

How many fish are discarded?

Discarding of fish at sea

Discards are fish brought onto the deck of fishing vessels and subsequently returned to the sea, because they are too small to be legally landed, or are expected to fetch low prices on the market. They are usually dead or dying. Discarding is particularly common in trawl fisheries.

How many fish are discarded?

Table 1 shows the estimated discards of cod, haddock, and whiting by North Sea trawlers from ports on the NE coast of England. Most discards are small fish. Weights of discarded fish therefore represent smaller proportions of catches than numbers. However, numbers are more relevant when assessing the future yield of a fishery.

Table 1. Discarding as proportions of the catch of three species by the English NE coast trawl fishery in 1998.		
Species	Discards by weight (Annual average)	Discards by number (Range of quarterly values)
Cod	14%	20 to 48%
Haddock	21%	30 to 41%
Whiting	42%	51 to 65%

Factors affecting discarding

Several factors affect discarding as observed in the English NE coast trawl fishery:

- **Length:** Fishers generally retain few fish below the minimum landing size (MLS) as can be seen from Figure 1 which shows numbers of cod, haddock and whiting by length caught and discarded. Quite a few cod and whiting over the MLS were discarded, mainly because of poor market value.

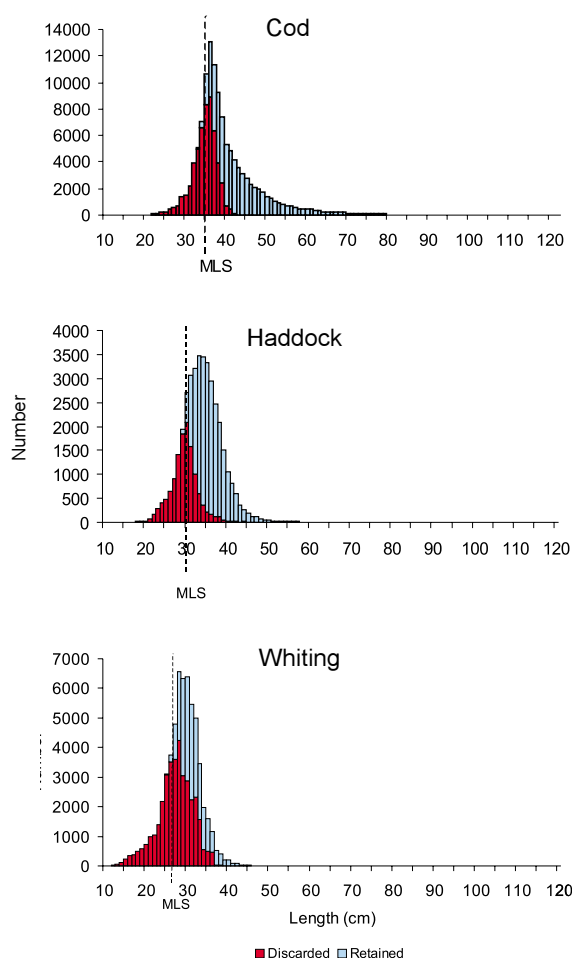


Figure 1. English NE coast trawlers, 1997-1998. Discarding and retention vs. length for 3 species.

- **Distance offshore:** The proportion of the catch discarded tends to be larger inshore than offshore, partly because large mesh nets are used offshore. Also there are probably fewer juvenile fish offshore. The situation for cod is illustrated in Figure 2 overleaf.

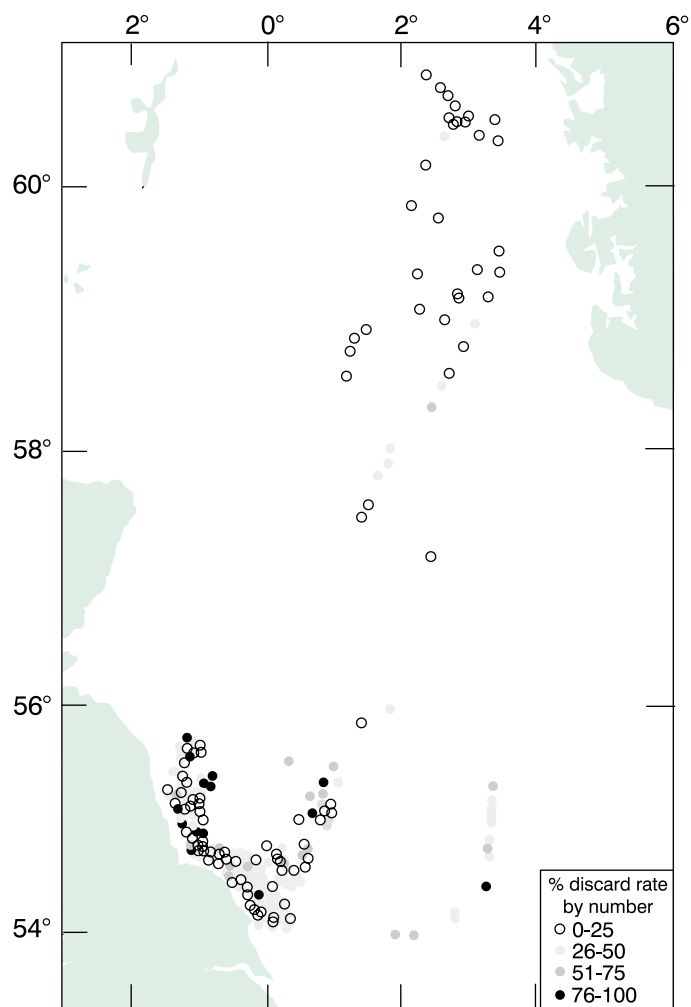


Figure 2. English NE coast otter trawlers. Proportion of catch discarded, 1997-1998

- **Gear:** The proportion and total number of cod, haddock and whiting discarded depend on the type of trawl used (Table 2). Nephrops trawlers discarded the largest proportions of their catches of cod (51%) but other types of trawler discarded larger numbers of cod. On the other hand, Nephrops trawlers discarded both the largest proportion and the largest numbers of whiting. Few haddock were discarded because of relatively low catch rates.

Table 2. Discarding by NE coast trawlers in 1998 according to gear.

Gear type	Discarded proportions	Discarded nos./h
Cod:		
Nephrops trawl	51%	49
Pair trawl	32%	115
Otter trawl	29%	108
Haddock:		
Nephrops trawl	36%	15
Pair trawl	48%	6
Otter trawl	33%	62
Whiting:		
Nephrops trawl	77%	244
Pair trawl	42%	82
Otter trawl	58%	222

- **Mesh:** The type of twine used in the codend, the mesh size, and the presence of square mesh panels all affect discarding. For example, Figure 3 shows how the proportion of cod catches discarded drops rapidly with increasing mesh size.

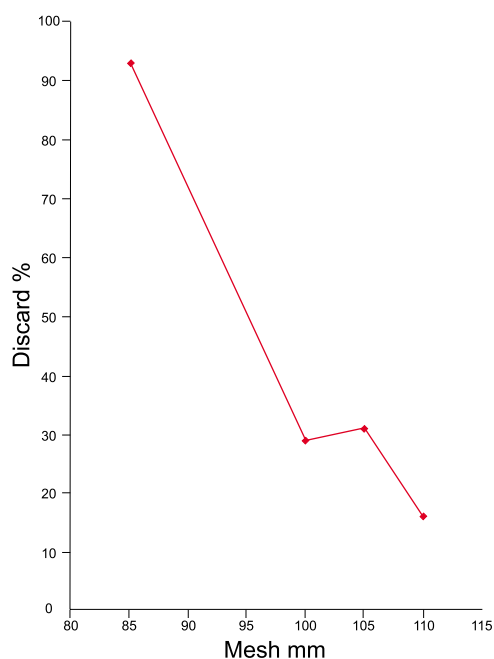


Figure 3. English NE coast otter trawlers. Proportion of catch discarded vs. codend mesh size. Results from 1997-1998

- **Year-class strength:** Discarding increases rapidly when a large year-class reaches catchable size and the small fish make up a large proportion of catches.

How discard data are used

Data on the numbers and size of fish discarded may be used for two different purposes. The first is in the assessment of stock abundance. The second is in the evaluation of technical measures, such as closed areas and mesh sizes.

Data on discards are included in only a few single species stock assessments, e.g. Scottish data for North Sea haddock and whiting. Such data must be accurate and consistent over many years of sampling to be of value. CEFAS is currently monitoring discarding collaboratively with other North Sea countries. Data are pooled quarterly to estimate total North Sea discarding. A pooled value should be more accurate than estimates for national fisheries by individual countries.

Some stock assessments are done on a multispecies basis. These take account of fish eating other fish. In these cases, estimates of all discards need to be included.

Discard data can be useful for evaluating the effectiveness of changes in mesh size and closed areas. Area closures, such as the Plaice Box and the Mackerel Box are there to reduce the capture and discarding of young fish.

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