, 2003, 2004. Landings of selected commercial species.



2.3. Observer programme

2.3.1 Observer effort

A summary of observer activity from ports between Berwick and Grimsby is given in table 2.3.1.i. Observer effort is compared with actual effort by the ≥ 10m LOA fleet in table 2.3.1.ii. None of the 266 beam trawl trips was observed. Most of these trips landed to Grimsby, see Figure 2.2.i, and many would have been vessels targeting shrimp in the Humber estuary. Otter and other demersal trawlers, Nephrops trawlers, and fixed nets were observed at the rate of approximately 1% of fishing effort for each of three measures: trips made, days absent (at sea), and hours fishing. This indicates that, apart from beam trawlers, uniform coverage of the main types of trawling gears was achieved in 2004. However, Cefas observers were not able to sample any distant water demersal

trawlers operating from the NE region. No observers travelled on potting trips.

The locations of observed hauls sorted by major gear groupings are shown in Figure 2.3.1.i. The Nephrops trawlers were observed at three main locations, off Amble, off Newcastle, and one further offshore. Demersal trawlers were observed off Scarborough, Bridlington, and to the south off Ipswich, as well as further offshore near Dogger Bank. Fixed nets were observed at one location off Hartlepool. With the exception of the southerly trawling, the observed fishing locations were typical of those used generally by the NE regional fleets with these gear types.

2.3.2 Summarised results

Numbers of fish discarded for the trips observed in 2004 (see table 2.3.1i) are shown for several commercial species and three gear groups in table 2.3.2.i. Also shown are the

Table 2.3.1.i. Activities of Cefas observers aboard commercial fishing vessels leaving from ports between Berwick and Grimsby on the NE coast of England during 2004.

YEAR	QUARTER	ICES DIVISION	GEAR OBSERVED	TRIPS SEA	DAYS AT FISHED	HAULS SAMPLED	HAULS OBSERVED	HOURS
2004	1	4b	Bottom pair trawl	1	4	11	8	36.58
2004	1	4b	Nephrops otter trawl	14	14	34	33	110.06
TOTAL qtr 1:				15	18	45	41	146.64
2004	2	4b	Bottom pair trawl	2	5	17	15	74.23
2004	2	4b	Nephrops otter trawl	1	1	2	2	8.00
2004	2	4b	Otter trawl (unspecified)	5	17	45	25	127.39
TOTAL qtr 2:				8	23	64	42	209.62
2004	3	4b	Bottom pair trawl	2	3	5	4	21.25
2004	3	4b	Nephrops otter trawl	3	7	15	11	61.58
2004	3	4b	Otter trawl (unspecified)	4	12	32	20	100.16
2004	3	4b	Tangle net	2	2	11	8	912.00
2004	3	4b	Trammel net	1	1	9	3	360.00
2004	3	4b	Twin Nephrops otter trawl	1	8	19	14	86.16
TOTAL qtr 3:				13	33	91	60	1541.1
2004	4	4b	Bottom pair trawl	3	5	13	13	67.17
2004	4	4b	Nephrops otter trawl	7	7	17	16	53.25
2004	4	4b	Otter trawl (unspecified)	2	5	12	9	41.00
2004	4	4b	Twin Nephrops otter trawl	1	1	2	2	8.92
2004	4	4c	Twin otter trawl	1	11	27	27	148.17
TOTAL qtr 4:				14	29	71	67	318.51
TOTAL 2004:				50	103	271	210	2215.9

Table 2.3.1.ii. Total observer effort data by gear from Table 2.3.1.i and, in brackets, equivalent percentages of fleet effort taken from Table 2.2.ii.

EFFORT MEASURE	BEAM TRAWL	DEMERSAL TRAWL	NEPHROPS TRAWL	FIXED NETS
Trips	0 (0%)	20 (0.9%)	27 (0.8%)	3 (1.0%)
Days absent	0 (0%)	62 (1.2%)	38 (1.0%)	3 (0.9%)
Hours	0 (0%)	616 (1.0%)	328 (1.1%)	NA

numbers discarded as percentages of the total numbers caught (= discarded + retained). Summarising results for 2004, large proportions of the observed catches of herring, rays, haddock and whiting were discarded by demersal trawlers. The discards of these species were also relatively numerous. Large proportions of the catches of other species were discarded but numbers were relatively low, e.g. saithe, mackerel. Observed numbers discarded by fixed nets were all low. Plaice, whiting, lemon sole, and rays were discarded at high percentage rates and in relatively large numbers by Nephrops trawlers.

Estimated weights (in Kgs live weight equivalent) of fish discarded for the trips observed in 2004 (see table 2.3.1ii) are shown for several commercial species and three gear groups in table 2.3.2.ii. The proportions discarded by weight are generally lower than those relating to numbers of fish because most discarded fish are small. The picture of discarding given by estimated weights is similar to that given in terms of numbers in table 2.3.2.i.

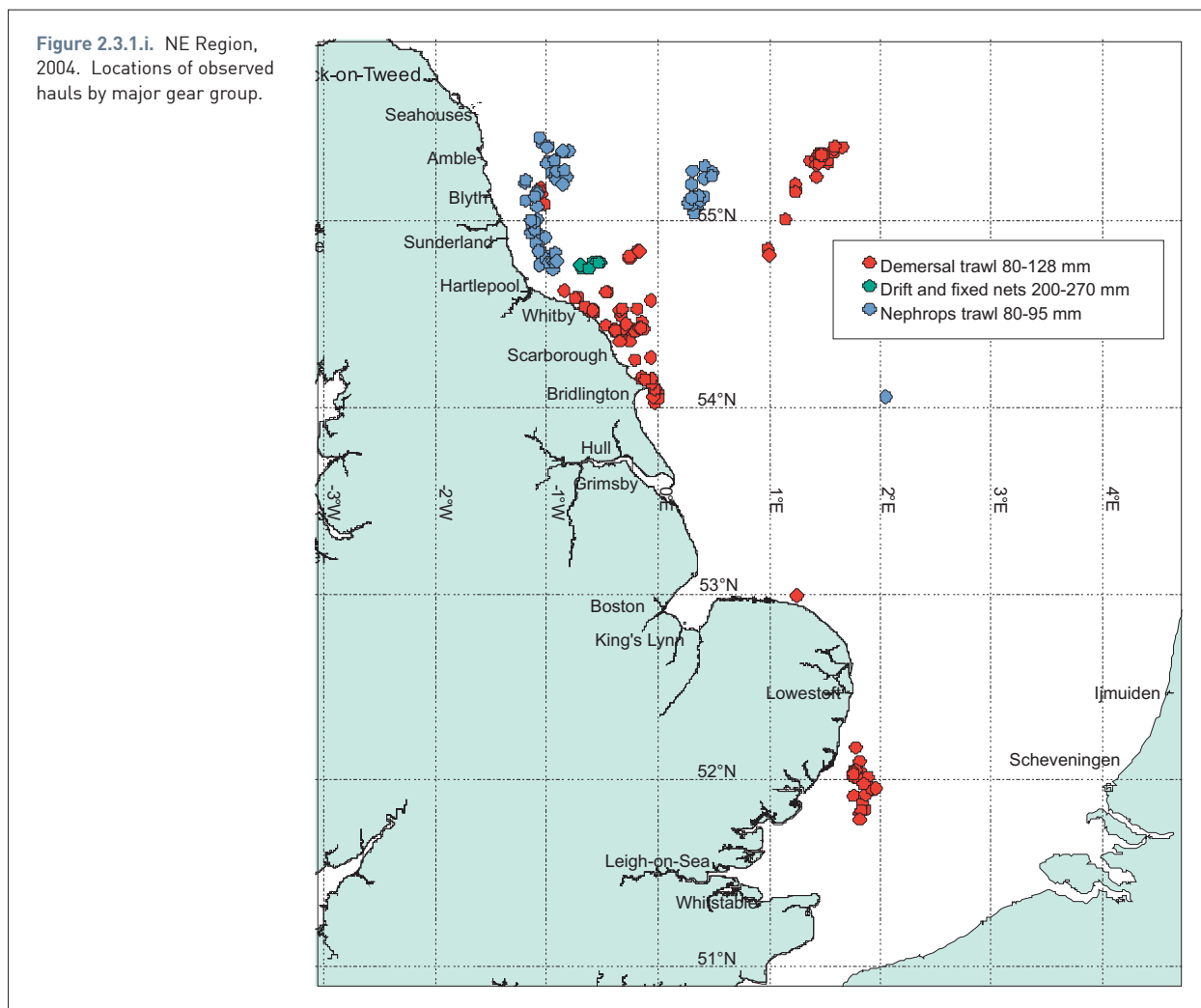


Table 2.3.2.i. NE region, 2004: Discards as numbers of fish and, in brackets, as percentages of numbers caught by species and gear group as estimated for the observed trips referred to in Table 2.3.1ii.

SPECIES	2004		
	DEMERSAL TRAWL	FIXED NETS	NEPHROPS TRAWL
Cod	8830 (29%)	6 (50%)	653 (37%)
Haddock	10341 (44%)	1 (100%)	1103 (22%)
Whiting	39650 (42%)	2 (100%)	40773 (67%)
Plaice	6791 (28%)	0 (0%)	2928 (48%)
Sole	4 (1%)	0 (0%)	31 (8%)
Lemon sole	3176 (15%)	0 (0%)	4003 (73%)
Rays	7564 (74%)	9 (82%)	1180 (96%)
Nephrops	28 (1%)	0 (0%)	60329 (16%)
Monk	26 (18%)	5 (42%)	13 (8%)
Herring	1119 (84%)	0 (0%)	507 (74%)
Mackerel	151 (67%)	0 (0%)	0 (0%)
Common shrimp	0 (0%)	0 (0%)	0 (0%)
Saithe	81 (50%)	1 (100%)	8 (88%)
Squid	223 (12%)	0 (0%)	194 (57%)

Table 2.3.2.ii. NE region, 2004: weights (in Kgs) of fish discarded by species and gear group as estimated for the observed trips referred to in Table 2.3.1ii. Discards as percentages of weights caught are shown in brackets.

SPECIES	DEMERSAL TRAWL	FIXED NETS	NEPHROPS TRAWL
Cod	2614 (10%)	6 (40%)	174 (15%)
Haddock	3278 (31%)	1 (100%)	286 (13%)
Whiting	6834 (32%)	1 (100%)	6924 (60%)
Plaice	1277 (18%)	0 (0%)	425 (32%)
Sole	0 (0%)	0 (0%)	4 (5%)
Lemon sole	459 (8%)	0 (0%)	538 (57%)
Rays	3297 (46%)	4 (62%)	370 (89%)
Nephrops	<1 (1%)	0 (0%)	<1 (7%)
Monk	6 (3%)	5 (23%)	1 (0%)
Herring	183 (82%)	0 (0%)	80 (72%)
Mackerel	58 (67%)	0 (0%)	0 (0%)
Saithe	35 (36%)	2 (100%)	1 (42%)

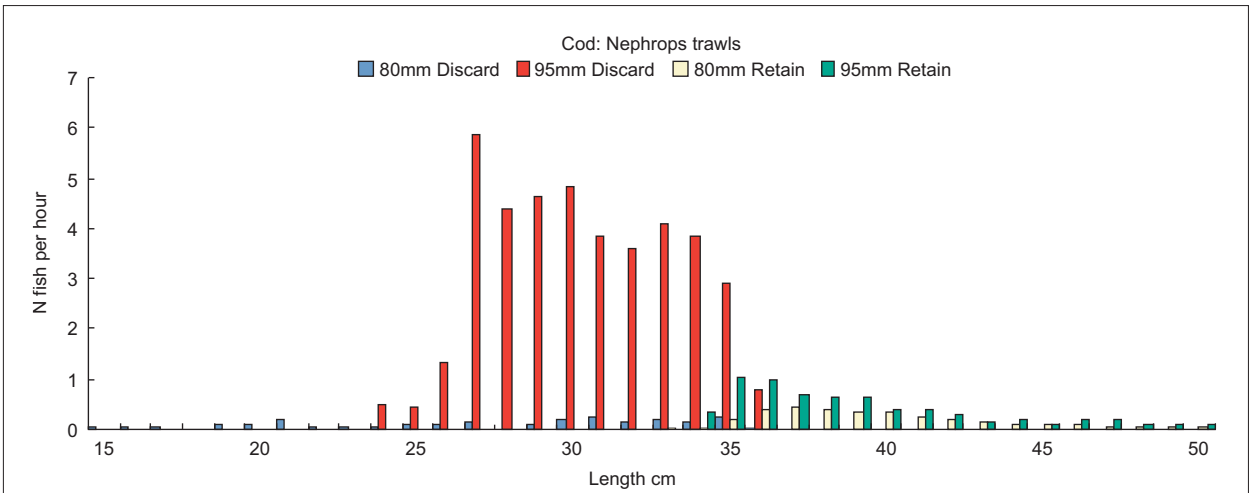


Figure 2.3.3.i. NE region. Cod discarding by Nephrops trawlers of two types having codend mesh of two sizes. 28 trips were observed on 80 mm otter trawlers, and 2 trips on 95 mm twin trawlers.

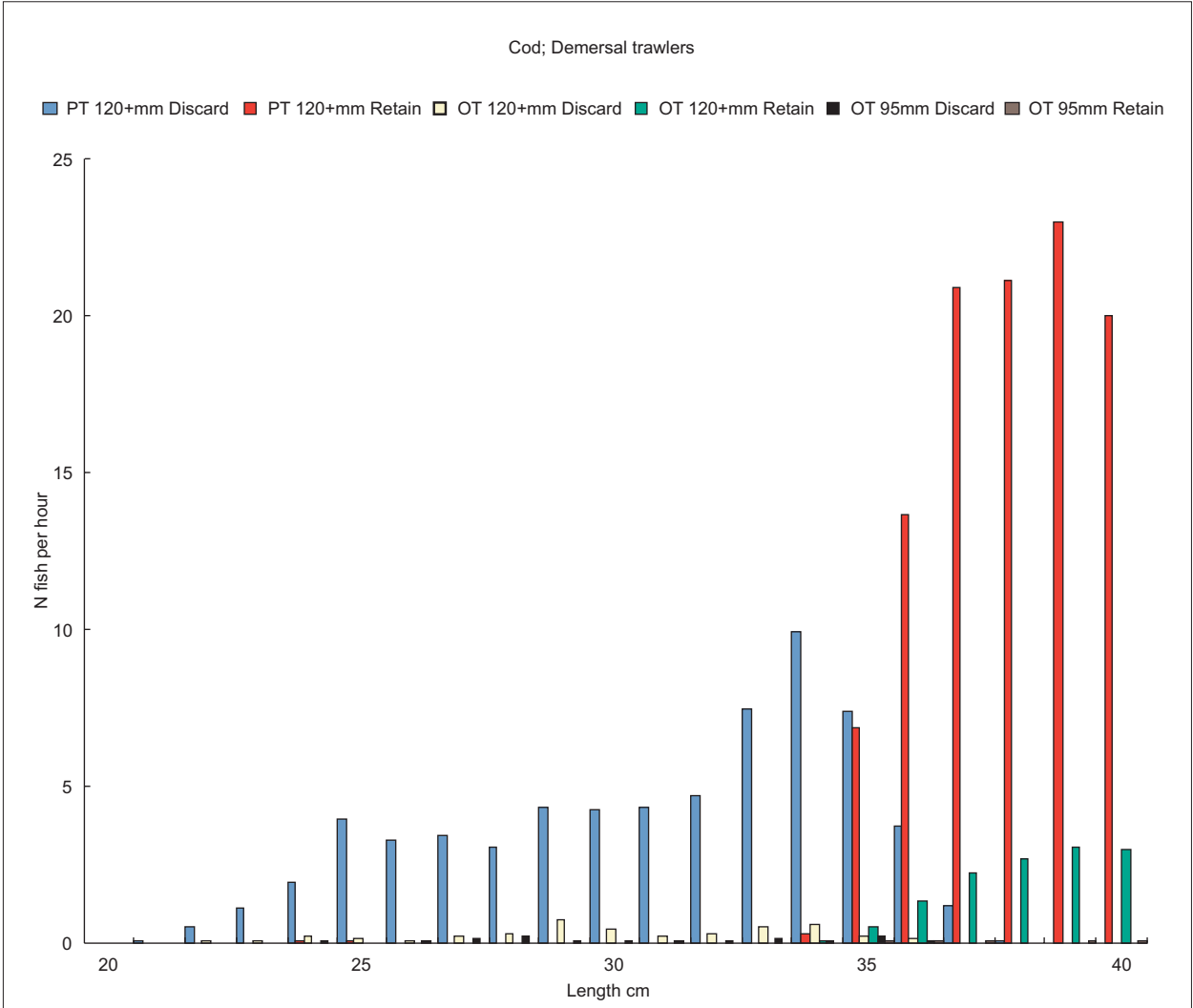


Figure 2.3.3.ii. NE region. Cod discarding by demersal trawlers of three types having codend mesh of two sizes. 8 trips were observed on 120-128 mm pair trawlers (PT), 3 trips on 120 mm otter trawlers (OT), and 2 trips on 95mm otter trawlers targeting plaice and lemon sole.

2.3.3 Factors affecting discarding

In the trawl fisheries market price is most likely to affect the discarding of whiting, particularly when targetting other species (e.g. cod, nephrops).

Discarding of non-commercial species, e.g. gurnards, dabs, long rough dabs, is reduced if they are kept for baiting shellfish pots. The quantities are not well known because bait will generally not go on the market.

Discarding in the Nephrops fishery varied significantly between vessels. One of the most important factors was whether the prawns were tailed, and if so, whether this was done at sea or in port. At North shields especially, many smaller vessels working day trips will retain all the Nephrops and sort into several grades at sea. The remaining smallest Nephrops are then kept for 'tailers', people who work whilst the vessel is tied up overnight. They tail any remaining, reasonably sized individuals in time for the market the following day. On such vessels all Nephrops are considered as retained as far as the discard project is concerned. On the other hand, vessels on which Nephrops are tailed at sea discard any individuals under a commercially viable minimum size (greater than the legal minimum size). This size depends on the person sorting and the time available to process the catch, as well as market prices.

Observers estimated length frequency distributions for most species. Two examples are illustrated here:

Figure 2.3.3.i shows discarding and retention of cod per hour observed on Nephrops trawlers of two types having codend mesh of two sizes. 28 trips were observed on 80 mm otter trawlers, and 2 on 95 mm twin trawlers. In all cases, the nets were fitted with 90 mm square mesh panels above and in front of the codend to allow escape of some white fish. Discarding of undersized (35 mm MLS) cod per hour of trawling was substantially higher on the twin trawlers, despite the larger mesh in the codends.

Figure 2.3.3.ii shows discarding and retention of cod per hour on demersal trawlers. 8 trips were observed on pair trawlers towing codends of 120 to 128 mm mesh codends, 3 trips were on otter trawlers also with 120 mm codends, and 2 trips were on otter trawlers targetting plaice and lemon sole with 95 mm codends (plus a 90 mm square mesh panel). The much greater catch rates of the pair trawlers can be seen both for discarded and retained fish. The flatfish trawler towing 95 mm caught negligible numbers of cod. Season and the grounds where tows were made would also have been relevant to the observed catch rates but, without attempting a detailed analysis here, it may be concluded that the effects of mesh size on catch rate are likely to depend on the type of fishing technique.

2.4 Fishing industry views

In general, most in the fishing industry in the NE region were happy to host Cefas observers on board. Only one large trawling company consistently refused to take them.

Common views were that the government was not supporting the fishing industry adequately, and that the management system for the North Sea was not working for the benefit of the industry. Some felt that quota should be re-assessed, whilst others felt that they could be abandoned in favour of controls on days at sea and mesh sizes together with closed areas for nursery grounds.

Mixed views were heard on twin rigging in the Nephrops fishery. Several skippers of smaller vessels saw it as too efficient and blamed larger vessels for damaging the stocks. The opposite view was that larger vessels typically fish more selectively, e.g. with larger mesh, and claim that they are not taking and tailing large quantities of small Nephrops.

Several skippers mentioned the following points about fishery regulations:

- Many under-10m boats were sufficiently powerful to tow the same size of gear as is used by 10-12m boats and with far fewer regulations.
- Effort restrictions in 2004 often stopped trawlers working bigger mesh cod ends because, by not doing so, they gained more days at sea.
- The one-net rule (i.e. a restriction to one type of net on board) reduced the flexibility of fishing operations, for example fishing for fish in the afternoon, and for Nephrops in the morning without returning to harbour. This was exacerbated for boats in tidal harbours, which could not always return to port to change gear.

2.5 Points of biological interest

One observer confirmed that Nephrops catches are highly variable and generally bigger at times of little tidal water movement, and following periods of settled weather. Females seemed to be caught less regularly and were smaller.

More squid were seen on prawn grounds in 2004 than in previous years, according to some skippers.

2.6 Points of fishery interest

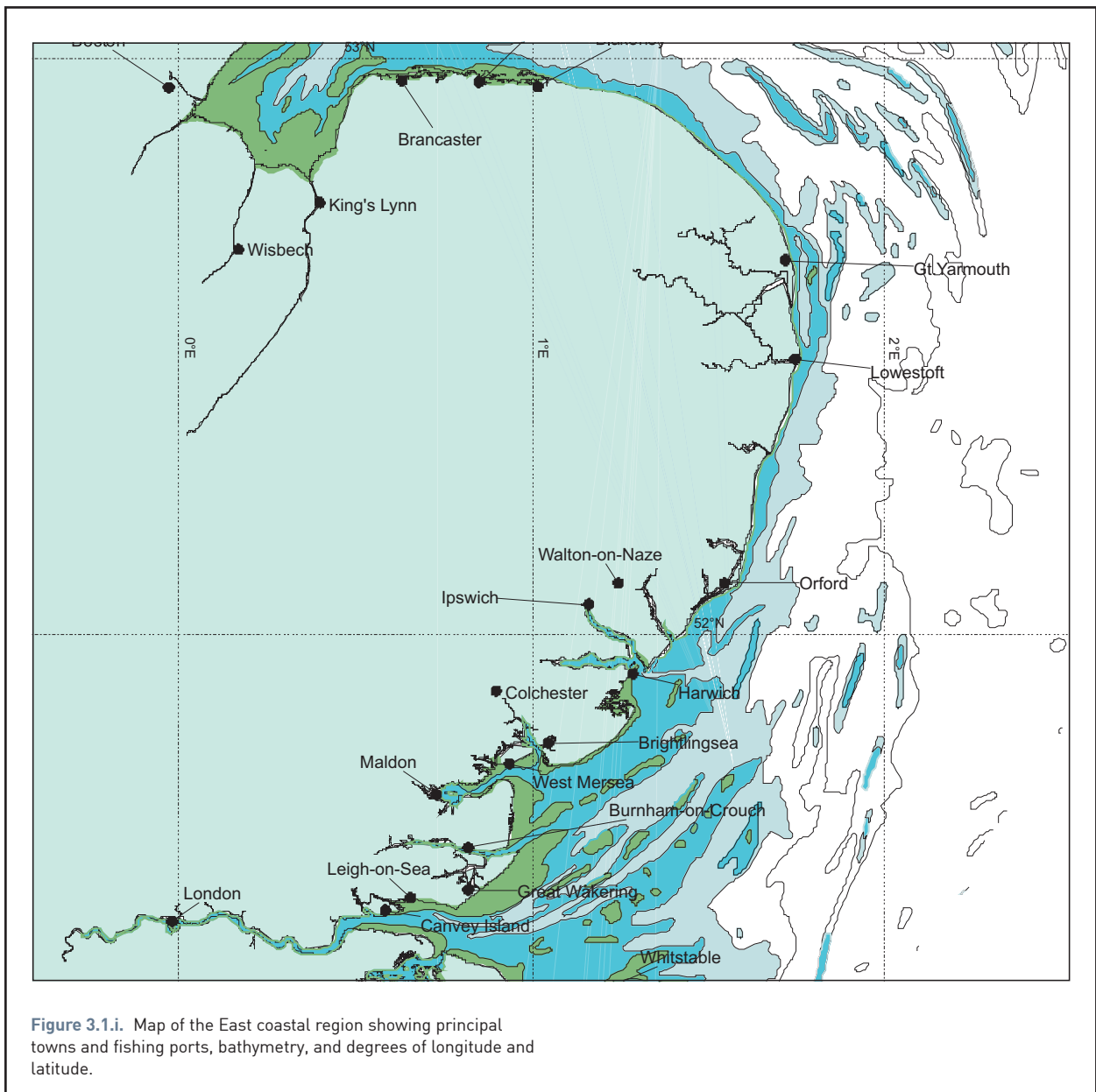
Nephrops fishing was generally said to have been good in 2004 – ie 'a good size of prawns'

3. East Region

3.1 Introduction

The eastern region includes all ports from Boston to Leigh-on-Sea. A map of the region showing the principal towns, fishing ports, and bathymetry is given in Figure 3.1.i. The most active ports during 2004 were King's Lynn, Lowestoft and Leigh-on-Sea. Between 3000 and 8000 tonnes were landed at each of these. Less than 500 tonnes were landed at each of the other ports in the region.

The eastern regional demersal fleet was dominated by small boats < 10 m LOA except at King's Lynn where they were mostly larger, targeting shellfish, shrimps, and prawns. These larger vessels tended to vary their fishing practices according to time of year and availability of species. Lowestoft ceased to have an offshore fleet when the last of the Colne beam trawlers was sold off or moved to work from Holland, and in 2004 the remaining fleet was made up of small vessels of 10m or less. Leigh-on-Sea was the largest trader in fish and shellfish in the



area, processing more than 7000 tonnes. Pelagic trawlers landed substantial quantities of sprat to various ports in the eastern region in January, February, and December. Dredging for cockles and scallops, netting, lining and potting also took place.

3.2 Effort and landings

3.2.1 Defra FAD statistics

Tables 3.2.i and 3.2.ii show official Defra data for four measures of commercial fishing effort for vessels of ≥ 10 m LOA landing to ports along the east coast for 2003 and 2004 respectively. Comparison of the two years shows that fishing effort decreased slightly in all gear groups except for pelagic trawling for which the number of trips increased by about 53%. Also shown in table 3.2.ii are the numbers of days absent from port by vessels < 10 m LOA during 2004. The data indicate that potting and trapping, followed by netting, lining, demersal trawling, and dredging were the most actively used gears amongst these smaller vessels. Furthermore, vessels using all these gears spent more days at sea than vessels ≥ 10 m LOA in 2004.

Figure 3.2.i shows the distribution of fishing effort by landing port along the East coast in 2004 measured as days absent from port by vessels ≥ 10 m LOA. The plotted values are also stated here because many are relatively small in the figure. Beam trawlers from Kings Lynn were most active with 1475 days at sea. Beam trawling also occurred from Boston and Lowestoft, both less than 300 days. Demersal trawling was most active from Leigh-on-Sea (426 days), followed by West Mersea (309 days), Lowestoft, Great Wakering, and Canvey Island, the last three all being less than 200 days. Dredging, mainly for cockles, was most active from Leigh-on-Sea (232 days). Fixed nets were fished from Walton-on-the-Naze and Lowestoft, with 148 and 105 days respectively. 157 days of long-lining took place from Lowestoft. Pelagic trawlers mainly landed to Harwich (91 days) and Leigh-on-Sea (73 days). Pots and traps were most actively fished from Blakeney (152 days), and Wells-next-the-Sea (127 days) where edible crabs were the principal target. Other potting took place from Harwich and Walton.

Figure 3.2.ii indicates the different levels of fishing activity by vessels ≥ 10 m LOA landing to ports along the E coast in 2004. Activity is measured by days absent from the landing port. Full time vessels operating from 101 to 300 days per year were most numerous at King's Lynn, Boston, and Lowestoft. King's Lynn had the largest numbers of vessels operating from 31 to 100 days per year. Other ports were dominated by nearly inactive or

part-time fishing vessels, operating less than 30 days per year. Lowestoft in particular had the most vessels that were virtually inactive, i.e. operating less than 10 days per year. However, some of these apparently inactive vessels may have been visitors from other regions.

Figure 3.2.iii shows landings by vessels ≥ 10 m LOA of several commercially important species to ports in the East region in 2003 and 2004, separated by gear group. A multiplicative (logarithmic) scale is used to reveal the wide range of values as Kg of live weight equivalents. The landed quantities were mostly slightly up or down in 2004 compared to 2003 with no general trend apparent. The main landings of beam trawlers in the region were brown and pink shrimp, followed by rays, plaice and sole. Demersal trawlers brought back mainly rays, sole, and plaice. Cod was the fourth most important species but landings declined in 2004. Dredgers were occupied with cockles and scallops. Fixed netters landed more cod than other species, and landed more of that species than demersal trawlers. Vessels using lines and hooks depended mainly on rays but also took more cod than demersal trawlers. Vessels using pots and traps landed edible crab, lobsters and, in 2003, common shrimp.

Figure 3.2.iv shows the relative importance of the landings in 2004 shown in Figure 3.2.iii for vessels ≥ 10 m LOA relative to the whole fleet, i.e. including vessels < 10 m. For most species, the smaller vessels were landing the most fish.

3.2.2 General observations

Beam trawlers: Following the removal of the offshore beam trawl fleet based at Lowestoft, most beam trawl effort was carried out by small inshore boats. They targeted Dover sole, thornback ray, and plaice with 80 mm mesh codends, or shrimps and prawns with 22 mm. These fisheries occupied most of the year but in late spring nearly all vessels switched to cockle dredging for approximately a six-week period when the market was strong.

Otter trawlers: The fleet was diverse and opportunistic in the eastern region in 2004. Sprat were targeted by some vessels, whilst trawlers in and around the Thames estuary targeted Dover sole during the spring and summer. The aim was top quality fish so the trips were short, generally less than 36 hours, and so were the tows, generally less than 1 hour to prevent damage in the net. During the winter months these vessels used to target cod but, in 2003 and 2004, the sole stayed longer and in numbers in the estuary whilst cod were quite scarce. Sole were therefore fished further into winter. Thornback ray was also a popular target species in 2004.

Table 3.2.i. East Region, 2003. Four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports between Boston and Leigh-on-Sea. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Beam trawl	49	1764	2637	17801
2003	Demersal trawl	24	1015	1465	9243
2003	Dredge	10	214	266	100
2003	Fixed nets	9	189	289	-
2003	Gears using hooks	7	211	240	258945
2003	Pelagic trawl	5	127	127	395
2003	Pots and traps	11	412	434	89066

Table 3.2.ii. East Region, 2004. Four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports between Boston and Leigh-on-Sea. Also shown (in brackets) are days absent for vessels < 10 m LOA. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2004	Beam trawl	41	1447	1987(468)	3028
2004	Demersal trawl	23	914	1332(1671)	8210
2004	Dredge	5	184	313(916)	87
2004	Fixed nets	7	170	256(2082)	-
2004	Gears using hooks	3	182	246(2010)	249363
2004	Pelagic trawl	7	194	198(0)	485
2004	Pots and traps	12	411	417(5308)	69138
2004	Seine	1	1	2(0)	5

Figure 3.2.i. East Region, 2004. Days absent from port by commercial vessels ≥ 10 m LOA fishing the main gear types and landing to the ports shown. Source: Defra FAD.

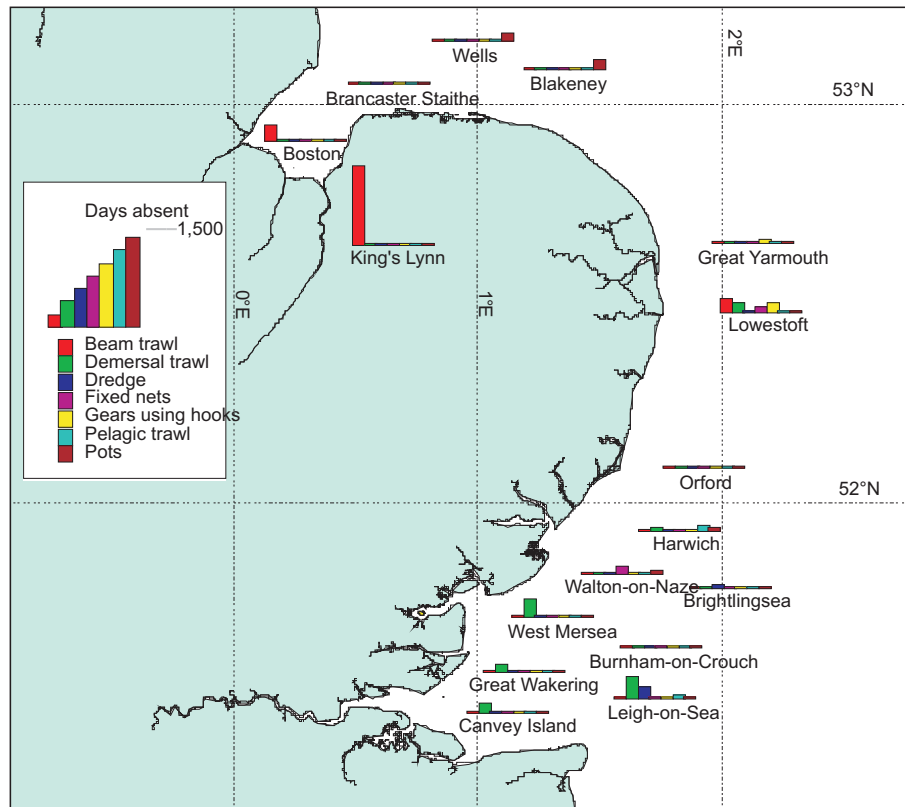
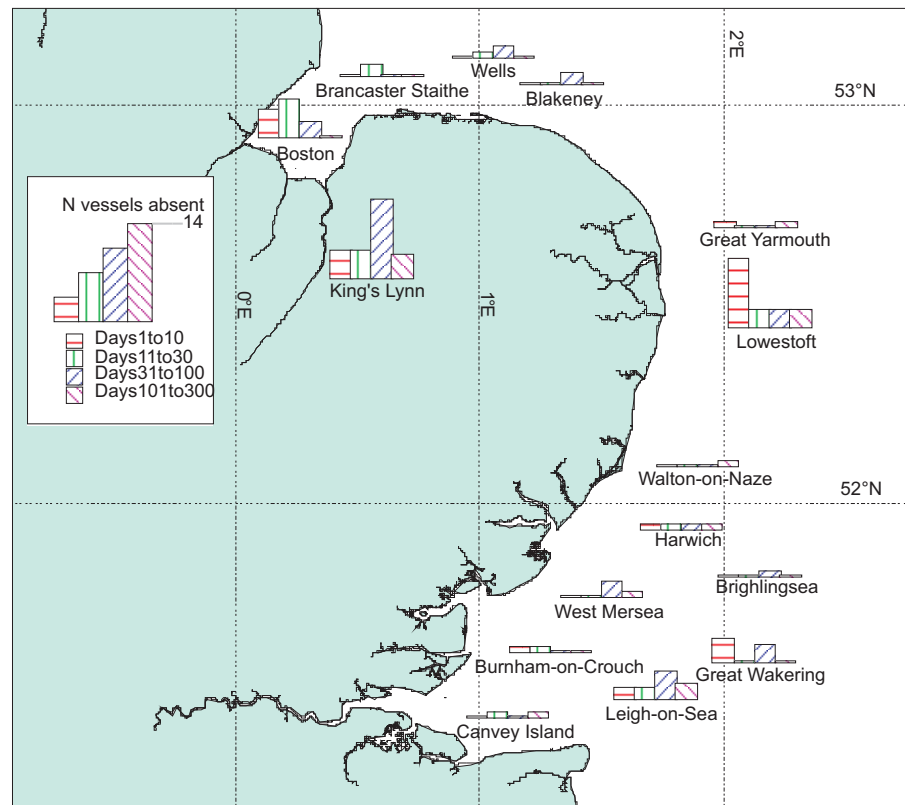


Figure 3.2.ii. East Region, 2004. Numbers of vessels ≥ 10 m LOA with different levels of fishing activity measured by Days absent from landing port. Source: Defra FAD.



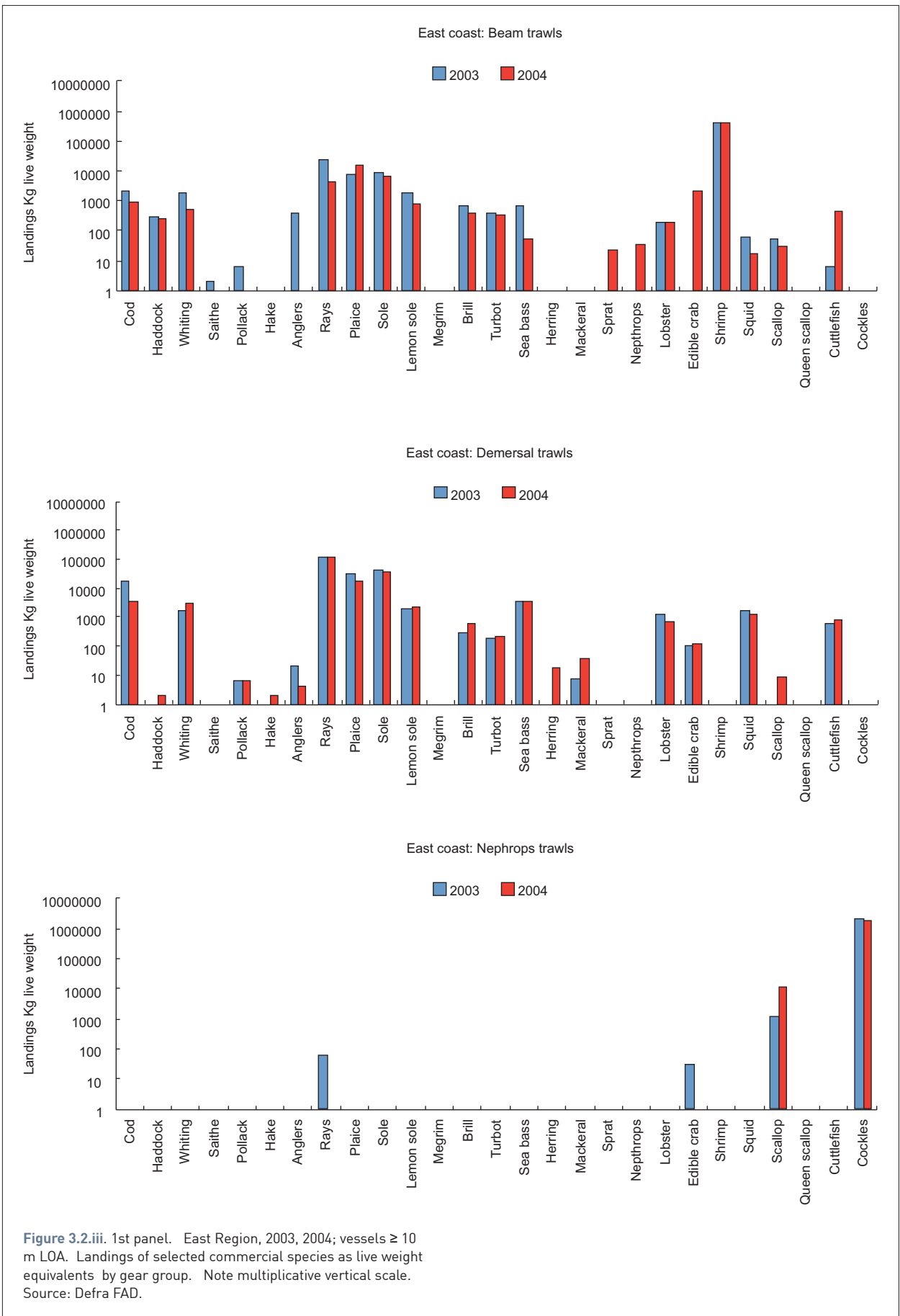


Figure 3.2.iii. 1st panel. East Region, 2003, 2004; vessels ≥ 10 m LOA. Landings of selected commercial species as live weight equivalents by gear group. Note multiplicative vertical scale. Source: Defra FAD.

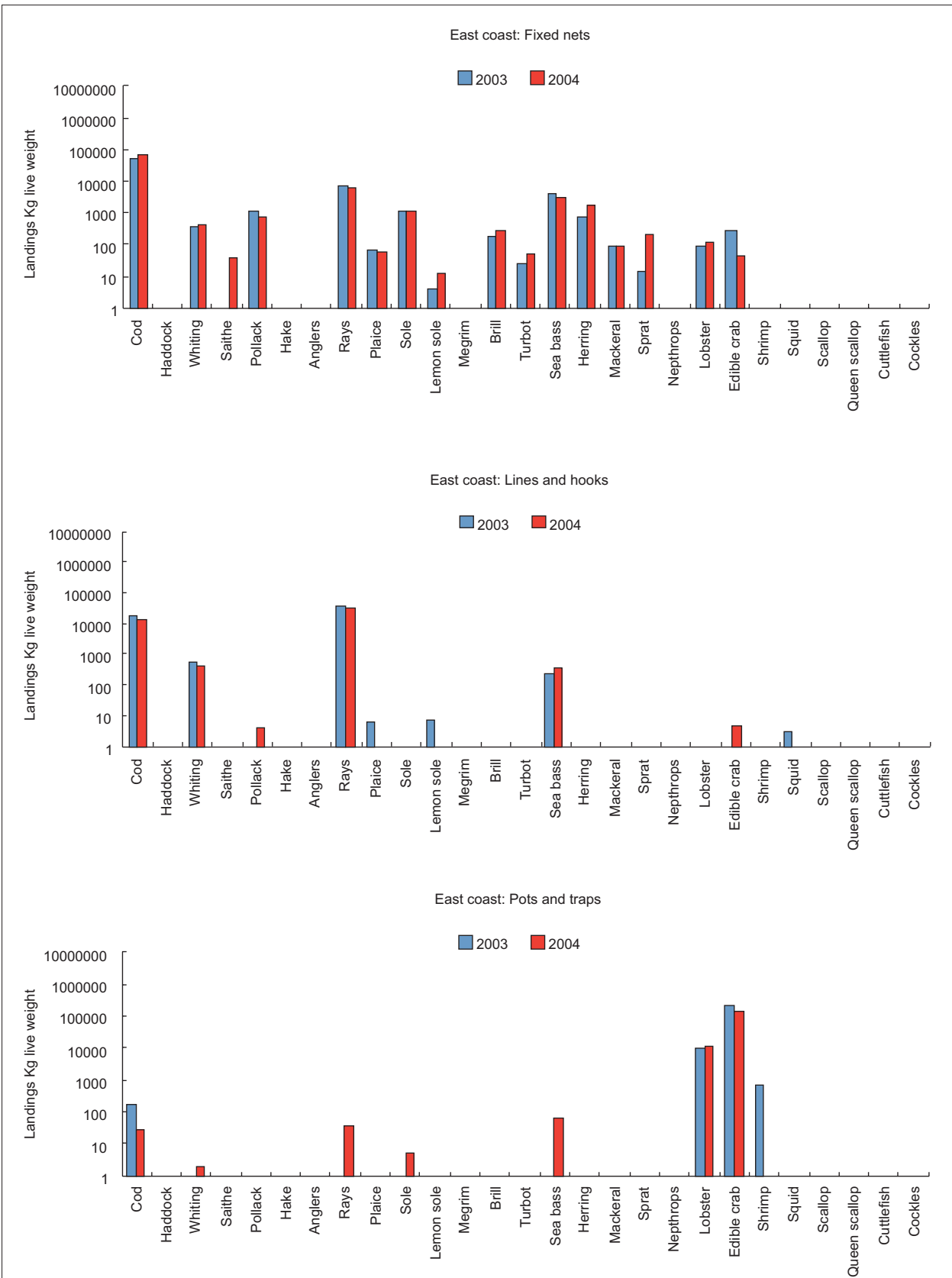


Figure 3.2.iii. 2nd panel. East Region, 2003, 2004. Landings of selected commercial species

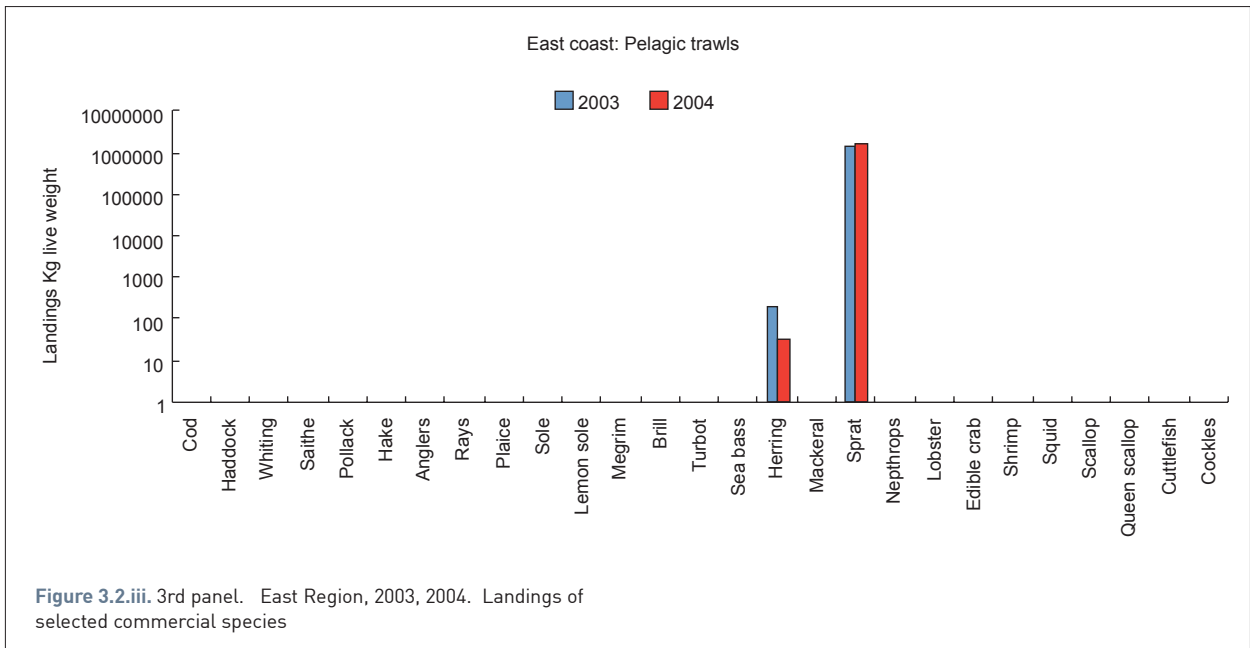


Figure 3.2.iii. 3rd panel. East Region, 2003, 2004. Landings of selected commercial species

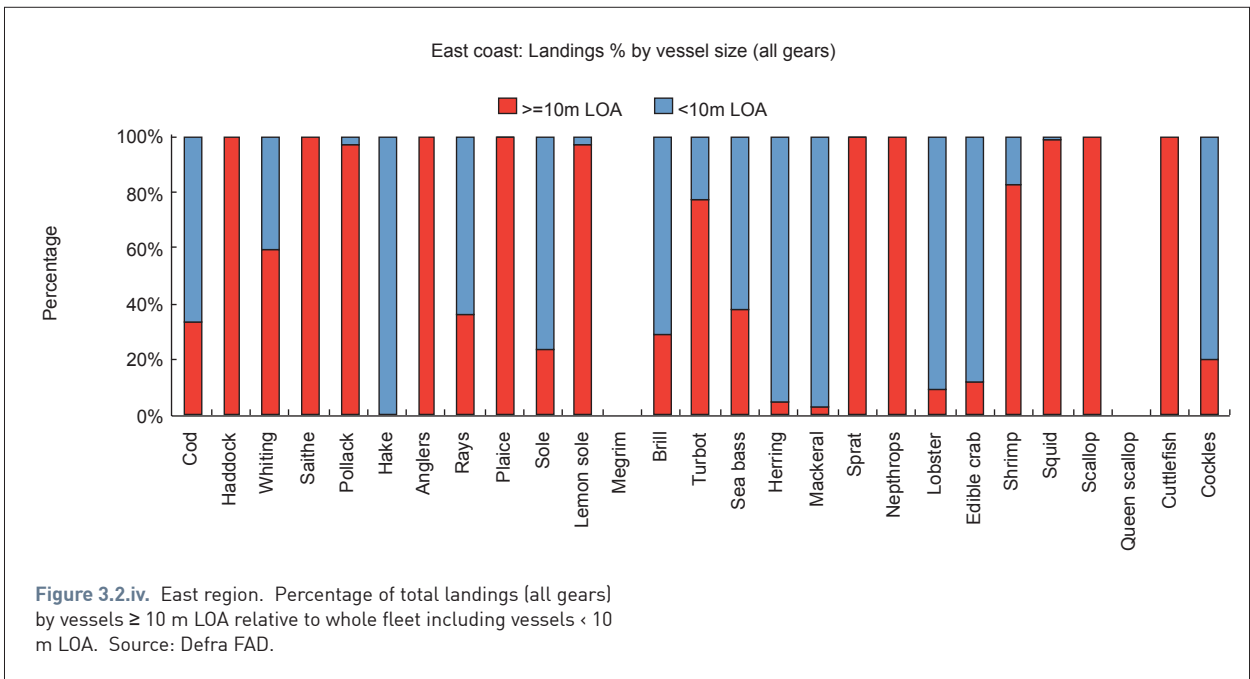


Figure 3.2.iv. East region. Percentage of total landings (all gears) by vessels ≥ 10 m LOA relative to whole fleet including vessels < 10 m LOA. Source: Defra FAD.

3.3. Observer programme

3.3.1 Observer effort

In 2004, a total of 10 trips on nine boats was observed by Cefas. These included single, twin, and triple rigged otter trawlers, and beam trawlers fishing 80mm for flatfish and 22mm for shrimp.

A summary of observer activity from ports between Boston and Leigh-on-Sea is given in table 3.3.1.i. Observer effort is compared with actual effort by the over-10 m fleet in table 3.3.1.ii for trips made, days absent (at sea), and hours fishing. Beam trawlers were observed between 0.4 and 1.2% of fleet effort depending on the measure of effort referred to. Demersal trawlers were observed between 0.4 and 0.8%. Long-liners and netters were not observed during 2004 due to the small size of these boats and/or the irregularity of fishing. Dredgers and potters

were also not observed. Pelagic trawlers catching sprat were not observed because they are believed to discard few or no fish.

The locations of observed hauls sorted by major gear groupings are shown in Figure 3.3.1.i. Beam trawlers fishing for shrimp were observed operating in shallow waters in the Wash and close in to Great Yarmouth and Lowestoft. Beam trawlers targeting flatfish with 80 mm codend mesh were observed fishing a few miles off Lowestoft, off Orford in the southern Bight, and in the Channel between Newhaven and Dungeness. The latter occasion was a vessel that had visited Lowestoft and was returning to the SW. Demersal trawlers fishing 80 mm mesh codends were observed fishing south of Lowestoft, in the Thames estuary and seawards, and in the Channel near Dover. These fishing localities are thought to be typical for these types of gear fished from East Anglian ports.

3.3.2 Summarised results

Numbers of fish discarded for the trips observed in 2004 (see table 3.3.1i) are shown for several commercial species and two gear groups in table 3.3.2.i. Also shown in table 3.3.2.i are the numbers discarded as percentages of the total numbers caught (= discarded + retained). Summarising results for 2004, all of the observed catches of whiting, plaice, and herring, and most of the catch of rays were discarded by beam trawlers. Demersal trawlers were only observed to discard one species, plaice, at rates exceeding 80% but 50% of rays and 40% of whiting were discarded.

Estimated weights (in Kgs live weight equivalent) of fish discarded for the trips observed in 2004 (see table 3.3.1ii) are shown for 7 species and two gear groups in table 3.3.2.ii. The proportions discarded by weight were generally lower than those relating to numbers of fish because most discarded fish are small. The picture of discarding given by estimated weights is similar to that given in terms of numbers in table 3.3.2.i.

3.3.3 Factors affecting discarding

Nothing to report.

Table 3.3.1.i. Activities of Cefas observers aboard commercial fishing vessels leaving from ports between Boston and Leigh-on-Sea on the east coast of England during 2004.

YEAR	QUARTER	GEAR	TRIPS OBSERVED	DAYS AT SEA	HAULS FISHED	HAULS SAMPLED	HOURS OBSERVED
2004	1	Beam trawl	1	2	6	5	15.09
	TOTAL qtr 1:		1	2	6	5	15.09
2004	2	Beam trawl	3	13	81	53	116.58
2004	2	Twin otter trawl	1	1	6	6	4.83
	TOTAL qtr 2:		4	14	87	59	121.41
2004	3	Beam trawl	1	1	4	4	7.25
2004	3	Triple otter trawl	1	2	8	8	12.45
	TOTAL qtr 3:		2	3	12	12	19.70
2004	4	Beam trawl	1	2	8	7	15.08
2004	4	Otter trawl	1	5	19	14	42.34
2004	4	Triple trawl	1	1	7	6	5.49
	TOTAL qtr 4:		3	8	34	27	62.91
TOTAL 2004:			10	27	139	103	219.11

3.4 Fishing industry views

3.4.1 King's Lynn shrimpers

One skipper thought that the "veil nets" which the fleet had to use in 2004 were a good idea. They allow bigger fish to pass out of the net through an escape hole in the bottom. However, he was concerned that this device led to loss of some shrimps and prawns. If the ground was particularly weedy the veil would often become choked, allowing fish and shrimp to swim freely out of the net.

The 2004 shrimping season was thought to have been poor, and skippers had to go further afield than usual to find reasonable numbers of shrimps. It was suggested that the seas were becoming too clean and there was not a sufficient level of microorganisms to sustain the population. Skippers noted the situation in Holland where shrimpers were reputedly allowed to land any amount of shrimp causing the price to crash and making them a less viable species to target.

Table 3.3.1.ii. Total observer effort data by gear from Table 3.3.1.i and, in brackets, equivalent percentages of fleet effort taken from Table 3.2.ii

EFFORT MEASURE	BEAM TRAWL	DEMERSAL TRAWL
Trips	6 (0.4%)	4 (0.4%)
Days absent	18 (0.9%)	9 (0.7%)
Hours	154 (1.2%)	65 (0.8%)

Figure 3.3.1.i. East Region, 2004. Locations of observed hauls by major gear group.

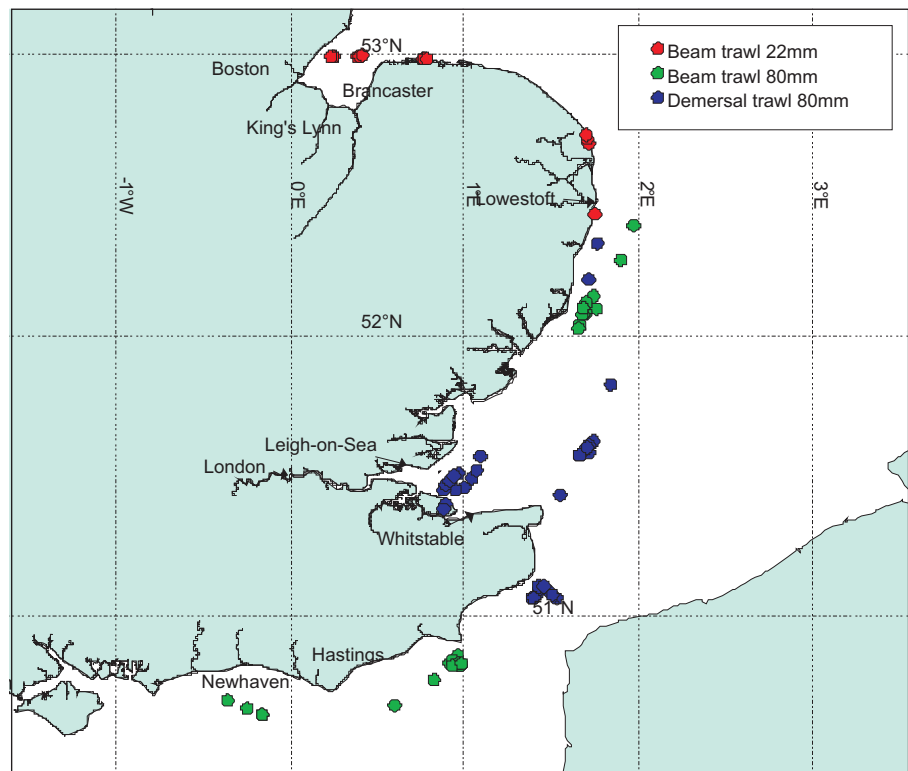


Table 3.3.2.i. East region, 2004: Discards as numbers of fish and, in brackets, as percentages of numbers caught by species and gear group as estimated for the observed trips referred to in Table 3.3.1ii.

SPECIES	2004	
	BEAM TRAWL	DEMERSAL TRAWL
Cod	4 (10%)	7 (5%)
Haddock	0 (0%)	0 (0%)
Whiting	8838 (100%)	465 (40%)
Plaice	5272 (100%)	4951 (84%)
Sole	794 (34%)	574 (14%)
Lemon sole	4 (31%)	19 (2%)
Rays	167 (61%)	719 (50%)
Herring	10 (100%)	0 (%)
Squid	0 (0%)	0 (0%)

3.4.2 Lowestoft beamers

At the time of sampling, only one beamer was operating out of Lowestoft. The skipper had joined the co-operative in 2004 and found it to be beneficial because he was freer to land what he wanted. However he was disillusioned with the prices he was getting for his catch and so might not be rejoining for 2005. He intended to switch to a triple rig otter trawl and land his catch in Ipswich instead.

3.4.3 Leigh-on-Sea otter trawlers

Negative views were heard about the level of red tape that had crept into the industry, and "the UK fishing industry is being strangled by the nonsense of UK fisheries policy". Many fisherman in the area were selling their boats and getting out of the industry altogether.

One skipper said that the herring fishery out of Mersea had worked hard to get a Marine Stewardship emblem on their catch but the fishery had all but disappeared due to the rules that had been imposed on continuity of stock.

Table 3.3.2.ii. East region. 2004: live weights (in Kgs) of fish discarded by species and gear group as estimated for the observed trips referred to in Table 3.3.1ii. Discards as percentages of weights caught are shown in brackets.

SPECIES	BEAM TRAWL	DEMERSAL TRAWL
Cod	1 (1%)	3 (1%)
Herring	1 (100%)	0 (0%)
Lemon sole	0.4 (20%)	2 (1%)
Plaice	33 (99%)	526 (67%)
Sole	51 (14%)	68 (8%)
Whiting	167 (99%)	66 (28%)
Rays	47 (23%)	310 (17%)

3.5 Points of biological interest

None noted.

3.6 Points of fishery interest

One skipper believed that the environment within the Thames estuary was changing. New fish species were appearing while species relied on in the past were showing signs of moving away or disappearing. The sole fishery, which normally ends by the end of September to the middle of October, had in 2004 and some years previously started to stretch out beyond October and into November. The skipper went on to explain that he was staying on the sole for much longer and still getting good numbers. The roker (thornback ray) fishery had also sprung into life in 2004 and boats were targeting them instead of the sole during the summer months.

4. South East Region

4.1 Introduction

The south eastern region includes all ports from Faversham in North Kent to the Isle of Wight. A map of the region showing the principal towns, fishing ports, and bathymetry is given in Figure 4.1.i. One port had auction facilities, namely Hastings. Landings elsewhere were sold directly to fish merchants. Much of the fishing in this region is carried out by vessels < 10 m LOA.

4.2 Effort and landings

4.2.1 Defra FAD statistics

Tables 4.2.i and 4.2.ii show official Defra data for four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports in the SE region for 2003 and 2004 respectively. Comparison of the two years shows that fishing effort stayed about the same or decreased slightly in the gear categories of beam trawl and demersal trawl, decreased substantially for dredgers, and increased for pots and traps. Additionally, gear using hooks disappeared, and pelagic trawling appeared in 2004. Also shown in table 4.2.ii are the numbers of days absent from port by vessels < 10 m LOA during 2004. The data indicate that fixed nets, followed some way behind by pots and traps, demersal trawls and dredges were the most actively used gears amongst the smaller vessels. Vessels < 10 m LOA fished all four of these gear groups more actively than larger vessels.

Figure 4.2.i shows the distribution of fishing effort by vessels ≥ 10 m LOA by landing port in the SE region in 2004 measured as days absent from port. Beam and demersal trawling, and dredging were most active from Shoreham and Newhaven. Potting and trapping were most active from Selsey and Isle of Wight.

Figure 4.2.ii indicates the different levels of fishing activity by vessels ≥ 10 m LOA landing to ports in the SE region in 2004. Activity is measured by days absent from the landing port. Full time vessels operating from 101 to 300 days per year were most numerous at Shoreham (7), Newhaven (7), and Selsey (4). Three vessels operated from 31 to 100 days per year at Portsmouth but there were few elsewhere. Other ports were dominated by nearly inactive or part-time fishing vessels, operating less than 30 days per year. Shoreham, Portsmouth, and Ramsgate had the most vessels that were virtually inactive, i.e. operating less than 10 days per year. However, some of these vessels may have been transient visitors from other regions.

Figure 4.2.iii shows landings by vessels ≥ 10 m LOA of a selection of commercially important species to ports in the SE region in 2003 and 2004, separated by gear group. A multiplicative (logarithmic) scale is used to reveal the wide range of values as Kg of live weight equivalents. The landed quantities were mostly slightly up or down in 2004 compared to 2003 with no general trend apparent. The main landings of beam trawlers in the region were the flatfish species plaice, sole, lemon

Figure 4.1.i. Map of the East coastal region (Faversham to Isle of Wight) showing principal towns and fishing ports, bathymetry, and degrees of longitude and latitude.

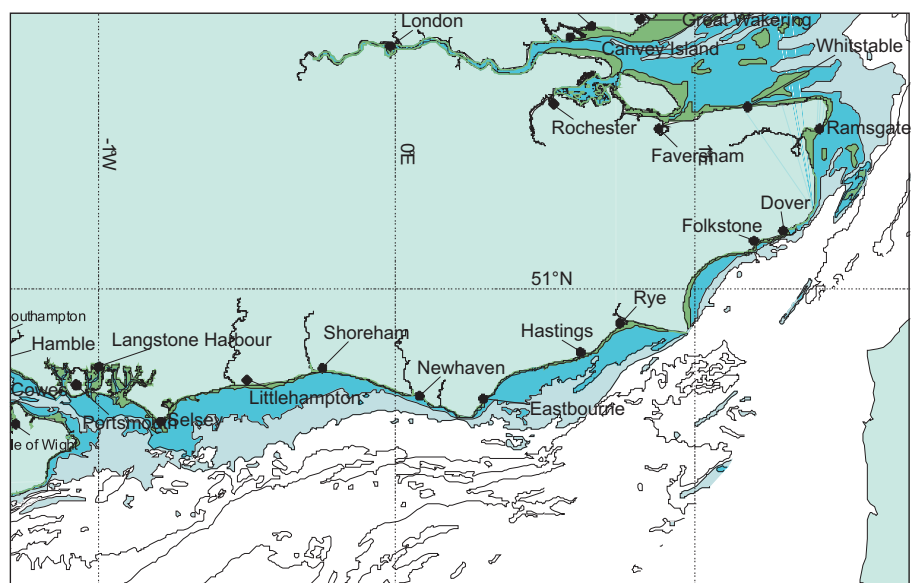


Table 4.2.i. SE Region, 2003. Four measures of commercial fishing effort for vessels $\geq 10\text{m}$ LOA landing to ports between Faversham and Isle of Wight. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Beam trawl	18	363	1692	20069
2003	Demersal trawl	19	1330	1629	11134
2003	Dredge	33	671	1275	15675
2003	Fixed nets	9	165	284	-
2003	Gears using hooks	2	4	7	17
2003	Pots and traps	13	868	2573	428943

Table 4.2.ii. SE Region, 2004. Four measures of commercial fishing effort for vessels $\geq 10\text{m}$ LOA landing to ports between Faversham and Isle of Wight. Also shown (in brackets) are days absent for vessels $< 10\text{m}$ LOA. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2004	Beam trawl	16	363	1450(129)	19688
2004	Demersal trawl	20	1240	1605(3318)	11918
2004	Dredge	25	403	845(2139)	8541
2004	Fixed nets	5	133	150(15098)	-
2004	Gear using hooks	-	-	0(775)	-
2004	Nephrops trawls	-	-	0(14)	-
2004	Pelagic trawl	1	1	1(0)	0
2004	Pots and traps	18	975	2618(5671)	438334

sole, and rays, and cuttlefish but a wide range of other species was also landed in smaller amounts. Demersal trawlers brought back sea bass, cuttlefish, whiting, plaice, lemon sole, rays, and squid as the top species. Cod and mackerel were important too. Flatfish were landed in smaller quantities than by beam trawlers. Dredgers were primarily occupied with scallops. Fixed netters landed relatively little with cod, plaice, sole, and sea bass among the more important species by weight. Lines and hooks were relatively unimportant in 2003: there was a record of 135 Kg of bass landed only. There were no recorded landings in 2004. This gear group is therefore not illustrated in Figure 4.2.iii. Potters landed large quantities of edible crab and lobster in 2003 and 2004.

Figure 4.2.iv shows the relative importance of the landings in 2004 shown in Figure 4.2.iii for vessels $\geq 10\text{m}$ LOA relative to those of the whole fleet, i.e. including vessels $< 10\text{m}$ LOA. It can be seen that the smaller vessels brought back most of the landings of the primary commercial species in the SE region.

4.2.2 General observations

Beam Trawlers in the SE region mainly targeted flat fish (Dover sole, plaice, lemon sole, etc) on rough ground with chain mats fitted in front of the nets to reduce intake of stones. The gear grouping referred to as 'demersal trawlers' mainly included pair trawlers fishing for sea bass and black sea bream, and otter trawlers targeting cod, whiting, flatfish, and cuttlefish and squid seasonally. Potters targeted different species with different types of pots or traps; the species included cuttlefish, crabs, lobsters and whelks. Dredgers in the South East targeted scallops while smaller vessels targeted cockles and mussels.

Many vessels in the SE region are equipped to fish several different types of gear. For example some vessels based at Newhaven can operate a beam trawl, a scallop dredge, an otter trawl, a bottom pair trawl (with another vessel), and also whelk pots. The fishing in this region is very seasonal so vessels either have to target different species or travel beyond the eastern Channel to remain profitable throughout the year. The larger vessels tend to travel while the smaller ones will switch fishing method.

Figure 4.2.i. SE Region, 2004. Days absent from port by commercial vessels $\geq 10m$ LOA fishing the main gear types and landing to the ports shown. Source: Defra FAD.

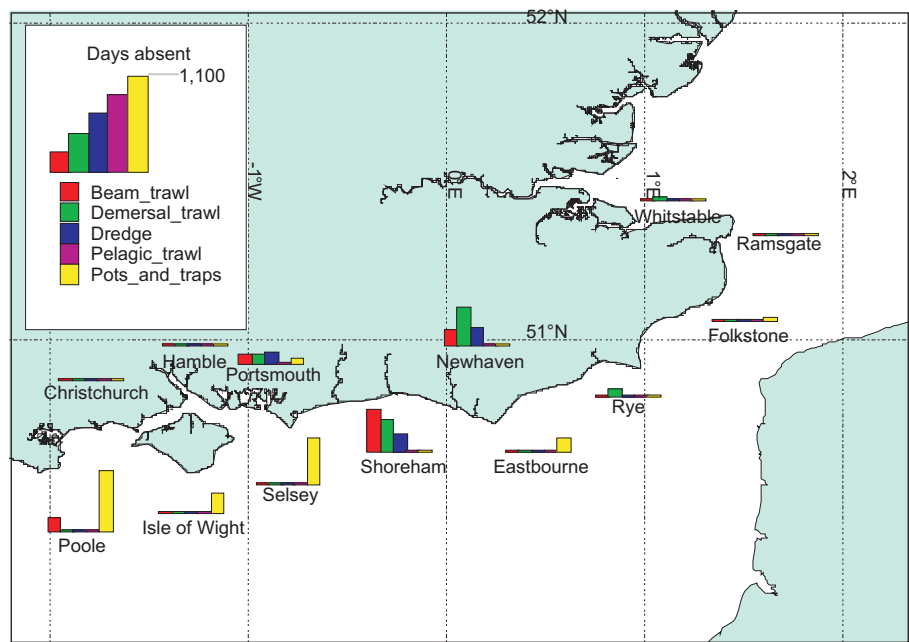
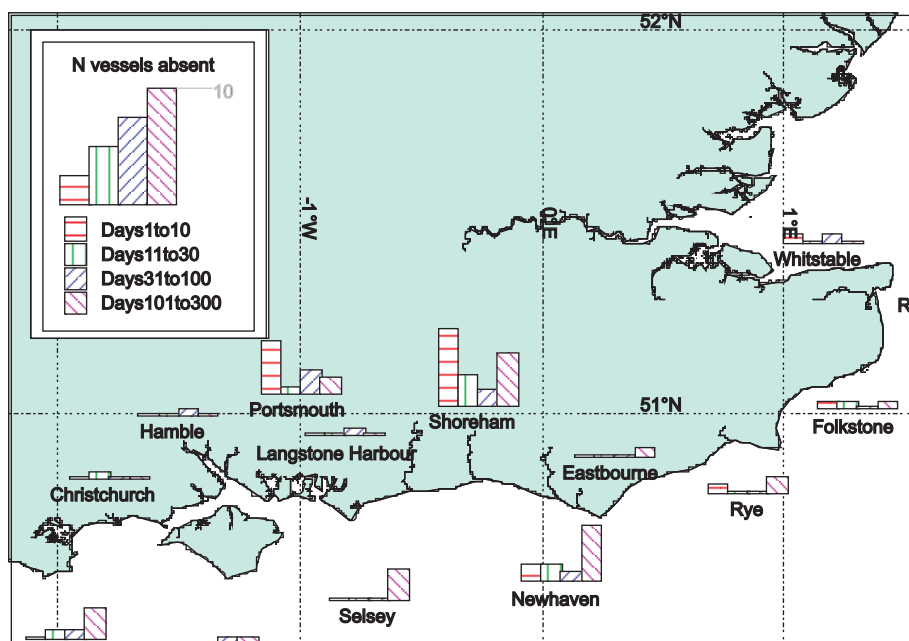


Figure 4.2.ii. SE Region, 2004. Numbers of vessels $\geq 10m$ LOA with different levels of fishing activity measured by Days absent from landing port. Source: Defra FAD.



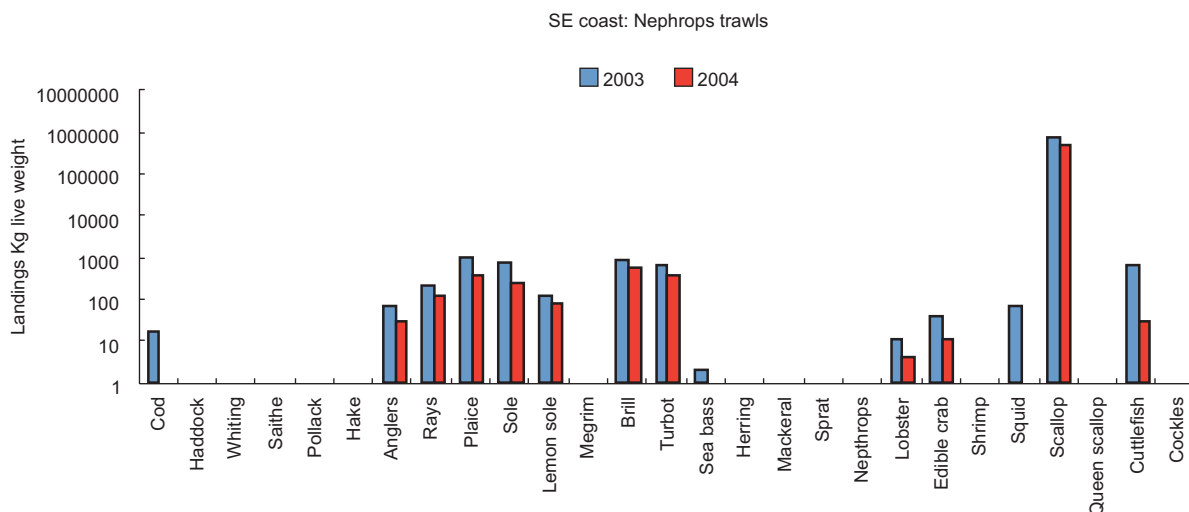
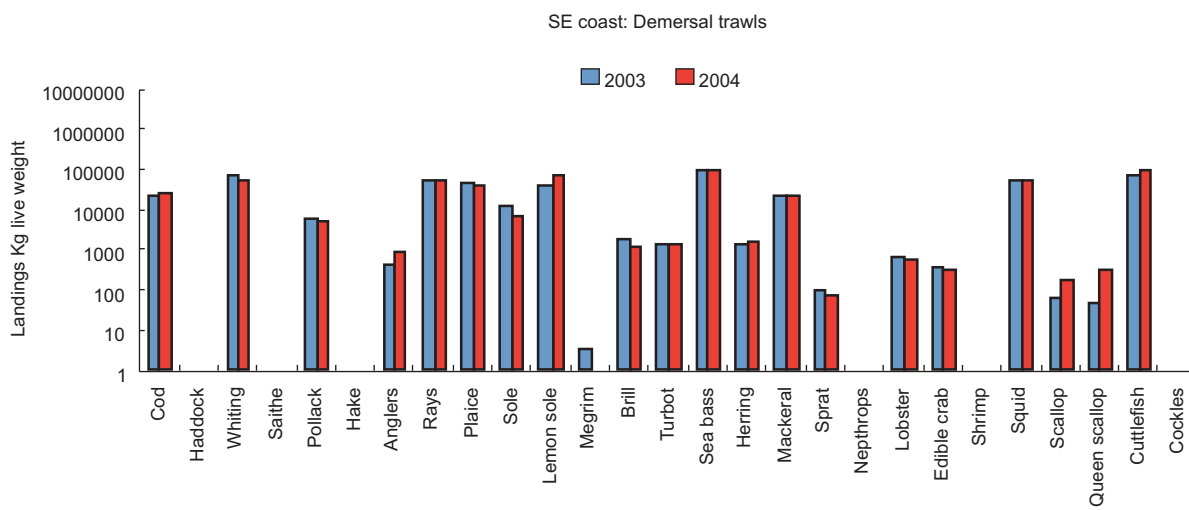
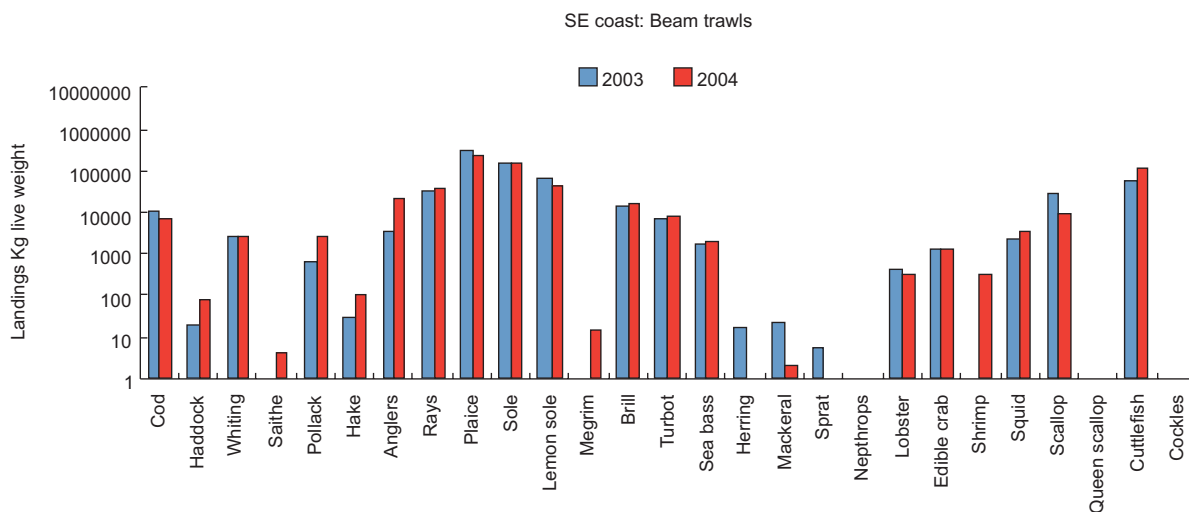


Figure 4.2.iii. 1st panel. SE Region, 2003, 2004; vessels \geq 10m LOA. Landings of selected commercial species as live weight equivalents by gear group. Note multiplicative vertical scale. Source: Defra FAD.

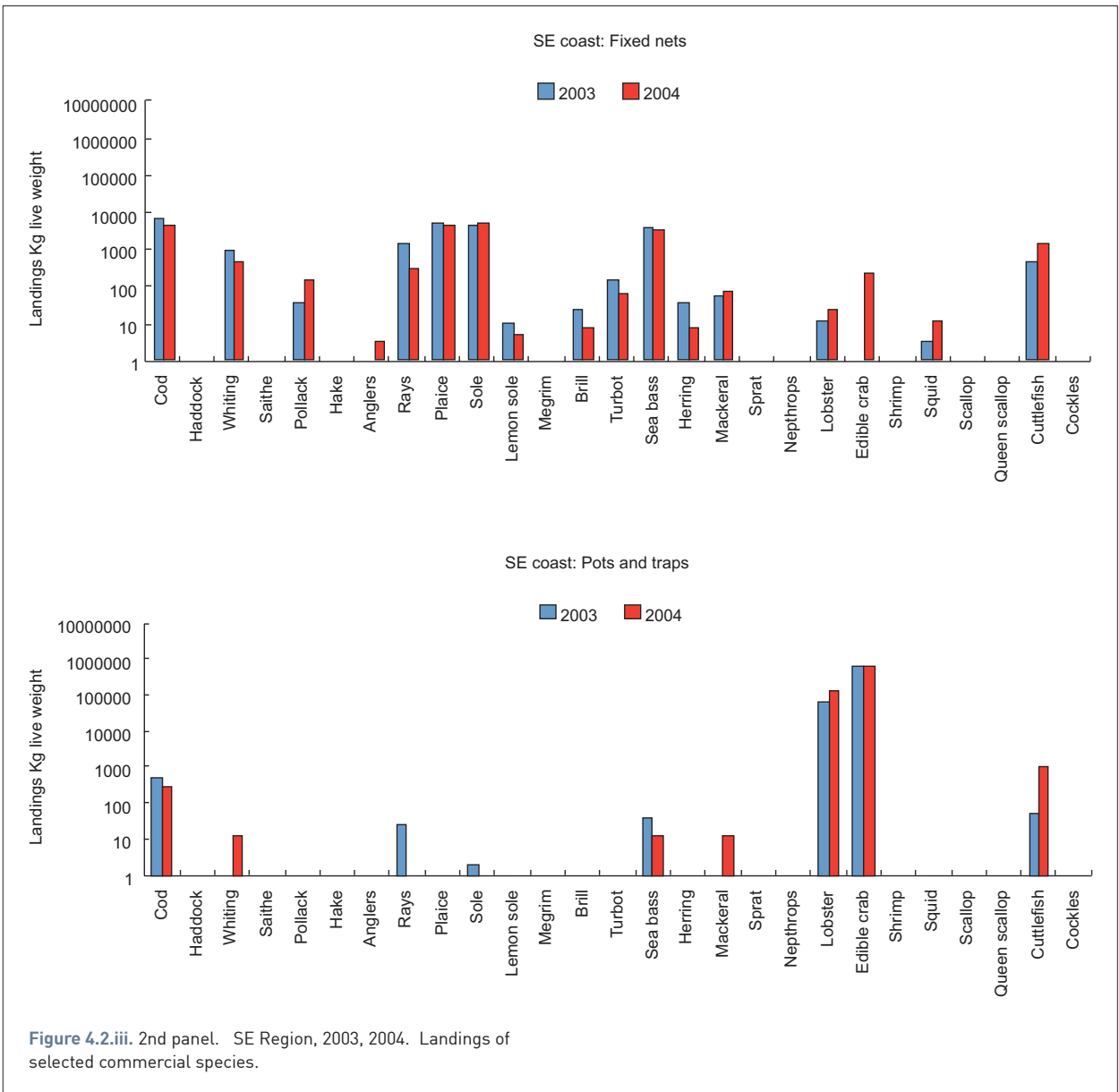


Figure 4.2.iii. 2nd panel. SE Region, 2003, 2004. Landings of selected commercial species.

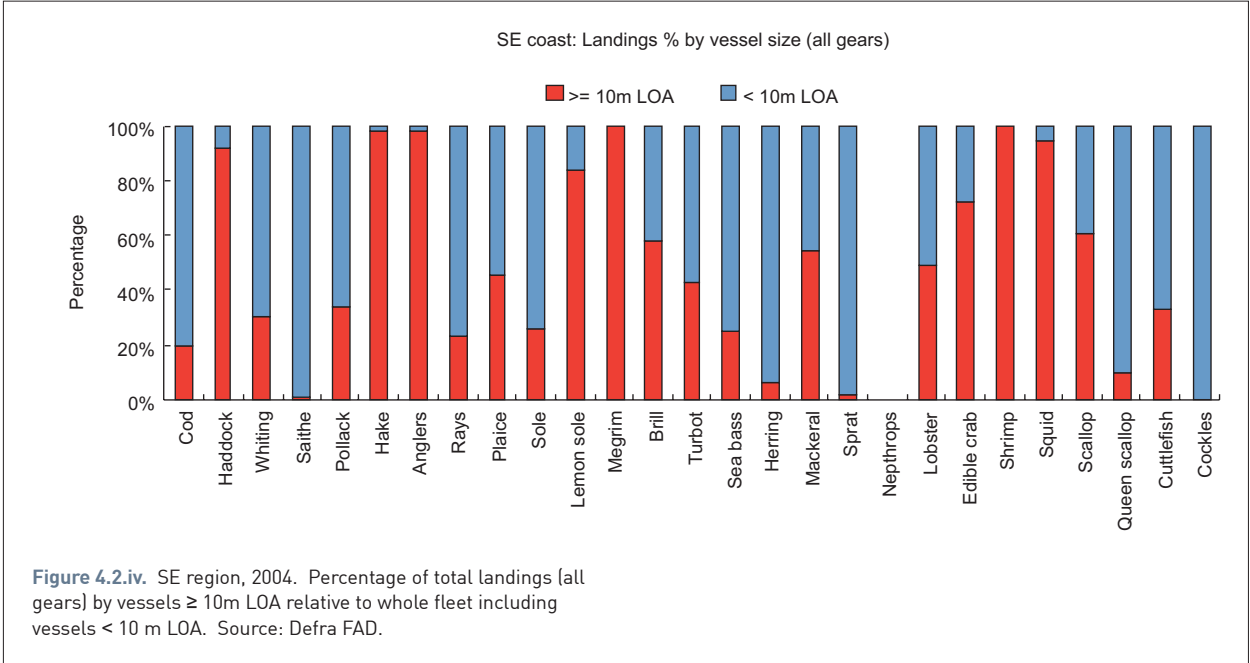


Figure 4.2.iv. SE region, 2004. Percentage of total landings (all gears) by vessels ≥ 10m LOA relative to whole fleet including vessels < 10 m LOA. Source: Defra FAD.

4.3. Observer programme

4.3.1 Observer effort

In 2004, a total of ten fishing trips from the SE region was observed by Cefas. These included beam trawlers and otter trawlers fishing 80 mm mesh codends, pair trawlers fishing 100 mm, fixed nets with mesh between 120 and 127 mm, and a scallop dredger with 90 mm rings. One beam trawl and one pair trawl trip were observed from Shoreham, one netter was observed out of Rye, and all other observed trips were from Newhaven. The greatest observer effort took place from Newhaven because there was a moderate ≥ 10 m fleet there with all owners and skippers happy to have Cefas observers on board. Rye had 2 vessels over 10 m and Shoreham had several but access to most of the vessels in these two ports was not possible in 2004. In addition, some of the accessible vessels landing to the SE proved difficult to contact due to irregular fishing activities, or because the vessel was only visiting the SE region.

A summary of observer activity from ports between Faversham and Isle of Wight is given in table 4.3.1.i. Observer effort is compared with actual effort by the over 10 m fleet in table 4.3.1.ii for trips made, days absent (at sea), and hours fishing. Beam trawlers were observed between 0.6 and 1.1% depending on the measure of effort referred to. Demersal trawlers were observed between 0.3 and 0.6%. Vessels fishing with lines and hooks were not observed during 2004 because there were no recorded trips by vessels ≥ 10 m LOA. Fixed netters were observed between 0.7 and 0.8%, and dredgers between 0.2 and 0.4%. Potters were not observed because they had a very low priority for sampling under the EC Data Collection regulation governing the observer programme. The statistics imply reasonable sampling of the main types of fishing in the SE region under the Cefas observer programme.

The locations of observed hauls sorted by major gear groupings are shown in Figure 4.3.1.i. Beam trawlers targeting flatfish with 80 mm codend mesh were observed fishing close inshore between Shoreham and Folkestone. This was possible because the gear was small (4m beams). Tows were also observed near the French coast off Boulogne on a larger beam trawler (9m beams). Large beam trawlers were permitted to fish up to the 6-mile line off France (but only up to the 12-mile line off England). The demersal trawlers towing close in shore were targeting cuttlefish, while those further out were targeting lemon sole or bass. Three hauls of fixed nets were observed near Rye and Hastings (although they show as only one point on

Figure 4.3.1.i). Scallop dredging was observed mostly on grounds south of Eastbourne and Beachy Head.

4.3.2 Summarised results

Estimated numbers of fish discarded for the trips observed in 2004 and referred to in table 4.3.1i are shown for 13 species and the gear groups in table 4.3.2.i. Also shown in table 4.3.2.i are the numbers discarded as percentages of the total numbers caught (= discarded + retained). Summarising results for 2004, discarding of more than 80% of the numbers caught by beam trawl was observed for cod, whiting, rays, lobster, and edible crab. Greater than 80% discarding by demersal trawls was observed for scallop, edible crab, and turbot only, although only very small numbers of these three species were caught. All 81 observed edible crab caught by dredge were discarded but only 13% of the target species, scallop. Nearly all whiting caught in fixed nets were discarded. Otherwise, neither of these two gears was seen to be responsible for much discarding.

Estimated weights (in Kgs live weight equivalent) of fish discarded for the trips observed in 2004 and referred to in table 4.3.1ii are shown for 6 species and the three gear groups in table 4.3.2.ii. The proportions discarded by weight are generally lower than those relating to numbers of fish because most discarded fish are small. The picture of discarding given by estimated weights is similar to that given in terms of numbers in table 4.3.2.i.

4.3.3 Factors affecting discarding

Nothing to report.

4.4 Fishing industry views

Nothing to report

4.5 Points of biological interest

None noted.

4.6 Points of fishery interest

None noted.

Table 4.3.1.i. Activities of Cefas observers aboard commercial fishing vessels leaving from ports between Faversham and Isle of Wight on the south east coast of England during 2004. Note that 'hours observed' is soak duration for the trammel net.

YEAR	QUARTER	ICES DIVISION	GEAR OBSERVED	TRIPS SEA	DAYS AT FISHED	HAULS SAMPLED	HAULS OBSERVED	HOURS
2004	2	7d	Beam trawl	1	6	57	41	58.11
2004	2	7d	Bottom pair trawl	1	3	13	9	20.47
2004	2	7d	Otter trawl (unspecified)	1	2	8	6	14.92
TOTAL qtr 2:				3	11	78	56	93.50
2004	3	7d	Beam trawl	2	5	37	27	40.54
TOTAL qtr 3:				2	5	37	27	40.54
2004	4	7d	Beam trawl	1	3	18	12	24.33
2004	4	7d	Otter trawl (unspecified)	2	4	16	13	37.00
2004	4	7d	Trammel net	1	1	3	3	132.00
2004	4	7d	Unspecified dredge	1	3	18	12	23.24
TOTAL qtr 4:				5	11	55	40	216.57
TOTAL 2004:				10	27	170	123	350.61

Table 4.3.1.ii. Total observer effort data by gear from Table 4.3.1.i and, in brackets, equivalent percentages of fleet effort taken from Table 4.2.ii.

EFFORT MEASURE	BEAM TRAWL	DEMERSAL TRAWL	FIXED NETS	DREDGERS
Trips	4 (1.1%)	4 (0.3%)	1 (0.8%)	1 (0.2%)
Days absent	14 (1%)	9 (0.6%)	1 (0.7%)	3 (0.4%)
Hours	123 (0.6%)	72 (0.6%)	132 (-)	23 (0.3%)

Figure 4.3.1.i. SE Region, 2004. Locations of observed hauls by major gear group.

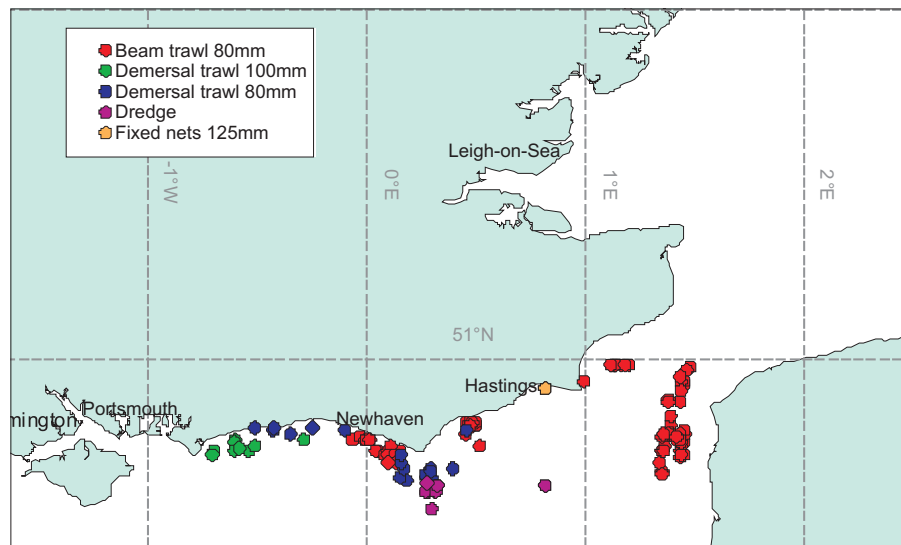


Table 4.3.2.i. SE region, 2004: Discards as numbers of fish and, in brackets, as percentages of numbers caught by species and gear group as estimated for the observed trips referred to in table 4.3.1ii.

Species	2004			
	Beam trawl	Demersal trawl	Dredge	Fixed nets
Cod	368 (81%)	1 (1%)	0 (0%)	2 (50%)
Whiting	45 (91%)	688 (42%)	0 (0%)	165 (96%)
Plaice	18473 (57%)	496 (63%)	12 (50%)	6 (32%)
Sole	411 (7%)	0 (0%)	5 (50%)	3 (12%)
Lemon sole	4065 (42%)	146 (9%)	9 (75%)	0 (0%)
Rays	1181 (84%)	59 (70%)	2 (100%)	0 (0%)
Scallop	65 (37%)	192 (100%)	1491 (13%)	0 (0%)
Lobster	151 (81%)	1 (22%)	0 (0%)	0 (0%)
Edible crab	2959 (96%)	12 (100%)	81 (100%)	0 (0%)
Mackerel	0 (0%)	1 (1%)	0 (0%)	14 (56%)
Brill	95 (48%)	2 (25%)	0 (0%)	0 (0%)
Turbot	3 (7%)	5 (100%)	0 (0%)	0 (0%)
Squid	0 (0%)	16 (3%)	0 (0%)	0 (0%)

Table 4.3.2.ii. SE region. 2004: live weights (in Kgs) of fish discarded by species and gear group as estimated for the observed trips referred to in Table 4.3.1ii. Discards as percentages of weights caught are shown in brackets.

Species	Beam trawl	Demersal trawl	Dredge	Fixed nets
Cod	147 (65%)	1 (0%)	- -	3 (30%)
Lemon sole	533 (23%)	20 (3%)	2 (64%)	0 -
Plaice	4415 (38%)	72 (39%)	4 (38%)	2 (23%)
Rays	114 (35%)	8 (21%)	1 (100%)	0 -
Sole	47 (4%)	0 (0%)	2 (44%)	1 (8%)
Whiting	10 (86%)	134 (26%)	0 -	22 (91%)

5. South West Region

5.1 Introduction

The south west English and Welsh region includes all ports from Lymington to Aberystwyth. A map of the region showing the principal towns, fishing ports, and bathymetry is given in Figure 5.1.i. A map showing named fishing grounds and landmarks is in Figure 5.1.ii. The waters off SW England and S. Wales are extremely important to the UK fishing industry and provide a wide range of resources. In 2004 there were in excess of 250 vessels ≥ 10 metres in length working from ports and harbours in Devon and Cornwall landing 39,000 tonnes of fish valued at more than £62 million, or 28% and 39% of the respective totals for England and Wales. The main ports and markets were at Newlyn, Brixham, Plymouth, and Looe. Many landings elsewhere were sold directly to fish merchants. Table 5.1.1 shows movements of fish within the SW.

Figure 5.1.i. Map of the SW region (Lymington to Aberystwyth) showing principal towns and fishing ports, bathymetry, and degrees of longitude and latitude.

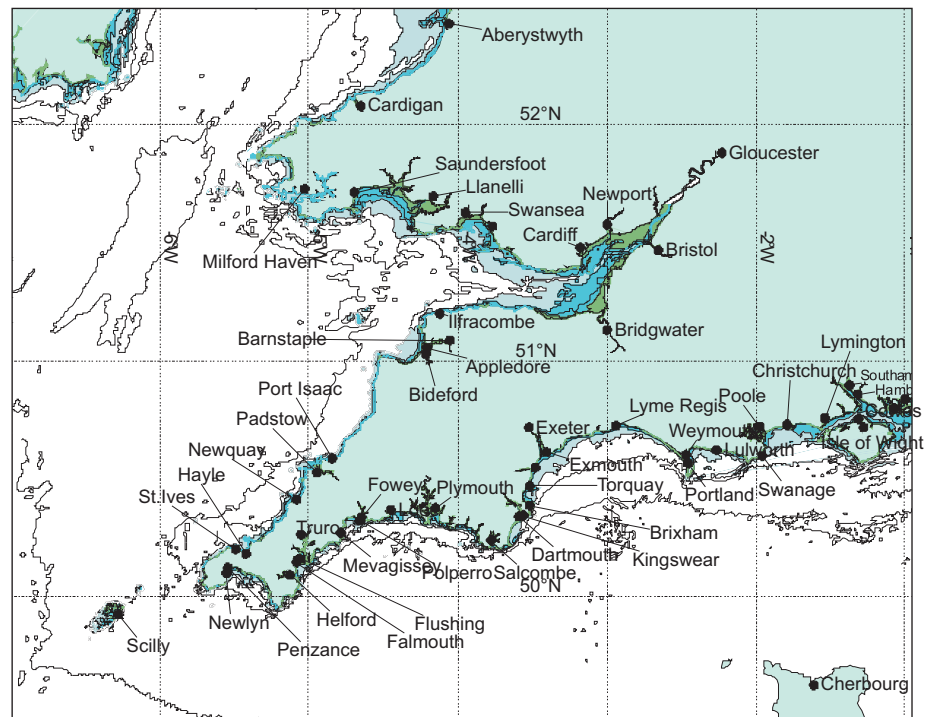


Figure 5.1.ii. SW region. Locations of common fishing grounds and landmarks.

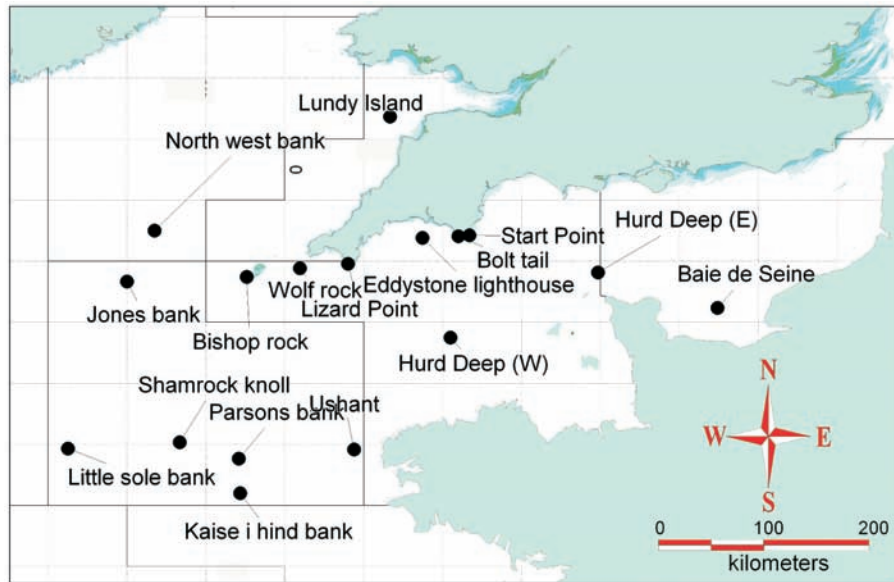


Table 5.1.1. Fishing ports and the distribution of fish to markets throughout the SW region.

MARKETS

Fishing port	Plymouth	Brixham	Looe	Newlyn	Local private enterprise
Biddeford/Appledore	✓	✓			✓
Brixham		✓			
Dartmouth		✓			✓
Falmouth	✓			✓	✓
Looe			✓		
Mevagissey	✓				✓
Milford Haven (a)	✓	✓		✓	
Newlyn				✓	
Padstow	✓			✓	✓
Plymouth	✓				
Portloe/Boscastle	✓				✓
Swansea/Cardiff	✓	✓	✓		✓
Weymouth					✓

(a) Since collapse of Milford Haven market, most fish were either sold to local private enterprises or overlanded to Newlyn, Plymouth or Brixham markets.

Finfish
Shellfish
Finfish & shellfish
✓ = Home port landing
✓ = Overlanded

5.2 Effort and landings

5.2.1 Defra FAD statistics

Tables 5.2.i and 5.2.ii show official Defra data for four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports in the SW region for 2003 and 2004 respectively. Comparison of the two years shows that beam and pelagic trawling, and gear using hooks declined slightly, and demersal trawling, dredging, and fixed netting increased slightly (over most measures). Also shown in table 5.2.ii are the numbers of days absent from port by vessels < 10 m LOA during 2004. The data indicate that pots and traps, netting, demersal trawling, and lining with hooks were the primary occupations of these smaller vessels. In the case of lining, substantially more fishing was carried out by < 10 m vessels than by those ≥ 10 m LOA, while for nets and pots the < 10 m vessels spent more than half as many days at sea as the ≥ 10 m LOA vessels.

Figure 5.2.i.a shows the distribution of fishing effort by vessels ≥ 10 m LOA by landing port in the SW region in 2004 measured as days absent from port. Beam trawling predominated in Brixham and Newlyn, with some additional activity in Looe and Milford Haven. Demersal trawling occurred mostly from Brixham, Looe, Milford Haven, and Plymouth. Dredging occurred mostly from Brixham, Looe, Falmouth, and Plymouth. Newlyn was easily the most active port for fixed nets. A little pelagic trawling took place from Plymouth and Teignmouth. Potting was widespread with Salcombe, Weymouth, and Newlyn being the principal ports used by the vessels ≥ 10 m LOA.

Vessels in the SW region have a choice of 5 ICES divisions (sea areas) nearby in which to fish, namely VIId, e, f, g, and h. The distribution of fishing effort measured by days absent from port and recorded by Defra for 2004 is shown by division and gear group in Figure 5.2.i.b. Division VIIe was most popular. Additionally, some SW vessels travelled further afield, e.g. to the southern North Sea (IVc).

Figure 5.2.ii indicates the different levels of fishing activity by vessels ≥ 10 m LOA landing to ports in the SW region in 2004. Activity is measured by days absent from the landing port. Full time vessels, i.e. operating from 101 to 300 days per year, were most numerous at Newlyn (52), Brixham (41), Weymouth (16), and Looe (14). Vessels operating from 31 to 100 days per year were most frequent at Brixham (20), Plymouth (17), Newlyn (16), and Milford Haven (11). Part-time vessels operating from 11 to 30 days per year were most common at Brixham (16), Milford Haven (12), Newlyn (10), and Plymouth (10). Nearly

inactive vessels operating fewer than 11 days per year were most common at Plymouth (25), Newlyn (14), and Looe (11). The last category is likely to include visitors from other regions.

Figure 5.2.iii shows landings by vessels ≥ 10 m LOA of a selection of commercial species to ports in the SW region in 2003 and 2004, separated by gear group. A multiplicative (logarithmic) scale is used to reveal the wide range of values as Kg of live weight equivalents. The landed quantities were mostly slightly up or down in 2004 compared to 2003 with no general trend apparent. Landings of mackerel by pelagic trawls were one notable exception: landings dropped from 4.1 in 2003 to 1.2 thousand tonnes in 2004. Landings of mackerel caught by hook and line also dropped, from 0.26 to 0.15 thousand tonnes. It is not known whether this reflects a decline in catches, or whether mackerel were landed elsewhere, possibly abroad. Edible crab landed by potters dropped from 2.5 thousand tonnes in 2003 to 1.7 thousand in 2004.

Figure 5.2.iii shows that beam trawlers based in the SW region landed considerable quantities of cuttlefish, anglerfish, flatfish (plaice, sole, etc.) as well as smaller amounts of scallops, roundfish (cod, haddock, etc.), squid, and other species. Demersal trawlers brought back large quantities of cuttlefish, rays, squid, and a wide range of fish species. Dredgers landed scallops mainly but with anglerfish, flatfish, and cuttlefish also present. Fixed netters (Figure 5.2.iii, 2nd panel) landed mainly pollack, hake, anglerfish, cod, rays, and turbot. Pelagic trawlers landed mackerel, herring, sprat, plus several tonnes of whiting and sea bass. In addition and not shown on Figure 5.2.iii, pelagic trawlers landed more than a thousand tonnes of horse mackerel, 300 tonnes of pilchards, and 60 tonnes of black sea bream. Vessels fishing gear using hooks landed significant amounts of mackerel but took relatively little of other species. Potters (Figure 5.2.iii, 3rd panel) landed large quantities of edible crab, lobsters, and scallops (in 2004). Other species were relatively minor.

Figure 5.2.iv shows the importance of the landings in 2004 shown in Figure 5.2.iii for vessels ≥ 10 m LOA relative to the whole fleet, i.e. including vessels < 10 m LOA. The smaller vessels were relatively unimportant except for shrimps (which were landed in very small quantities). No doubt the high exposure to heavy swells from the Atlantic contributes to the relatively low landings by smaller vessels in the SW region.

5.2.2 General observations

5.2.2.1 Beam trawling

Brixham beam trawlers generally target cuttlefish and Dover sole in ICES division VIIe throughout the winter months. If the price of cuttlefish is low, they often have to target more sole to make the trip pay. As the cuttlefish season comes to an end, generally around March and April, many of the larger Brixham beamers used to change from stone mat to open or "V" gear in order to exploit the plaice and sole fishery that begins to emerge on soft ground in mid-Channel at this time. Stone mat gear has a lattice of chain across the opening to protect the net from stones and boulders. Open or "V" gear does not have this protection and is towed considerably faster than stone mat gear. It allows vessels to target fish on softer, less stony ground. Brixham in 2004 saw only two vessels change to "V" gear for any length of time and this may be for two reasons: 1) the area in which this "V" gear is used produces predominantly small fish of lower value meaning that vessels would not be maximizing the value of quota being used to catch them; 2) fuel consumption is much higher when towing "V" gear as the towing speeds are much higher than when towing stone mat gear. Steady increases in diesel costs occurred during 2004.

Summer is traditionally the time when Brixham beamers choose to lay up for re-fits. Catch rates fall around this time. Some vessels will fish to the far SW where they will target megrim and anglerfish and land these species to Newlyn where the market for this species is more robust. By diverting effort to megrim and anglerfish in the western approaches (ICES VIIh), pressure on sole stocks and quota in the western Channel (ICES VIIe) is reduced, allowing these vessels to return in the winter months when poor weather is more likely to prevent longer trips. Although several vessels did exploit the deepwater stocks in the western approaches, many remained fishing in the western Channel in 2004, possibly as a result of higher fuel prices. Other Brixham beam trawlers chose to fish from Milford through the summer as this allowed them to exploit sole along the south Welsh coast from around June/July. Powerful Belgian beam trawlers were also attracted to these grounds.

Newlyn beamers generally concentrate effort on megrims and anglerfish in the Celtic Sea and western approaches (ICES VIIf,g,h). The Dover sole quota for ICES area VIIe and VIIf&g available to Newlyn beamers in 2004 was not sufficient for them to target this species all year round and so they tended to target sole for only part of each trip and subsequently turning to more

diverse fisheries. Early spring sees large aggregations of well-conditioned megrim appearing around the banks to the south of ICES VIIh, west of Brittany. However, this fishery was not exploited as much in 2004 as in previous years because of low catch rates. Anglerfish and mixed fisheries, e.g. around the Scillies, were often chosen as alternatives. Newlyn vessels also tend to tie up for re-fits through the summer months as prices for megrim are often poor and fish in general can be scarce. Trips tend to rely on one or two days of good fishing interspersed with several days of searching.

5.2.2.2 Demersal trawling

Brixham otter trawlers generally target cuttlefish and squid through the winter months, only changing their fishing practices as the lemon sole begin to appear in quantity for breeding on the inshore grounds between Start Point and Lyme Regis. Occasional hits of sea bass have encouraged some vessels to target this species through the winter. Lemon sole fishing in Lyme Bay was unusually prolonged through early 2004 and the abundant cuttlefish and squid fishing in the autumn and winter encouraged many vessels to exploit this plentiful fishing rather than gambling on spending time looking for sea bass marks. Vessels from other ports may travel to Brixham to exploit these fisheries as well, particularly as the Brixham grounds are protected from prevailing south-westerly winds. In 2004, over 20 trawlers visited from as far afield as Newlyn and Appledore. As a result, exceptionally large amounts of cuttlefish appeared on Brixham market on several occasions.

Otter trawlers from Plymouth and Looe also target cuttlefish and squid through the winter. They benefit from a more diverse range of species there, notably whiting. Sea bass may also be present in number but, since the increase in effort on sea bass from French and Scottish pair teams over the last 10 years, opportunistic landings from this sector were less common in 2004.

Larger otter trawlers fishing from Newlyn are less likely to travel to other ports/areas because of the greater year-round diversity of fish found to the south and west of Lands End. These vessels would once have exploited the excellent whitefish fishing to be had throughout the western reaches of the Bristol Channel (ICES VIIf,g) but cuts in quota prevented this in 2004. Some vessels travelled to Lyme Bay in the autumn of 2004 as the cuttlefish and squid were so abundant. These vessels remained working from Brixham for about a month until the cuttlefish migrated into deeper water and brought the good fishing to a close. Recent years saw a large decrease in the amount of trawling effort being conducted from

western ports, particularly Newlyn where, in the last three years, the number of larger otter trawlers reduced by approximately half.

Through early spring John Dory and hake begin to appear in coastal waters around the Scillies and remain there throughout the summer. In 2004 Newlyn boats prepared to brave the weather experienced good landings of this species through March. French vessels were also active in the same areas. As the summer progresses and weather becomes less of an issue so many small trawlers turn to scalloping on inshore grounds to avoid the usual scarcity of finfish around Brixham, Plymouth and Looe. Other vessels may travel west to fish the species diverse waters around the Scillies and Lands End and most vessels will find time for a refit through the summer. Inshore scalloping proved particularly successful from Looe in 2004 but was curtailed somewhat around the Scillies due to the introduction of local byelaws aimed at preventing damage to a Special Area of Conservation.

Vessels fishing from the north coast of Devon and Cornwall tended to remain close to home in 2004. Lucrative ray fishing found in the eastern Bristol Channel was exploited by twin and single rig trawlers, a significant squid fishery existed off north Devon, and occasional catches of sea bass and porbeagle shark were taken from an autumnal long line fishery around Lundy Island and the Smalls. However, fishing from Brixham for cuttlefish was so good in the autumn of 2004 that several vessels from north Devon were encouraged to travel there.

5.2.2.3 Scallop dredging

Scallop dredging vessels fall into 3 categories: 1) large, offshore vessels deploying up to 36 dredges; 2) Smaller, inshore vessels with no DEFRA category 'A' licence meaning that they may only fish for non-quota species; and 3) Vessels that have a category 'A' licence and choose to change from beaming or trawling to scalloping when the seasons dictate. Scallop quality and density are the primary factors dictating effort. However, there are also general patterns observed in fleet movements throughout the year.

Early in the year, vessels head from the south west (predominantly Brixham) for grounds in the eastern Channel off Shoreham because dredge efficiency is less affected by heavy swell in the east, and because the eastern scallops tend to have more meat and roe in winter making them more valuable. However, these fishing practices are affected by the existence of different minimum landing sizes for scallops caught in the east (ICES VIIId) and west (ICES VIle) channel, i.e. 110mm and 100mm shell width

respectively. New legislation imposed in 2003 stopped vessels fishing first in VIle, then moving to VIIId midway through a trip. This reduced the fishing options during the 14 hour steam to Shoreham, and has resulted in well-known beds in the western Channel being fished more intensively during 2004. Summer scalloping is widely available in the SW and vessels often spend the summer travelling between hot spots inside the 12-mile limit.

5.2.2.4 Fixed netting

Netters tend to be restricted to fishing on neap tides which average out to one week on and one week off. The flow of water over spring tides is strong enough to lay the net flat or completely roll it up into massive bundles. In this state the gear does not fish and is subject to much damage. Three types of fixed net were predominant in the SW in 2004; hake nets (120mm), wreck nets (150mm) and tangle nets (260mm). Many vessels kept at least two types aboard at all times to maximize their fishing potential.

A typical seasonal pattern of fishing by Newlyn netters occurred in 2004. Effort in the early part of the year was fairly evenly split between wreck and hake netting. In the summer, breeding turbot congregate on banks and vessels switched to tangle netting to target them effectively. The turbot fishery declines from September at the same time as demand for hake increases (predominantly in Spain). Many netters therefore turned their attentions back to hake. Towards the end of the year good catches of mixed whitefish, haddock, ling, cod and pollack were experienced from the banks to the west of Cornwall.

Decommissioning programmes have affected the netting fleet in the southwest and, as a result, Newlyn alone has seen 16 vessels decommissioned. Combined with a further 8 being sold, 10 no longer fishing and 2 sinking, this represents a 65% reduction in netters since 1992 (figures from the CFPO).

5.2.2.5 Long-lining

Little long-lining was conducted from the SW by English and Welsh vessels in 2004. What effort there was, was usually aimed at blue and porbeagle sharks and sometimes conger eel and ling. Long lining serves to take pressure off overstretched stocks such as anglerfish, hake and other whitefish species.

5.2.2.6 Pelagic trawling

Pelagic trawling targeting mackerel in the Channel takes place mainly in the fourth quarter of the year predominantly from Plymouth where one of the largest fish processing plants in the South West is situated. Many of the vessels are Scottish registered. Large catches of sea bass aggregating to breed may also be caught, although legislation introduced in 2004 now prevents vessels from landing more than 5 tonnes per week. Cetacean by-catch (dolphins, porpoises) is thought by some to be significant in this fishery. Recent legislation to protect cetaceans is thought to have kept some of the larger Scottish vessels away in 2004. Only one Scottish pair team prosecuted the autumn bass fishery in 2004. This team also landed anchovy and pilchard in an effort to develop the market for other pelagic species. French vessels were also targeting bass in the Channel during 2004.

5.2.2.7 Potting

Large numbers of under 10 meter vessels work pots from small coves and slips around the coast targeting edible crab and lobster, particularly in the summer months. This fishery is not represented in the effort and landing statistics for larger vessels that are tabulated and illustrated in this report. Undersized shellfish are returned to the sea alive usually. The crew will sometimes mark a crab to see how many times it can be caught before being big enough to keep.

Table 5.2.i. SW Region, 2003. Four measures of commercial fishing effort for vessels \geq 10m LOA landing to ports between Lymington and Aberystwyth. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Beam trawl	78	2378	13871	186396
2003	Demersal trawl	97	7690	11819	117944
2003	Dredge	40	2118	3494	43445
2003	Fixed nets	62	1534	5349	-
2003	Gears using hooks	15	334	457	359347
2003	Pelagic trawl	10	422	694	6052
2003	Pots and traps	65	3320	8740	2231743

Table 5.2.ii. SW Region, 2004. Four measures of commercial fishing effort for vessels \geq 10 m LOA landing to ports between Lymington and Aberystwyth. Also shown (in brackets) are days absent for vessels <10m LOA. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2004	Beam trawl	70	2122	12017(18)	163023
2004	Demersal trawl	102	8023	11642(3282)	118324
2004	Dredge	48	2388	3915(1297)	53442
2004	Fixed nets	46	1656	5610(3551)	-
2004	Gears using hooks	24	252	371(2277)	13378
2004	Pelagic trawl	11	307	493(0)	4414
2004	Pots and traps	68	3432	8325(4931)	2467459

Figure 5.2.i.a. SW Region, 2004. Days absent from port by commercial vessels \geq 10m LOA fishing the main gear types and landing to the ports shown. Source: Defra FAD.

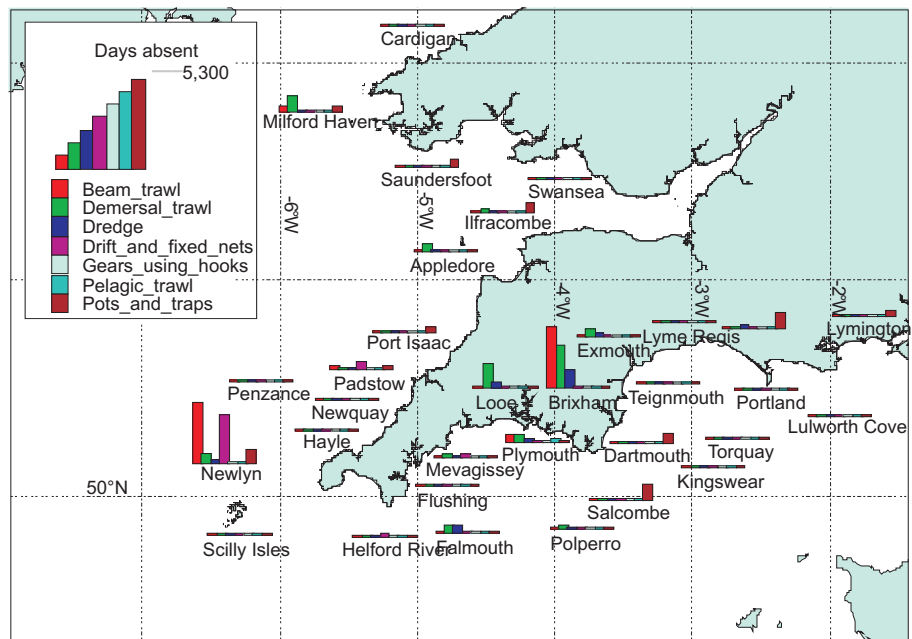


Figure 5.2.i.b. SW Region, 2004. Distribution of fishing effort measured as Days absent from port by ICES division and gear group. Note: (107d to h = Defra notation for ICES VIId to h). Source: Defra FAD.

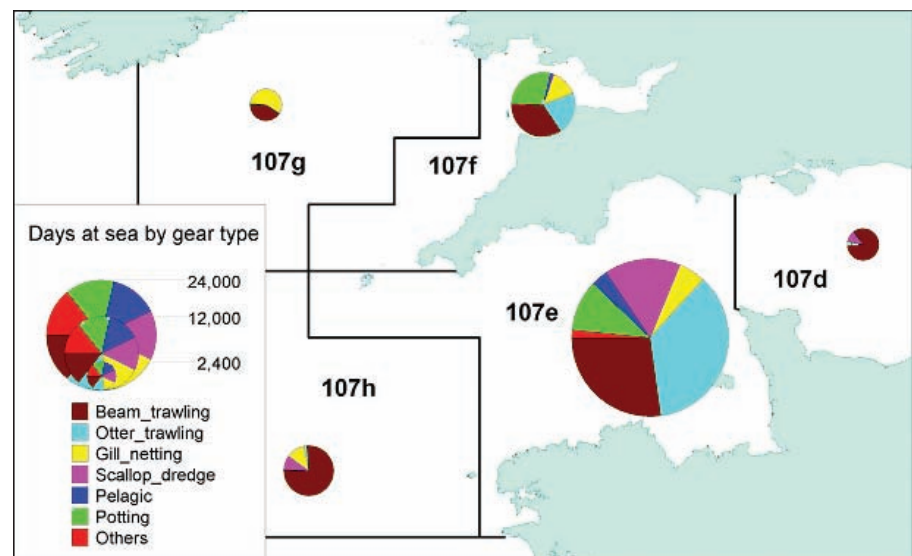
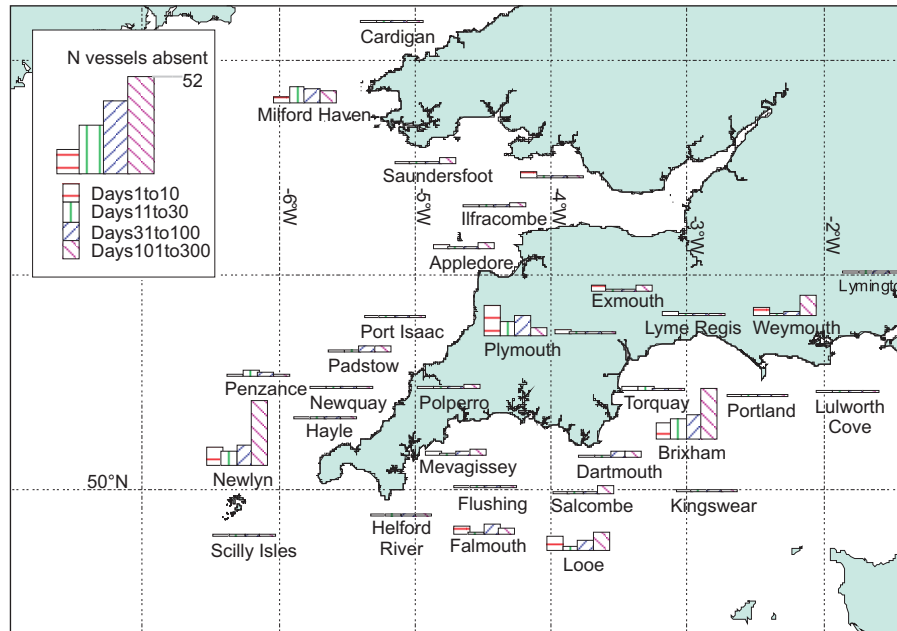


Figure 5.2.ii. SW Region, 2004. Numbers of vessels \geq 10m LOA with different levels of fishing activity measured by Days absent from landing port. Source: Defra FAD.



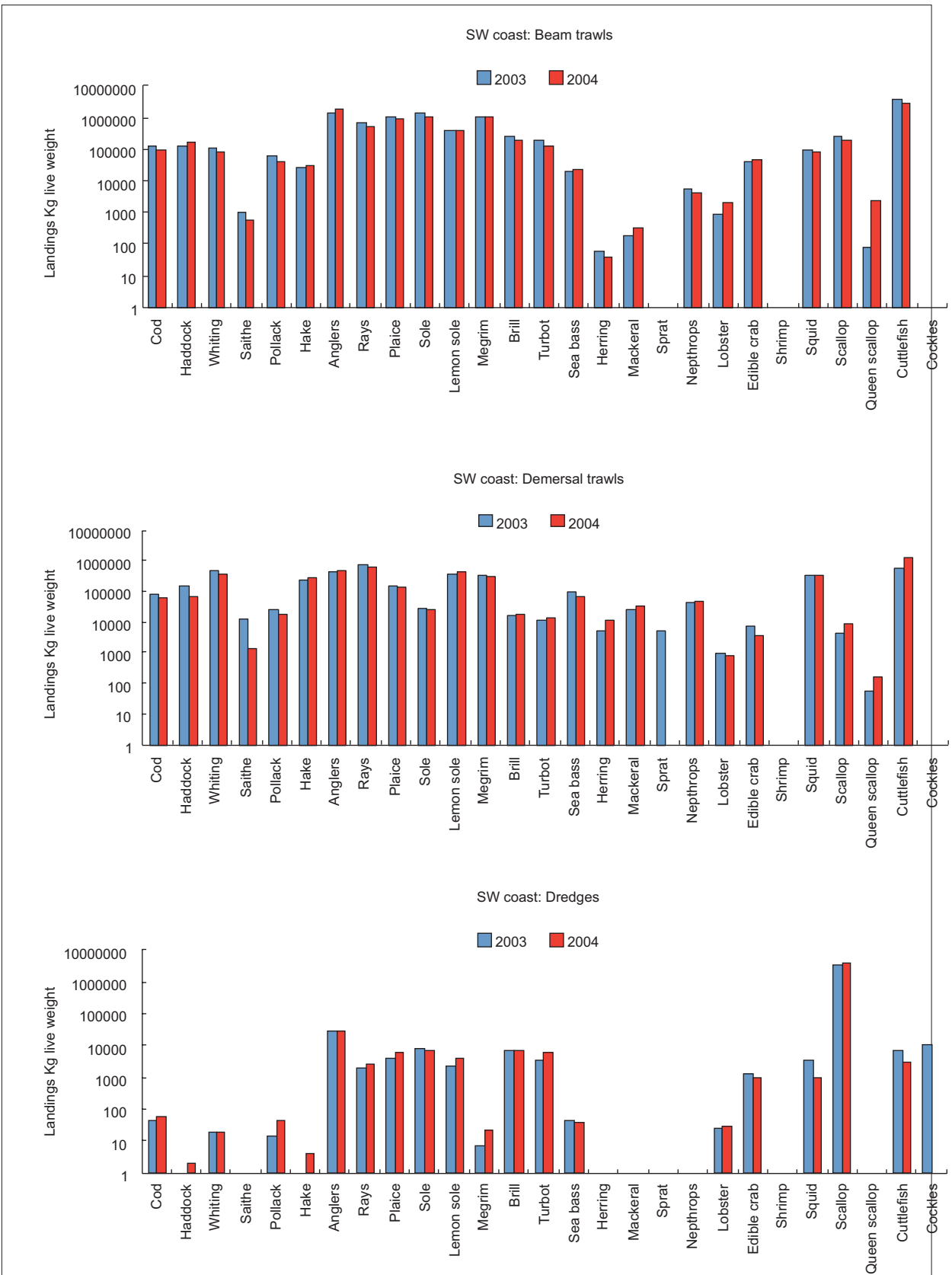


Figure 5.2.iii. 1st panel. SW Region, 2003, 2004; vessels ≥ 10m LOA. Landings of selected commercial species as live weight equivalents by gear group. Note multiplicative vertical scale. Source: Defra FAD.

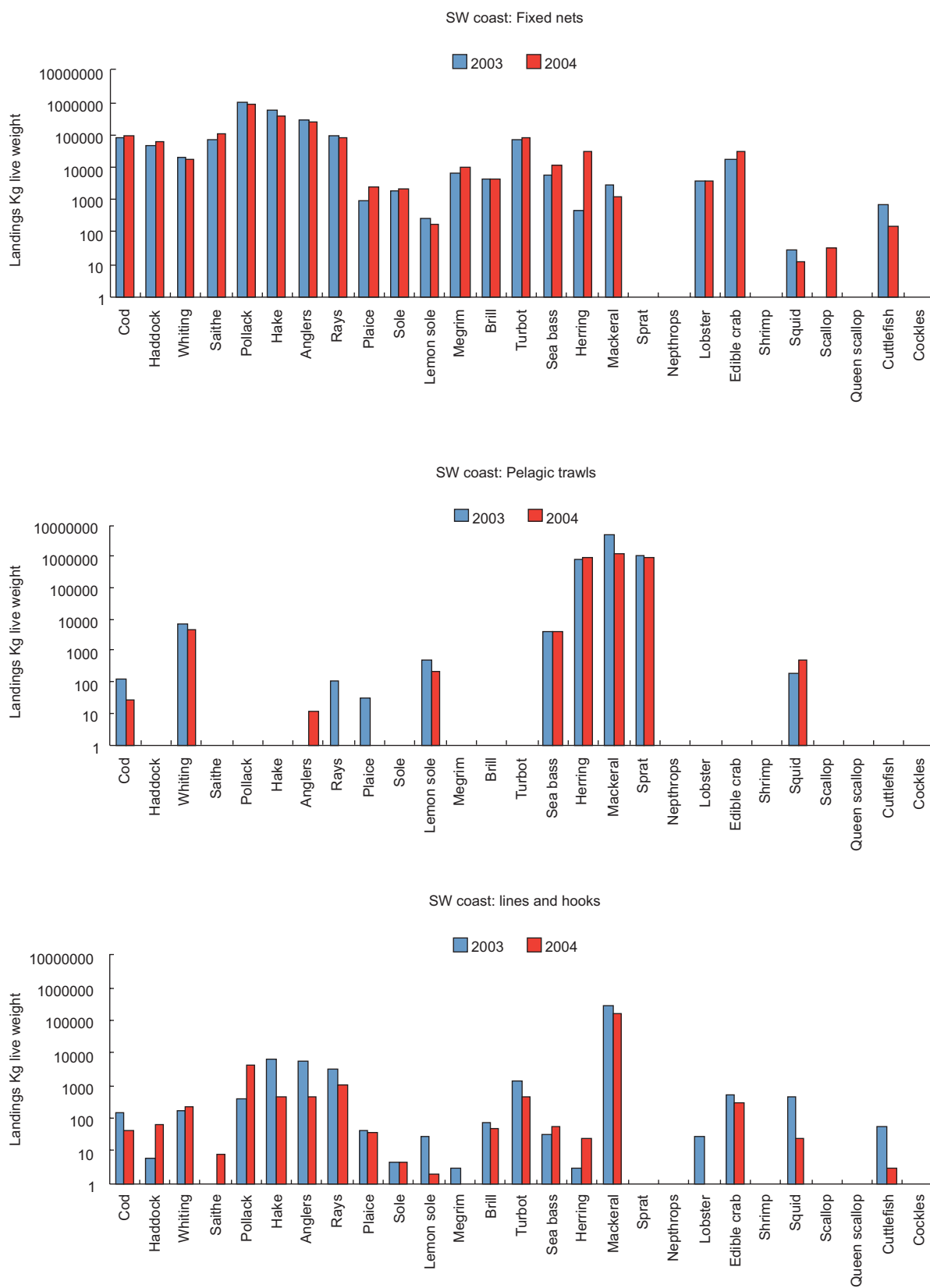
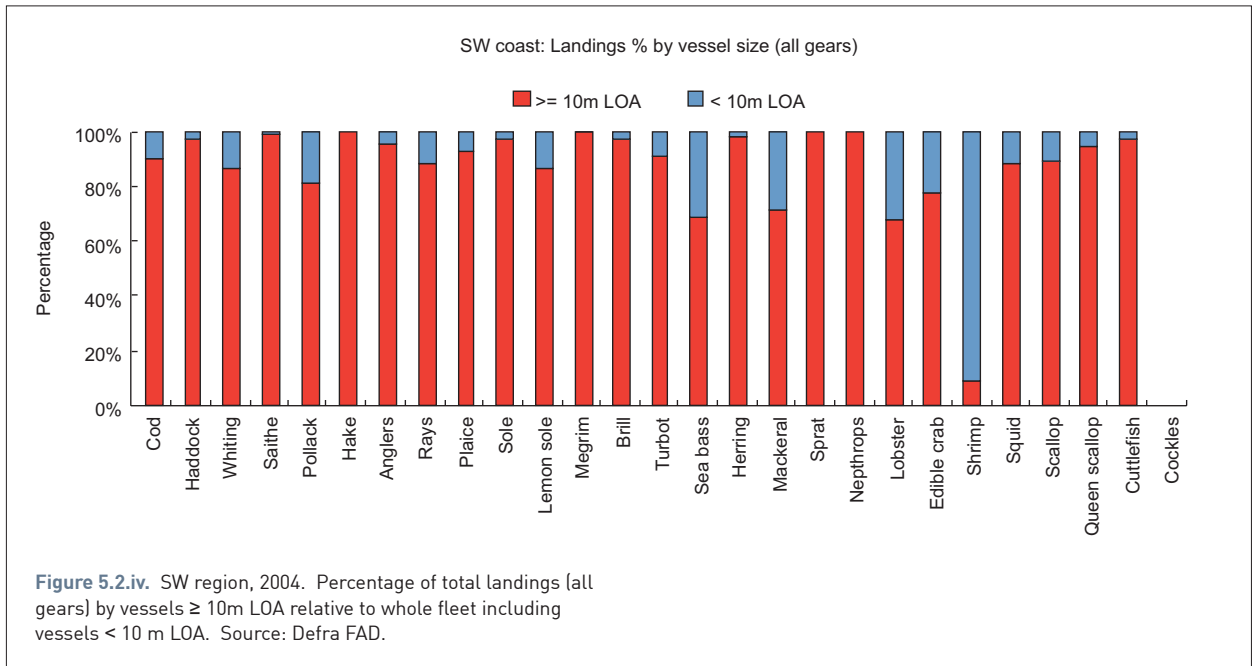
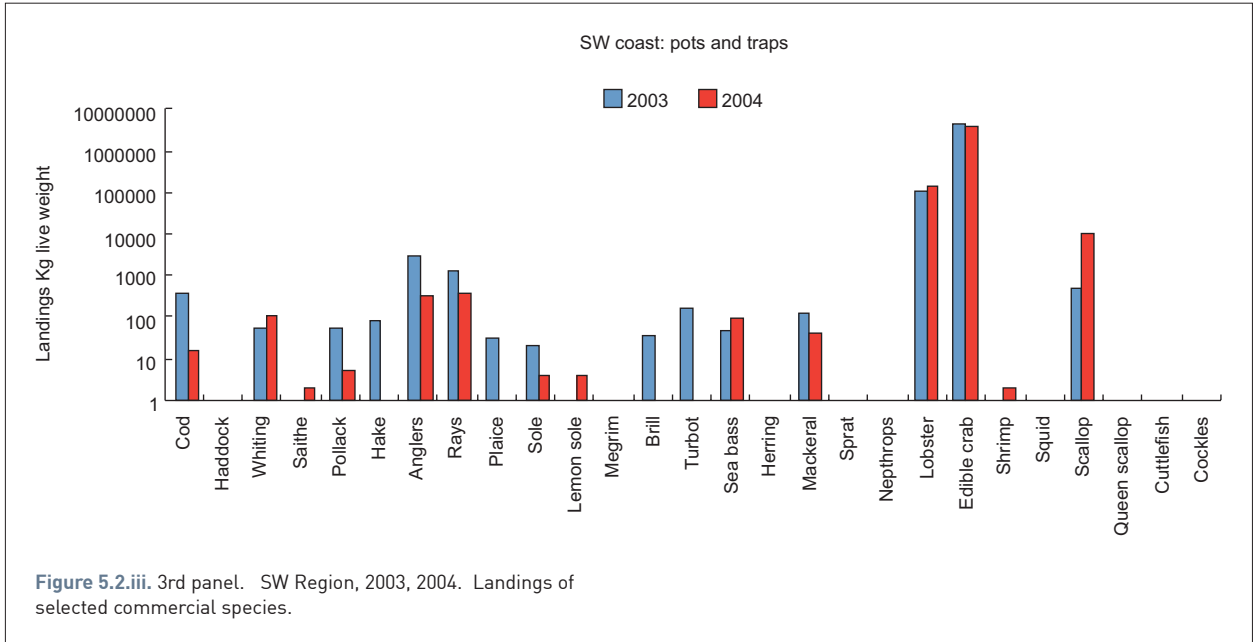


Figure 5.2.iii. 2nd panel. SW Region, 2003, 2004. Landings of selected commercial species.



5.3. Observer programme

5.3.1 Observer effort

In 2004, a total of 98 fishing trips from the SW region were observed by Cefas. These included beam trawlers fishing 80 mm mesh cod ends, demersal trawlers fishing 80 to 100 mm cod ends, fixed nets with mesh size 120-300 mm, scallop dredgers with 75 to 80 mm rings, and potters. The observed trips originated from 21 different fishing ports including all of the largest in the region.

A summary of observer activity from ports between Lymington and Aberystwyth is given in table 5.3.1.i. [Note that the total is shown as 102 trips, not 98 due to multiple counting of 3 trips in quarters 3 and 4 during which the fishing gear changed once or twice.] Observer effort is compared with actual fishing effort by the over 10 m fleet in table 5.3.1.ii for three measures: trips made, days absent (at sea), and hours fishing. Note that high values of hours fishing can be observed for static gears, such as nets, pots, and lines, when multiple deployments are retrieved on a single trip. In general, most gears were observed between 0.3 and 1.3% of total effort implying that an even coverage of the fishing fleet was achieved. Mid-water trawlers received relatively low effort. This was because of difficulties getting onto the active vessels, some of which were based in Scotland, and some of which were already carrying cetacean by-catch observers employed by the Sea Mammal Research Unit. Potters received relatively lower observer effort due to their lower priority for observation under the EC Data Collection regulation (because many of the discards are alive).

The locations of observed hauls sorted by major gear groupings are shown in Figure 5.3.1.i. Beam trawlers targeting flatfish and anglerfish were observed fishing in three main aggregations, one to the south of Devon and around Start Point, another south west of the Scilly Isles, and a third to the north west of Cornwall, off Padstow. Demersal trawlers were observed to the east and west of Start Point, around the Scilly Isles, and at the entrance to the Bristol Channel. Fixed nets were observed mainly to the south and west of Cornwall. Long-lining was observed off Lands End, and potting at two locations, one off Portland, the other off Lands End. Scallop dredging was observed south east of the Lizard, in Lyme Bay, and off Shoreham.

5.3.2 Summarised results

Estimated numbers of fish discarded for trips observed in 2004 (see table 5.3.1i) are shown for several commercially important species and all gear groups in table 5.3.2.i. Also shown are the numbers discarded as percentages of the total numbers caught (= discarded + retained). Summarising results for 2004, discarding of more than 60% of the numbers caught by beam trawl was observed for rays, edible crab, mackerel, cod, haddock, whiting, and hake. 70% discarding by demersal trawls or higher was observed for edible crab, cod, whiting, and hake. The whiting were caught in relatively large numbers, the other species less so. Dredgers were not observed to catch large numbers of whitefish except for rays which were all discarded, as were the edible crabs. However, 48% of the target species, the scallop, was discarded. 100% discarding of large numbers of mackerel was observed for fixed nets. Many edible crabs were also discarded. Lines and pelagic trawls were not associated with discarding of any of the species listed, while for pots, discarding of large proportions of the lobsters and crabs caught was recorded. Shellfish discarded from pots are likely to be in good condition and to survive.

Estimated weights (in Kgs live weight equivalent) of fish discarded for the trips observed in 2004 (see table 5.3.1.i) are shown for several commercial species and four gear groups in table 5.3.2.ii. The proportions discarded by weight are generally lower than those relating to numbers of fish because most discarded fish are small. The picture of discarding given by estimated weights is similar to that given in terms of numbers in table 5.3.2.i. The large average size of cod discarded from fixed nets is notable, i.e. $215/37 = 5.8$ Kg. It is also noticeable that a larger percentage of cod by number was discarded by demersal trawls than by beam trawls but a larger percentage by weight was discarded by beam trawls than by demersal trawls, i.e. the other way round. The tabulated figures indicate that the average weight of cod discarded during beam trawl trips was 1.32 Kg, and that for demersal trawls was 0.38 Kg, a substantial difference.

Table 5.3.1.i, 1st panel. Activities of Cefas observers aboard commercial fishing vessels leaving from ports between Lymington and Aberystwyth in the south-west region during 2004. Note that 'hours observed' is total soak duration for all static gears retrieved on the trip. This page: quarters 1 and 2; next page: quarters 3 and 4

Table 5.3.1.i. 1st panel. Activities of Cefas observers aboard commercial fishing vessels leaving from ports between Lymington and Aberystwyth in the south-west region during 2004. Note that 'hours observed' is total soak duration for all static gears retrieved on the trip. This page: quarters 1 and 2; next page: quarters 3 and 4.

YEAR	QUARTER	GEAR	TRIPS OBSERVED	DAYS AT SEA	HAULS FISHED	HAULS SAMPLED	HOURS OBSERVED
2004	1	Beam trawl	7	41	268	167	358.82
2004	1	Midwater trawl	1	1	1	1	1.00
2004	1	Otter trawl	9	11	27	25	105.92
2004	1	Palour pots	1	1	5	1	336.0
2004	1	Drredge	2	2	18	16	8.4
2004	1	Fixed net	1	6	21	21	559.49
2004	1	Twin otter trawl	1	4	13	11	50.92
TOTAL qtr 1:			22	66	353	242	1420.55
2004	2	Beam trawl	6	33	199	137	334.52
2004	2	Mixed pots	2	2	16	14	513.00
2004	2	Otter trawl	9	16	40	38	147.40
2004	2	Parlour pots	1	1	3	3	504.00
2004	2	Tangle nets	5	5	32	32	3936.00
2004	2	Dredge	2	9	63	42	44.82
2004	2	Twin otter trawl	1	2	6	5	23.58
2004	2	Gill net	1	2	7	6	168.17
TOTAL qtr 2:			27	70	366	277	5671.49

Table 5.3.1.i. 2nd panel. Activities of Cefas observers; SW region, 2004, quarters 3 and 4.

YEAR	QUARTER	GEAR	TRIPS OBSERVED	DAYS AT SEA	HAULS FISHED	HAULS SAMPLED	HOURS OBSERVED
2004	3	Beam trawl	5	34	230	154	359.07
2004	3	Gill net	2	13	35	25	582.41
2004	3	Long lines	1	1	17	16	190.58
2004	3	Mixed pots	1	1	12	10	1824.00
2004	3	Other trawl	10	15	40	26	89.09
2004	3	Tangle net	2	9	26	6	532.50
2004	3	Dredge	2	11	114	75	81.12
2004	3	Twin otter trawl	2	8	21	18	86.41
2004	3	Trammel net	1	8	23	3	229.25
TOTAL qtr 3:			26	100	518	333	3974.43
2004	4	Beam trawl	7	44	302	199	435.75
2004	4	Gill net	1	8	49	35	689.50
2004	4	Otter trawl	13	20	60	44	173.17
2004	4	Parlour pots	1	1	6	1	216.00
2004	4	Tangle nets	1	1	4	4	209.25
2004	4	Dredge	2	7	59	38	39.72
2004	4	Twin otter trawl	2	6	21	15	64.33
TOTAL qtr 4:			27	87	501	336	1827.72
Total 2004			102	323	1738	1188	12894.19

Table 5.3.1.ii. Total observer effort data by gear from Table 5.3.1.i and, in brackets, equivalent percentages of fleet effort taken from Table 5.2.ii.

EFFORT MEASURE	BEAM TRAWL	DEMERSAI TRAWL	FIXED NETS	DREDGE	MID-WATER TRAWL	POTS	LONG LINE
Trips	25 (1.2%)	47 (0.6%)	14 (0.8%)	8 (0.3%)	1 (0.3%)	6 (0.2%)	1 (0.4%)
Days absent	152 (1.3%)	82 (0.7%)	52 (0.90%)	29 (0.7%)	1 (0.2%)	6 (0.1%)	1 (0.3%)
Hours	1488 (0.9%)	741 (0.6%)	6907 (-)	174 (0.3%)	1 (0.02%)	3393 (0.1%)	191 (1.4%)

Figure 5.3.1.i. SW Region, 2004. Locations of observed hauls by major gear group.

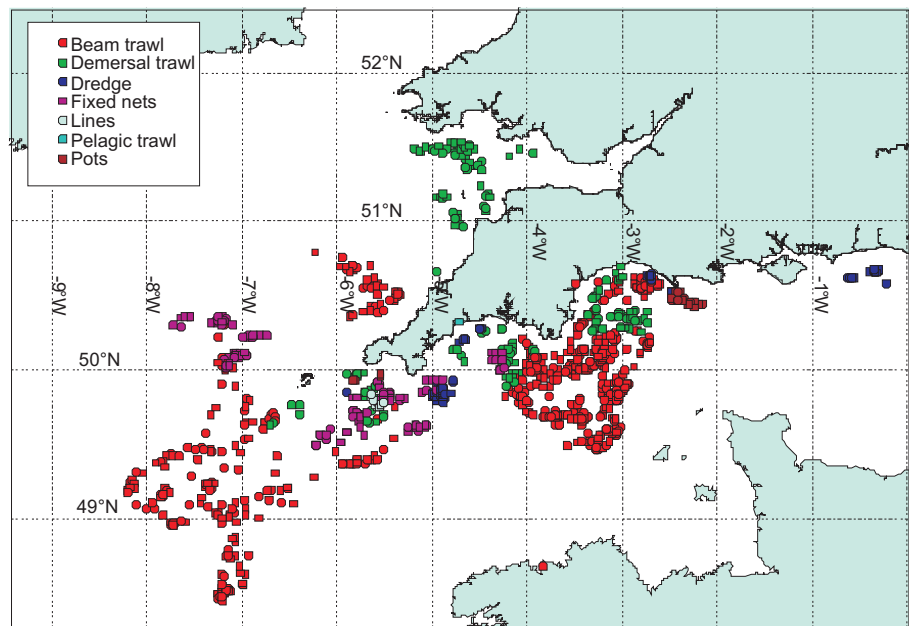
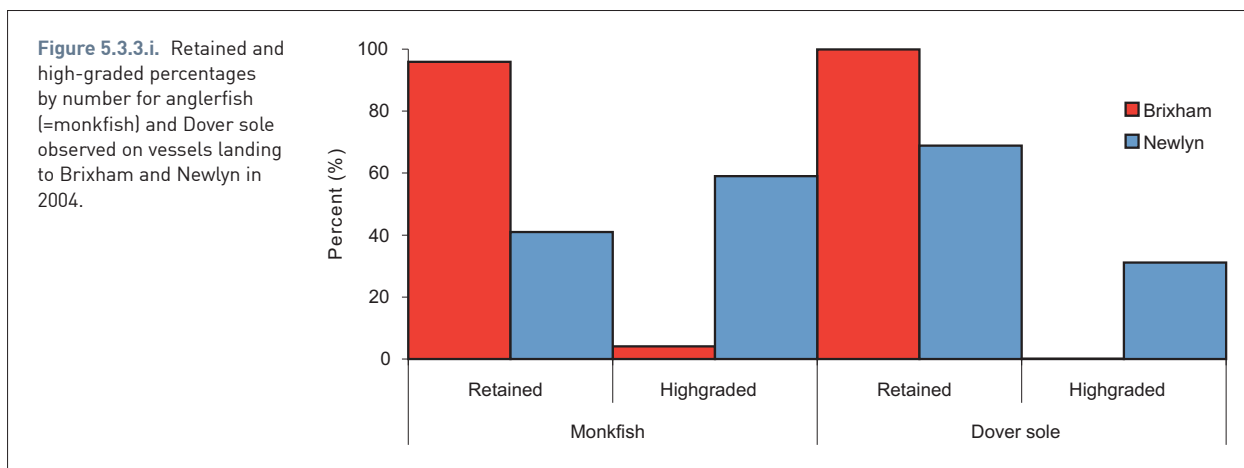


Table 5.3.2.i. SW region, 2004: Discards as numbers of fish and, in brackets, as percentages of numbers caught by species and gear group as estimated for the observed trips referred to in Table 5.3.1ii.

SPECIES	2004						
	BEAM TRAWL	DEMERSAL TRAWL	DREDGE	FIXED NETS	LINES	PELAGIC TRAWL	POTS
Cod	496 (61%)	330 (73%)	0 (0%)	37 (8%)	0 (0%)	0 (0%)	0 (0%)
Haddock	4134 (73%)	809 (48%)	2 (100%)	66 (10%)	0 (0%)	0 (0%)	0 (0%)
Whiting	7021 (77%)	16834 (70%)	1 (100%)	95 (28%)	0 (0%)	0 (0%)	0 (0%)
Hake	1614 (76%)	103 (58%)	0 (0%)	113 (5%)	0 (0%)	0 (0%)	0 (0%)
Plaice	6183 (17%)	7741 (52%)	45 (87%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sole	3004 (7%)	34 (2%)	6 (5%)	1 (4%)	0 (0%)	0 (0%)	0 (0%)
Lemon sole	7345 (38%)	4993 (42%)	17 (7%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Rays	15077 (87%)	1776 (47%)	372 (100%)	24 (17%)	0 (0%)	0 (0%)	0 (0%)
Scallops	2252 (22%)	73 (46%)	260558 (48%)	13 (42%)	0 (0%)	0 (0%)	0 (0%)
Lobster	32 (23%)	17 (54%)	5 (60%)	2 (10%)	0 (0%)	0 (0%)	82 (44%)
Edible crab	7414 (82%)	356 (94%)	905 (100%)	1525 (89%)	0 (%)	0 (%)	7059 (64%)
Mackerel	1088 (100%)	1501 (62%)	0 (0%)	14658 (100%)	0 (0%)	0 (0%)	0 (0%)
Brill	20 (1%)	8 (5%)	8 (15%)	10 (28%)	0 (0%)	0 (0%)	0 (0%)
Pollack	0 (0%)	0 (0%)	0 (0%)	21 (8%)	0 (0%)	0 (0%)	0 (0%)
Squid	2067 (39%)	350 (2%)	6 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Anglerfish	11776 (50%)	235 (28%)	17 (2%)	23 (9%)	0 (0%)	0 (0%)	0 (0%)

Table 5.3.2.ii. SW region. 2004: live weights (in Kgs) of fish discarded by species and gear group as estimated for the observed trips referred to in table 5.3.1.ii. Discards as percentages of weights caught are shown in brackets.

SPECIES	BEAM TRAWL	DEMERSAL TRAWL	DREDGE	FIXED NETS
Cod	657 (30%)	124 (24%)	0 (0%)	215 (8%)
Haddock	1192 (44%)	167 (22%)	1 (100%)	112 (10%)
Lemon sole	1114 (20%)	639 (22%)	11 (10%)	0 (0%)
Mackerel	80 (100%)	270 (51%)	0 -	2503 (100%)
Megrim	3250 (16%)	5 (2%)	20 (100%)	14 (7%)
Anglerfish	3485 (10%)	29 (3%)	12 (1%)	99 (6%)
Plaice	1212 (8%)	1239 (36%)	33 (78%)	0 (0%)
Rays	4133 (51%)	764 (16%)	463 (100%)	34 (12%)
Sole	827 (5%)	5 (1%)	3 (4%)	0 (2%)
Whiting	1831 (66%)	3066 (53%)	0 (100%)	68 (22%)



5.3.3 Factors affecting discarding

High grading of Dover sole and anglerfish.

Variations in discarding for Dover sole and anglerfish caught by beam trawlers landing to Brixham and Newlyn were observed in 2004. The discarding is related to high grading, the practice of discarding marketable fish when new catches bring individuals of higher value. This section provides a brief analysis of the situation. High-graded individuals were assumed to include all discards over the MLS of 24 cm for Dover sole. For anglerfish (no MLS), high-graded individuals were taken as those in size groups that are usually landed.

Figure 5.3.3.i shows high-graded individuals as percentages of numbers retained as observed for the two species on board vessels landing to Brixham and Newlyn. High-grading for both species was higher on the Newlyn vessels. However, the length frequency distributions (LFDs) of the observed catches do not explain why this is happening. See Figure 5.3.3.ii. The Brixham vessels were fishing in the western Channel (ICES VIIe) whilst the Newlyn vessels were fishing in more westerly grounds off Lands End (ICES VIIh). The LFDs for anglerfish indicate that the Newlyn vessels were catching relatively more small, and relatively fewer large individuals than the Brixham vessels. The LFDs for sole were more nearly similar but there was substantial discarding of fish over 24 cm by Newlyn vessels. Further investigations of other possible explanatory factors, notably quota – see below, or market prices have not been possible. In conclusion, there were substantial disparities in discarding practices between vessels landing to geographically close ports in the SW but the reasons for this are not clear.

Other observations

The reasons for discarding of trawl caught fish in the SW are believed to be due to lack of quota for cod in particular, and lack of size and quality for many other species leading to poor anticipated prices. Vessels may also have been conserving quota for whiting and haddock for future trips when a larger, better run of fish might be caught.

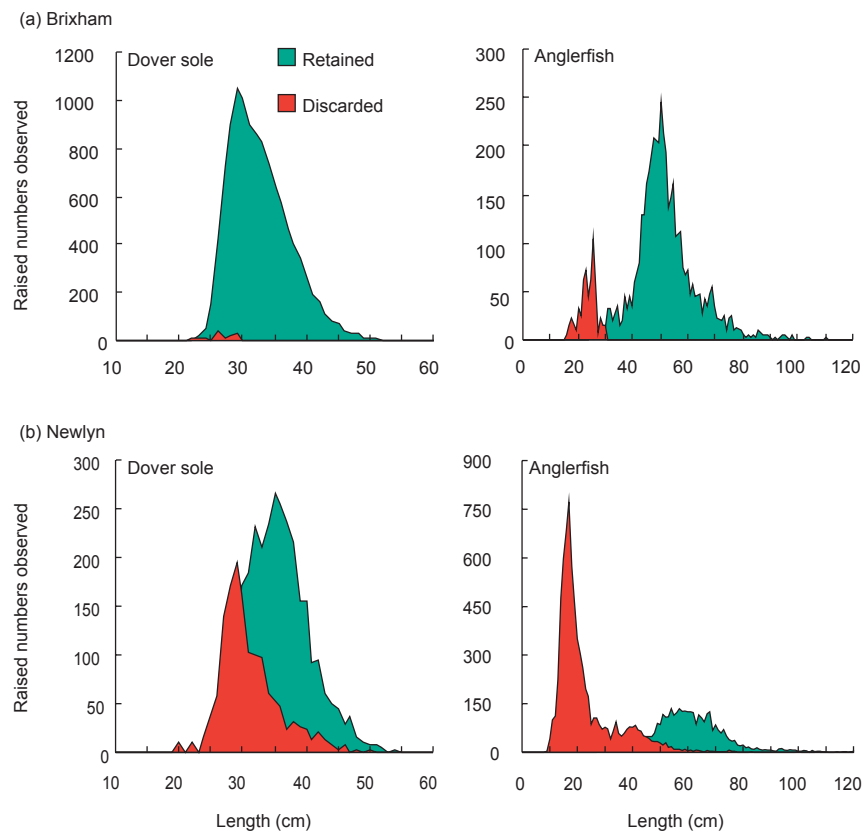
Newlyn beam trawlers target megrim, Dover sole, and anglerfish. Discarding of all three species is affected by quota restrictions. The discards are often high-graded individuals (see preceding section). It was observed that skippers spent 2004 constantly struggling to fish responsibly within limited available quota, often moving away from good fishing to avoid high levels of discard on target stock such as monkfish and Dover sole.

Brixham trawlers target cuttlefish, plaice, and Dover sole. Discards of these species tended to be below MLS, rather than over-quota. Damage during towing is another common reason for discarding by trawlers, and damage by crabs, seals, etc causes discarding of fish by netters. Discarding practices vary considerably from boat to boat and between different members of the crew.

Megrims just above the MLS were often discarded by Newlyn beam trawlers as these fish made very little money at market. Also, megrim have soft flesh that is susceptible to bruising by boulders caught in the trawl or when fishing in rough weather, resulting in lower market price.

Discards of haddock, pollack, whiting, hake and ling by netters are almost entirely due to damage by seals, 'lice', conger eels and crabs. Some of the cod discards can be similarly accounted for.

Figure 5.3.3.ii. Length frequency distributions for retained and discarded sole and anglerfish observed on vessels landing to a) Brixham and b) Newlyn during 2004.



5.4 Fishing industry views

These views were gleaned by observers from conversations with owners, skippers, and crew onshore and offshore during 2004. They are presented for information only and to promote discussion, not as formal statements of position. Concerning the observer programme itself, some felt that there was a need to increase the amount of sampling to create a better picture of the fishery, but, overall, the majority in many different types of fishery expressed contentment with the Cefas observer programme and the coverage achieved in the SW. The following more specific comments are grouped according to their source within the SW fishing industry.

5.4.1 Trawlers from north Devon and Cornwall

1. "Foreign effort, particularly beam trawlers, should be excluded from within the 12-mile limit." Local trawlers fish within the twelve-mile limit and, since many Belgian beamers are allowed within the six-mile limit, any increase in effort from that sector (as experienced over the last three years) will directly impact the local boats.

2. "Quota management should be abolished in exchange for control of fishing effort." Some believe that this method of management would reduce the numbers of fish being thrown back dead.

3. "Existing fishery regulations should be enforced more effectively, especially to prevent vessels fishing illegally inside the 12 mile limit."

5.4.2 Beam trawlers from Brixham

1. "Combine ICES division VIId with division VIle for purposes of stock assessment (particularly for Dover sole)". They are thought by many skippers to be one biological stock.

2. "Allow vessels fishing outside the 12-mile limit to land all that they catch to create a true picture of the fishery." Many see this as being the best way to make a positive move towards the future.

3. "Introduce a decommissioning scheme to specifically target SW beamers."

4. "Establish No Take Zones (NTZ) in the English Channel to be closed to all types of fishing."

5. Company vessels and other vessels fishing with large amounts of bought-in quota generally want to see technical measures (i.e. gear selectivity measures) introduced, rather than controls on days at sea

6. Several private owners, who rely on quota allocated by Fish Producer Organisations together with whatever they can lease, would like to see effort control in the form of days at sea. This view is widely supported by fishing crews.

7. One skipper expressed very strong views on quota and licences being used as a commodity. Instead, he would like the return of all privately held quotas and licences to a pool from which they can be used to the benefit of all. A Government controlled quota and licence pool is likely to encourage new blood to invest in the industry.

8. "There should be closer inspection, and tighter control of engine power output." Although not widely mentioned, when this subject came up opinions were often very strong.

9. Confidentiality of data is an extremely important factor to the Brixham Beamer fleet. This is an opinion widely held amongst skippers, owners and crew. The basic premise being: "Science and enforcement should not be mixed".

5.4.3 Otter trawlers from Brixham

1. One or two skippers would like to see more consistent enforcement of the 12-mile limit and general landing practices.

2. Several skippers expressed doubt and distrust over the introduction of Independently Transferable Quotas (ITQ's). One skipper in particular had seen this management tool used in New Zealand and felt it would spell the end for small owner-skipper companies.

3. "There should be more feedback from Cefas and DEFRA." Several skippers expressed this view suggesting that Cefas could do more for public relations within the industry.

5.4.4 Falmouth Bay otter trawlers

1. It is a widely held belief amongst Plymouth and Looe skippers that the decline in fishing to the south of Eddystone lighthouse can be attributed to the Royal Navy significantly increasing its exercise area and the frequency of exercises, particularly low frequency sonar testing for submarines.

2. Many also suggest that the use of Active Sonar during these exercises could contribute to increased casualties of cetaceans on the south coast. All acknowledge an

increase in the abundance of cetaceans, particularly common dolphins, in the Start point to Lizard area.

3. Inshore gill-netters are blamed by several trawler skippers for indiscriminate shooting and management of gear resulting in many square miles of barren ground for trawlers.

5.4.5 Beam trawlers from Newlyn

1. "Quota management has failed the fishing industry as it does nothing to conserve fish stocks and pollutes the seabed with discarded fish."

2. "Concept of quota management fails to acknowledge that a fishing vessel puts to sea to catch as much fish as possible in as short a time as possible".

3. A preference was noted amongst skippers and crews for effort control as a management tool instead of quota control and technical measures. Reasons for this are to prevent the indiscriminate dumping of over-quota fish.

4. There was a concern amongst some that at-sea sampling may be biased if fishing practices are altered due to lack of quota.

5. Generally, no-take-zones (NTZs) would be acceptable if they were properly managed and dynamic enough to react quickly to changing situations.

6. Many feel the SW fishery is too diverse for any single technical measure to promise clear benefits.

7. For most species, available quota did not seem to tally with available stocks. This was a widely held belief in 2004 and is probably in part due to the relative abundance of anglerfish and sole.

5.4.6 Fixed netters

1. Most skippers talked of a scarcity of cod in the Bristol Channel.

2. Most vessels had to buy hake quota in order to exploit this fishery effectively throughout 2004.

3. Many skippers and crew were sensitive to the levels of brown crab discards.

4. One or two skippers felt that monk and sole quota/allocations should be issued to each vessel on a yearly basis, allowing them to manage their fisheries more effectively and to take full advantage of the few times when these species are abundant.

5.4.7 Scallop dredgers

A grievance shared by most skippers concerned increased effort by Celtic scallopers in the English Channel. A fleet of approximately 25 vessels each equipped with 36 fully automated dredges descended on the English Channel en masse during 2004. They left their decimated home

stocks behind to continue their unsustainable fishing practices in distant waters. Beds that previously endured economically sustainable fishing for up to 2 months by the south-western fleet, recently only lasted for 2 weeks. Some grounds, such as those in Falmouth Bay, the Ushant and Lyme Bay have been fished so hard, that they could no longer provide a wage.

5.5 Points of biological interest

A selection of observations of marine life made from sampled fishing vessels during 2004 is presented below in case any should be of interest.

5.5.1 Mammals

Cetaceans

Common dolphins (*Delphinus delphis*) were observed on numerous trips on the south coast and north coast. Two Minke whales (*Balaenoptera acutorostrata*) observed breaching and sky pointing, approximately 25 miles SSE of the Scillies (VIIe, 28E3). Bottlenose dolphins (*Tursiops truncatus*) were observed in area off Start Point (ICES division VIIe sub-rectangle 29E6).

Common dolphins were observed in abundance throughout the area throughout the year.

5.5.2 Invertebrates

Jellyfish

An immense bloom of small jellyfish was observed in July, to the East of Lundy Island (VIIIf, 31E5) probably moon jellies (*Aurelia aurita*).

Cuttlefish

Cuttlefish egg masses were observed approximately 6 miles from Bolt Tail to West of Start Point. The cuttlefish season in 2003/2004 would seem to have lasted much longer than recent years. The beginning of the cuttlefish fishery towards the back end of 2004 promised to be very good indeed although this was tempered by generally poor prices at market.

Squid

Squid egg mass were observed on several trips in Falmouth Bay. Some reports from static gear fishermen that they have not seen so much squid egg mass attached to their pots or nets for years.

5.5.3 Fish

Flatfish

Usually from the 1st or 2nd spring tide in February lemon

sole begin to aggregate in large numbers from Salcombe to Plymouth before moving west as the season progresses. Catch rates were described as average to good by most vessels sampled in 2004.

A change in the nature of the lemon sole fishery in Lyme Bay and Falmouth Bay seems to be occurring. Catches have dropped year on year yet there is evidence to suggest that the fishery is lasting longer than it used to. Lemon sole usually move west from Lyme Bay on the first or second spring tide in February. Lemon sole have been observed in hyaline state as late as August.

Plaice were observed in state of hyaline and running maturity as late in the year as May and June in Bristol Channel.

An apparent nursery area for plaice and sole was observed in Lyme Bay in the area of Beer rough (ICES division VIIe, sub-rectangle 30E6) within 6-mile limit.

Juvenile and immature megrim were observed on ground to the south-west of the Bishop Rock.

Roundfish

Juvenile cod, haddock and hake were observed on ground to the south of Lundy Island (ICES division VIIIf, stat. Rect. 31E5) in some abundance.

A small and isolated population of large and 'jumbo' haddock was observed on very hard ground to the south of Salcombe within 6 miles from the shore (ICES division VIIe sub-rectangle 29E6). Also to the south of Dodman Point (ICES division VIIe sub-rectangle 29E5).

Juvenile codling were observed in abundance North of Wolf Rock (ICES division VIIe and VIIIf, sub-rectangle 28E4 and 29E4) during early summer, feeding heavily on squat Lobsters (*Munida rigosa* and *Galathea strigosa*).

Pelagic fish

Several twaite shad (*Alosa fallax*) were observed in Lyme Bay throughout the year. Twaite shad and allis shad (*Alosa alosa*) were observed to the Northwest of Scillies (ICES division VIIIf&g, sub-rectangles 29E2 and 29E3).

Juvenile black sea bream (*Spondyliosoma cantharus*) and red mullet (*Mullus surmuletus*) were abundant in Lyme Bay (ICES division VIIe sub-rectangle 29E6, 30E6, 29E7 and 30E7).

Skates, rays, dogfish

Distribution of skates and rays is varied throughout the area. Cuckoo ray (*Raja naevus*) and spotted ray (*R. montagui*) are found in all areas. Common skate (*R. batis*) and shagreen ray (*R. fullonicus*) are predominantly found on muddy ground to the west and south west of Lands

End. Blonde ray (*R. brachyura*) and painted or small-eyed ray (*R. microocellata*) tends to prefer seabed banks and is generally found on inshore grounds. Undulate ray (*R. undulata*) are seldom found west of Longitude 4 degrees West and are confined to the English Channel and Channel Islands. Small and localized populations of sandy ray occurred on muddy ground to the west of the Scillies.

When fishing for ray it is necessary to keep the guts and backs of these fish aboard the boat to avoid 'spooking' the remaining fish from the ground. This phenomenon is well known throughout the south-west and is a major reason why skates and ray are traditionally landed whole on Newlyn market, the wings being removed after first sale and the backs then sold as crab bait.

After prolonged periods of bad weather it is not uncommon to find fishing grounds near Brixham inundated with lesser-spotted dogfish. During the first couple of days of renewed fishing activity discard rates of this species can be very high.

5.6 Points of fishery interest

A selection of points that came to the attention of observers during 2004 is presented below in case of interest:

Trawling

In recent years modern twin-rig trawling techniques have increasingly been used on the lucrative ray fisheries to be found in the Bristol Channel. This technique of fishing has the added advantage of increasing catch rates on prime species of flat fish.

Several sightings of French pair teams in the area of East Channel Light are representative of the level of effort from this sector on the Channel bass stock.

The lemon sole fishery (Falmouth Bay) demands a very different fishing tactic than general trawling practices. In order to be successful "lemon gear" should be rigged as light as possible to allow maximum spread of the doors, combined with long lengths of bridle and warp it is not unusual for lemon gear to be over 1.5km long from boat to cod-end and have a spread between the doors of up to 250m.

Beam trawling

Increased numbers of Belgian beamers were reported to be fishing into the 6-mile limit along the north coast of Devon and Cornwall and targeting Dover sole and sand sole.

Beam trawl design has changed somewhat in Brixham in recent years in an attempt to prevent accidental catches

of large amounts of sand and pebbles. Trawls tend to be tighter nowadays with less net in the wings and bellies. This may be because vessels are trying to exploit ground that has been left alone in the past.

Tide has a very important impact on catch rates of beam trawlers from Newlyn. They tend to experience the best fishing several days either side of Spring tides and the worst fishing over neap tides.

Netting

Damage to caught fish in gill nets caused by seals is seen as an increasing problem. It is possible that the reason for this is not an increase in the number of seals (though seals are capable of learning these "thieving" skills), rather an increase in the amount of tangle net being shot throughout the year and therefore an increase in soak times, thus allowing the seal more time to find the net.

Caught fish in a net, whether dead or alive, seem to attract living fish to the area. When shooting tangle net for turbot in the summer it is hoped the net will catch hen fish as these then can attract many breeding males into the capture area. Turbot can remain alive in a gill net for several days after capture.

Brown crab discards (especially females) can be very high. These crabs are often smashed in order to get them out of the net quickly and the only part retained is the claw. Male crabs are often treated with greater care as they make good money at market. The level of brown crab discard can increase in November-December, as this species is known to be more mobile at this time. Shellfish buyers increased the minimum size that they would accept for brown crab from 150mm to 160mm as the returns from small crab were too low to make the processing viable.

Industrial fishing

Early 2004 saw some evidence of industrial fishing being conducted to the far SW around Kaiser-i-hind bank and Parsons Bank. Several large Danish "tank" boats were observed pumping catch in this area.

Potting

Nothing to report.

6. North West Region

6.1 Introduction

The North Welsh and North West English region (NW for short) is here defined as all ports from Aberdovey and Barmouth to Carlisle. A map of the NW region, the principal towns and fishing ports, and bathymetry is shown in Figure

6.1.i. The main fish market in 2004 was at Fleetwood. Fish landed at other ports were often over-landed to Fleetwood for sale. Landing facilities including freezer storage was available at Whitehaven and Maryport, the second largest ports in the region

Figure 6.1.i. Map of the North West coastal region showing principal towns and fishing ports, bathymetry, and degrees of longitude and latitude.



6.2 NW Effort and landings

6.2.1 Defra FAD statistics

Tables 6.2.i and 6.2.ii show official Defra data for four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports along the NE coast for 2003 and 2004 respectively. Comparison of the two years shows that fishing effort generally decreased in most gear groups although the situation is not clear in all cases because it depends on which effort measures are compared. However, netting by the one active vessel in the group apparently increased, and potting and trapping increased over all measures in 2004. Hours fishing in that group increased by 43%. Also shown in table 6.2.ii are the numbers of days absent from port by vessels < 10 m LOA during 2004. The data indicate that potting and trapping, demersal trawling and beam trawling were the most important fishing techniques for the smaller vessels. The < 10 m LOA vessels spent more days at sea beam trawling and netting than the ≥ 10 m LOA vessels in those gear categories.

Figure 6.2.i shows the distribution of fishing effort by landing port along the NW coast in 2004 measured as days absent from port for vessels ≥ 10 m LOA. Demersal trawling was most important from Fleetwood, Whitehaven, and Maryport. Potting was most important from Holyhead but was widespread from other ports. Dredging took place from Holyhead. Fishing of some sort took place from most other ports without any one being particularly important for a certain type of fishing.

Figure 6.2.ii indicates the different levels of fishing activity by vessels ≥ 10 m LOA landing to ports along the NW coast in 2004. Activity is measured by days absent from the landing port. Fleetwood and Holyhead had the largest numbers of full time vessels with 6 each operating between 101 and 300 days. Whitehaven had the largest number (13) of nearly full-time vessels operating between 31 and 100 days per year. Fleetwood and Holyhead had the second largest with 5 each. Part-time vessels operating between 11 and 30 days were scarce at all ports. Nearly inactive vessels operating less than 11 days per year were present at Maryport (7), Holyhead (5), Whitehaven (5), and elsewhere in smaller numbers. Some of these apparently inactive vessels may have been visitors from other regions.

Figure 6.2.iii shows landings by vessels ≥ 10 m LOA of a selection of commercial species to ports in the NW region in 2003 and 2004, separated by gear group. A multiplicative (logarithmic) scale is used to reveal the wide range of values as Kg of live weight equivalents. The

landed quantities were mostly slightly up or down in 2004 compared to 2003 with no general trend apparent. The main landings of beam trawlers in the region were sole, plaice, and other flatfish. Shrimps caught by small mesh beam trawlers were also relatively significant but a decline was observed in 2004. Otter and other demersal trawlers depended mainly on rays, plaice, Nephrops, and cod. Their landings of some flatfish equalled or exceeded those of the beam trawlers. Dredgers landed queen scallop and scallop primarily with minor landings of other species in 2004. Cockle dredging was also significant. Netters (Figure 6.2.iii, 2nd panel) landed relatively small quantities with cod, rays, and pollack as the main species. Vessels fishing lines and hooks also landed relatively small quantities with rays and cod the main species. Nephrops trawlers landed mostly Nephrops, plaice and rays. The Nephrops landings in 2004 (14500 Kg) were substantially less than those of the demersal trawlers (163000 Kg). The seiners (Figure 6.2.iii, 3rd panel) mostly landed rays, plaice, and cod. The potters landed lobster and edible crab plus significant quantities of queen scallop in 2004. The landings of edible crab increased substantially from 2500 Kg in 2003 to 24000 Kg in 2004 (but the possibility of a clerical error causing such a large change cannot be ruled out).

Figure 6.2.iv shows the relative importance of the landings in 2004 shown in Figure 6.2.iii for vessels of ≥ 10 m LOA relative to the whole fleet, i.e. including vessels < 10 m LOA. Edible crab and shrimp were the principal species taken by the smaller vessels. For other species, the catch by the larger vessels was predominant.

6.2.2 General observations

An otter trawling fleet was based at Fleetwood, fishing 7-10 day trips to the North Channel or the St Georges Channel, typically working two trips back to back. The middle landing is made wherever is most convenient with the fish transported by road to Fleetwood. Two other 12+ m vessels at Fleetwood typically worked shorter trips targeting plaice and Nephrops in the summer, and cod and rays in the winter and spring. The majority of the Whitehaven fleet targeted Nephrops all year round, working the summer out of Whitehaven and the winter from ports in the North East – notably North Shields. Smaller vessels stayed in Whitehaven targeting flatfish, cod, and rays over the winter. Maryport otter trawlers fished a similar pattern to the resident Whitehaven fleet. However there were also several scallopers typically working 4-day trips from Maryport.

Table 6.2.i. NW Region, 2003. Four measures of commercial fishing effort for vessels $\geq 10\text{m}$ LOA landing to ports between Aberdovey and Carlisle. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Beam trawl	8	90	321	4866
2003	Demersal trawl	35	1313	2783	28535
2003	Dredge	10	216	635	7406
2003	Fixed nets	1	14	30	-
2003	Lines and hooks	2	15	121	39247
2003	Nephrops trawl	6	61	167	1731
2003	Pots and traps	11	402	1310	276313
2003	Seine	2	45	83	780

Table 6.2.ii. NW Region, 2004. Four measures of commercial fishing effort for vessels $\geq 10\text{m}$ LOA landing to ports between Aberdovey and Carlisle. Also shown (in brackets) are days absent for vessels $< 10\text{m}$ LOA. Source: Defra FAD.

YEAR	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2004	Beam trawl	5	54	281(338)	3803
2004	Demersal trawl	32	1121	2417(384)	26174
2004	Dredge	14	169	534(0)	5323
2004	Fixed nets	1	21	59(144)	-
2004	Lines	4	15	50(0)	76182
2004	Nephrops trawl	5	24	59(0)	685
2004	Pots and traps	14	568	1776(328)	397020
2004	Seine	1	22	38(0)	433

Figure 6.2.i. NW Region, 2004. Days absent from port by commercial vessels ≥ 10 m LOA fishing the main gear types and landing to the ports shown. Source: Defra FAD.

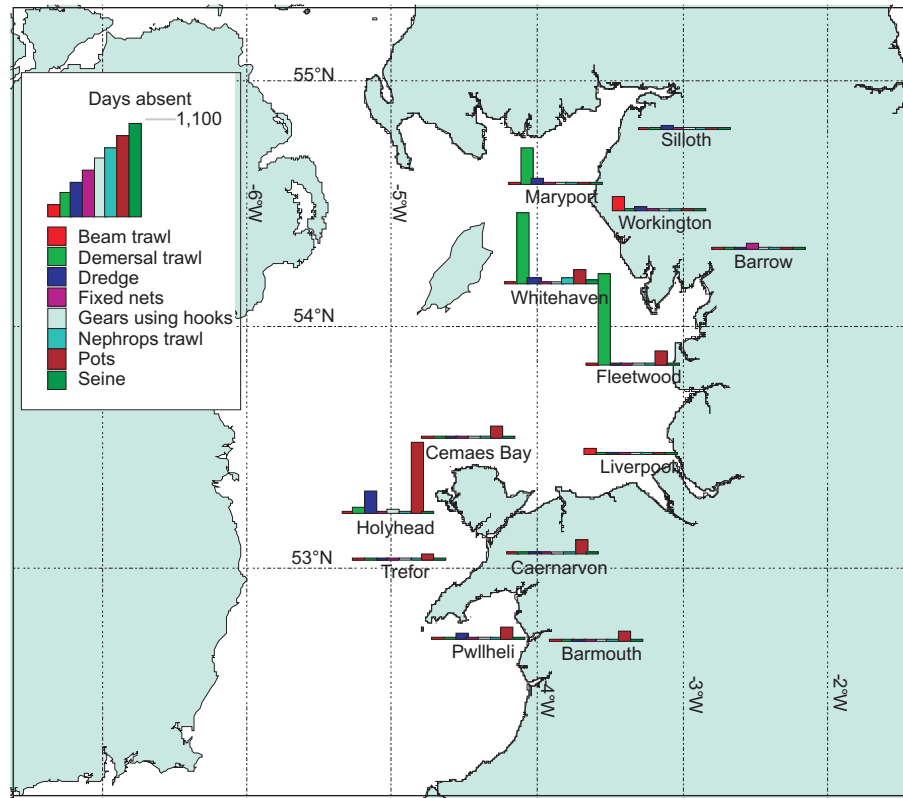
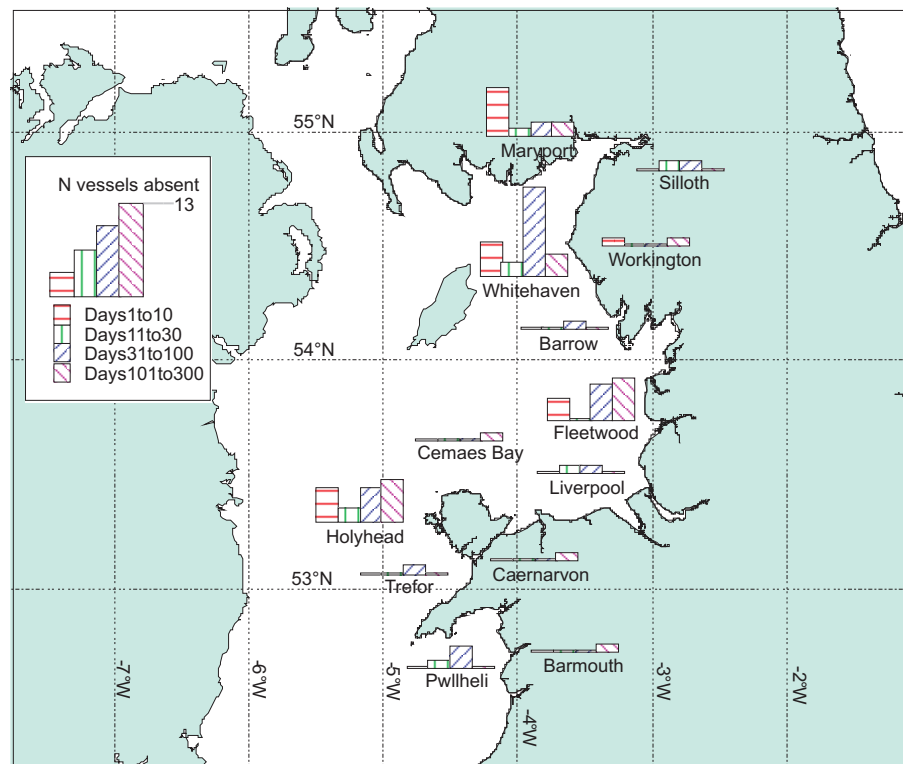


Figure 6.2.ii. NW Region, 2004. Numbers of vessels ≥ 10 m LOA with different levels of fishing activity measured by Days absent from landing port. Source: Defra FAD.



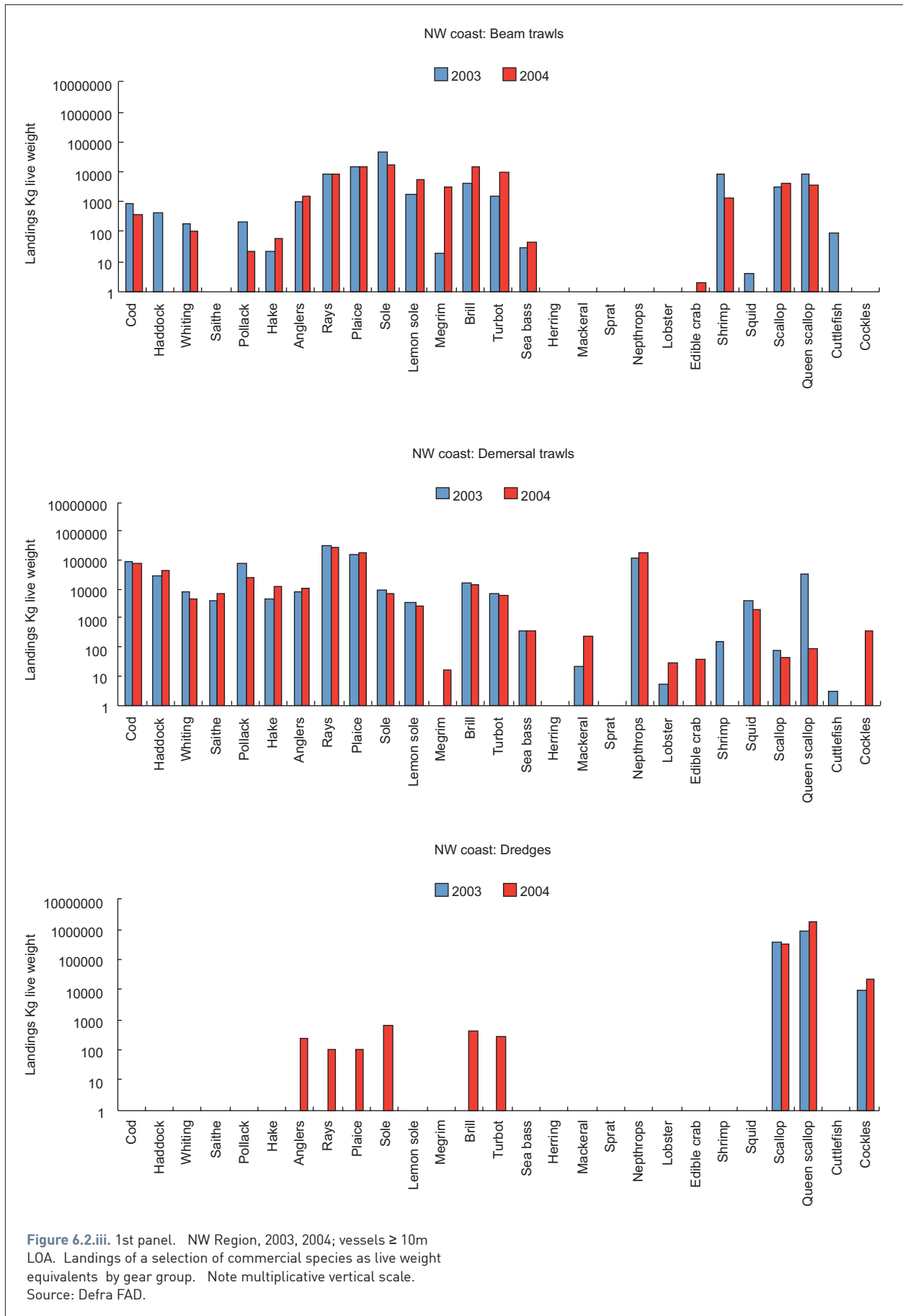


Figure 6.2.iii. 1st panel. NW Region, 2003, 2004; vessels ≥ 10 m LOA. Landings of a selection of commercial species as live weight equivalents by gear group. Note multiplicative vertical scale. Source: Defra FAD.

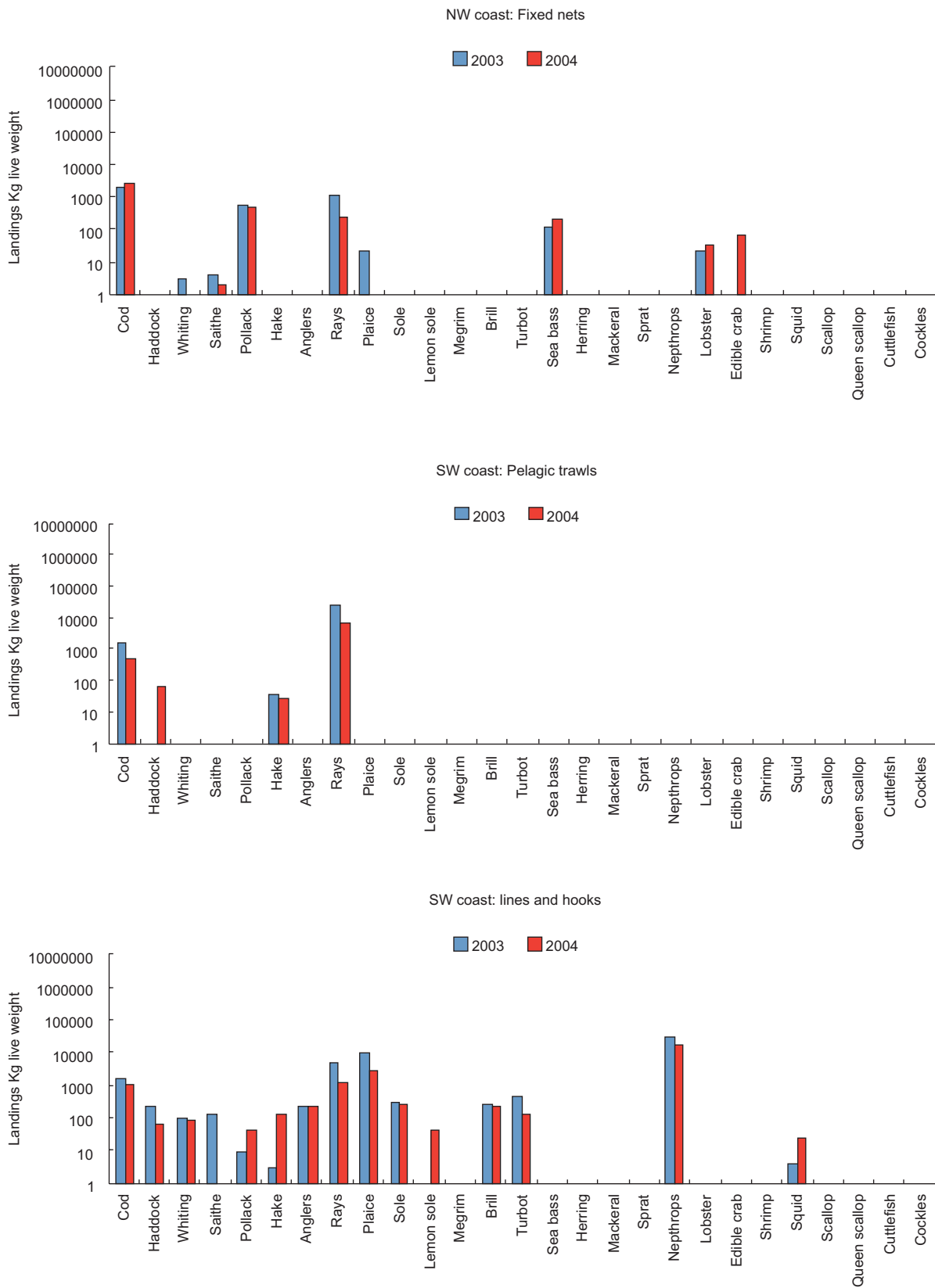


Figure 6.2.iii. 2nd panel. NW Region, 2003, 2004. Landings of selected species.

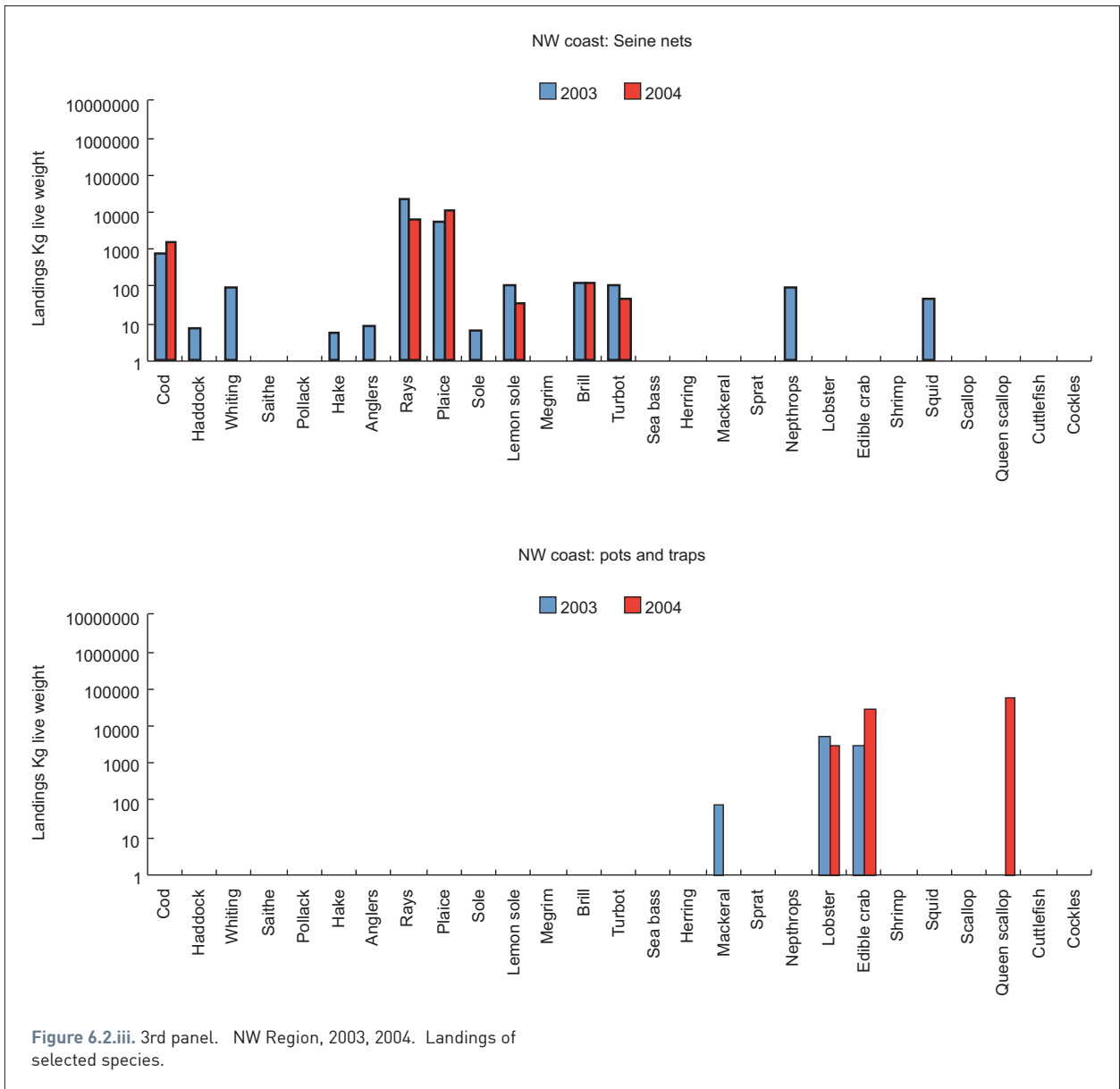


Figure 6.2.iii. 3rd panel. NW Region, 2003, 2004. Landings of selected species.

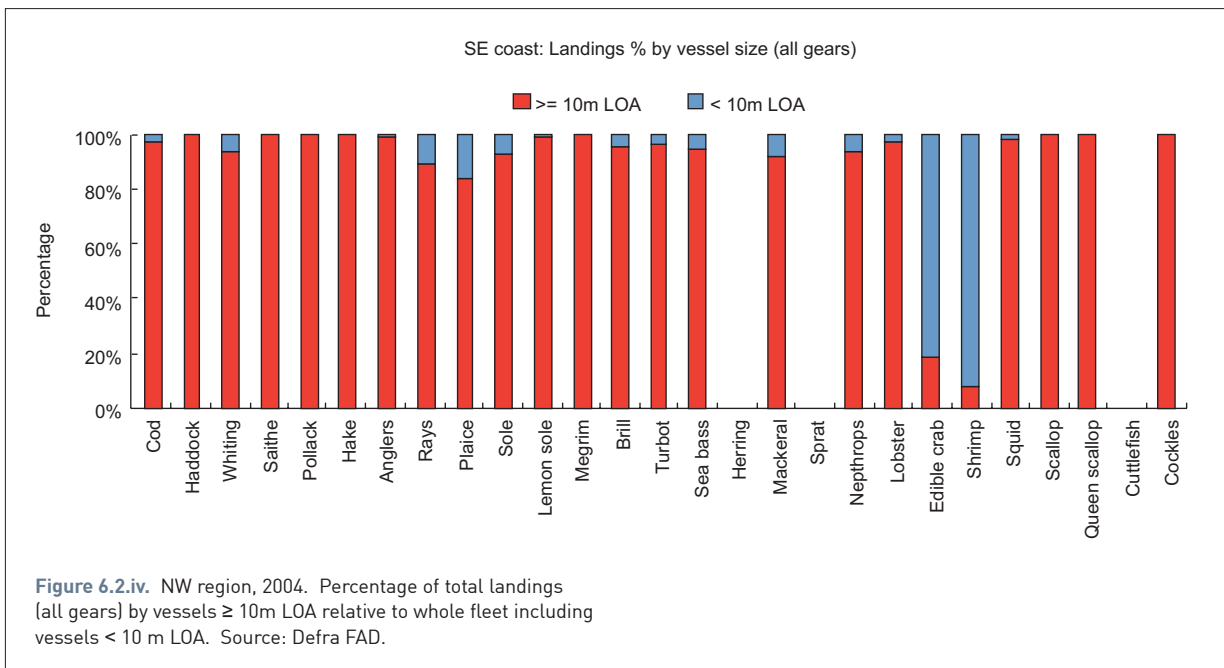


Figure 6.2.iv. NW region, 2004. Percentage of total landings (all gears) by vessels ≥ 10 m LOA relative to whole fleet including vessels < 10 m LOA. Source: Defra FAD.

6.3. Observer programme

6.3.1 Observer effort

A summary of observer activity from ports between Aberdovey and Carlisle is given in table 6.3.1.i. Observer effort is compared with actual effort by the ≥ 10 m fleet in table 6.3.1.ii. No trips were observed for beam trawlers, scallop dredgers, fixed netters, or long liners. Otter and other demersal trawlers were observed at rates of around 1% of total effort, and seiners and Nephrops trawlers at higher percentages. These varying rates of sampling are partly a reflection of the small size and irregular activities of the fleets. No observers travelled on potting trips because discards from potting are usually alive and the requirements for sampling this gear are minimal under the EC Data Collection regulation.

The locations of observed hauls sorted by major gear groupings are shown in Figure 6.3.1.i. The demersal otter trawlers were fishing 3 different mesh sizes. 100mm trawling was observed in the North Channel and west of Anglesey. 120mm trawling was observed near to Fleetwood, whilst 80 mm trawling was sampled a little further offshore in the eastern Irish Sea. Nephrops trawling and seining were observed mainly just south west of Whitehaven.

6.3.2 Summarised results

Numbers of fish discarded for the trips observed in 2004 are shown for 16 species and the three gear groups referred to in table 6.3.1.iii. Also shown in table 6.3.1.iii are the numbers discarded as percentages of the total numbers caught (= discarded + retained). Summarising results for 2004, much of the observed catches of whiting, plaice, and rays were discarded by demersal trawlers. The discards of these species were also relatively numerous. Large proportions of the catches of some other species were discarded but numbers were relatively low, e.g. lemon sole, mackerel. Observed numbers discarded by Nephrops trawlers were relatively high for whiting, plaice, and Nephrops. The corresponding discard percentages were high for the two whitefish species but only 5% for Nephrops. The observed seiner only discarded plaice in any number but the discarding rate was low (12%).

Estimated weights (in Kgs live weight equivalent) of fish discarded for the trips observed in 2004 and referred to in table 6.3.1i are shown for 10 species and the three gear groups in table 6.3.1.iv. The proportions discarded by weight are generally lower than those relating to numbers of fish because most discarded fish are small. The picture of discarding given by estimated weights is similar to that given in terms of numbers in table 6.3.1.iii. A notable exception was for plaice discarded by Nephrops trawlers: whilst 87% were discarded by number, this represented only 8% of the catch in weight terms, implying that the majority of the discarded plaice were very small fish.

6.3.3 Factors affecting discarding

None noted.

6.4 Fishing industry views

Generally, skippers felt that little was to be gained by having Cefas observers on board. Observers also heard concerns over the confidentiality of data for individual vessels.

The use of 'riddlers' (larger mesh cod ends laced onto a net in the spring and summer plaice fishery) was well documented in the Fishing News. Some Fleetwood trawler skippers considered that they were forced to work 80mm codends in order to have enough days at sea to remain viable. Consequently they were catching and killing large numbers of small plaice and spending longer on deck sorting through large bulk catches. Several Fleetwood skippers tried to get some kind of derogation to work these grounds, where cod catch was very low, with 120mm riddlers.

Many skippers were disappointed that the Northern Irish cod fleet was paid to tie up for part of the year whereas Fleetwood vessels fishing the same grounds were not. The costs of this would have been minimal, as it would only have applied to four or five boats.

Fishermen from Whitehaven and Maryport were instrumental in setting up a byelaw to stop vessels fishing with less than 110mm mesh in a plaice nursery area. This was defined as an area inshore of a line from Workington buoy to St Bees head. Most inshore vessels were working 80mm mesh in 2004 and so were excluded from this area unless they took a cut in days at sea.

The one net rule which stipulated that only one type of net may be on board caused fishers to lose time and profitability returning to port to change gear.

6.5 Points of biological interest

None noted.

6.6 Points of fishery interest

None noted.

Table 6.3.1.i. Activities of Cefas observers aboard commercial fishing vessels leaving from ports between Berwick and Grimsby in the NW region during 2004.

YEAR	QUARTER	GEAR	TRIPS OBSERVED	DAYS AT SEA	HAULS FISHED	HAULS SAMPLED	HOURS OBSERVED
2004	1	Nethropes otter trawl	2	2	4	4	15.16
2004	1	Otter trawl (unspecified)	2	4	10	9	43.08
TOTAL qtr 1:			4	6	14	13	28.24
2004	2	Nethropes otter trawl	2	3	10	10	41.33
2004	2	Otter trawl (unspecified)	1	8	20	20	127.80
2004	2	Twin otter trawl	1	3	10	10	48.58
TOTAL qtr 2			4	14	40	40	217.71
2004	3	Danish anchor seine	1	2	9	9	19.17
2004	3	Nethropes otte trawl	3	5	8	8	32.41
2004	3	Otter trawl (unspecified)	1	9	26	26	148.92
TOTAL qtr 3			5	16	43	43	200.5
2004	4	Otter trawl (unspecified)	1	9	18	17	102.25
TOTAL qtr 4			1	9	18	17	102.25
Total 2004			14	45	115	113	578.70

Table 6.3.1.ii. Total observer effort data by gear from Table 6.3.1.i and, in brackets, equivalent percentages of fleet effort taken from Table 6.2.ii.

EFFORT MEASURE	DEMERSAL TRAWL	SEINE	NEPHROPS TRAWL
Trips	6 (0.5%)	1 (4.5%)	7 (29%)
Days absent	33 (1.4%)	2 (5.3%)	10 (17%)
Hours	471 (1.8%)	19 (4.4%)	89 (13%)

Figure 6.3.1.i. NW Region, 2004.
Locations of observed hauls by
major gear group.

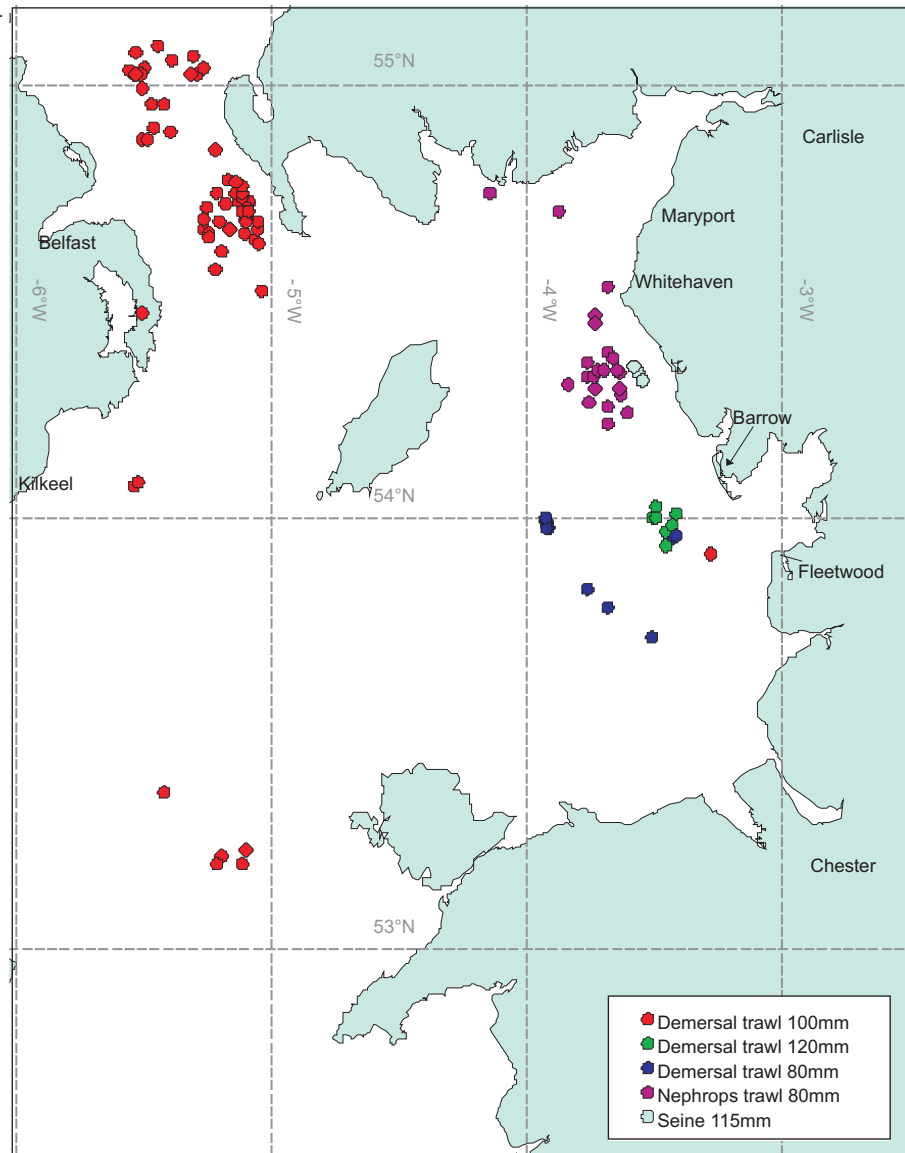


Table 6.3.1.iii. NW region, 2004: Discards as numbers of fish and, in brackets, as percentages of numbers caught by species and gear group as estimated for the observed trips referred to in Table 6.3.1ii.

2004			
SPECIES	DEMERSAL TRAWL	NEPHROPS TRAWL	SEINE
Cod	148 (14%)	35 (44%)	0 (0%)
Haddock	1086 (49%)	10 (50%)	0 (0%)
Whiting	6226 (96%)	8415 (100%)	0 (0%)
Plaice	25134 (64%)	6801 (87%)	1537 (12%)
Sole	0 (0%)	0 (0%)	0 (0%)
Lemon sole	171 (72%)	46 (81%)	0 (0%)
Rays	685 (59%)	31 (76%)	0 (0%)
Lobster	0 (0%)	11 (100%)	0 (0%)
Edible crab	122 (100%)	64 (100%)	0 (%)
Mackerel	6 (100%)	27 (100%)	0 (0%)
Brill	8 (15%)	0 (0%)	2 (53%)
Pollack	11 (11%)	0 (%)	0 (%)
Squid	33 (97%)	216 (100%)	0 (0%)
Anglerfish	30 (49%)	0 (0%)	0 (0%)
Nephrops	0	5489	0

Table 6.3.1.iv. NW region. 2004: weights (in Kgs) of fish discarded by species and gear group as estimated for the observed trips referred to in Table 6.3.1i. Discards as percentages of weights caught are shown in brackets.

SPECIES	DEMERSAL TRAWL	NEPHROPS TRAWL	SEINE
Cod	43 (2%)	7 (8%)	0 -
Haddock	342 (31%)	1 (15%)	0 -
Lemon sole	28 (54%)	5 (60%)	0 -
Mackerel	1 (100%)	6 (100%)	0 -
Megrim	0 (100%)	0 -	0 -
Anglerfish	8 (4%)	0 (0%)	0 (0%)
Plaice	3885 (51%)	887 (8%)	298 (8%)
Rays	285 (26%)	6 (26%)	0 -
Sole	0 (0%)	0 (0%)	0 (0%)
Whiting	971 (93%)	696 (100%)	0 -

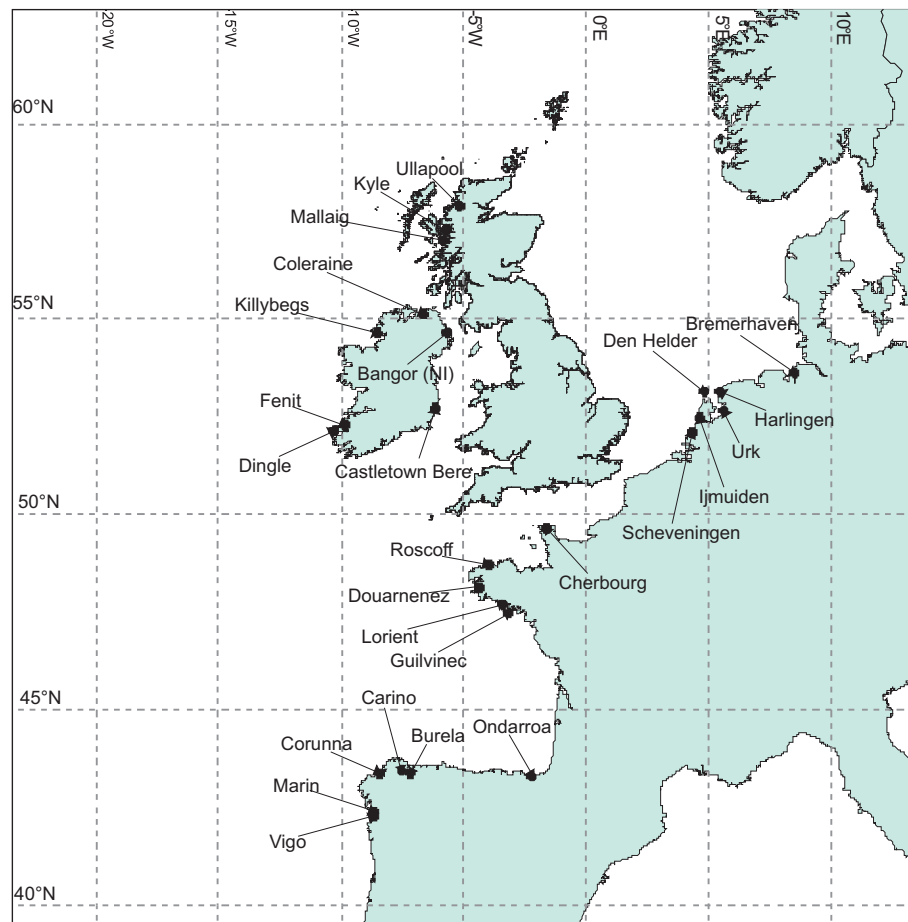
7. NE Atlantic Region

7.1 Introduction

Fishing vessels registered with the English and Welsh (E & W) Register of Ships and Seamen in Cardiff frequently operate from ports outside England and Wales. During 2004, Cefas observed a sample of these vessels operating within Europe but not further afield (e.g. from Brazil, the Falkland Isles) because of the high expense and difficulties of doing so. This section of the report, referred to with the short title of "NE Atlantic region", summarises the fishing activities and sampling of vessels operating outside Britain

but within Europe during 2004. This excludes Scottish registered fishing vessels and E & W vessels landing to Brazil, the Falkland Islands, Uruguay, etc. Also, note that Scotland records fishery statistics separately from England and Wales and their data are not included in the tables or illustrations here. As a further complication, Cefas observed some E & W vessels that used Scottish ports in 2004. Figure 7.1.i shows a selection of the main ports in the NE Atlantic region from which E & W vessels were operating.

Figure 7.1.i. Map of NE Atlantic region showing selected fishing ports used by English and Welsh registered vessels.



7.2 NE Atlantic Effort and landings

7.2.1 Defra FAD statistics

Tables 7.2.i and 7.2.ii show official Defra data for four measures of commercial fishing effort for vessels ≥ 10 m LOA landing to ports within the NE Atlantic region for 2003 and 2004 respectively. Comparison of the two years indicates that for E & W vessels in 2004:

- beam trawlers and potters ceased to land into Belgian ports;
- less demersal trawling effort was represented by the landings to Germany;
- less beam and demersal trawling effort was represented by the landings to Denmark;
- the number of vessels landing into Spain reduced but the effort represented by demersal trawlers, long-liners, and netters landing there increased;
- less overall effort was represented by the different types of vessel landing into France;
- demersal trawlers ceased to land into the Isle of Man;
- less overall effort was represented by the different types of vessel landing into Northern Ireland;
- less effort was represented by long-liners, demersal trawlers and netters landing into Ireland;
- a demersal trawler ceased to land into Iceland;
- the overall effort of different types of vessel landing into the Netherlands was maintained;
- less demersal trawling effort (by only one vessel in each year) was represented by landings to Norway.

Figure 7.2.i shows the distribution of fishing effort by E & W registered vessels ≥ 10 m LOA by landing port in the NE Atlantic region in 2004 measured as days absent from port. Beam trawling was most active from the Dutch ports of Harlingen and Urk. Demersal trawling was most active from the Spanish ports of Corunna and Vigo. Fixed netting was very active from the Spanish port of Corunna with days absent using this gear exceeding demersal and beam

trawling effort from any port elsewhere in the region. Long lining was at a low level but most active from Corunna. Pelagic trawlers used the Dutch ports of IJmuiden and Scheveningen predominantly, whilst potting and trapping only occurred at a notable level of effort from Cherbourg.

Figure 7.2.ii indicates the different levels of fishing activity by E & W registered vessels ≥ 10 m LOA landing to ports in the NE Atlantic region in 2004. Activity is measured by days absent from the landing port. Corunna followed by Urk had the largest numbers of full time vessels with 15 and 7 respectively at sea between 101 and 300 days. Generally, the Spanish and Dutch ports harboured the most active vessels fishing between 31 and 100 days per year. Ports in France, Ireland, and Northern Ireland were all populated by small numbers of vessels at sea less than 31 days per year. Probably many of these were merely visiting the ports.

Figure 7.2.iii shows landings by E & W registered vessels ≥ 10 m LOA of a selection of commercially important species to ports in the NE Atlantic region in 2003 and 2004, separated by gear group. [Several species typical of deep sea fisheries are omitted.] A multiplicative (logarithmic) scale is used to reveal the wide range of values as Kg of live weight equivalents. The landed quantities were mostly slightly up or down in 2004 compared to 2003 with no general trend apparent. The main landings of beam trawlers in the region were of plaice. Sole, turbot, other flatfish species, cod and angler fish were also important. Otter and other demersal trawlers landed mainly cod, squid, saithe, haddock, plaice, anglerfish, and megrim. A notable change in their landings between 2003 and 2004 was for squid which dropped from 3.4 to 1.4 thousand tonnes (1 thousand tonnes = 1 million Kg). Dredgers landed scallops, and more of them in 2004 (25 tonnes compared with 3.5 tonnes in 2003). Cockles were significant in 2004. Netters (Figure 7.2.iii, 2nd panel) landed principally cod, pollack, anglerfish, hake, and rays. Long lines (gear using hooks) landed relatively little with hake and rays being the main species. Nephrops trawling contributed only trivial landings in this region, whilst pelagic trawlers landed more fish than any other gear with 22 000 tonnes of herring and 18 000 tonnes of mackerel in 2004. Sprat (in 2003), and sea bass also occurred and, not illustrated in Figure 7.2.iii, 9 000 tonnes of horse mackerel, 1300 tonnes of pilchard, and 152 tonnes of black sea bream were landed in 2004. Potters landed large amounts of edible crab, and lesser amounts of lobsters, with a decline evident for both species in 2004. Seine nets landed relatively small amounts of most species with plaice being the most important.

Landings by vessels < 10m LOA were insignificant in the NE Atlantic region in 2004 and are not illustrated.

7.2.2 General observations

None noted.

Table 7.2.i. 1st panel. NE Atlantic Region, 2003. Four measures of commercial fishing effort for English and Welsh registered vessels \geq 10m LOA landing to ports outside Britain but within Europe. Source: Defra FAD.

YEAR	PORT NATION	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Belgium	Beam trawl	3	12	106	1699
2003	Belgium	Pots and traps	1	1	2	500
			4	13	108	2199
2003	Germany	Demersal trawl	5	17	283	3386
2003	Denmark	Beam trawl	2	7	38	581
2003	Denmark	Demersal trawl	7	15	124	1317
			9	22	162	1898
2003	Spain	Demersal trawl	30	189	3062	38270
2003	Spain	Drift and fixed nets	19	62	2088	959640
2003	Spain	Gear using hooks	6	25	572	740988
2003	Spain	Pots and traps	4	6	229	54820
			59	282	5951	1793718
2003	France	Demersal trawl	1	1	2	15
2003	France	Drift and fixed nets	6	28	179	21600
2003	France	Gear using hooks	5	47	473	125815
2003	France	Pots and traps	8	141	808	145850
			20	217	1462	293280

Table 7.2.i. 2nd panel. NE Atlantic region, 2003. Four measures of commercial fishing effort for English and Welsh registered vessels \geq 10m LOA landing to ports outside Britain but within Europe. Source: Defra FAD.

YEAR	PORT NATION	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Isle of Man	Demersal trawl	2	3	25	420
2003	Northern Ireland	Demersal trawl	7	31	79	1912
2003	Northern Ireland	Dredge	2	2	6	55
2003	Northern Ireland	Nethrops trawl	2	2	5	45
			11	35	90	2012
2003	Ireland	Demersal trawl	18	88	727	9583
2003	Ireland	Drift and fixed nets	11	37	644	344182
2003	Ireland	Gear using hooks	3	9	102	609527
			32	134	1473	963292
2003	Iceland	Demersal trawl	1	3	160	1745
2003	Netherlands	Beam trawl	36	460	2756	40112
2003	Netherlands	Demersal trawl	12	54	423	6171
2003	Netherlands	Drift and fixed nets	5	64	440	89380
2003	Netherlands	Pelagic trawl	6	55	926	8854
2003	Netherlands	Seine	3	5	73	953
			62	638	4618	145470
2003	Norway	Demersal trawl	1	7	168	2306
Total	2003		206	1371	14500	3209726

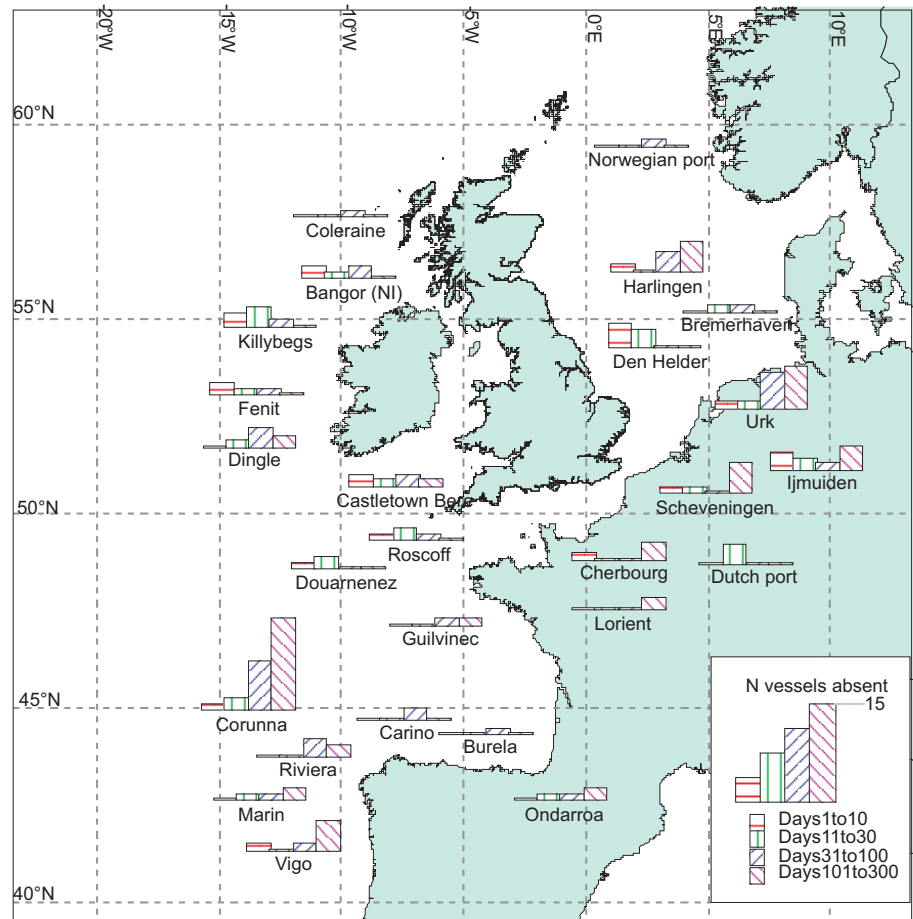
Table 7.2.ii. 1st panel. NE Atlantic region, 2004. Four measures of commercial fishing effort for English and Welsh registered vessels \geq 10m LOA landing to ports outside Britain but within Europe. Source: Defra FAD.

YEAR	PORT NATION	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2004	Germany	Demersal trawl	4	9	235	2815
2004	Denmark	Beam trawl	2	2	13	228
2004	Denmark	Demersal trawl	3	4	38	446
2004	Denmark	Pots and traps	1	1	1	350
			6	7	52	1024
2004	Spain	Demersal trawl	24	208	3186	41737
2004	Spain	Drift and fixed nets	20	80	2504	1888540
2004	Spain	Gear using hooks	6	28	682	878035
2004	Spain	Pots and traps	1	1	82	650
			51	317	6454	2808962
2004	France	Demersal trawl	2	2	10	116
2004	France	Dredge	1	1	10	378
2004	France	Drift and fixed nets	6	31	206	33360
2004	France	Gear using hooks	6	42	422	75723
2004	France	Pots and traps	3	76	465	74021
			18	152	1113	183598
2004	Northern Ireland	Demersal trawl	5	34	141	1640
2004	Northern Ireland	Dredge	3	3	7	50
2004	Northern Ireland	Nethrops trawl	2	2	3	22
2004	Northern Ireland	Pelagic trawl	1	1	1	4
2004	Northern Ireland	Pots and traps	2	2	36	750
			13	42	188	2466

Table 7.2.ii. 2nd panel. NE Atlantic region, 2004. Four measures of commercial fishing effort for English and Welsh registered vessels \geq 10m LOA landing to ports outside Britain but within Europe. Source: Defra FAD.

YEAR	PORT NATION	GEAR GROUP	N VESSELS	N TRIPS	N DAYS ABSENT	HOURS FISHING
2003	Ireland	Demersal trawl	15	47	406	5546
2003	Ireland	Drift and fixed nets	8	24	512	328500
			23	71	918	334046
2003	Netherlands	Beam trawl	40	500	3081	44989
2003	Netherlands	Demersal trawl	8	57	427	6094
2003	Netherlands	Drift and fixed nets	5	67	384	81605
2003	Netherlands	Pelagic trawl	6	58	950	9082
2003	Netherlands	Seine	1	1	15	202
			60	683	4857	141972
2003	Norway	Demersal trawl	1	1	54	648
Total	2004		176	1282	13871	3475531

Figure 7.2.ii. NE Atlantic Region, 2004. Numbers of English and Welsh registered vessels $\geq 10\text{m}$ LOA with different levels of fishing activity measured by Days absent from landing port. Source: Defra FAD.



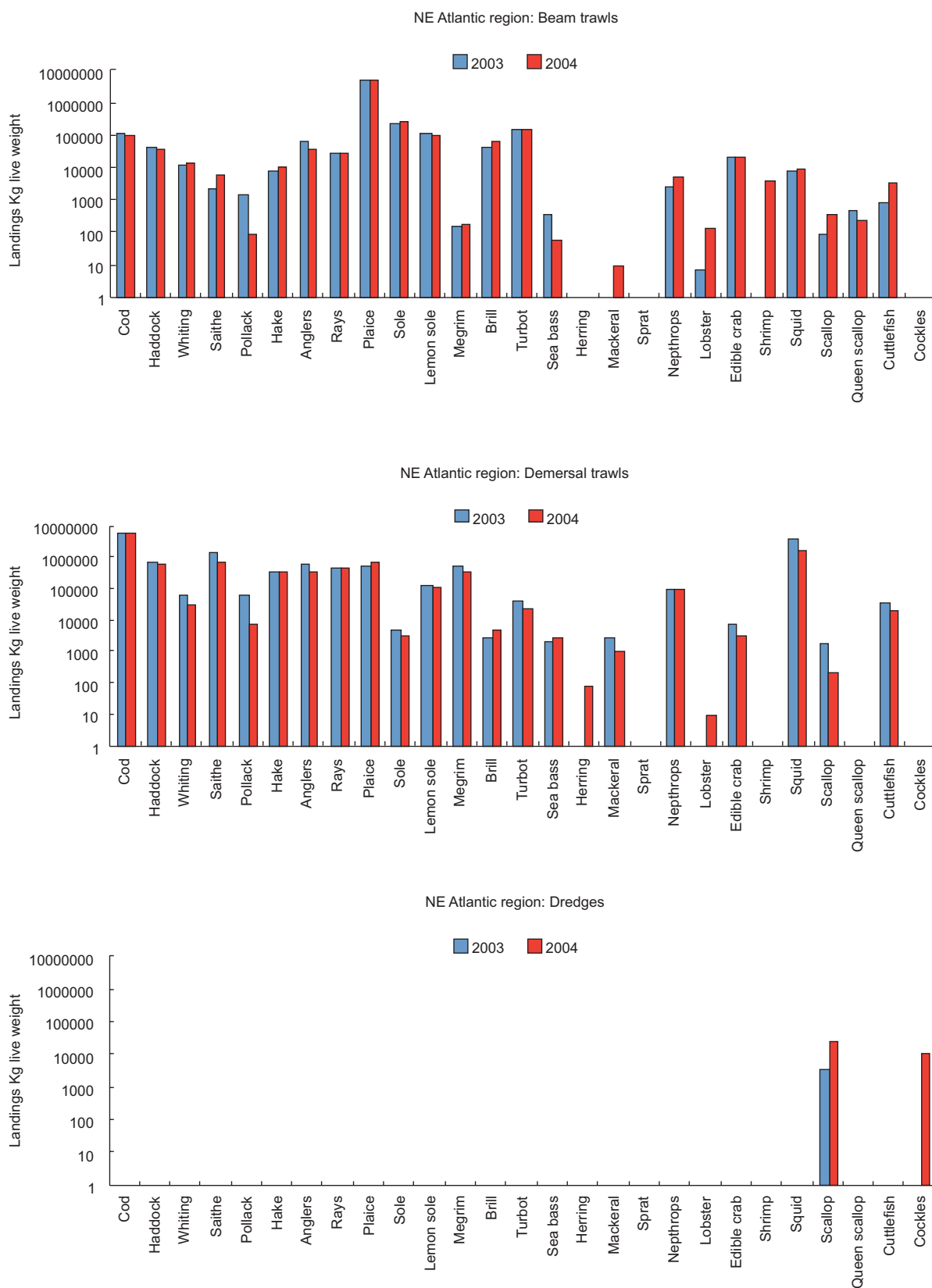


Figure 7.2.iii. 1st panel. NE Atlantic Region, 2003, 2004; E & W registered vessels $\geq 10\text{m}$ LOA. Landings of a selection of commercial species as live weight equivalents by gear group. Note multiplicative vertical scale. Source: Defra FAD.

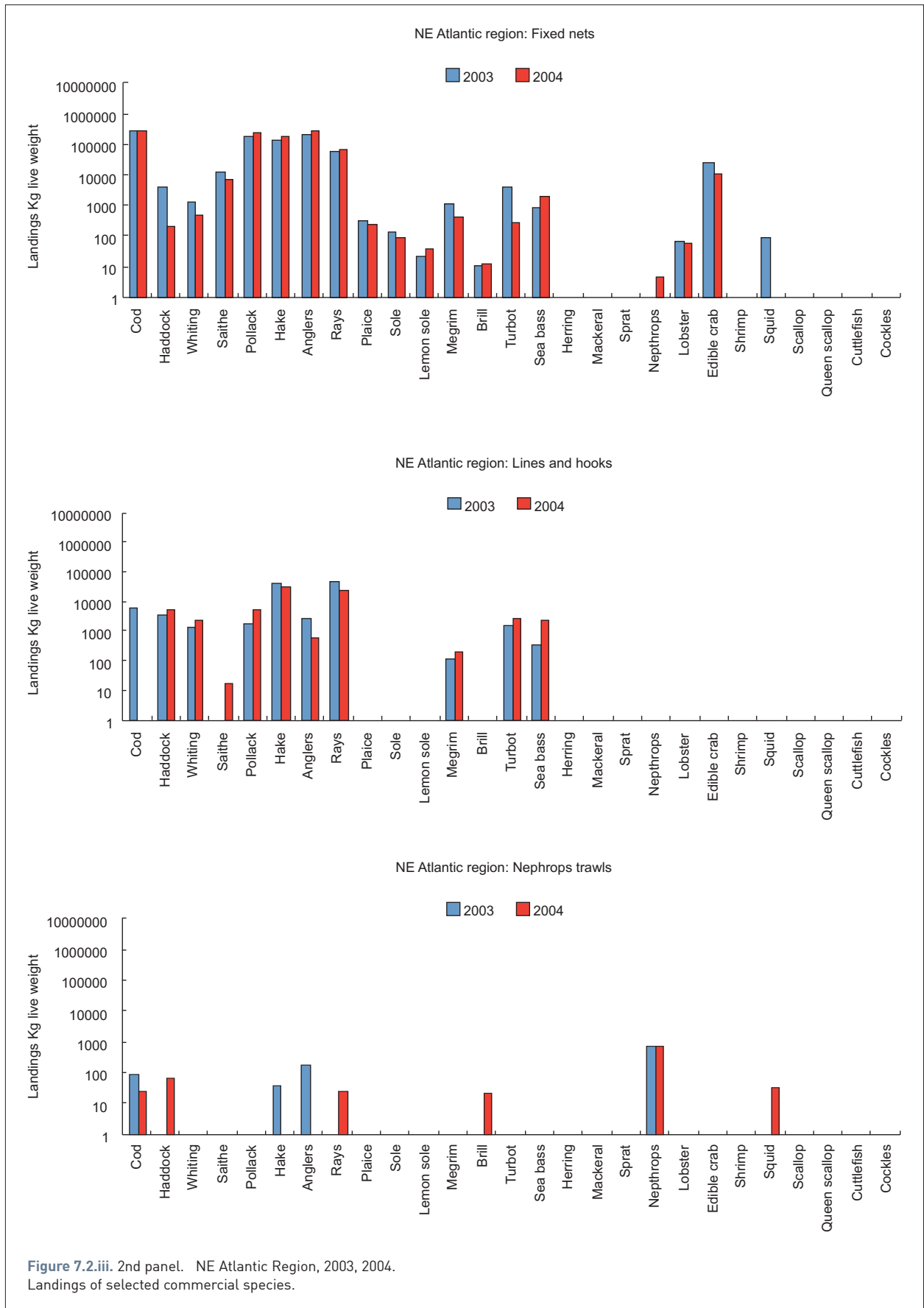


Figure 7.2.iii. 2nd panel. NE Atlantic Region, 2003, 2004. Landings of selected commercial species.

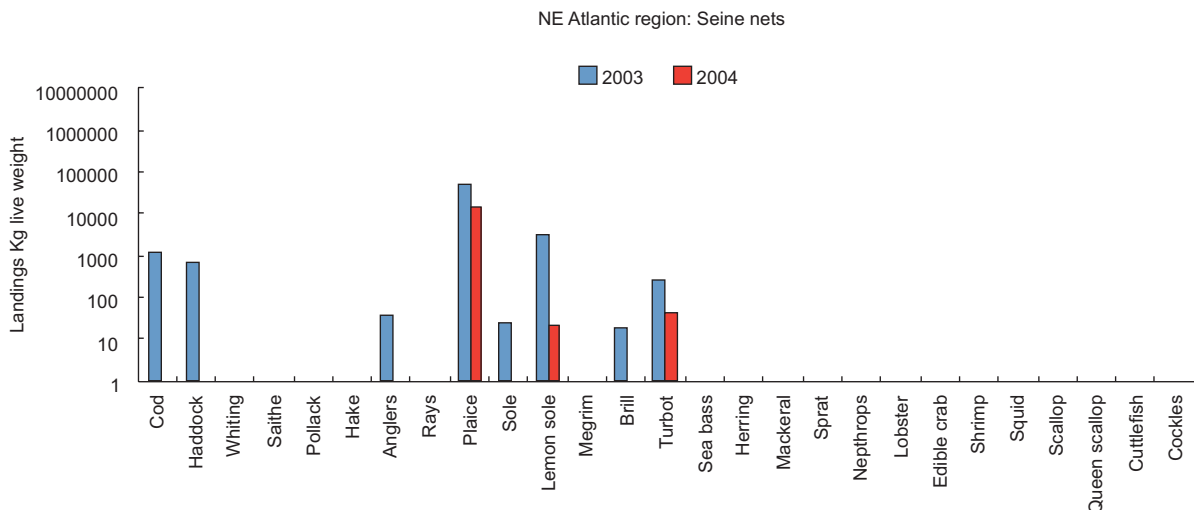
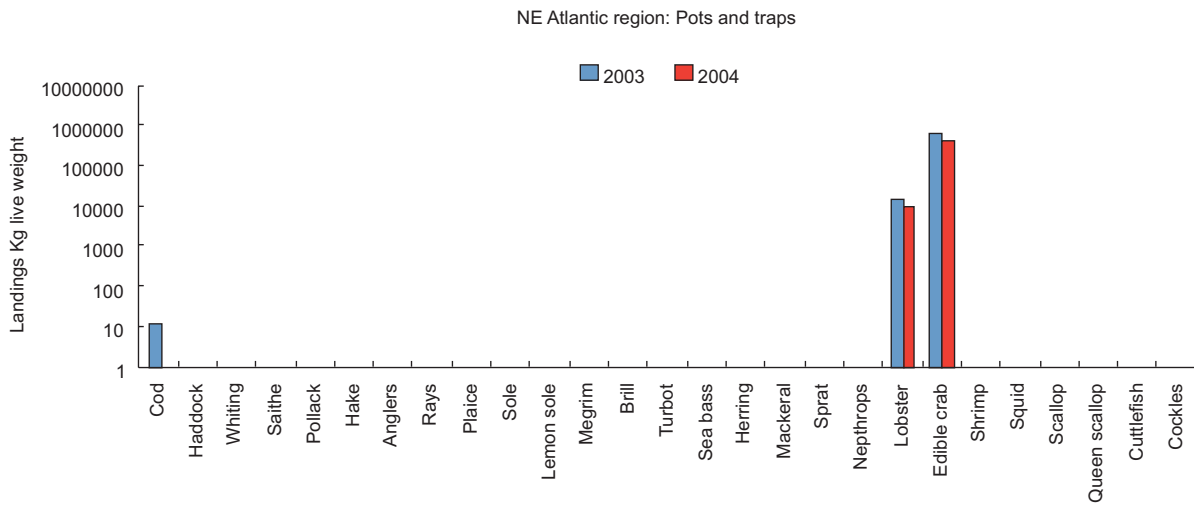
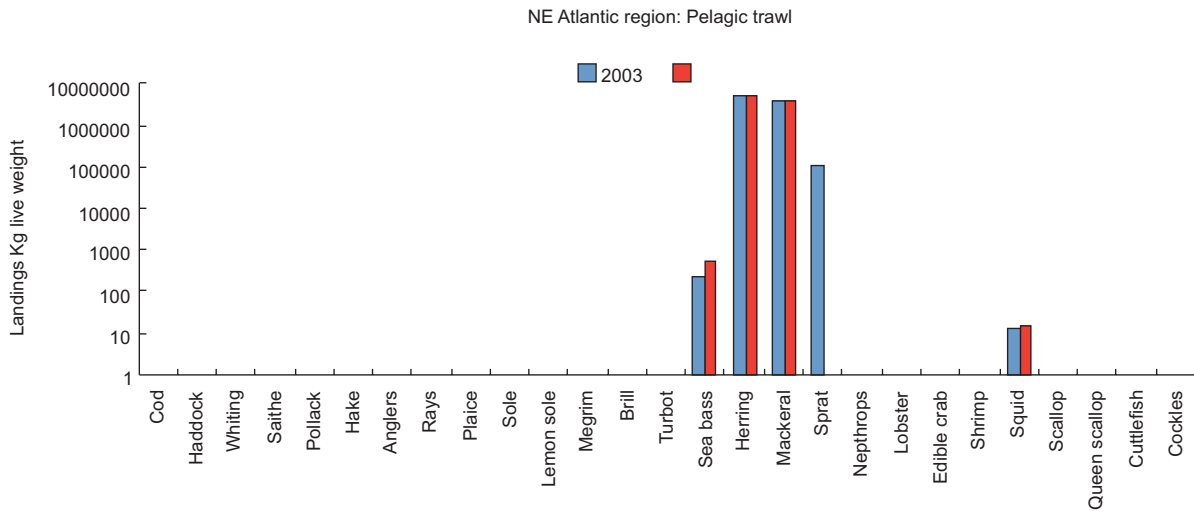


Figure 7.2.iii. 3rd panel. NE Atlantic Region, 2003, 2004. Landings of selected commercial species. Note extension of the usual vertical scale from 107 to 108 Kg for pelagic trawls.

7.3. Observer programme

7.3.1 Observer effort

A summary of observer activity from ports in the NE Atlantic region is given in table 7.3.1.i. Observer effort is compared with actual effort by the ≥ 10 m fleet in table 7.3.1.ii. Note that it was not possible to compare the observer effort with actual effort for Nephrops trawlers because they landed in Scotland which is excluded from the NE Atlantic region in the landings and fishing effort data presented in this report. Beam trawlers, demersal trawlers, and fixed netters were all observed at rates of around 0.5% of total effort. This implies that a fairly even balance of observer effort was achieved for these gear categories. No trips were observed for scallop dredgers, long liners, or potters. No observers travelled on potting trips because discards from potting are usually alive and the requirements for sampling this gear are minimal under the EC Data Collection regulation.

The locations of observed hauls sorted by major gear groupings are shown in Figure 7.3.1.i. The beam trawlers were observed to fish 2 different mesh sizes, 80 and 100 mm, both in the southern North Sea. The demersal otter trawlers were observed to fish 100 mm west of Ireland, and 120 mm in the northern North Sea near Norway. The fixed nets were used well out into the Atlantic west of Scotland. Nephrops trawlers fishing 80 mm were observed in the Firth of Forth, and fishing 95 mm on grounds to the west of Scotland.

7.3.2 Summarised results

Numbers of fish discarded for the trips observed in 2004 (see table 7.3.1i) are shown for selected commercial species and four gear groups in table 7.3.1.iii. Also shown are the numbers discarded as percentages of the total numbers caught (= discarded + retained). Summarising results for 2004, most or all of the observed catches by beam trawlers of whiting, rays, and edible crab, and about half of the catch of cod were discarded. The discards of these species were also relatively numerous. Large

numbers of plaice and lemon sole were discarded but they represented only 24% and 17% of the catch respectively. Most of the observed catches by demersal trawlers of whiting, and mackerel, and about half of the catch of plaice were discarded. Haddock were caught in larger numbers than these species but only 34% were observed discarded. The only discarding of commercial species observed for fixed nets was 32 Portuguese dogfish and 19 leafscale gulper sharks, representing approximately 1% of the individuals of these species caught. For Nephrops trawls, most or all of the cod, whiting, lemon sole, rays, and edible crab were discarded and were caught in relatively large numbers. Most or all of the pollack and squid were discarded but they were caught in relatively small numbers. Large numbers of haddock and plaice were caught and discarded at about 40%.

Estimated weights (in Kgs live weight equivalent) of fish discarded for the trips observed in 2004 and referred to in table 7.3.1ii are shown for 8 species and the four gear groups in table 7.3.1.iv. The proportions discarded by weight are generally lower than those relating to numbers of fish because most discarded fish are small. The picture of discarding given by estimated weights is similar to that given in terms of numbers in table 7.3.1.iii.

7.3.2 Factors affecting discarding

None noted.

7.4 Fishing industry views

None noted.

7.5 Points of biological interest

None noted.

7.6 Points of fishery interest

None noted.

Table 7.3.1.i. Activities of Cefas observers aboard commercial fishing vessels leaving from ports in the NE Atlantic region during 2004.

YR	QTR	GEAR GROUP	DEPARTURE PORT	PORT NATION	TRIPS OBSERVED	DAYS ABSENT	HAULS FISHED	HAULS OBSERVED	HOURS FISHING
2004	1	Beam trawl	Den Helder	Netherlands	1	5	32	21	54.23
2004	1	Gill net (not tramm. or tangle)	Ullapool	Scotland	1	20	19	16	837.90
2004	1	Otter trawl (unspecified)	Corunna	Spain	1	16	27	23	162.67
2004	1	Twin nephrops	Kyle	Scotland	1	5	11	8	46.33
Total Qtr 1					4	46	89	68	1101.13
2004	2	Nephrops otter trawl	Port Seton	Scotland	3	6	8	6	19.10
2004	2	Otter trawl (unspecified)	Peterhead	Scotland	1	9	19	17	74.66
Total Qtr 2					4	15	27	23	93.76
2004	3	Beam trawl	Den Helder	Netherlands	1	5	35	27	64.66
2004	3	Beam trawl	Harlingen	Netherlands	1	4	31	25	55.90
Total Qtr 3					2	9	66	52	120.56
2004	4	Beam trawl	Harlingen	Netherlands	1	2	6	5	11.33
Total Qtr 4					1	2	6	5	11.33
Total	2004				11	72	188	148	1326.78

Table 7.3.1.ii. Total observer effort data by gear from Table 7.3.1.i and, in brackets, equivalent percentages of fleet effort taken from Table 7.2.ii . 'na' = not available

EFFORT MEASURE	BEAM TRAWL	DEMERSAL TRAWL	NEPHROPS TRAWL	FIXED NETS
Trips	4 (0.8%)	2 (0.6%)	4 (na)	1 (0.5%)
Days absent	16 (0.5%)	25 (0.6%)	11 (na)	20 (0.6%)
Hours	186 (0.4%)	237 (0.4%)	65 (na)	838 (na)

Figure 7.3.1.i. NE Atlantic Region, 2004. Locations of observed hauls by major gear group.

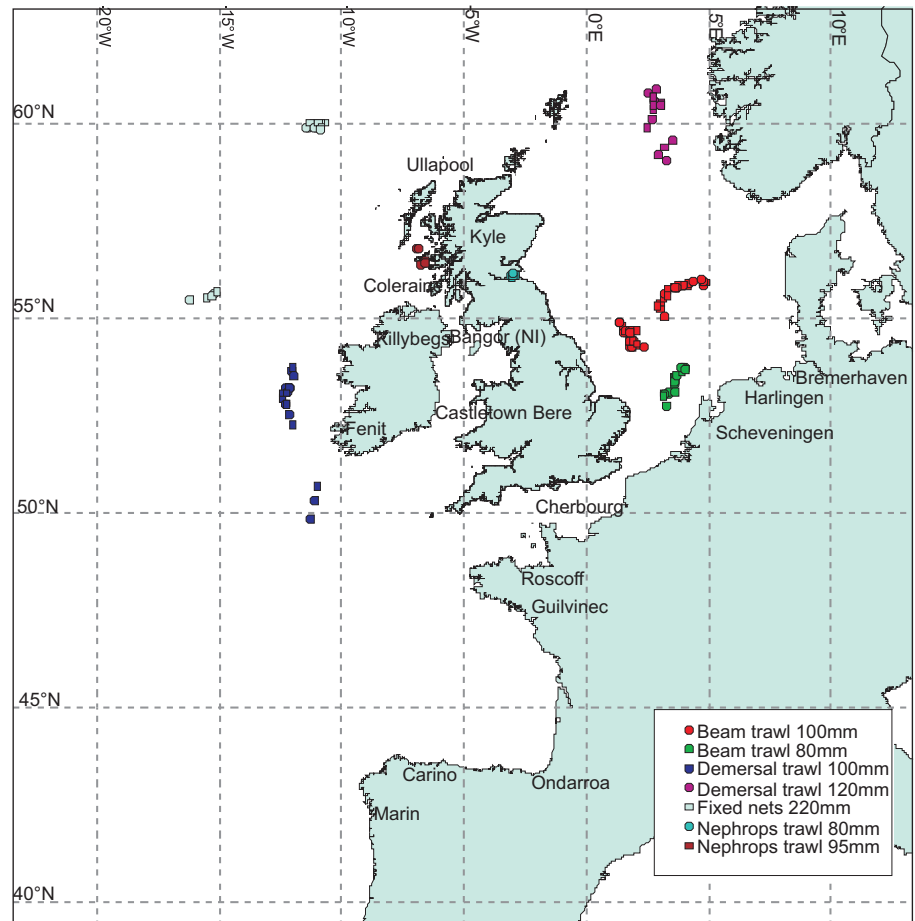


Table 7.3.1.iii. NE Atlantic region, 2004: Discards as numbers of fish and, in brackets, as percentages of numbers caught by species and gear group as estimated for the observed trips referred to in Table 7.3.1ii.

2004				
SPECIES	BEAM TRAWL	DEMERSAL TRAWL	FIXED NETS	NEPHROPS TRAWL
Cod	483 (49%)	159 (8%)	0 (-)	5405 (82%)
Haddock	247 (8%)	3675 (34%)	0 (-)	4867 (40%)
Whiting	1075 (82%)	515 (70%)	0 (-)	31496 (70%)
Plaice	24554 (24%)	674 (56%)	0 (-)	1467 (40%)
Sole	1702 (27%)	8 (4%)	0 (-)	0 (0%)
Lemon Sole	1138 (17%)	58 (14%)	0 (-)	7778 (73%)
Rays	2087 (93%)	581 (31%)	(-)	2330 (97%)
Edible crad	2384 (100%)	10 (83%)	0 (-)	330 (100%)
Mackeral	0 (-)	917 (100%)	0 (-)	0 (-)
Brill	27 (8%)	0 (0%)	0 (-)	0 (0%)
Pollack	0 (-)	487 (6%)	0 (-)	17 (75%)
Squid	27 (7%)	247 (2%)	0 (-)	143 (79%)
Anglerfish	37 (17%)	29 (2%)	0 (0%)	22 (9%)
Nephrops	0 (0%)	13 (5%)	0 (-)	13557 (18%)

Table 7.3.1.iv. NE Atlantic region. 2004: weights (in Kgs) of fish discarded by species and gear group as estimated for the observed trips referred to in table 7.3.1ii. Discards as percentages of weights caught are shown in brackets.

SPECIES	BEAM TRAWL	DEMERSAL TRAWL	NEPHROPS TRAWL	FIXED NETS
Cod	92 (12%)	78 (2%)	1644 (59%)	0 (0%)
Haddock	81 (5%)	1162 (20%)	1174 (26%)	0 (0%)
Lemon sole	148 (10%)	12 (8%)	1008 (58%)	0 (0%)
Anglerfish	15 (4%)	25 (1%)	3 (1%)	0 (0%)
Plaice	3345 (10%)	120 (35%)	222 (21%)	0 (0%)
Rays	682 (74%)	253 (11%)	1160 (90%)	0 (0%)
Sole	177 (14%)	2 (3%)	0 (0%)	0 (0%)
Whiting	110 (70%)	106 (51%)	4730 (59%)	0 (0%)

8. Discussion

The Data Collection regulation (1639/2001) of the EC permitted sea-going observers to operate regularly on European fishing boats since 2002 as well as for the foreseeable future. Observer data from different countries are contributed annually to ICES fish stock working groups that advise on management measures to conserve fish stocks, and combination of data from different countries fishing the same stock can be applied to increase effective sampling size and improve precision of estimated discarding rates compared to those presented here for just one country. Observer data provide a useful supplement to official statistics on quantities landed because only observer data can indicate the quantities of fish killed by fishing and discarded at sea. Furthermore, they allow CPUE to be monitored directly for each vessel, rather than estimated indirectly from aggregated fishery statistics as landings per unit of effort (LPUE). Observer data are also used for studying the environmental effects of fishing.

The stability offered to observer programmes by the EC is important because, due to the high costs of sending observers to sea, sampling rates tend to be low, generally less than 1% of fishing trips made. Long periods of sampling are therefore necessary to develop dependable generalisations about discarding and CPUE, especially given the high diversity of fishing vessels and grounds, the effects of season, and of changes in the numbers and composition of fish stocks.

For the time-being we know from the results in this report that discarding of several important commercial species, including some whose stocks are low, can frequently exceed 50% of those caught. Trawling in various ways, being efficient but poorly selective, is responsible for most of this discarding. The observer programme offers an informal communication channel with the industry having the potential to assist the design of management measures for reduction of discarding in ways that can be acceptable or even welcomed by the majority in the industry. In general, fishers do not like to catch and discard fish that are of no economic value, cause extra work on deck, and cannot contribute to future growth of the stock because they are dead.

This report for 2004 indicates that marine fishing by E & W registered vessels ≥ 10 m LOA was generally in decline. Fishing effort decreased in many gear categories and in most regions. There appeared to be many vessels tied up for much of the year. Exceptions, in the sense of slight increases in effort in a few gear categories, occurred in the SW, Northern Ireland, and Spain. Despite this, landings did not show consistent trends downwards in comparison with 2003, suggesting that landings per unit of effort increased

somewhat and that fishing for several species therefore became slightly more efficient in 2004. The targeting of different species was common practice when fishing on the usual species became less productive, as was the use of different gears at different times of year.

Another result from this report is that vessels < 10 m LOA were an important component of regional fishing fleets in 2004, in several cases more important than the vessels ≥ 10 m LOA. In 2005, Cefas was trialling 'self-sampling' programmes that would encourage skippers to sample and report on their own discarding practices. This could help reduce the practical problems associated with putting observers on small vessels although it cannot provide the same level of scientific verification for the data.

Cefas observers achieved sampling rates of between 0.5 and 1% of fishing trips made by vessels ≥ 10 m LOA in many gear categories and in most sampling regions. This fairly even coverage implies that our observer resources were spread out reasonably well to obtain maximum information about the fisheries, a significant achievement given the practical difficulties of arranging and meeting fishing trips for observation - with poor weather, lack of fishing, mechanical or crew problems causing many postponements and cancellations. Nevertheless, some gear categories did escape observation; we hope to remedy this in future years.



Head office

Centre for Environment,
Fisheries & Aquaculture Science
Pakefield Road, Lowestoft,
Suffolk NR33 0HT, UK

Tel +44 (0) 1502 56 2244

Fax +44 (0) 1502 51 3865

Web www.cefasc.co.uk

Cefas is an executive agency of Defra