



DIRECTORATE OF FISHERIES

## Russian fishing of cod and haddock 2006

Status report



March 2007

## **CONTENTS**

- 1 Introduction**
- 2 Activity**
  - 2.1 Number of trips
- 3 Methodology**
  - 3.1 Classification
  - 3.2 Registered quantities
  - 3.3 Calculated withdrawal
    - 3.3.1 Calculation no 1
    - 3.3.2 Calculation no 2
    - 3.3.3 Institute of Marine Research calculation
- 4 Possible sources of error**
- 5 Conclusion**

## 1. Introduction

This is the fifth report on calculations and estimates of Russian withdrawal of cod and haddock prepared by The Directorate of Fisheries. The information on which the analysis is based is described in the earlier reports<sup>1</sup>. For the 2006 analysis, the Head of the Directorate of Fisheries appointed a group consisting of representatives from The Directorate of Fisheries and from The Institute of Marine Research to discuss the methodology on which the analysis is based.

The Directorate of Fisheries control section has, as in previous years, been responsible for obtaining, processing and interpreting the data<sup>2</sup>. As previously, all data is laid out in an Excel spreadsheet. The Institute of Marine Research has received the same data and format as in 2004 and 2005.

This analysis takes into consideration that loads also include filet. All documentation has been reviewed and quantities including filet have been registered separately. Approximately 12,000 tons of cod filet was registered in 2006. For transport vessels that have transported filet, the entire load is converted to product weight and the quantity in product weight has been compared with the vessel's net load capacity found in 'Lloyds Register Fairplay'. The per cent distribution for these loads are included in the general average.

## 2. Activity

There have been no recorded occurrences of the vessel of convenience problem in 2006. Germany has not received any landings of Russian cod and haddock in 2006 and there has been a decline in the number of landings in The Netherlands. These decreases have, based on tracking patterns and other sources, probably resulted in an increase in direct landings in other countries such as Spain. There has been an increase in deliveries of cod to Norway, but a decrease in haddock landings. Tracking activity indicates an increase in transport to Russia<sup>3</sup>

### 2.1 Number of trips

There has overall been a decline in the number of transport and fishing vessels transporting cod and haddock to destinations other than Norway. The decrease has been only in transport to the EU. There has been a decrease in transport to the EU of 125 transport trips (32%). Transport to Russia has however increased by 47 transport trips (24.9%). The real decrease is therefore 78 transport trips (-13.4%).

Table 1: Summary of total number of trips in 2005 and 2006

	EU			RUS			Total		
	2005	2006	Change	2005	2006	Change	2005	2006	Change
Transport vessel	309	224	-27,5	89	120	34,8	398	344	-13,6
Fishing vessel	82	42	-48,8	100	116	16,0	182	158	-13,2
Total	391	266	-32,0	189	236	24,9	580	502	-13,4

<sup>1</sup> Found on the Directorate of Fisheries web site at [www.fiskeridir.no](http://www.fiskeridir.no)

<sup>2</sup> Data: documentation obtained by the Norwegian Coastguard and The Directorate of Fisheries regional offices via inspections, the Directorate of Fisheries Completion Note Register, landing data received from third countries and satellite tracking data.

<sup>3</sup> Russia here means transport of fish to Murmansk and Arkhangelsk.

As table 1 shows, there has been a decrease in transport to the EU by both fishing and transport vessels. The table also shows an increase in transport to Russia. The largest decrease is in transport by fishing vessels to the EU, which has had decreased by 48.8%. The largest increase is the transport by transport vessels to Russia which has increased by 34.8%.

Table 2: Total number of trips including quantity information.

	EU			RUS			Total		
	2005	2006	Change	2005	2006	Change	2005	2006	Change
Transport vessel	209	138	-34,0	33	59	78,8	242	197	-18,6
Fishing vessel	28	12	-57,1	30	43	43,3	58	55	-5,2
Total	237	150	-36,7	63	102	61,9	300	252	-16,0

Table 2 shows that the proportion of trips with registered quantities for 2006 is overall at the same level as 2005 (around 50 %). The proportion of trips to the EU is reduced, while the proportion to Russia is increased.

### 3. Methodology

The Directorate of Fisheries has for 2006 prepared two calculations of Russian withdrawals of cod and haddock. The two calculations use different load capacity utilization assumption for trips where complete information is not available. In the first calculation (calculation no. 1) the calculations are based on assumptions used in previous calculations. The assumption is that load capacity utilization for a trip is equal to the average of the load capacity utilization of trips for which complete information is available and for trips where complete information is not available. In the second calculation (calculation no. 2), it is assumed for trips to the continent that all trips have a load capacity utilization equal to the load capacity utilization for trips for which complete information is available. Both calculation results are reported here. However, the calculation no. 2 assumptions are considered to be more likely than calculation no. 1 assumptions and on which the report conclusion is based. The calculation no 2 assumption is also based on more accurate load capacity figures, obtained from the web site 'Lloyds Register Fairplay'<sup>4</sup>.

#### 3.1 Classification

Each registered load is assessed and classified into one of three categories, category 0, 1 and 2. A category 0 classification signifies that it has been concluded that the figures do not reflect the real quantities. The quantity is too low or is only based on tracking information. Category 1 signifies that we are uncertain whether the stated quantity is correct and category 2 means that we are certain the quantity stated is correct.

A judgement based evaluation of both transport and fishing vessels is used to determine classification category. We firstly compare the quantity registered with the size of the vessel and the vessel's load capacity utilization history. We have a history for most vessels which extends back to 2001.

There is however greater uncertainty around transport to Russia. Recent years' experience indicates that smaller volumes of cod and haddock are transported to Russia than to the EU.

<sup>4</sup> The site can be viewed at [www.ships-register.com](http://www.ships-register.com). The new load capacities do not represent a significant change in total quantities.

This analysis however shows that greater volumes were landed in Russia in 2006 than in 2005.

Whether information is based on fishing vessel or transport vessel inspections is a decisive factor. Most category 2 data is for transport vessels which were inspected just before tracking ceased or is from landing information received from third countries. Quantities based only on inspections of fishing vessels is less certain, particularly where quantities are lower than the vessel's category 2 data. Where a transport vessel has not been inspected, the last transshipment date in relation to tracking data is a decisive factor. If the period of time between the last transshipment and vessel tracking ceasing is unrealistically long, the load is classified as category 1 if the quantity is low in relation to the vessel's normal load.

We know that documentation received during inspections of Russian fishing vessels cannot always be relied on<sup>5</sup>. It is therefore of great importance to the classification of fishing vessels whether registered quantities are based on inspection or landing data received from third countries.

Table 3: Total number of category 0, 1 and 2 trips.

	EU			RUS			Total		
	Cat. 0	Cat. 1	Cat. 2	Cat. 0	Cat. 1	Cat. 2	Cat. 0	Cat. 1	Cat. 2
Transport vessel	110	19	95	76	12	32	186	31	127
Fishing vessel	30	4	8	82	13	21	112	17	29
Total	140	23	103	158	25	53	298	48	156

Table 3 shows a clear dominance of classification 2 in relation to 1. There are in addition 298 transport trips which have been classified as 0. These are primarily based on tracking data. The data however also includes cases of unrealistically low quantities. Classification 0 overall accounts for approximately 7,500 tons of cod and haddock and applies to loads both to the EU and Russia.

### 3.2 Registered quantities

Table 4: Registered quantities by destination - Norway, EU and Russia

	Norway		EU		Russia	
	Cod	Haddock	Cod	Haddock	Cod	Haddock
Transport vessel			84 460 000	21 609 000	7 753 000	2 829 000
Fishing vessel			2 494 000	447 108	2 420 000	995 234
Total	<b>80 527 000</b>	<b>18 967 000</b>	<b>86 954 000</b>	<b>22 056 000</b>	<b>10 173 000</b>	<b>3 824 000</b>

In total 177,654 tons of cod and 44,891 tons of haddock have been documented in 2006. This compares with approximately 210,000 tons of cod and approximately 60,000 tons of haddock registered in 2005. There has been an increase in cod landings in Norway compared with 2005, from approximately 72,000 tons in 2005 to 80,500 tons in 2006. Approximately 19,000 tons of haddock were landed in Norway in 2006, which represents a decrease from the 26,600 tons landed in 2005.

<sup>5</sup> The Directorate of Fisheries has produced several cases of Russian fishing vessels under reporting/attempting to conceal quantities from quota amounts

### 3.3 Calculated withdrawals

Total estimated quantity is determined by using a calculated quantity for each trip where registered quantities are not available or quantities are unrealistically low. The analysis is split into four parts. Transport vessel and fishing vessel direction when tracking ceases (EU and Russia). Where a quantity is registered as 2, this quantity is used for transport both to the EU and Russia.

#### 3.3.1 Calculation no. 1

Calculation no 1 is based on the load capacity utilization assumption stated in The Directorate of Fisheries' 2005 analysis. Table 5 shows the quantities of cod and of haddock Russian vessels have fished in 2006.

Table 5: Calculated withdrawals of cod and haddock by destination - Norway, EU and Russia.

	EU		RUS		TOTAL	
	Cod	Haddock	Cod	Haddock	Cod	Haddock
Transport vessel	169 338 000	42 144 000	19 444 000	4 215 000	188 782 000	46 359 000
Fishing vessel	8 714 000	2 755 000	7 390 000	1 839 000	16 104 000	4 594 000
Norway					80 527 000	18 967 000
<b>Total</b>					<b>285 413 000</b>	<b>69 920 000</b>

Russia had a 2006 quota of **207,700 tons of cod** and **53,650 tons of haddock**. This indicates a possible overfishing of approximately **77,000 tons of cod** and approximately **16,000 tons of haddock**.

Table 6: Overfishing from 2002 to 2006

Year	Cod			Haddock		
	Fished cod	Quota cod	Overfished cod	Fished Haddock	Quota Haddock	Overfished Haddock
2002	280 000 tons	190 000 tons	<b>90 000 tons</b>			
2003	300 000 tons	191 000 tons	<b>109 000 tons</b>			
2004	292 000 tons	212 600 tons	<b>79 400 tons</b>			
2005	315 000 tons	213 700 tons	<b>101 300 tons</b>	87 600 tons	51 300 tons	<b>36 300 tons</b>
2006	285 000 tons	207 700 tons	<b>77 300 tons</b>	70 000 tons	53 560 tons	<b>16 440 tons</b>

Table 6 provides a summary of the 2002 to 2006 calculations. A comparison of 2006 figures with 2005 figures shows a marked decrease in Russian catches of cod and haddock of 30,000 tons for cod and 17,600 tons of haddock.

#### 3.3.2 Calculation no. 2

Calculation no. 2 trips tracked to the EU use the average (in per cent) of all the quantities for category 2 trips for category 0 and 1 trips. This applies both to transport and fishing vessels. Calculations for transport to Russia have been based on the average of category 1 and 2 trips for 0 and 1 trips.

In calculation no. 2, all trips tracked towards the EU for which do not have complete quantity data use load capacity utilizations for trips tracked towards the EU where we believe we have complete information. This assumption, which is considered to represent the real situation best, results in an increase in calculated withdrawal in relation to calculation no 1. Table 7 shows the quantities of cod and haddock Russian vessels have fished in 2006.

Table 7: Calculated withdrawals of cod and haddock by destination - Norway, EU and Russia.

	EU		RUS		TOTAL	
	Cod	Haddock	Cod	Haddock	Cod	Haddock
Transport vessel	190 619 000	47 465 000	33 494 000	9 271 000	224 113 000	56 736 000
Fishing vessel	9 060 000	2 883 000	11 008 000	3 648 000	20 068 000	6 531 000
Norway					80 527 000	18 967 000
<b>Total</b>					<b>324 708 000</b>	<b>82 234 000</b>

With a Russian quota of **207,700 tons of cod** and **53,650 tons of haddock**<sup>6</sup>, possible overfishing therefore is approximately **117,000 tons** of cod and approximately **29,000 tons** of haddock.

### 3.3.3 Institute of Marine Research calculation

The Institute of Marine Research has calculated the total withdrawal using the same assumptions on which The Directorate of Fisheries based calculation no. 2 on. Table 8 shows The Institute of Marine Research's calculated quantities and 95 % confidence intervals.

Table 8: Estimated total quantity of cod and haddock fished in 2006 in tons. 95% confidence intervals in brackets. Calculated by The Institute of Marine Research. Landings of 80,527 tons of cod and 18,967 tons of haddock to Norway are in addition to these figures.

	EU		RUS		TOTAL	
	Cod	Haddock	Cod	Haddock	Cod	Haddock
Transport vessels	<b>198 337</b> (172 774 – 230 494)	<b>48 534</b> (40 498 - 58 661)	<b>32 826</b> (17 220 – 44 355)	<b>6 315</b> (5 550 – 12 086)	<b>231 163</b> (197 846 – 264 748)	<b>54 849</b> (47 379 – 66 701)
Fishing vessel	<b>11 245</b> (8 288 – 15 218)	<b>2 186</b> (1 091 - 6 737)	<b>8 078</b> (5 766 – 10 919)	<b>3 221</b> (1 929 – 4 430)	<b>19 323</b> (15 679 – 24 460)	<b>5 406</b> (2 182 – 13 473)
Total	<b>209 583</b> (184 078 – 243 170)	<b>50 720</b> (43 605 - 63 238)	<b>40 904</b> (25 064 – 52 753)	<b>9 536</b> (8 221 – 15 420)	<b>250 478</b> (217 202 – 287 404)	<b>60 255</b> (54 358 – 75 622)

In total, including deliveries in Norway, The Institute of Marine Research estimates approximately 331,000 tons of cod and 79,000 tons of haddock (table 8) were fished. This indicates a possible overfishing of 124,000 tons of cod and 26,000 tons of haddock.

The conditions, the data and methodology used by The Directorate of Fisheries and The Institute of Marine Research are identical. The Institute of Marine Research has in addition wished to calculate the uncertainty in the estimates. This was carried out using standard

<sup>6</sup> In addition are research catches of haddock within the framework of a research quota of 4,000 tons of bottom fish.

statistical procedures (see table 8) and gave averages that differ only a little from The Directorate of Fisheries' figures and where there in addition is a confidence interval of around the average.

#### **4. Possible sources of error**

Vessels that are believed to be transporting pelagic species are not included in the calculations. Pelagic transport vessels can however transport cod and other declared fish. Similarly, quantities of cod and haddock allocated in the analysis to transport and fishing vessels can be incorrect because a vessel has transported other species or smaller amounts of cod and haddock.

Transport of fish from The Barents Sea towards the continent which has been outside the Norwegian Economic Zone is not included in the calculation. Fishing vessels which only have fished in the Russian economic zone and which have transported fish to Murmansk and or Arkhangelsk have also not been included.

#### **5. Conclusion**

**There are two main conclusions which can be drawn from this the report.**

**Firstly, our calculations indicate that the Russian withdrawal of cod and haddock was lower in 2006 than in 2005. This means that the calculated quantities of cod and haddock fished in 2006 which exceed the Russian quota are lower than in 2005. Based on the assumptions and methodology used in 2005, we find that the Russian fishing of cod that exceeds the quota is reduced from approximately 101,000 tons in 2005 to just under 78,000 tons in 2006. This represents a decrease of approximately 23%. We similarly find that the Russian fishing of haddock which exceed the Russian quota is reduced from 36,300 tons to approximately 16,300 tons, a reduction of 55%. The Institute of Marine Research calculations also indicate a decrease in Russian withdrawals of cod and haddock. The Institute therefore also finds a decrease in calculated overfishing.**

**Secondly, our calculations indicate that Russian fishing that exceeded the quota in 2006 was approximately 117,000 tons of cod and 28,600 tons of haddock. The higher figures for 2006 are due to the use of other and more likely load capacity utilization assumptions and is not due to Russian overfishing increasing from 2005 to 2006.**