

## Background

Discard sampling was first carried out by CEFAS in 1994 for the English north east coast trawl fisheries. Only cod, haddock and whiting were measured. This was extended in 2002 to cover all species and other coastal areas. EC Regulation 1639/2001 now requires European member states to assess discards for specified species and fisheries. All current discard sampling is jointly funded by Europe and the UK Government Department of Environment, Food and Rural Affairs (Defra).



An observer measuring the catch aboard a commercial fishing vessel

## Aim

To collect and provide data on fish discarded at sea that can be used to aid fisheries managers.

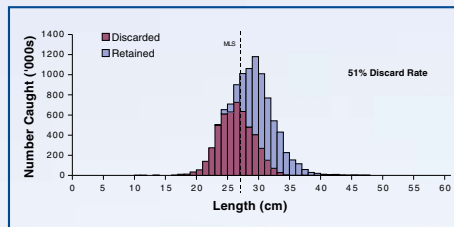
## Current Project

- 8 observers are employed to carry out a total of 800 days at sea per year
- The total cost is 845,000 Euros per year.
- Sample fleet includes all vessels >10m length for safety reasons
- All main gear types are sampled
- All finfish and commercial shellfish sampled and measured
- Main commercial species are aged
- All access to vessels and catches is voluntary and free
- There is no enforcement role for observers or their data
- All data collected is CONFIDENTIAL



Scarborough port showing different size range of fishing vessels

## Some Example Results



Length frequency distribution showing the percentage discard rate of whiting from North Sea otter trawls in 2001

Proportions of North Sea haddock (by age) discarded from otter trawlers (2000). These data can be incorporated into stock assessments. No sampling was possible in Quarter 4 due to bad weather.

Winter Rings (Age)	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Average of Sampled Quarters
0	-	-	100%	-	100%
1	-	100%	98%	-	99%
2	93%	61%	18%	-	57%
3	69%	8%	7%	-	28%
4	50%	2%	0%	-	17%
5	28%	0%	0%	-	10%
6	16%	0%	0%	-	5%
7	10%	3%	0%	-	5%
8	23%	0%	0%	-	8%
9	-	0%	0%	-	0%
10+	0%	0%	-	-	0%

## Customers and Uses

- ICES Stock Assessment Working Groups
- ICES Study Group on Discards and By-catch Information
- ICES Working Group on Ecosystem Effects of Fishing
- International estimates of discarding
- Recovery Plans – Cod and Hake
- Gear Technology developments
- Identifying areas and gears with high discards
- Scientific publications and project reports

## Fisheries and Sampled Effort

Below are some of the main gear types that have been sampled during discard observer programmes in England and Wales



A Nephrops trawler hauling the catch



A good catch of cod from a North Sea trawler

## Otter Trawl and Nephrops Trawl

Otter trawlers fish all around the UK coast targeting finfish. In some areas Nephrops trawl is used to specifically target the crustacean *Nephrops norvegicus*. In 2001, 41,600 tonnes of mixed finfish and shellfish were landed by otter trawls and 6236 tonnes of Nephrops and 2604 tonnes of finfish were landed by Nephrops trawl.

Target finfish species are cod, haddock, plaice, sole, whiting, and lemon sole.

Catches contain a mixture of marketable species, undersize marketable species, marketable by-catch and unmarketable species.

The fishing effort and landings for the English and Welsh fleet (> 10 m length) in 2001 and the amount of sampling effort (hours) carried out on the different gear types.

Fishing Gear	No. Vessels in Fleet in 2001	Days Fishing in 2001	Landings of Finfish and Shellfish (tonnes) in 2001	Sampled Fishing Effort (hrs)
Otter Trawl	323	29487	41,600	5512 (since 1994)
Nephrops Trawl	65	3419	6,236	1140 (since 1994)
Beam Trawl	156	22399	25,300	1485 (since 1998)
Other Gears	522	31796	34,864	2849 (since 1994)

## Beam Trawl

Occurs in most areas around the UK.

This gear uses a large metal beam to hold the net open and chain mats or tickler chains to chase flatfish out of the seabed.

Target species are plaice, sole, anglerfish and cuttlefish (seasonal).

Some vessels also change to scallop dredges in the summer.

High value by-catch species include brill, turbot, hake and cod.

Unwanted species and by-catch include elasmobranchs, gurnards, other non-target fish and various invertebrates.



The mixed catch from a large beam trawling vessel



A beam trawl rigged with a chain mat to dig sole out of the seabed

## Other Gears Sampled

Since 1994 observers have sampled catches from shrimp beam trawls, gillnets, midwater pelagic trawls, long lines, anchor seines, Scottish fly seines, pair trawls and crab/lobster pots.

Target species for these gears include hake, bass, cod, spurdog, haddock, sole, plaice and crustaceans.

Vessels can often swap between some of these gear types at different times of year.



An inshore beam trawler in the process of hauling the nets



A typical shrimp beam trawl catch