

Discarding in ICES sub-area VII

The Centre for Environment, Fisheries and Aquaculture Science (Cefas) catch and discard data collection programme has been conducting sampling operations on *English and Welsh* registered fishing vessels in the International Council for the Exploration of the Sea (ICES) sub-area VII since 2002. We present the findings of this work and estimate the annual quantities of discards (fish and cephalopods) in terms of numbers and weights between 2002 and 2005. Our analysis was conducted on **3643** hauls from **306 trips** (142 different boats) aboard commercial fishing vessels. An estimated 186 million (72 000 t) fish and cephalopods were caught every year of which 117 million (24 500 t) were discarded. Beam trawlers and otter trawlers were together responsible for more than 90% of these discards. We estimate that discarding levels in the region are higher (x 1.5) than recently reported by the FAO.

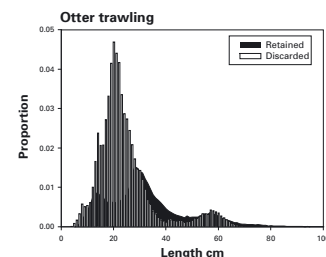
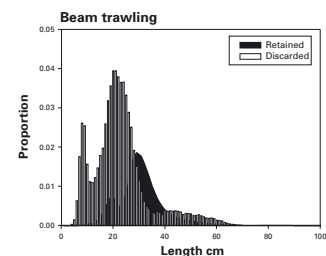
How many and by whom?

Rank	Gear group	Numbers of fish x 10 ⁶				Percent discarded
		Discarded Range	Mean	Retained Range	Mean	
1	Beam trawling	55.1-81.3	68.5	23.5-37.3	28.2	71(1) 9
2	Otter trawling	31.4-47.7	41.6	19.4-26.0	22.8	64(1) 6
3	Factory pelagic	0.4-13.6	7.0	8.9-46.5	22.7	14 (9) 8
4	Netting	0.4-2.2	1.2	1.2-3.7	2.1	36 (9) 6
5	Nephrops trawling	0.1-2.7	1.2	<0.1-0.3	0.1	*
6	Scallop dredging	0.3-3.1	1.2	1.2-0.3	0.9	*
7	Local pelagic	<0.1-1.4	0.6	0.1-2.0	0.8	34 (21) 3
8	Seining	<0.1-0.1	0.1	0.2-0.3	0.2	24 (6) 5
9	Potting	<0.1-0.1	<0.1	<0.1-0.1	<0.1	*
10	Long-lining	<0.1-0.1	<0.1	<0.1-0.1	<0.1	53 (NA) 4
Total		109.1-129.2	117.4	54.9-92.7	68.5	63 (8) 1

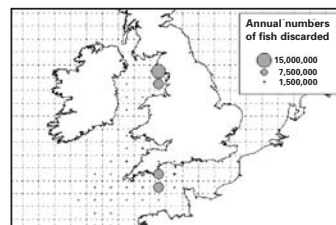
Ranking according to mean annual discard numbers
Figure in parentheses refer to standard error of annual estimate
(NA) Insufficient data for estimation of S.E.
* Shellfish / crustacean targeted fisheries (shellfish/crustaceans not analysed in this work)

Is it just the small fish discarded?

Haul raised length-frequency distribution for all species (2002-2005) for **beam trawlers** and **otter trawlers**



Where?



Spatial distribution of discarded fish and cephalopods (2002-2005) in ICES sub-area VII

What species?

Top 10 most discarded species and significant commercial species by **beam trawlers**

Rank	Common name	Latin Name	Numbers x10 ⁶		% discarded
			Annual mean	Range	
1	Gurnards	<i>Trigla spp.</i>	9.9	6.4-14.9	82 (4) 8
2	Common Cuttlefish	<i>Sepia officinalis</i>	7.9	1.4-13.4	58 (5) 0
3	European Plaice	<i>Pleuronectes platessa</i>	7.2	0.6-23.4	43 (11) 4
4	Dab	<i>Limanda limanda</i>	6.8	2.7-15.2	97 (1) 1
5	Lesser Spotted Dogfish	<i>Scyliorhinus canicula</i>	6.4	5.9-6.5	96 (0) 8
6	Poor Cod	<i>Trisopterus minutus</i>	5.2	3.9-6.8	100 (0) 0
7	Dragonets	<i>Callionymidae</i>	4.9	3.2-6.1	100 (0) 1
8	Whiting-Pout (Bib)	<i>Trisopterus luscus</i>	4.7	3.4-6.3	75 (5) 2
9	Whiting	<i>Merlangius merlangus</i>	2.2	0.6-3.4	85 (2) 7
10	Megrim	<i>Lepidorhombus whiffiagonis</i>	1.5	0.4-2.4	30 (0) 9
11	Anglerfish (Mork)	<i>Lophius piscatorius</i>	1.3	0.6-1.5	48 (2) 8
14	Lemon Sole	<i>Microstomus kitt</i>	0.9	0.5-1.2	37 (1) 2
15	Cuckoo Ray	<i>Raja nabeus</i>	0.8	0.2-1.2	82 (2) 7
21	Red Mullet	<i>Mullus surmuletus</i>	0.4	0.1-0.7	47 (4) 1
22	Spotted Ray	<i>Raja montagui</i>	0.3	0.1-0.7	80 (4) 3
23	Sole (Dover Sole)	<i>Solea solea (s vulgaris)</i>	0.3	0.2-0.3	53 (0) 6
Rest (114 species)			8.0	6.4-10.8	80 (1) 4

Ranking according to annual mean discard numbers
Figure in parentheses refer to standard error of annual estimate

Top 10 most discarded species, and significant commercial species by **otter trawlers**

Rank	Common name	Latin Name	Numbers x10 ⁶		% discarded
			Annual mean	Range	
1	Dab	<i>Limanda limanda</i>	5.2	3.0-10.0	56 (1) 8
2	Gurnards	<i>Trigla spp.</i>	5.2	1.3-11.1	70 (5) 1
3	European Plaice	<i>Pleuronectes platessa</i>	3.6	1.8-6.3	60 (3) 4
4	Lesser Spotted Dogfish	<i>Scyliorhinus canicula</i>	3.5	2.3-5.1	75 (7) 3
5	Beaer Fish	<i>Cyprus aser</i>	3.1	1.1-4.6	62 (5) 3
6	Beaer Fish	<i>Cyprus aser</i>	2.4	0.1-5.0	100 (0) 0
7	Gt Silver Smelt	<i>Argentina silus</i>	2.8	0.8-3.0	100 (0) 0
8	Poor Cod	<i>Trisopterus minutus</i>	2.0	0.8-3.3	100 (0) 0
9	Horse-Mackerel (Scad)	<i>Trachurus trachurus</i>	1.8	0.5-3.5	81 (8) 3
10	Dragonets	<i>Callionymidae</i>	1.5	0.2-3.0	100 (0) 1
11	Megrim	<i>Lepidorhombus whiffiagonis</i>	1.2	0.4-4.3	33 (16) 2
15	Lemon Sole	<i>Microstomus kitt</i>	0.6	0.1-1.0	23 (8) 8
17	Haddock	<i>Melanogrammus aeglefinus</i>	0.4	0.0-0.8	36 (10) 5
20	Thornback Ray	<i>Raja clavata</i>	0.3	0.1-0.7	32 (6) 3
21	Greater Forkbeard	<i>Physica blennoides</i>	0.4	0.0-1.1	53 (22) 5
Rest (144 species)			7.2	3.4-13.3	35 (5) 5

Ranking according to annual mean discard numbers
Figure in parentheses refer to standard error of annual estimate

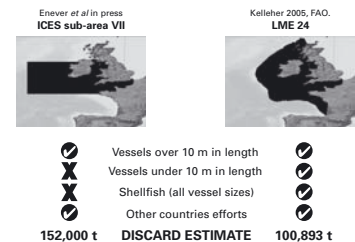
How accurate is the data?

Comparisons between official landings figures (2002-2005) and those estimated by the catch sampling programme for a range of commercial non-quota species.

Common name	Latin name	Estimated landings (t) as derived from catch sampling programme	Official reported landings (t)	% difference
Whiting-Pout (Bib)	<i>Trisopterus luscus</i>	3,114	2,563	19.6
Dab	<i>Limanda limanda</i>	320	353	-10.1
John Dory	<i>Zeus faber</i>	707	807	-14.3
Lemon sole	<i>Microstomus kitt</i>	3,326	3,368	8.1
Ling	<i>Molva molva</i>	3,468	3,595	-3.6
Red mullet	<i>Mullus surmuletus</i>	660	615	6.8
Turbot	<i>Scophthalmus maximus</i>	940	1,189	-26.5
Black sea bream	<i>Spondylusoma cantharus</i>	875	822	6.1
Total		14,610	13,462	3.7

Ranking according to annual mean discard numbers
Figure in parentheses refer to standard error of annual estimate

Discarding is much higher than recent estimates



CONCLUSIONS

- For every fish retained there are approximately two fish discarded.
- Beam trawlers and otter trawlers combined are responsible for over 90% of discarded fish
- Discarded fish occur across a broad length range
- Discarding is high where retention of fish is high
- "Hotspots" of discarding occur around the UK
- Discarding is at least 50% greater than recent estimates for a similar area
- Mitigation measures should be considered

ANNUALLY, 186 MILLION FISH ARE CAUGHT BY OUR FLEETS. 117 MILLION ARE DISCARDED.

