

Information on fishing vessels and  
gear dimensions working in areas  
35F1-4 and 36F1-4 of the North  
Sea.

B. van Marlen, R. Bol

Report number C087/08

Institute for Marine Resources and Ecosystem Studies

Wageningen **IMARES**

Location IJmuiden

Client: Mr. R. Martin  
Atkins Boreas  
6 Golden Square,  
Aberdeen, AB10 1RD,  
United Kingdom

Publication Date: 27/11/2008

- Wageningen **IMARES** conducts research providing knowledge necessary for the protection, harvest and usage of marine and coastal areas.
- Wageningen **IMARES** is a knowledge and research partner for governmental authorities, private industry and social organisations for which marine habitat and resources are of interest.
- Wageningen **IMARES** provides strategic and applied ecological investigation related to ecological and economic developments.

© 2007 Wageningen **IMARES**

Wageningen IMARES is a cooperative research organisation formed by Wageningen UR en TNO. We are registered in the Dutch trade record Amsterdam nr. 34135929, BTW nr. NL 811383696B04.

The Management of IMARES is not responsible for resulting damage, as well as for damage resulting from the application of results or research obtained by IMARES, its clients or any claims related to the application of information found within its research. This report has been made on the request of the client and is wholly the client's property. This report may not be reproduced and/or published partially or in its entirety without the express written consent of the client.



A\_4\_3\_2-V5

# Contents

- Summary ..... 4
- 1 Introduction ..... 5
- 2 Assignment ..... 5
- 3 Materials and Methods ..... 5
- 4 Results..... 5
  - 4.1 Beam trawler and beam trawl gears ..... 5
  - 4.2 Trend in fleet size ..... 6
  - 4.3 Technical and operational changes..... 6
  - 4.4 Vessels and gears operating in the areas of concern ..... 6
- 5 Conclusions ..... 7
- 6 Quality Assurance ..... 7
- Tables ..... 8
- Figures ..... 10
- References ..... 18
- Justification..... 19
- Appendix A. Extract of VIRIS-database ..... 20

## Summary

This study gives an extract from the Dutch VIRIS database for ICES rectangles 35F1 to 35F4 and 36F1 to 36F4 over the years 2003-2007 by gear type and vessel power. The most common gear type in this area in the beam trawl and most common vessel classes are those with 221 kW (300 hp) and 1471 kW (2000 hp) main engine power. Technical details of the beam trawl gear for the most common vessel class of 1471 kW (2000 hp) are given and also current developments in technology of these gears .

# 1 Introduction

Fishing with bottom trawls and offshore activities can interact in various ways. This theme has been on the agenda of fisheries research institutes from time to time since the early 1970s. The offshore industry worked with fisheries institutes on topics such as: pipeline protection and gear impact, safeguarding underwater telephone cables, resulting in constructive improvements (De Bruin, 1978, and Figure 8), protecting abandoned wellheads by e.g. domes and the impact of gears running over these constructions (ICES, 1980; Van Marlen, 2004). At various points in time questions are being asked about the fishing effort deployed in certain areas and the associated gear dimensions.

## 2 Assignment

Wageningen IMARES was contacted in October 2008 by the company Atkins Boreas of Aberdeen UK to investigate the fishing effort of Dutch fishing vessels and technical data on their fishing gears in the southern North Sea between 53° N and 54° N; i.e. north of Den Helder, in ICES areas 35F1 to 35F4 and 36F1 to 36F4 (See Figure 7).

## 3 Materials and Methods

The VIRIS database was searched for effort data in ICES areas 35F1 to 35F4 and 36F1 to 36F4. In addition literature was studied and personal contacts with the fishing industry used about the sizes and dimensions of gear and gear components in use.

## 4 Results

### 4.1 Beam trawler and beam trawl gears

A beam trawler or cutter operates two beam trawls simultaneously to catch predominantly flatfish (Figure 1). The beam width or beam length is limited to 12 m (measured from outside trawl shoe plates), and the installed power of the main engine is limited to 2000 hp since 1988 (Anon., 1998), although there are still some older boats having larger powers, most of them fishing in the southern North Sea.

A typical beam trawl consists of a combination spar or beam (i.e. an inner and an outer beam) made of (mild) steel to which two trawl shoes are attached. This construction and the fact that spare inner pipes are often brought along allow for repairs on damaged beams whilst at sea. An array of so-called 'tickler' chains runs from the trawl shoe plates in front of the net over the sea bed. In addition chains are attached on the footrope of the trawl. These are called 'net ticklers'. These chains chase flatfish out of the sea bed to become susceptible to capture by the net (Figure 2). The vessels are fishing with a relatively high speed (6.5-7.0 kts) and hauls typically last for 1-2 hrs. A recent trend however is to decrease steaming and towing speeds in order to save fuel. Between hauls the gears are heaved in and their contents (catches and by-catches) dumped in bins on the main deck after which they are shot again, an operation usually taking about 15 minutes. A typical trip lasts for one week, leaving on Monday mornings and landing catches on Fridays or Saturdays. Studies were carried out to determine the exact locations where these boats do fish (Rijnsdorp *et al.*; 1998, Piet *et al.*, 2006). The grounds are mostly located close inshore for the smaller than 221 kW (300 hp) boats and outside the twelve mile limit for the larger boats on the Dutch NCP (Figure 9 and Figure 10).

Table 2 lists major gear component dimensions for the most commonly used 2000 hp vessel class. Most vessels operate a double warp pulley system with a block attached to the chain bridle system in front of the beams. Warp lengths / water depth ratios are mostly taken at 4 to 1 or 5 to 1. Chain bridle systems in use can consist of up to five chains attached along the length of the beam, with the two outer ones carrying the load and the inner ones serving as safety in case of beam deflections, thus preventing failure of the beam under a snag load. The risk of capsizing when one of the gears gets stuck on the sea bed has been reduced by technology that enable to reduce the heeling moment quickly. This can be done by bringing the towing point to amidships or paying out length of the snagged warp. Automatic winches are quite common nowadays, e.g. the system produced by the Belgian company Marelec of Nieuwpoort Belgium (<http://www.marelec.com/en/home.php>). These systems allow automatic release of winch brakes in the case of (pre-defined) peak loads and regular synchronising of both the port and the starboard warp tension by paying out or heaving in warp. The system results in savings in gears maintenance and repair costs, and allows vessels to operate on rougher fishing grounds.

## 4.2 Trend in fleet size

The Dutch beam trawler fleet is declining over the last seven years, due to decreasing profitability caused by limitations in the fish quota and the recent rise in fuel oil prices and subsequent decommissioning. Only the so-called 300 hp euro-cutter segment showed a small (+5%) increase in numbers. Particularly the number of large powered boats has been reduced by 64%. Over the whole fleet the decline was 14% between 2000 and 2006 (Table 1), with further reductions in 2007.

## 4.3 Technical and operational changes

The high fuel price and criticism from the environmental and ecosystem oriented side, as well as consequent changes in consumer behaviour and market opportunities cause a move away from beam trawling as the major fishing method in the Dutch fleet. Some skippers sold their vessels and/or converted them to enable other fishing methods such as twin-trawling or fly-shooting (Scottish seining). Skippers still operating beam trawls use fuel meters more and more and adjust towing and steaming speeds, but also in many cases change to other fishing methods or even new target species. There is a general feeling that beam trawling with heavy tickler chains has no long lasting future.

Among strategies chosen are: attempts to lower gear drag in beam trawling, e.g. by applying hydro-dynamically favourable shapes (e.g. SumWing, Figure 11) possibly combined with other ways of stimulating fish (Pulse trawl, HydroRig). Alternatively one might decide to change gear completely (twin-trawl, outrigger trawl (Figure 12) or fly-shooting), often associated with different catch compositions, target species or fishing grounds. These innovations often involve lower ground contact and can be deemed to cause lower impact forces in case of a snag or fastener on an obstruction located on the sea bed.

It is too early to tell whether these innovations will enable a sustainable and profitable fishery and will be used at a wide scale, but they will have an effect on energy savings, and depending on the fuel price level can contribute to better economy of fishing which favours their introduction.

## 4.4 Vessels and gears operating in the areas of concern

The ICES rectangles requested for investigation, namely: 35F1, 35F2, 35F3, 35F4, 36F1, 36F2, 36F3, and 36F4 (Figure 7) are frequently encountered by Dutch fishing vessels (Rijnsdorp *et al.*, 1998; Piet *et al.*, 2006, see also Figure 9 and Figure 10). The "Visserij Registratie en Informatie Systeem" (VIRIS) database contains information on fishing activities of the entire Dutch fleet at a spatial resolution of ICES rectangles stored in individual fishermen's EC logbooks. There is a distinction in the database of different segments of the fleet based on their engine power, and information on the starting and ending time and date of the fishing trip, the gear used, the ICES rectangles fished, and the landings by fish species (Piet *et al.*, 2006). An extract of this VIRIS database was made for these areas. Thus the effort data provided is based on official Dutch logbook data. The basis for the effort calculation is "time absent from harbour" expressed as days at sea. In general, a vessel operates in a number of

rectangles during one fishing trip. The total effort of the trip is distributed over the different rectangles, based on the relative proportion in the landings from that trip. For all gear categories and vessel engine powers involved, the total effort in days at sea and the number of trips for the years 2003-2007 in the relevant rectangles are calculated and summarised for beam trawls (TBB) in Table 3 and Table 4, with the complete data extracts given in Appendix A: Table 5 and Table 6. It appeared that the majority of fishing effort was related to beam trawling (i.e. gear code TBB, see Table 7), and in many cases heavily powered boats (more than 1471 kW (2000 hp)) were involved, although these numbers declined rapidly in recent years. The largest number of trips were made by vessels in the 1471 kW class (Appendix A: Table 6). The total number of trips declined over the years, the largest numbers were found in areas 36F3 and 36F4 (Table 3).

## 5 Conclusions

The areas under investigation are among the relatively frequently visited ones. The majority of vessels operating in the area are beam trawlers in the 1471 kW (2000 hp)-class, for which technical details are given in this report. Recent trends in gear development show a shift from heavy gears to gears enabling lower fuel consumption and sea bed impact.

## 6 Quality Assurance

IMARES utilises an ISO 9001:2000 certified quality management system (certificate number: 08602-2004-AQ-ROT-RvA). This certificate is valid until 15 December 2009. The organisation has been certified since 27 February 2001. The certification was issued by DNV Certification B.V. The last certification inspection was held the 16-22 of May 2007. Furthermore, the chemical laboratory of the Environmental Division has NEN-AND-ISO/IEC 17025:2000 accreditation for test laboratories with number L097. This accreditation is valid until 27 March 2009 and was first issued on 27 March 1997. Accreditation was granted by the Council for Accreditation, with the last inspection being held on the 12<sup>th</sup> of June 2007.

# Tables

Table 1: Development of the Dutch beam trawler fleet 2000-2006

Year	2000	2001	2002	2003	2004	2005	2006
<b>Total number</b>	<b>402</b>	<b>401</b>	<b>393</b>	<b>374</b>	<b>367</b>	<b>342</b>	<b>346</b>
Age / Year	2000	2001	2002	2003	2004	2005	2006
0-10 yr	86	80	85	78	70	67	66
10-20 yr	166	160	147	140	136	113	101
> 20 yr	150	161	161	156	161	162	179
<b>Total</b>	<b>402</b>	<b>401</b>	<b>393</b>	<b>374</b>	<b>367</b>	<b>342</b>	<b>346</b>
Power class (hp) / Year	2000	2001	2002	2003	2004	2005	2006
1-150	9	7	8	4	3	8	8
151-200	16	16	17	16	18	17	17
201-260	41	41	37	34	32	32	30
261-300	158	168	173	173	168	163	166
301-600	12	10	9	8	7	8	7
601-800	3	2	2	2	2	3	4
801-1.100	6	7	6	6	5	5	5
1.101-1.500	8	9	8	5	6	4	5
1.501-2.000	90	84	82	87	92	81	83
2.001+	59	57	51	39	34	21	21
<b>Total</b>	<b>402</b>	<b>401</b>	<b>393</b>	<b>374</b>	<b>367</b>	<b>342</b>	<b>346</b>
Mean power (hp)	1066	1037	1000	981	986	881	891

Table 2: Main gear component dimensions for the 2000 hp beam trawler class

Engine power (hp)	Forestay $\varnothing$ (mm)	Warps $\varnothing$ (mm)	Chain bridle system $\varnothing$ (mm)	Outer beam outside diameter $\varnothing$ (mm); and thickness (mm)	Inner beam outside diameter $\varnothing$ (mm); and thickness (mm)	Weight of beam in air (kgf)	Weight of shoes in air (kgf)	Max. Height of beam (m)	Beam ticklers nr x $\varnothing$ (mm)	Net ticklers nr x $\varnothing$ (mm)
2000	43	26-32	31-25-31	219; 28	159; 20	2100	2 x 800	0.75	10 x 26	10 x 13

Table 3: Summary of number of sea trips of vessels fishing with beam trawls (TBB) by area

<b>Area</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
35F1	17	17	11	10	13
35F2	66	73	53	49	46
35F3	83	90	81	64	58
35F4	89	71	76	64	56
36F1	28	25	30	23	20
36F2	48	52	48	41	34
36F3	60	56	48	43	48
36F4	66	69	61	53	52
<b>Total</b>	<b>457</b>	<b>453</b>	<b>408</b>	<b>347</b>	<b>327</b>

Table 4: Summary of days at sea of vessels fishing with beam trawls (TBB) by area

<b>Area</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
35F1	142.4	110.8	128.0	91.8	119.9
35F2	1101.5	1159.9	754.8	853.4	897.4
35F3	1106.8	1322.0	1220.1	1066.5	1360.6
35F4	1204.9	760.1	905.1	832.4	681.5
36F1	260.2	260.4	182.2	171.5	146.3
36F2	361.8	432.5	399.9	373.0	403.1
36F3	528.8	549.7	566.4	435.0	501.5
36F4	1328.7	1293.8	1257.3	1124.0	1109.5
<b>Total</b>	<b>6035.0</b>	<b>5889.1</b>	<b>5413.9</b>	<b>4947.6</b>	<b>5219.8</b>

# Figures

## Beam Trawling

From: "Een schip vis", E.J. de Boer & C. van der Meulen, 1976

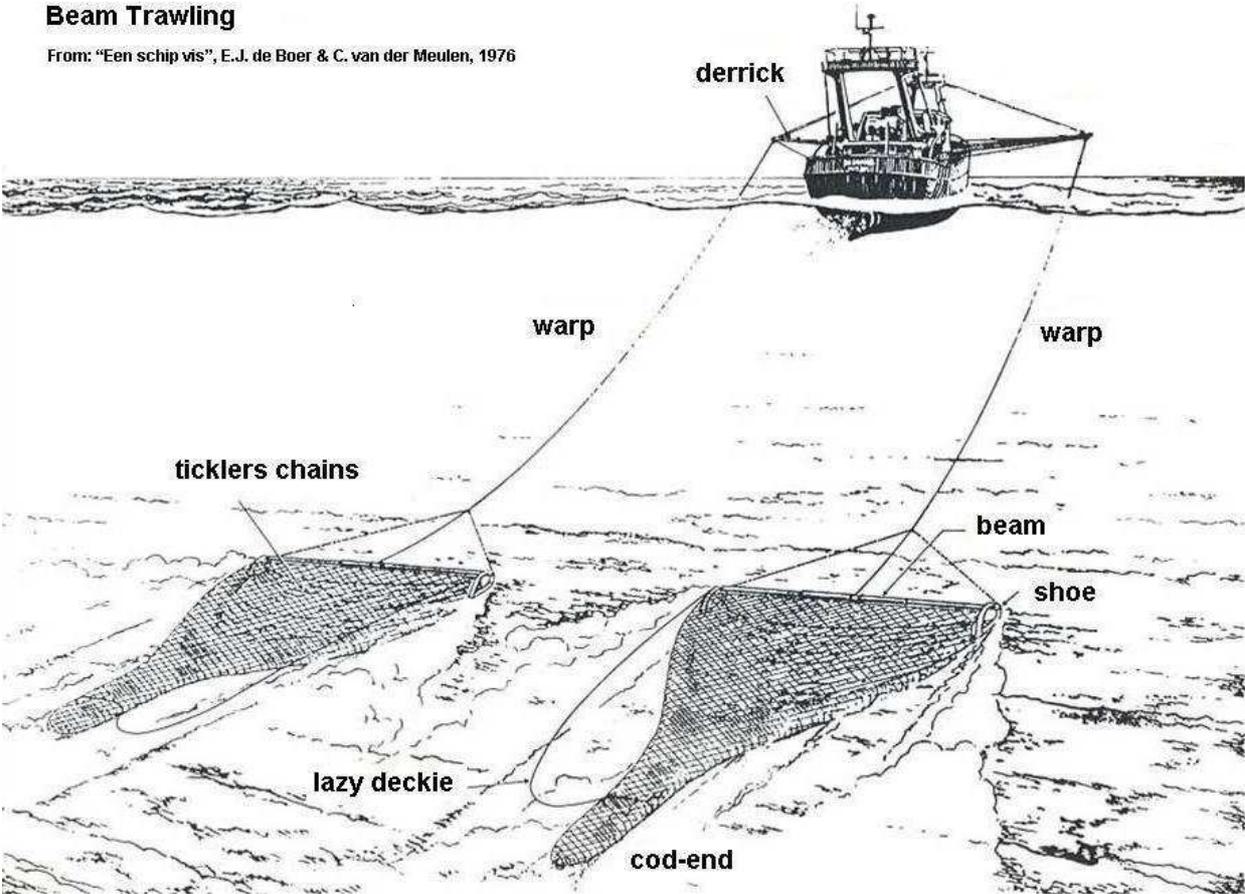


Figure 1: Beam trawler and gears

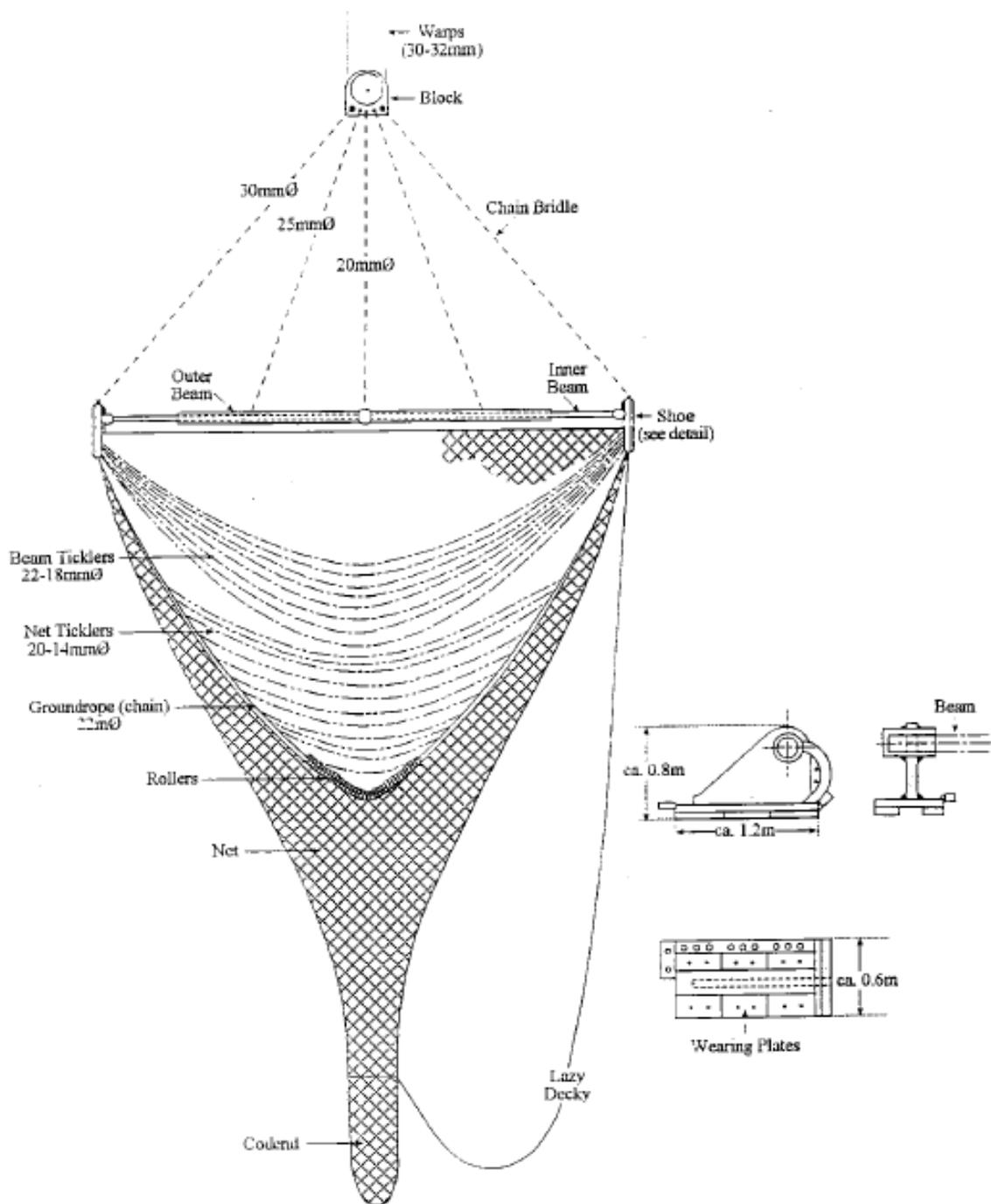


Figure 2: Diagram of typical tickler chain type of beam trawl used by the Dutch cutter fleet



Figure 3: Photograph of typical tickler chain type of beam trawl used by the Dutch cutter fleet: complete gear (source: D. Schaap, FRV "Tridens")



Figure 4: Photograph of typical tickler chain type of beam trawl used by the Dutch cutter fleet: detail with trawl shoe (source: D. Schaap, FRV "Tridens")



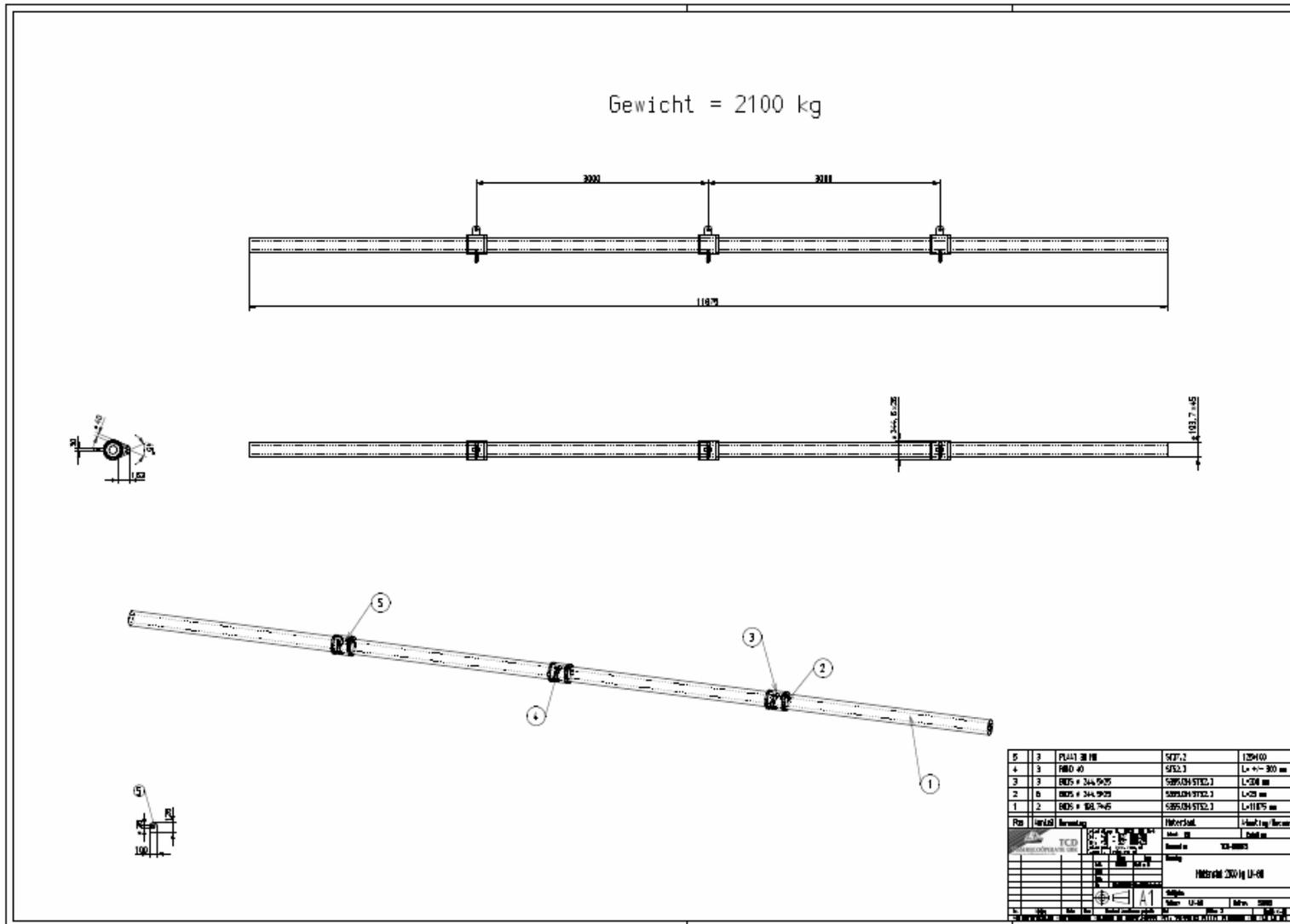


Figure 6: Engineering drawing of beams for a 2000 hp vessel (source: VCU-TCD Urk, The Netherlands)

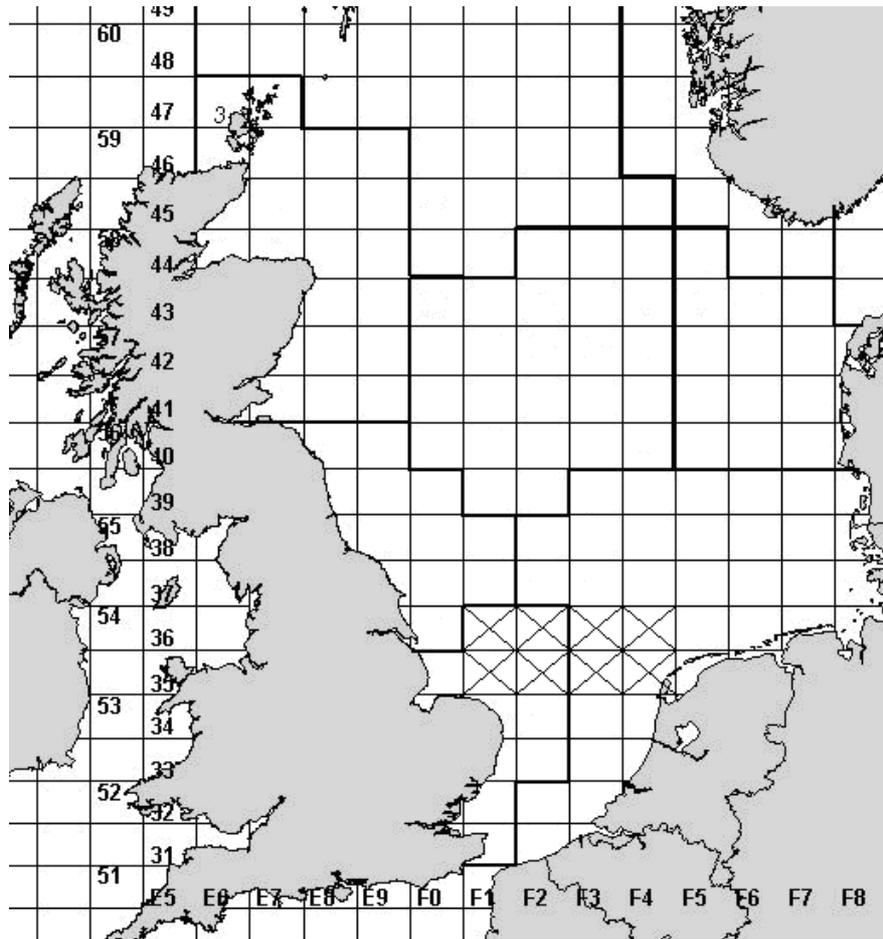


Figure 7: ICES rectangles investigated in this study

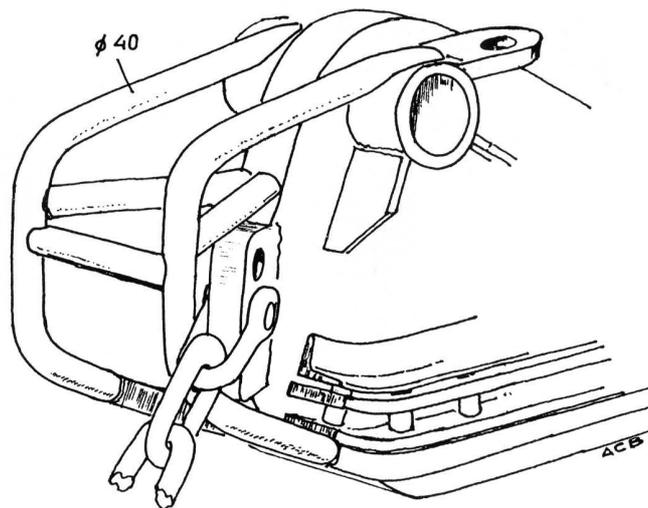


Figure 8: Steel bars on beam trawl shoe designed to pass over sub-sea cables (De Bruin, 1978)

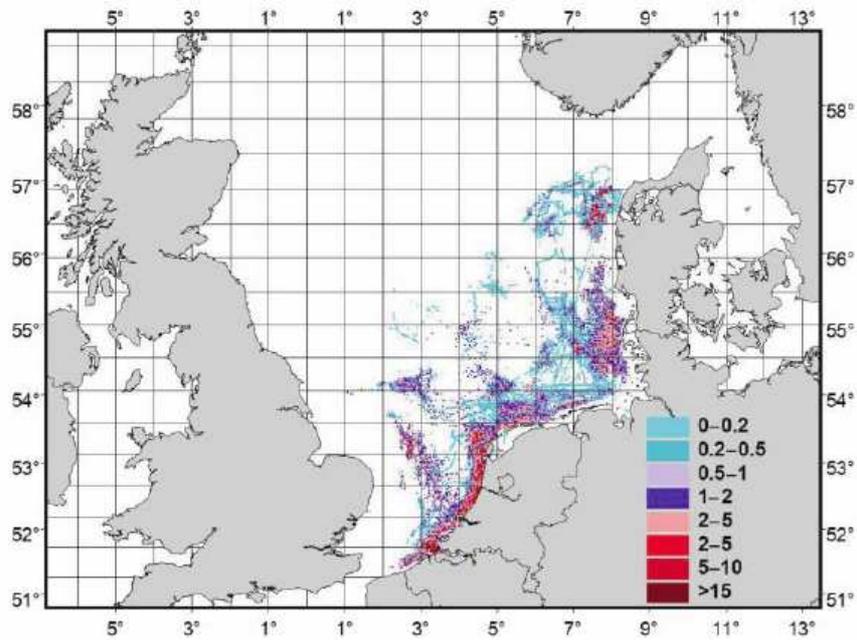


Figure 9: Spatial distribution of fishing activities of vessels with engine powers  $\leq 221$  kW and with powers  $> 221$  kW of the Dutch beam trawl fleet expressed by the number of registrations per year based on the period 1994–2003, vessels  $< 300$  hp (from Piet *et al.*, 2006)

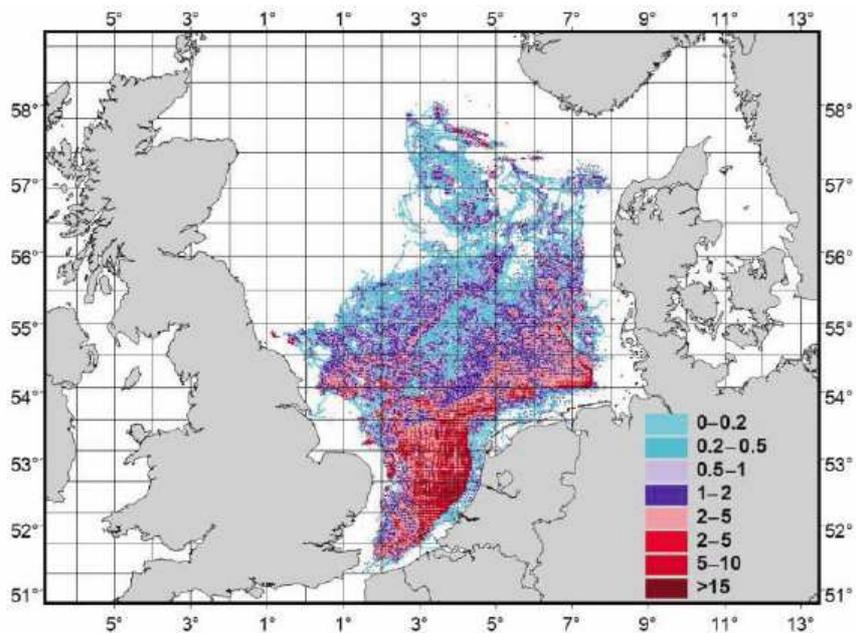


Figure 10: Spatial distribution of fishing activities of vessels with engine powers  $\leq 221$  kW and with powers  $> 221$  kW of the Dutch beam trawl fleet expressed by the number of registrations per year based on the period 1994–2003, vessels  $> 300$  hp (from Piet *et al.*, 2006)



Figure 11: Innovative low drag “SumWing” beam ( see [www.sumwing.nl](http://www.sumwing.nl))



Figure 12: Outrigger gear replacing beam trawls (source: ILVO Fishery, Ostend Belgium)

## References

- Anon., 1998. Council Regulation (EC) No 850/98 of 30 March 1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms. Official Journal L 125 , 27/04/1998 P. 0001 - 0036
- Bruin, A.C. de, 1978. Gewijzigde uitvoering boomkor voorkomt schade aan tuig en kabels. (*In Dutch*). De Visserijwereld, 37 (51/52), 3 pp.
- ICES, 1980. Interaction between the fishing industry and the offshore gas/oil industries. ICES Coop. Res. Rep. No 94, March 1980, 103 pp.
- Marlen, B. van, 2004. Experiences with the interaction between the offshore and the fishing industries. Presentation Offshore Mechanics and Arctic Engineering (OMAE)-conference, Vancouver Canada, June 2004.
- Piet, G. J., Quirijns, F. J., Robinson, L., and Greenstreet, S. P. R., 2006. Potential pressure indicators for fishing, and their data requirements. ICES Journal of Marine Science Advance Access published October 25, 2006
- Rijnsdorp, A.D., Buys, A.M., Storbeck, F. and Visser, E.G., 1998. Micro-scale distribution of beam trawl effort in the southern North Sea between 1993 and 1996 in relation to the trawling frequency of the sea bed and the impact on benthic organisms. ICES Journal of Marine Science, 55: 403–419. 1998
- Taal, C., Bartelings, H., Klok, A., Oostenbrugge, J.A.E. van, 2007. Visserij in Cijfers 2007 (*In Dutch with English summary*). Report LEI 2007. ISBN 978-90-8615-192-9, 105 pp.

# Justification

Rapport C087/08  
Project Number: 439.19999.99

The scientific quality of this report has been peer reviewed by the a colleague scientist and the head of the department of Wageningen IMARES.

Approved: ir. N.T. Hintzen  
Fisheries Biologist

Signature:

Date: 26/11/2008

Approved: Dr. ir. T.P. Bult  
Head of Fishing Department

Signature:

Date: 26/11/2008

Number of copies: 5  
Number of pages: 43  
Number of tables: 7  
Number of graphs: 11  
Number of appendix attachments: 1

## Appendix A. Extract of VIRIS-database

Table 5: VIRIS extract of fishing effort in days-at-sea in rectangles: 35F1, 35F2, 35F3, 35F4, 36F1, 36F2, 36F3, and 36F4

Sum of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
<b>35F1</b>	GN	299		1	21	11	7.99	40.99	
	GN Total			1	21	11	7.99	40.99	
	OTB	300					3.26	3.26	
	OTB Total						3.26	3.26	
	OTM	1995					4	4	
	OTM Total						4	4	
	TBB	1201			3.21	2.39			5.6
		1400		18.18	30.32	45.22			93.72
		1407		12.56	8.69		2.59	2.26	26.1
		1970		6.24	12.6	27.48	42.78		89.1
		1995		13.91	2.46		1.12		17.49
		1996		19.77	9.95	19.39	15.5	7.64	72.25
		1997			2.48			2.94	5.42
		1999		4.54	3.99		0.39		8.92
		2000		39.05	23.65	23.04	25.63	99.97	211.34
		2039		0.97		1.6			2.57
		2250						1.09	1.09
		2264		18.57		3.55			22.12
		2280						1.65	1.65
		2719		6.02	7.09	3.5			16.61
2721		1.27					1.27		
3260			2.69				2.69		
3576		1.27	3.65	1.82	3.83	4.33	14.9		
TBB Total			142.35	110.78	127.99	91.84	119.88	592.84	
<b>35F1 Total</b>			<b>142.35</b>	<b>111.78</b>	<b>148.99</b>	<b>102.84</b>	<b>135.13</b>	<b>641.09</b>	
<b>35F2</b>	GN	299	6	3	1			10	
	GN Total		6	3	1			10	
	OTB	300			21.28	4.67			25.95
		500			0.61				0.61
		1997						5.96	5.96
		2000		8.53					8.53
		2400						0.49	0.49
	OTB Total			8.53	21.89	4.67		6.45	41.54
	OTM	1995			1				1
		2286		2					2
		8973			0.49				0.49
	OTM Total			2	1.49				3.49
	OTT	2000						1.28	1.28
	OTT Total							1.28	1.28
PTB	300		2					2	
	499			0.59				0.59	
	500			0.57				0.57	
	605		0.18		3.84			4.02	

Sum of effort			yr					
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total
		799	0.93		6.96			7.89
	PTB Total		3.11	1.16	10.8			15.07
	PTM	1995		1				1
	PTM Total			1				1
	SSC	500				4.04		4.04
	SSC Total					4.04		4.04
	TBB	300	5.83	3.19	3.91	5		17.93
		1201	1.03	33.46	1.61	0.89		36.99
		1400	10.89	44.42	16.99			72.3
		1407	65.91	104.07	113.3	91	40.2	414.48
		1425	43.76	50.82	24.71		16.92	136.21
		1694				6.89		6.89
		1709		0.68				0.68
		1795		2.99		7.62	8.21	18.82
		1800	8.86	4.94				13.8
		1970	4.86	11.17	7.3	19.42		42.75
		1995	80.31	48.97	21.02	39.33	36.83	226.46
		1996	52.45	50.15	68.2	90.15	60.25	321.2
		1997	44.54	49.06	40.41	39.05	77.4	250.46
		1999	18.41	32.37	6.88	8.85	13.51	80.02
		2000	504.89	453.73	226.76	374.1	531.08	2090.56
		2024			4.51			4.51
		2039	12.86	26.35	4.56			43.77
		2249				1.54	0.75	2.29
		2250					8.69	8.69
		2264	50.12	75.65	62.23			188
		2280	9.97	15.39	8.44	9.67	7.23	50.7
		2286		5.41		7.68		13.09
		2364				0.51		0.51
		2379	2.32			1.83		4.15
		2380					2.25	2.25
		2400	57.19	64.78	46.01	40.42	1	209.4
		2500	32.52	20.61	25.05	18.52		96.7
		2501					51.75	51.75
		2700	17.09	3.44	11.48	9.74		41.75
		2719	12.21	13.61	14.83	2.64		43.29
		2721	6.22	1.18				7.4
		2949	1.14		10.82	22.44		34.4
		2950	3.36	5.71				9.07
		2951					11.35	11.35
		3260	4.16		1.22	0.07		5.45
		3570	19.46	20.9	12.74			53.1
		3576				2.82	0.55	3.37
		3834	21.86	8.95	15.48	53.22		99.51
		3835					29.43	29.43
		3999	9.27	7.91	6.35			23.53
	TBB Total		1101.49	1159.91	754.81	853.4	897.4	4767.01
<b>35F2 Total</b>			<b>1121.13</b>	<b>1188.45</b>	<b>771.28</b>	<b>857.44</b>	<b>905.13</b>	<b>4843.43</b>
<b>35F3</b>	GN	299	15	9			7	31

Sum of effort			yr					
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total
	GN Total		15	9			7	31
	GNS	299			2			2
		300			2		2	4
	GNS Total				4		2	6
	OTB	283	0.63					0.63
		300	7.22	16.1	33.91	5.53	15.27	78.03
		400	1.2					1.2
		500		1.47	7.47			8.94
		1430				2.15		2.15
		1997					11.63	11.63
		2000	1.67					1.67
		2400					9.32	9.32
	13379	0					0	
	OTB Total		10.72	17.57	41.38	7.68	36.22	113.57
	OTM	500				1.09		1.09
		2286	3					3
		8973		0.17				0.17
		8976					0.44	0.44
		9871		1.55				1.55
	OTM Total		3	1.72		1.09	0.44	6.25
	PTB	300	16		1.37			17.37
		605	0.32					0.32
		799	1.93		2			3.93
	PTB Total		18.25		3.37			21.62
	SDN	283	1.27	0.45				1.72
	SDN Total		1.27	0.45				1.72
	SSC	500					4	4
	SSC Total						4	4
	TBB	300	30.49	7.67	13.5	4.49	0.81	56.96
		900	1.14	0.34				1.48
		1000					10.33	10.33
		1001	4.13		0.7	12.3		17.13
		1201	0.98	1.08	4.14	3.11		9.31
		1425		0.9	3.93			4.83
		1694	1.77		3.47	3.98		9.22
		1709	2.43	16.61	9.23			28.27
		1795	3.46	4.94	9	1.5	29.48	48.38
		1799		2.83		1.76		4.59
		1800	30.55	22.65	28.5	25.85	2.31	109.86
		1970				1.14		1.14
		1974			1.09		4.01	5.1
		1992		4.85		2.06		6.91
		1995	156.44	129.78	159.1	122.97	170.96	739.25
		1996	7.85	5.97	7.65	1.5	10.73	33.7
		1997	32.68	18.41	17.54	36.64	69.94	175.21
		1999	188.89	224.36	117.3	69.56	57.91	658.02
		2000	293.54	381.42	329.4	401.88	747.08	2153.32
	2024		2.99	11.12	3.8		17.91	
	2039	23.07	28.66	42.05			93.78	

Sum of effort			yr					
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total
		2135	15.16	7.59	1.11			23.86
		2249		7.36	11.66	6.73	0.49	26.24
		2250	2.31	8.53	10.44		30.51	51.79
		2264	2.65	3.15	3.63			9.43
		2280	48.08	36.09	71.05	54.07	52.97	262.26
		2286	14.77	33.38	34.84	21.99		104.98
		2364	1.73	4.15	4	5		14.88
		2379	12.04	8.06	11.13	7.18		38.41
		2380					8.24	8.24
		2400	89.65	190.95	201.25	235.86	115.71	833.42
		2500	5.51	5.58	3.63			14.72
		2501					0.62	0.62
		2700	88.13	81.36	30.37	3.61		203.47
		2719		1.52	9.38	4.54		15.44
		2900	9.63	1.59	4.31	2.89	5.14	23.56
		2949			4	2.33		6.33
		2950	16.19	10.81	1.77			28.77
		2951					2.31	2.31
		2999	6.13	23.33	2.87	27.08		59.41
		3000					13.32	13.32
		3264					5.23	5.23
		3570	11.57	22.29	13.43			47.29
		3599			0.85			0.85
		3759				2.15		2.15
		3834	1.17	3.82	7.64	0.56		13.19
		3835					22.5	22.5
		3999	4.69	19.02	35.02			58.73
	TBB Total		1106.83	1322.04	1220.1	1066.53	1360.6	6076.1
	TBS	299			1			1
		300		0				0
	TBS Total			0	1			1
<b>35F3 Total</b>			<b>1155.07</b>	<b>1350.78</b>	<b>1269.85</b>	<b>1075.3</b>	<b>1410.26</b>	<b>6261.26</b>
<b>35F4</b>	FPO	60			2			2
	FPO Total				2			2
	GN	299	3	8		4	16	31
	GN Total		3	8		4	16	31
	GND	68	1					1
		84	1					1
	GND Total		2					2
	GNS	8			1			1
		24				2	1	3
		29	1	1	3	1		6
		50			0.5			0.5
		59					3	3
		60				1		1
		80		1				1
	84	4	2				6	
	128		1				1	
	131					1	1	

Sum of effort			yr					
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total
		155					8.99	8.99
		182	23.21	39.68	50.01	37.97	25.44	176.31
		204					1	1
		225					2	2
		283		18.47				18.47
		299	3	1		14.54	2.99	21.53
		300	53	28	21	38.06	6	146.06
		576	13	2		4	2	21
	GNS Total		97.21	94.15	75.51	98.57	53.42	418.86
	LHP	5					1	1
		23			1			1
		24	1					1
		69	2	2	2.01			6.01
	LHP Total		3	2	3.01		1	9.01
	LL	24			2			2
		59					1	1
	LL Total				2		1	3
	MIS	8		1				1
		20				1		1
		24		1	4	3	4	12
		39		1	1	1	1	4
		59					4	4
		60	4	9	12	8		33
		73				8	3	11
		84	1					1
		90	42	45	31	3		121
		107		1	1		1	3
		115					1	1
		129		1		24	6	31
		145		1	1	1	1	4
		169				5		5
		299		1				1
		500			2.68			2.68
	MIS Total		47	61	52.68	54	21	235.68
	OTB	14					1	1
		15	1	1	1	1		4
		20					1	1
		24			1	4		5
		40					1	1
		90	3	3	1			7
		129	71.01	25	30	3		129.01
		168					3	3
		169	36	36	39	12		123
		299	1.09	1				2.09
		300	131.75	116.28	18.39	104.8	96.92	468.14
		489		1	3	5.01		9.01
		500	1.15	1	1.2			3.35
		1001	4.1					4.1
		1430			1.63		0.09	1.72

Sum of effort			yr						
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total	
		2000	5.89		1.68			7.57	
		2400					4.01	4.01	
	OTB Total		254.99	184.28	97.9	129.81	107.02	774	
	OTM	122				1			1
		168					3		3
		169			2	5			7
		3600		7.93		10.23			18.16
		3601					7.76		7.76
		4400				5.41			5.41
		5050		1.4		1.99			3.39
		5051						2.73	2.73
		8973		2.86	7.21				10.07
	9803	0.05						0.05	
	OTM Total		0.05	12.19	10.21	22.63	13.49	58.57	
	PTB	8				1.66			1.66
		499	2.34	4.9					7.24
		500	6.53	5.07					11.6
	PTB Total		8.87	9.97		1.66		20.5	
	SSC	499			6.01	3.5	10.97		20.48
		500				8.93	6.61		15.54
		600			1.5				1.5
		920	0.89			0.11			1
		1036			2.4	3.99	5.19		11.58
	SSC Total		0.89		9.91	16.53	22.77	50.1	
	TBB	283	12.86						12.86
		299	33.96	1.99	15.72		5.6		57.27
		300	500.73	230.87	278.16	253.53	163.38		1426.67
		900				0.35			0.35
		1000					4.17		4.17
		1001			3.71	2.49			6.2
		1201				0.79			0.79
		1493					0.26		0.26
		1694	3.43		4.25	6.43			14.11
		1709	4.06	9.06	2.94				16.06
		1795	0.44	1.09	0.08	4.26	7.64		13.51
		1799		1.86	1.04				2.9
		1800	1.38	1.33	4.78	5.99	9.36		22.84
		1974		1.09					1.09
		1992	6.46		4				10.46
		1995	48.93	35.99	42.65	37.42	43.7		208.69
		1996		1.98	0.61		1.03		3.62
		1997	3.51		2.27	1.5	2.58		9.86
1999		117.65	97.36	111.09	118.52	54.88		499.5	
2000		145.29	129.22	138.6	173.36	261.05		847.52	
2024		3.23	7.77	1.77			12.77		
2039	15.27	13.57	32.84				61.68		
2135	12.84	2.29	3.72	7.98			26.83		
2249	0.13	4.88	2.01	12.74	4.25		24.01		
2250	11.74	12	0.61		21.22		45.57		

Sum of effort			yr					
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total
		2264			1.61			1.61
		2280	29.33	10.31	35.24	56.22	29.73	160.83
		2286	9.74	8.24	18.63	3.47		40.08
		2364		1.78	5	1		7.78
		2365					1.44	1.44
		2379	5.88	8.28	13.49	7.56		35.21
		2380					0.86	0.86
		2400	170.92	123.27	136.63	104.25	43.35	578.42
		2699	15.61					15.61
		2700	25.02	19.62	4.09			48.73
		2719			1.01	7.73		8.74
		2900	5.72	2.96	2.73	0.63	4.84	16.88
		2950	5.6	2.45	1.68	4		13.73
		2999		7.27	10.3	20.36		37.93
		3000					21.25	21.25
		3260	0.26					0.26
		3264					0.92	0.92
		3999	18.1	28.06	17.86			64.02
	TBB Total		1204.86	760.05	905.12	832.35	681.51	4383.89
	TBS	182					1	1
		230				0.01		0.01
		256		5				5
		283	50	36	41	30		157
		286					2	2
		299	7.97	1	10	11.96	7.99	38.92
		300	31.64	69.07	38.97	2.07	13.79	155.54
	TBS Total		89.61	111.07	89.97	44.04	24.78	359.47
<b>35F4 Total</b>			<b>1711.48</b>	<b>1242.71</b>	<b>1248.31</b>	<b>1203.59</b>	<b>941.99</b>	<b>6348.08</b>
<b>36F1</b>	OTB	1430					0.26	0.26
		1997					5	5
	OTB Total						5.26	5.26
	TBB	300	4.99					4.99
		1201			0.59			0.59
		1400	8.36	7.9	3.57			19.83
		1795	1.85	4.89	5.7	4.17	6.99	23.6
		1800	2.2	2.26				4.46
		1995	14.03	9.61	6.23	7.53	17.71	55.11
		1996	2.23	2.23	1.27		3.66	9.39
		1997	11.52	16.13	33.44	26.59	8.12	95.8
		1999		4.9	7.02	12.08	1.89	25.89
		2000	90.07	66.45	71.49	80.6	88.31	396.92
		2039			1.71			1.71
		2264	5.27	1.36				6.63
		2280					2.01	2.01
		2379	1.26		1.08			2.34
		2400		17.01	12.72	4.82		34.55
		2500	25.31	15.12	13.62	10.58		64.63
		2501					9.5	9.5
		2700			0.64			0.64
		2719	49.81	84.1	14.81	3.61		152.33

Sum of effort			yr						
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total	
		3260	24.5	11.4	2.47	9.87		48.24	
		3570	0.83	2.45				3.28	
		3576	16.23	7.93	4.6	7.2	7.97	43.93	
		3759	1.36	6.61				7.97	
		3834	0.37			4.41		4.78	
		3835					0.11	0.11	
		3999			1.25			1.25	
		TBB Total		260.19	260.35	182.21	171.46	146.27	1020.48
<b>36F1 Total</b>			<b>260.19</b>	<b>260.35</b>	<b>182.21</b>	<b>171.46</b>	<b>151.53</b>	<b>1025.74</b>	
<b>36F2</b>	GNS	299				0.46		0.46	
	GNS Total					0.46		0.46	
	OTB	299		4					4
		300	61.5	137.72	85.58	16.65	65.41		366.86
		489					1.13		1.13
		500		5.39	2.09				7.48
		587				6			6
		1430		0.28					0.28
		2000	1.55			6.93			8.48
		2140				3.82			3.82
	2400						1.11	1.11	
	OTB Total		63.05	147.39	87.67	33.4	67.65		399.16
	OTM	4400	7.68		5.13				12.81
		8976					0.14		0.14
	OTM Total		7.68		5.13		0.14		12.95
	OTT	300			38.35	19.5	53.25		111.1
	OTT Total				38.35	19.5	53.25		111.1
	PTB	300		5				5.57	10.57
		500	9.62						9.62
		605		2.33	5.97				8.3
	PTB Total		9.62	7.33	5.97			5.57	28.49
	SSC	999					4		4
	SSC Total						4		4
	TBB	300		2.62			1.1		3.72
		587					4		4
		1201				2.22	2.36		4.58
		1400	15.87	18.62					34.49
		1528	0.85						0.85
		1694	3.7	7.21	6.62	2.55			20.08
		1795	8.75	3.68	2.21	8.52	4.25		27.41
		1800	2.22	1.91					4.13
		1992				2.07			2.07
1995		34.49	25.77	25.26	14.25	13.34		113.11	
1996		17.1	23.4	31.62	8.6	9.51		90.23	
1997		21.5	11.83	26.68	32.89	29.93		122.83	
1999		2.23	4.4	10.02	42.93	20.32		79.9	
2000		130.46	188.43	200.51	195.54	256.53		971.47	
2024			1.06	2.92				3.98	
2039	1.25	2.77	2.05				6.07		
2249	2.68	3.11				3.32	9.11		

Sum of effort			yr						
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total	
		2250	1.6	0.89	0.27		16.22	18.98	
		2264	14.32	16.02	19.21			49.55	
		2280		4.76	2.27	1.25	2.01	10.29	
		2364			2.32			2.32	
		2379	25.37	20.42	4.89	16.52		67.2	
		2380					20.13	20.13	
		2400	3.71	31.49	9.92	4.8		49.92	
		2500	14	14.02	8.13	5.88		42.03	
		2501					11.9	11.9	
		2700			2.5	0.65		3.15	
		2719	9.9	9.27	18.56	6.61		44.34	
		2721	2.46					2.46	
		2949			1.26			1.26	
		2950		1.29				1.29	
		3005	0.94					0.94	
		3260	7.89	10.18	5.78	0.64		24.49	
		3500	1	4.39	1.39		3.99	10.77	
		3570		0.98	0.25			1.23	
		3576	30.19	9.06	12.1	11.3	10.37	73.02	
		3599					1.13	1.13	
		3759	0.86	5.83		0.13		6.82	
		3834		1.72	0.93	10.42		13.07	
		3835					0.19	0.19	
		3999	8.44	7.33				15.77	
	TBB Total		361.78	432.46	399.89	373.01	403.14	1970.28	
	TBS	300		2				2	
	TBS Total			2				2	
<b>36F2 Total</b>			<b>442.13</b>	<b>589.18</b>	<b>537.01</b>	<b>426.37</b>	<b>533.75</b>	<b>2528.44</b>	
<b>36F3</b>	MIS	587	4.01					4.01	
	MIS Total		4.01					4.01	
	OTB	283	1.08						1.08
		299					4.24		4.24
		300	332.76	186.97	150.87	130.39	199.04		1000.03
		400	1.14						1.14
		489						26.09	26.09
		500	20.63	26.73	12.89	7.92			68.17
		587				8.01			8.01
		629						9.06	9.06
		1001	11.9	1					12.9
		1430	0.2	16.13	1.24			1.41	18.98
		1997						1.18	1.18
		2000					8.99		8.99
		2140					26.19		26.19
	2286	1.07						1.07	
	2400						3.74	3.74	
	OTB Total			368.78	230.83	173.01	177.73	240.52	1190.87
	OTM	500				3	1.91		4.91
		1430	8	1			3.53		12.53
3600		6.42						6.42	

Sum of effort			yr						
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total	
		4400		1.22				1.22	
		5050	7.24					7.24	
		11747	1.44					1.44	
	OTM Total			23.1	2.22	3	5.44		33.76
	OTT	299				65.15	14	25.15	104.3
		300				52.97	47.06	48.5	148.53
	OTT Total					118.12	61.06	73.65	252.83
	PTB	8					0.26		0.26
	PTB Total						0.26		0.26
	TBB	300	46.27	14.49	5.89	2.69	4.88		74.22
		900	13.44	11	8.08	12.24			44.76
		999						9.93	9.93
		1000						7.22	7.22
		1001	5.83	7.53	11.9	5.93			31.19
		1528	8.35						8.35
		1694	29.02	51.66	34.19	32.85	25.74		173.46
		1709	26.28	14.37	17.54				58.19
		1795	7.46	14.16	3.23			14.33	39.18
		1799		2.31		0.97			3.28
		1800	1.27	13.08	14.34	31.43	13.49		73.61
		1974						2.82	2.82
		1992	2.79	1.62			2.29	1.57	8.27
		1995	24.05	41.26	29.17	13.58	30.02		138.08
		1996	1.98						1.98
		1997					0.81	1.91	2.72
		1999	41.51	55.22	83.77	55.28	42.22		278
		2000	139.84	134.32	156.39	105.8	202.08		738.43
		2024	3.63	12.01	17.56	8.61			41.81
		2039	1.64						1.64
		2135		4.29					4.29
		2249		7.08	2.69	5.67	7.86		23.3
		2250	25.37	11.72	31.34	4.92	11.47		84.82
		2280	4.88	4.83	4.99	2.3	7.98		24.98
2364		18.44	10.41	28.59	7.05			64.49	
2365							0.63	0.63	
2379		30.36	30.9	24.05	31.24			116.55	
2380						21.06	21.06		
2400	53.52	63.81	64.55	95.77	77.57		355.22		
2500				1.02			1.02		
2699	5.48						5.48		
2700	1.9	6.3					8.2		
2719		4.01	2.09	4.92			11.02		
2950	7.78	11.07	11.9				30.75		
2999	13.14	15.62	7.92	5.39			42.07		
3000						14.33	14.33		
3005	1.92						1.92		
3260	2.95						2.95		
3500		0.8					0.8		
3576	1.53				4.34	4.41	10.28		
3759					0.9		0.9		

Sum of effort			yr						
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total	
		3999	8.13	5.81	5.24			19.18	
	TBB Total		528.76	549.68	566.44	434.98	501.52	2581.38	
<b>36F3 Total</b>			<b>924.65</b>	<b>782.73</b>	<b>860.57</b>	<b>679.47</b>	<b>815.69</b>	<b>4063.11</b>	
<b>36F4</b>	GNS	300	1					1	
	GNS Total		1					1	
	OTB	250	6.14						6.14
		283	2.87						2.87
		299	11			4.01	14.06		29.07
		300	170.51	178.1	164.13	156.82	79.08		748.64
		399					12.61		12.61
		400	0.34				23		23.34
		489				3.99	12.27	0.75	17.01
		500	4.18	0.6	1.88				6.66
		587	2				17.98		19.98
		799						0.93	0.93
		1001	29.41	1.32					30.73
		1430		2.31	7.06			0.31	9.68
	2000	4.29				17.55		21.84	
	2400						9.13	9.13	
	OTB Total		230.74	182.33	181.07	241.68	102.81	938.63	
	OTM	300		4					4
		5051					1.3		1.3
		8973		0.01					0.01
	OTM Total			4.01			1.3	5.31	
	OTT	299			16.06		4.71		20.77
		300			29.83	63.71	5.56		99.1
		1694				8.24			8.24
	OTT Total				45.89	71.95	10.27	128.11	
	PTB	300		2	5				7
		499		0.27					0.27
		500	0.25	1.15					1.4
	PTB Total		0.25	3.42	5			8.67	
	SDN	283		0.16					0.16
	SDN Total			0.16				0.16	
	SSC	499			5.22	3.21			8.43
		500			6.76	2.58			9.34
1036						3.11		3.11	
SSC Total				11.98	5.79	3.11	20.88		
TBB	299		2.99					2.99	
	300	31.03	20.06	6.15	13.87	15.22		86.33	
	900	74.28	106.72	108.02	98.66			387.68	
	999					77.29		77.29	
	1000					61.26		61.26	
	1001	87	92.73	80.5	108.26			368.49	
	1493					4.13		4.13	
	1528	4.39						4.39	
	1694	53.43	71.28	68.49	26.05	65.21		284.46	
	1709	77.85	66.88	37.9				182.63	
	1795	20.29	3.85	0.61	1.55	3.95		30.25	

Sum of effort			yr					
rectangle	gear	hp	2003	2004	2005	2006	2007	Grand Total
		1799	3.64	1.17	2.11	6.78	0.75	14.45
		1800	213.52	215.57	241.58	228.22	258.18	1157.07
		1974	5.93	2.51	12.01		9.96	30.41
		1992	10.49	13.42	3.63	12.06	1.43	41.03
		1995	103.82	156.49	111.01	94.58	150.35	616.25
		1996		0.71				0.71
		1999	103.24	57.18	101.04	179.71	55.19	496.36
		2000	196.23	183.1	164.37	132.27	225.33	901.3
		2024	4.03	49.43	54.51	28.42		136.39
		2039	1.31	0.34	5.68			7.33
		2135	4.9	8.03	8.02	3.65		24.6
		2249	17.44	24.47	9.99	21.45	20.89	94.24
		2250	16	25.74	34.77	28.17	41.9	146.58
		2264		1.74				1.74
		2280	1.69	2.48	15.33	9.11	8.75	37.36
		2286	0.37					0.37
		2364	18.27	36.84	27.99	32.8		115.9
		2365					27.91	27.91
		2379	33.17	24.88	30.98	18.91		107.94
		2380					7.9	7.9
		2400	120.94	43.49	67.56	43.47	17.19	292.65
		2700	18.24	21.45	0.98			40.67
		2719	7.03		0.91	1.43		9.37
		2900	3.74	7.44	1.1	4.49	4.82	21.59
		2950	15.16	5.7	8.51	2.68		32.05
		2999	44.52	29.05	48.52	27.09		149.18
		3000					44.32	44.32
		3260	3.4	1.43		0.36		5.19
		3261					4.57	4.57
		3264					0.28	0.28
		3570		1.64				1.64
		3576	2.52				2.71	5.23
		3999	30.85	14.98	5.02			50.85
	TBB Total		1328.72	1293.79	1257.29	1124.04	1109.49	6113.33
	TBS	299				2		2
		300		3.65				3.65
	TBS Total			3.65		2		5.65
<b>36F4 Total</b>			<b>1560.71</b>	<b>1487.36</b>	<b>1501.23</b>	<b>1445.46</b>	<b>1226.98</b>	<b>7221.74</b>
<b>Grand Total</b>			<b>7317.71</b>	<b>7013.34</b>	<b>6519.45</b>	<b>5961.93</b>	<b>6120.46</b>	<b>32932.89</b>

Table 6: VIRIS extract of number of sea trips in rectangles: 35F1, 35F2, 35F3, 35F4, 36F1, 36F2, 36F3, and 36F4

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
35F1	GN	299		1	1	1	1	4	
	GN Total			1	1	1	1	4	
	OTB	300					1	1	
	OTB Total						1	1	
	OTM	1995					1	1	
	OTM Total						1	1	
	TBB	1201			1	1			2
		1400	1	1	1				3
		1407	1	1		1	1		4
		1970	1	1	1	1			4
		1995	2	2		1			5
		1996	1	1	1	1	1		5
		1997		1				1	2
		1999	2	1		1			4
		2000	4	5	3	4	7		23
		2039	1		1				2
		2250						1	1
		2264	1		1				2
		2280						1	1
		2719	1	1	1				3
2721	1						1		
3260		1					1		
3576	1	1	1	1	1	1	5		
TBB Total			17	17	11	10	13	68	
<b>35F1 Total</b>			<b>17</b>	<b>18</b>	<b>12</b>	<b>11</b>	<b>16</b>	<b>74</b>	
35F2	GN	299	1	1	1			3	
	GN Total		1	1	1			3	
	OTB	300		1	3				4
		500		1					1
		1997					1		1
		2000	2						2
		2400					1		1
	OTB Total		2	2	3		2		9
	OTM	1995		1					1
		2286	1						1
		8973		1					1
	OTM Total		1	2					3
	OTT	2000					1		1
	OTT Total						1		1
	PTB	300	1						1
		499		1					1
		500		1					1
605		1		1				2	
799		1		1				2	
PTB Total		3	2	2				7	
PTM	1995		1					1	

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
	PTM Total			1				1	
	SSC	500				1		1	
	SSC Total					1		1	
	TBB	300		3	3	1	1		8
		1201		1	1	1	1		4
		1400		1	1	1			3
		1407		1	1	1	1	1	5
		1425		1	1	1		1	4
		1694					1		1
		1709			1				1
		1795			1		1	1	3
		1800		1	1				2
		1970		1	1	1	1		4
		1995		8	9	5	6	6	34
		1996		1	1	1	1	1	5
		1997		2	2	2	1	1	8
		1999		3	4	1	3	2	13
		2000		23	26	20	16	24	109
		2024				1			1
		2039		1	1	1			3
		2249					1	1	2
		2250						1	1
		2264		1	1	1			3
		2280		1	1	1	1	1	5
		2286			1		1		2
		2364					1		1
		2379		1			1		2
		2380						1	1
		2400		4	5	4	3	1	17
		2500		1	1	1	1		4
		2501						1	1
		2700		2	3	2	1		8
	2719		1	2	2	1		6	
2721		1	1				2		
2949		1		1	1		3		
2950		1	1				2		
2951						1	1		
3260		1		1	1		3		
3570		1	1	1			3		
3576					1	1	2		
3834		2	1	1	2		6		
3835						1	1		
3999		1	1	1			3		
TBB Total			66	73	53	49	46	287	
<b>35F2 Total</b>			<b>73</b>	<b>81</b>	<b>59</b>	<b>50</b>	<b>49</b>	<b>312</b>	
<b>35F3</b>	GN	299	1	1			1	3	
	GN Total		1	1			1	3	
	GNS	299			1			1	
		300			1		2	3	

Count of effort			yr					Grand Total
rectangle	gear	hp	2003	2004	2005	2006	2007	
	GNS Total				2		2	4
	OTB	283	1					1
		300	4	4	5	1	4	18
		400	1					1
		500		1	1			2
		1430				1		1
		1997					1	1
		2000	1					1
		2400					1	1
		13379	1					1
	OTB Total		8	5	6	2	6	27
	OTM	500				1		1
		2286	1					1
		8973		1				1
		8976					1	1
		9871		1				1
	OTM Total		1	2		1	1	5
	PTB	300	1		1			2
		605	1					1
		799	1		1			2
	PTB Total		3		2			5
	SDN	283	1	1				2
	SDN Total		1	1				2
	SSC	500					1	1
	SSC Total						1	1
	TBB	300	7	5	3	3	1	19
		900	1	1				2
		1000					1	1
		1001	1		1	1		3
		1201	1	1	1	1		4
		1425		1	1			2
		1694	1		1	1		3
		1709	1	1	1			3
		1795	1	1	1	1	1	5
		1799		1		1		2
		1800	2	2	2	3	1	10
		1970				1		1
		1974			1		1	2
		1992		1		1		2
		1995	7	9	10	7	5	38
		1996	1	1	1	1	1	5
		1997	3	3	2	2	2	12
		1999	3	4	3	2	2	14
		2000	29	30	25	21	31	136
		2024		1	1	1		3
	2039	1	1	1			3	
	2135	1	1	1			3	
	2249		1	1	1	1	4	
	2250	1	1	1		1	4	

Count of effort			yr					Grand Total
rectangle	gear	hp	2003	2004	2005	2006	2007	
		2264	1	1	1			3
		2280	1	1	1	1	1	5
		2286	1	1	1	1		4
		2364	1	1	1	1		4
		2379	2	2	1	2		7
		2380					1	1
		2400	6	6	5	4	2	23
		2500	1	1	1			3
		2501					1	1
		2700	3	3	3	1		10
		2719		2	1	1		4
		2900	1	1	1	1	1	5
		2949			1	1		2
		2950	1	1	1			3
		2951					1	1
		2999	1	1	1	1		4
		3000					1	1
		3264					1	1
		3570	1	1	1			3
		3599			1			1
		3759				1		1
		3834	1	1	1	1		4
		3835					1	1
		3999	1	1	1			3
	TBB Total		83	90	81	64	58	376
	TBS	299			1			1
		300		1				1
	TBS Total			1	1			2
<b>35F3 Total</b>			<b>97</b>	<b>100</b>	<b>92</b>	<b>67</b>	<b>69</b>	<b>425</b>
<b>35F4</b>	FPO	60			1			1
	FPO Total				1			1
	GN	299	1	1		1	1	4
	GN Total		1	1		1	1	4
	GND	68	1					1
		84	1					1
	GND Total		2					2
	GNS	8			1			1
		24				1	1	2
		29	1	1	1	1		4
		50			1			1
		59					1	1
		60				1		1
		80		1				1
		84	1	1				2
		128		1				1
		131					1	1
		155					1	1
		182	1	1	1	1	1	5
		204					1	1

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
		225					1	1	
		283		1				1	
		299	1	1		1	1	4	
		300	1	1	1	2	3	8	
		576	1	1		1	1	4	
	GNS Total			6	9	5	8	12	40
	LHP	5						1	1
		23				1			1
		24	1						1
		69	1	1	1				3
	LHP Total			2	1	2		1	6
	LL	24				1			1
		59						1	1
	LL Total					1		1	2
	MIS	8			1				1
		20					1		1
		24			1	1	1	1	4
		39			1	1	1	1	4
		59						1	1
		60	1	1	1	1			4
		73					1	1	2
		84	1						1
		90	1	1	1	1			4
		107			1	1		1	3
		115						1	1
		129			1		1	1	3
		145			1	1	1	1	4
		169						1	1
	299				1			1	
	500					1		1	
	MIS Total			3	9	7	9	8	36
	OTB	14						1	1
		15	1	1	1	1			4
		20						1	1
		24				1	2		3
		40						1	1
90		1	1	1	1			3	
129		1	1	1	1			4	
168							1	1	
169		1	1	1	1			4	
299		1	1					2	
300		9	5	5	3	5		27	
489				1	1	1		3	
500		1	1	1				3	
1001		2						2	
1430				1		1	2		
2000	2			1			3		
2400						1	1		
OTB Total			19	12	14	9	11	65	

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
	OTM	122			1			1	
		168					1	1	
		169			1	1		2	
		3600		1		1		2	
		3601						1	1
		4400					1		1
		5050		1			1		2
		5051						1	1
		8973		1	1	1			2
	9803		1					1	
	OTM Total			1	3	3	4	3	14
	PTB	8					1		1
		499	1	1					2
		500	1	1					2
	PTB Total			2	2		1		5
	SSC	499				1	1	1	3
		500					1	1	2
		600				1			1
		920	1				1		2
		1036				1	1	1	3
	SSC Total			1		3	4	3	11
	TBB	283	1						1
		299	3	1	2			1	7
		300	28	13	19	16	13		89
		900				1			1
		1000						1	1
		1001				1	1		2
		1201					1		1
		1493						1	1
		1694	1			1	1		3
		1709	1	1	1				3
		1795	1	1	1	1	1	1	5
		1799		1	1				2
1800		2	1	1	1	1	1	6	
1974			1					1	
1992		1			1			2	
1995		6	8	6	6	4	3	27	
1996			1	1	1		1	3	
1997		1			2	2	2	7	
1999		3	3	3	3	3	2	14	
2000		19	17	14	14	17	20	87	
2024			1	1	1	1		3	
2039		1	1	1	1			3	
2135		1	1	1	1	1		4	
2249	1	1	1	1	1	1	5		
2250	1	1	1	1		1	4		
2264				1			1		
2280	1	1	1	1	1	1	5		
2286	1	1	1	1	1		4		
2364		1	1	1	1		3		

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
		2365					1	1	
		2379	2	2	1	2		7	
		2380					1	1	
		2400	6	6	6	4	2	24	
		2699	1					1	
		2700	3	3	1			7	
		2719				1	1	2	
		2900	1	1	1	1	1	5	
		2950	1	1	1	1		4	
		2999		1	1	1		3	
		3000						1	1
		3260	1						1
		3264						1	1
		3999	1	1	1				3
	TBB Total			89	71	76	64	56	356
	TBS	182						1	1
		230					1		1
		256		1					1
		283	2	2	1	1			6
		286						1	1
		299	2	1	3	3	1		10
	300	9	9	6	2	2		28	
	TBS Total			13	13	10	7	5	48
<b>35F4 Total</b>			<b>139</b>	<b>121</b>	<b>122</b>	<b>107</b>	<b>101</b>	<b>590</b>	
<b>36F1</b>	OTB	1430					1	1	
		1997					1	1	
	OTB Total						2	2	
	TBB	300	1						1
		1201				1			1
		1400	1	1	1				3
		1795	1	1	1	1	1		5
		1800	1	1					2
		1995	1	1	2	2	1		7
		1996	1	1	1		1		4
		1997	1	1	1	1	1		5
		1999		1	2	3	1		7
		2000	10	8	9	8	11		46
		2039				1			1
		2264	1	1					2
		2280						1	1
		2379	1			1			2
		2400		1	3	2			6
		2500	1	1	1	1			4
		2501						1	1
		2700				1			1
	2719	2	2	2	1			7	
	3260	2	2	1	2			7	
3570	1	1					2		
3576	1	1	1	1	1		5		
3759	1	1					2		

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
		3834	1			1		2	
		3835					1	1	
		3999			1			1	
	TBB Total		28	25	30	23	20	126	
<b>36F1 Total</b>			<b>28</b>	<b>25</b>	<b>30</b>	<b>23</b>	<b>22</b>	<b>128</b>	
<b>36F2</b>	GNS	299				1		1	
	GNS Total					1		1	
	OTB	299		1					1
		300	9	11	7	4	10		41
		489					1		1
		500		1	1				2
		587				1			1
		1430		1					1
		2000	1				2		3
		2140					1		1
	2400						1	1	
	OTB Total			10	14	8	8	12	52
	OTM	4400	1			1			2
		8976						1	1
	OTM Total			1		1		1	3
	OTT	300				5	2	2	9
	OTT Total					5	2	2	9
	PTB	300		1				1	2
		500	1						1
		605		1	1				2
	PTB Total			1	2	1		1	5
	SSC	999						1	1
	SSC Total							1	1
	TBB	300		1			1		2
		587					1		1
		1201				1	1		2
		1400	1	1					2
		1528	1						1
		1694	1	1	1	1	1		4
		1795	1	1	1	1	1	1	5
		1800	2	1					3
		1992					1		1
1995		3	5	4	4	4	3	19	
1996		1	1	1	1	1	1	5	
1997		2	1	1	1	1	1	6	
1999		1	1	2	3	3	1	8	
2000		16	16	16	16	12	18	78	
2024			1	1				2	
2039		1	1	1				3	
2249		1	1				1	3	
2250	1	1	1			1	4		
2264	1	1	1				3		
2280		1	1	1	1	1	4		
2364				1			1		

Count of effort			yr					Grand Total
rectangle	gear	hp	2003	2004	2005	2006	2007	
		2379	2	2	1	2		7
		2380					1	1
		2400	3	3	3	2		11
		2500	1	1	1	1		4
		2501					1	1
		2700			1	1		2
		2719	1	2	2	1		6
		2721	1					1
		2949			1			1
		2950		1				1
		3005	1					1
		3260	2	2	2	2		8
		3500	1	1	1		1	4
		3570		1	1			2
		3576	1	1	1	1	1	5
		3599					1	1
		3759	1	1		1		3
		3834		1	1	2		4
		3835					1	1
		3999	1	1				2
	TBB Total		48	52	48	41	34	223
	TBS	300		1				1
	TBS Total			1				1
<b>36F2 Total</b>			<b>60</b>	<b>69</b>	<b>63</b>	<b>52</b>	<b>51</b>	<b>295</b>
<b>36F3</b>	MIS	587	1					1
	MIS Total		1					1
	OTB	283	1					1
		299				1		1
		300	18	15	11	8	18	70
		400	1					1
		489					1	1
		500	1	1	1	1		4
		587			1			1
		629					1	1
		1001	2	1				3
		1430	1	1	1		1	4
		1997					1	1
		2000				2		2
		2140				1		1
	2286	1					1	
	2400					1	1	
	OTB Total		25	18	14	13	23	93
	OTM	500			1	1		2
		1430	1	1		1		3
		3600	1					1
		4400		1				1
		5050	1					1
	11747	1					1	
	OTM Total		4	2	1	2		9

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
	OTT	299			1	1	2	4	
		300			4	5	4	13	
	OTT Total				5	6	6	17	
	PTB	8				1		1	
	PTB Total					1		1	
	TBB	300	7	2	2	2	2	15	
		900	1	1	1	1		4	
		999					1	1	
		1000					1	1	
		1001	1	1	1	1		4	
		1528	1					1	
		1694	1	1	1	1	1	5	
		1709	1	1	1			3	
		1795	1	1	1		1	4	
		1799		1			1	2	
		1800	1	1	1	1	1	5	
		1974						1	1
		1992	1	1			1	1	4
		1995	4	7	4	4	4	6	25
		1996	1						1
		1997					1	1	2
		1999	2	3	4	4	3	3	15
		2000	17	18	16	13	20		84
		2024	1	1	1	1			4
		2039	1						1
		2135		1					1
		2249		1	1	1	1	1	4
		2250	1	1	1	1	1	1	5
		2280	1	1	1	1	1	1	5
		2364	1	1	1	1	1		4
		2365						1	1
		2379	2	2	1	2			7
		2380						1	1
		2400	5	4	5	3	2		19
		2500			1				1
		2699	1						1
		2700	1	1					2
		2719		1	1	1			3
		2950	1	1	1				3
		2999	1	1	1	1			4
	3000						1	1	
	3005	1						1	
	3260	2						2	
	3500		1					1	
	3576	1				1	1	3	
	3759					1		1	
	3999	1	1	1				3	
TBB Total		60	56	48	43	48	255		
36F3 Total			90	76	68	65	77	376	

Count of effort			yr					Grand Total	
rectangle	gear	hp	2003	2004	2005	2006	2007		
36F4	GNS	300	1					1	
	GNS Total		1					1	
	OTB	250	1						1
		283	1						1
		299	1			1	1		3
		300	19	17	13	12	16		77
		399						1	1
		400	1				1		2
		489				1	1	1	3
		500	1	1	1				3
		587	1				1		2
		799						1	1
		1001	1	1					2
		1430		1	1			1	3
		2000	2				2		4
	2400						1	1	
	OTB Total			28	20	17	18	21	104
	OTM	300			1				1
		5051						1	1
		8973			1				1
	OTM Total				2			1	3
	OTT	299				1		2	3
		300				4	6	2	12
		1694					1		1
	OTT Total					5	7	4	16
	PTB	300			1	2			3
		499			1				1
		500	1	1					2
	PTB Total			1	3	2			6
	SDN	283			1				1
	SDN Total				1				1
	SSC	499				1	1		2
		500				1	1		2
		1036						2	2
	SSC Total					2	2	2	6
	TBB	299			1				1
		300	7	7	4	5	4		27
		900	1	1	1	1			4
		999						1	1
		1000						1	1
		1001	1	1	1	1			4
		1493						1	1
		1528	1						1
		1694	1	1	1	1	1		5
		1709	1	1	1				3
		1795	1	1	1	1	1	1	5
		1799	1	1	1	1	1	1	5
1800		2	2	2	2	2	2	10	
1974		1	1	1			1	4	

Count of effort			yr					Grand Total
rectangle	gear	hp	2003	2004	2005	2006	2007	
		1992	1	1	1	1	1	5
		1995	6	6	8	6	6	32
		1996		1				1
		1999	3	3	3	3	2	14
		2000	16	18	16	14	17	81
		2024	1	1	1	1		4
		2039	1	1	1			3
		2135	1	1	1	1		4
		2249	1	1	1	1	1	5
		2250	1	1	1	1	1	5
		2264		1				1
		2280	1	1	1	1	1	5
		2286	1					1
		2364	1	1	1	1		4
		2365					1	1
		2379	2	2	2	2		8
		2380					1	1
		2400	5	5	5	4	2	21
		2700	1	2	1			4
		2719	1		1	1		3
		2900	1	1	1	1	1	5
		2950	1	1	1	1		4
		2999	1	1	1	1		4
		3000					1	1
		3260	1	1		1		3
		3261					2	2
		3264					1	1
		3570		1				1
		3576	1				1	2
		3999	1	1	1			3
	TBB Total		66	69	61	53	52	301
	TBS	299				1		1
		300		1				1
	TBS Total			1		1		2
<b>36F4 Total</b>			<b>96</b>	<b>96</b>	<b>87</b>	<b>81</b>	<b>80</b>	<b>440</b>
<b>Grand Total</b>			<b>600</b>	<b>586</b>	<b>533</b>	<b>456</b>	<b>465</b>	<b>2640</b>

Table 7: Gear codes

Code	Name	Code	Name	Code	Name
OTB	Otter bodem draws	LL	Long lines	LLD	Long lines (drifting)
TBB	Beam draws	LLS	Long lines (set)	OTM	Otter midwater trawls
TBS	Beam trawls Shrimps	GN	Gillnets	OTT	Otter twin trawls
DRB	Boat dredges	GNS	Gillnets (standing)	BNT	Fyke net
PTB	Pair bottom trawls	GND	Gillnets (drifting)	NVT	Unknown
SDN	Danish seines	GTR	Trammel nets	LH	Hand- and pole-line
SSC	Scottish seines	LHP	Hand- and pole-line	TGB	Unknown gear
PTM	Pair midwater trawls	FPO	Pots		
PS	Purse seiner	MIS	Other fishing gear		