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Scientific, Technical and Economic Committee for Fisheries (STECF)

Report of the SGMOS-10-05 Working Group on Fishing Effort Regime in the Baltic

27 SEPTEMBER – 1 OCTOBER 2010

Edinburgh, Scotland, UK

Prepared in draft by SGMOS-10-04: 14 – 18 June 2010,

Lisbon, PORTUGAL

Edited by Nick Bailey & Hans-Joachim Rätz

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SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF)

STECF COMMENTS ON THE REPORT OF THE SGMOS-10-05 WORKING GROUP REPORT

27 September – 1 October 2010, Edinburgh, Scotland

Prepared in draft by SGMOS-10-04: 14 – 18 June 2010, Lisbon, Portugal

STECF OPINION EXPRESSED DURING THE PLENARY MEETING HELD IN BRUSSELS, 8-12 November 2010

STECF is requested to review the report of the **SGMOS-10-05** meeting (27 September - 1 October 2010) as prepared in draft by **SGMOS-10-04** (14-18 June 2010), evaluate the findings and make any appropriate comments and recommendations.

Terms of Reference

The STECF (SGMOS-10-05) is requested to assess the fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Baltic Sea cod management plan **R(EC) No 1098/2007**:

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

Areas covered by the R(EC) No 1098/2007 (Baltic Sea)

(i) ICES division 22 to 24,
(ii) ICES divisions 25 to 28, by distinguishing areas 27 and 28.2
(iii) ICES divisions 29 to 32,

The data should also be broken down by
Member State;
regulated gear types designed in R(EC) No 1098/2007;
unregulated gear types catching cod in fishing areas (i), (ii) and (iii);

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2008) and fishing capacity measured in kW and in number of vessels concerned.
b. Catches (landings and discards provided separately) of cod in the Baltic Sea by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod in the Baltic Sea by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod in the Baltic Sea (such data shall be issued by Member state, fishing area (i), (ii) and (iii) and fishing gear concerned in accordance with Art. 3 of **R(EC) No 2187/2005**).

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. To assess the fishing effort and catches (landings and discards) of cod in the Baltic Sea and associated species corresponding to vessels of length overall smaller than 8 metres in each fishery, by gear and by Member State according to sampling plans implemented to estimate these parameters.

4. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the SGMOS is asked to explain or describe it.
In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the SGMOS is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

5. To assess fishing mortality corresponding to the effort deployed and effort available.

6. To compare the evolution of days allocated to the cod fleet (allowed activity) and really used by that fleet and highlight possible shifts between metiers.

7. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Baltic Sea, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

8. To highlight any unexpected evolutions shown by the data which are not in line with general trend.

STECF findings

The STECF subgroup STECF-SGMOS Effort Management WGs (previously STECF-SGRST WGs) has since 2006 performed the task of collating and evaluating effort and catch data for fisheries operating under the Annex II A-C regimes. In 2010 SGMOS was asked to provide analysis according to the revised cod plan with its simplified gear categories. A significant management development in the new cod plan was the direct linking of effort management to achievement of fishing mortality targets. Crucial to this process was the establishment of effort baselines and an annual evaluation and adjustment of effort. The latter has brought the work of the STECF-SGMOS WG into sharp focus and the effort material continues to be the subject of close scrutiny and debate. During 2010, ongoing discussions about a cod plan for the Celtic Sea led to a request for STECF to update the effort information first provided for this area in 2008. The 2010 STECF-SGMOS WG meetings on effort management, also evaluated effort and catches in the Baltic Sea and two other existing management regimes, namely the Western Waters Regulation and Deep Sea Regulation. In view of the requirement once again for evaluation of effort data, the group was well placed to deal with these. However, the deep sea TORs required specialist input and suitable experts attended the STECF-SGMOS WG 10-05 meeting. Two new areas of work were requested and developed by the STECF-SGMOS WGs on effort

management in 2010, namely a review of the Bay of Biscay effort development and also a first look at the relationships between fishing mortality and effort.

TORs addressed by the STECF-SGMOS WGs on effort management

The TORS given to SGMOS are listed in Annex IV. Overall, the TOR list was extensive and demanding although STECF notes that the Commission has acknowledged the workload of the group and refined the TORs for some areas (for example the Western waters and Deep Sea work). While some of the effort and catch assessments have been ongoing for a number of years and have established routines associated with them, some areas of work are more developmental and not all the TORs could be tackled comprehensively.

Approach adopted by the STECF-SGMOS effort management WGs

The data call was issued on 27th April 2010 (corrigendum 12th May 2010).

The Group met on two occasions in 2010. Inter-sessional work was carried out prior to the final meeting. This proved particularly important with respect to the complete revision of the French data series and for seeking clarification over the submissions provided by Spain for Atlantic waters of the Iberian Peninsula. STECF notes that in 2010, data shortfalls and data revisions were largely dealt with prior to the second meeting and the group's progress was not as impaired as previous years. One data revision, involving Belgian effort data, was received and incorporated into the STECF-SGMOS effort databases shortly after the final meeting. The changes arising from the Belgian revision imply that numerous figures and tables in the 'STECF –SGMOS 10-05 Effort Report part 2' also need adjustment. However, the written report is in an advanced draft stage and STECF concluded that given the relatively minor effects the adjustments would have on the overall picture, changes at this late stage were not justified.

The group agreed that the extensive and diverse data and issues addressed would benefit from presentation in three reports covering respectively Baltic Sea (part 1) Annex II and the Celtic Sea (part 2) Deep Sea and Western Waters and (part 3). STECF notes that a decision was taken to continue to provide some of the material on the JRC website in order to produce manageable reports.

Progress and Status of Reports

The report covering the Baltic Area (STECF SGMOS 09-05 Report part 1) was completed in October 2010 and was reviewed during the present STECF meeting

The report covering the Annex II effort management regime (part 2) is almost complete and the substantive sections have been reviewed during the present meeting.

The report covering Deep Sea and western Waters Report (part 3) is incomplete and has not been reviewed during the present Plenary meeting. Summary figures and tables have been produced but these require further scrutiny before text can be finalised. STECF suggests this part is reviewed by correspondence.

Data underpinning the above reports are considered final for 2010 and summary material from the JRC database has been made available on the STECF-ftp (password-protected) site for use by the Commission and STECF members only.

Summary of the STECF-SGMOS 10-05 WG (effort management) findings

The summary below was provided by the STECF SGMOS Effort Management Group.

SGMOS highlights a number of general observations and issues affecting the overall process of collating and evaluating effort data before providing some area specific observations covering the Baltic Sea and Annex II, Celtic Sea and Bay of Biscay. A summary for the Deep

STECF-SGMOS 10-04 AND 10-05 WGs: EFFORT MANAGEMENT REPORT SUMMARY

GENERAL REMARKS

- The STECF-SGMOS 11-04 and 10-05 WGs were given an extensive list of TORs organised mostly on a regional basis. Most of the TORS were similar to previous years and covered the Baltic Sea, Annex II and Deep Sea and Western waters. A new request was included to review effort and catch development in the Bay of Biscay and for all areas there was a request to examine the relationship between fishing mortality and effort. Most TORs were addressed although progress on addressing catch data quality was limited and the Group considers that outcomes from SGRN should inform this process.

- During its two WG meetings, STECF-SGMOS updated fleet specific effort and catch data (including discard estimates where available) up to and including 2009. Results were presented according to the gears definitions in the Baltic cod management plan and Annexes IIA, IIB and IIC to Council Reg. 40/2009. For areas under Annex IIA only the new cod recovery plan gear definitions were presented. A number of countries elected to only supply 2009 data, leaving material for earlier years the same as was submitted in 2008. Several countries supplied detailed material for the first time covering a range of years. Some countries revised and improved their entire data series. The most notable revision was by France who modified their method for calculating effort. Belgium discovered that their first submission in 2010 had not been completed

according to the method adopted by them and agreed by STECF in 2009 and so data were revised accordingly after the meeting. Data were again summarised on a wider range of metrics including catch by country and CPUE by country.

- Despite major improvements, the STECF-SGMOS WG noted that there are still shortfalls in data provision from some Member States and this was manifest in a number of ways (limited time periods, limited area coverage and incomplete lists of species for landings and biological data). While Spain improved its inputs regarding the hake and *Nephrops* management area, it did not supply material for most of the other areas and the shortfalls seriously affect evaluations of the Celtic Sea. Following review of revised French data, a data problem affecting 2002 and 2009 was identified and will require further examination. Further revisions are expected in 2011.

- STECF-SGMOS notes that assignment of derogations is based on best expert knowledge, data availability, and methods used which also reflects cooperation with the national control and enforcement institutions. In a number of cases improved communication and submission has taken place but there is some way to go. Presentation of data according to the effort categories in the Annex IIA cod plan has simplified checking although the derogations under Articles 11 and 13 have presented new challenges. A presentation was given by Nikolaos Mitrakis (JRC) on a new tool available to those supplying data to the databases which provides an efficient way of screening data prior to submission and should improve quality.

- The STECF-SGMOS (effort management) WGs continue to express concern over the fleet specific estimates of total catches in some areas and for some fleets. Even where discard data are ostensibly available, the origin and quality of the discard estimates is not always clear and the precision is often unknown. Specific examples identified by the group are highlighted in the area summaries below. The group considers that estimates of catch and CPUE should be treated as preliminary and used with caution.

- It is recognised that CPUE estimates provide an important mechanism for transferring effort from one gear group to another and the STECF-SGMOS WG suggests that for specific member state requests of this type, the Commission may wish to seek specific guidance on the quality of the underpinning data.

- The STECF-SGMOS WG successfully completed a new section in the Annex II report addressing questions on the Bay of Biscay sole management regime but considers that the capacity of the group has been reached and that it would be unable to deliver any additional summaries.

- The STECF-SGMOS WG welcomed the request to explore the relationships between fishing mortality and effort although regards the first attempts as preliminary. A number of issues were highlighted by the group which merit further investigation, these include statistical considerations, sources and treatment of the F estimates. A separate section is devoted to this topic but the group regards the outputs as presently unsuitable for use in a management context.

- Given the improvements in data reports received from an increasing number of Member States, STECF considers that the continuing efforts by the Commission to inform and educate national administrations on the required procedures, timescales and quality of data submissions is worthwhile. To this end, STECF **recommends** that there is i) a repeat of the 2010 effort workshop early in 2011 ii) early **notification** and subsequent release of the 2011 data call.

- Given the continuing failure by some member states to supply discard information, STECF suggests a) that some pressure could be put on member States to rectify this and b) instruction on this could be provided at the abovementioned effort workshop. Expert participants in previous STECF-SGMOS and STECF-SGRN WGs are in discussion on the design of suitable tables showing data provision from MS to the relevant expert groups but notwithstanding this, there are already clear cases of shortfalls that could be tackled.

SUMMARY OF FINDINGS FOR THE BALTIC

- STECF notes that the STECF-SGMOS WGs made good progress with the available data and a major improvement in data availability was the provision of data from Poland.

- The group was nevertheless hampered by the lack of adequate fishing effort information from some nations, and incomplete information from a number of nations.

- The limited availability of discard data for some gear categories and concerns over the extent to which it is representative means that estimates of catch and CPUE require to be used cautiously.

- On the basis of the partial effort data supplied, the overall effort (kW days) in the Baltic has reduced by about 42% since 2004. Given that there were marked reductions in Area A and B (the regions particularly important for cod) it seems likely that effort on cod has decreased.

- Owing to incomplete information on special conditions, it is not possible to quantify the extent to which the BACOMA codend has been adopted for trawls in the Baltic.

- Landings and discards of cod are estimated to have declined markedly since 2003. Information on other species were not fully provided or analysed.

- There are regional differences in the importance of different gears for the capture of cod. In areas A and B otter trawls are ranked highest whereas in area C gillnets are important.

- Under 8m vessels account for about 3-4% of landings of cod but this is an underestimate since only a few countries supplied data.

- The restricted number of countries supplying material confounds interpretation of spatial information on effort. Existing evidence suggests there has been a westward shift in effort since 2003.

STECF Comments and Conclusions

General comments and conclusions on data availability are followed by ones specific to the Baltic Sea and Annex II, Celtic Sea and Bay of Biscay. Some general comments are made regarding Deep Sea and Western Waters although following review of a completed report these may be further developed.

General

- STECF notes that the work of the STECF-SGMOS effort management WGs is to collate and summarise data provided by member states. In this respect the output is dependent on timely submission of accurate material and the WGs are only able to provide an output which reflects the quality of these data. While every effort is made to accommodate updates and revisions from member states, it is not possible to capture all of these in the finalised reports and the 2010 reports do not reflect changes made to the Belgian data. STECF considers that this is unlikely to alter the broad trends observed in the aggregate data.
- STECF notes that comprehensive deep sea data has been provided by a number of countries representing a significant new development in the work of the STECF-SGMOS effort management WGs. STECF also notes, however, that deep sea and western waters effort data from some countries was either not supplied or was incomplete or inaccurate. Shortfalls were most evident in the data from Spain.
- STECF notes that, so far, the data available on deep sea species is mainly restricted to landings information. To gain a true perception of removals from these fisheries, catch data are required.
- STECF notes that it was not possible fully to address some of the TORs because the data call did not request data in a suitable form. Notable examples were i) the Bay of Biscay TORs where the aggregation of effort for regulated gear would depend on a coding by the member state which was not requested in the call; ii) the West of Scotland special requests where information on activity inside and outside the cod recovery zone, and the use of various technical measures is not covered by the call and iii) the Baltic, where an evaluation of the balance between effort allowed and effort used could not be undertaken because information on effort by individual vessels were not available. Furthermore, STECF notes that adjustments to the database would have to be made in order to accommodate these additional codes. STECF **recommends** that prior to making future requests of this type the Commission consults with SGMOS and JRC to ensure that the necessary technical issues can be considered in advance of a call.
- STECF considers that the request to explore the relationships between fishing mortality and effort represents a progressive step inviting some investigative science rather than simply collating data. STECF notes that work is at a preliminary stage and considers that a cautious and thorough evaluation is prudent. The range of issues highlighted by the group (including statistical considerations, sources and treatment of the F estimates) merit further investigation and STECF **recommends** that a future meeting of the STECF-SGMOS effort management WG should contain some participants with particular expertise in this area.

- In view of the improvements in submission of data reports from Member States during 2010, STECF considers that efforts by the Commission Services, STECF-SGMOS WG participants and JRC experts to inform and educate national administrations on the required procedures, timescales and quality of data submissions has been beneficial. STECF **recommends** that this effort continues, for example with a workshop in early spring as per 2010. STECF further **recommends** that there is particular focus on the requirement to submit discard data since uncertainty over catch estimates in some areas and gears is the most pressing problem.

- Given the difficulties created, STECF particularly acknowledges the major contribution made by Hans-Joachim Raetz of the JRC in developing, maintaining and uploading data to the various databases. The incorporation of new French data, revisions of Belgian data and ongoing data checking and communication with Member States is a demanding task carried out efficiently and in good time for the various SGMOS meetings.

- STECF would like to draw attention to the question of resources being applied to the exercise of compiling and analysing effort and catch data. This involves considerably more work for JRC and Member States' scientists than implied by the time formally scheduled for the meetings. STECF notes that some efforts have been directed towards this and an additional JRC staff member attended the SGMOS 10-5 meeting to present a new data checking tool. Notwithstanding this development, STECF reiterates its view expressed in the summer plenary that a review would be worthwhile of i) time allocated to this work and ii) extent to which some of the detailed material is actually used and iii) scope for improved procedures.
- STECF again **recommends** that the Commission establish a more permanent basis for the future resourcing and support of the databases holding the effort and catch information and continues to give priority to successional planning. STECF also considers that more transparent arrangements for the use of material derived from the databases should be discussed, formally agreed and publicised.

Specific comments on the Baltic Sea

- STECF acknowledges the further progress with the Baltic Sea assessment made by the STECF-SGMOS 10-05 WG and welcomes the important new data contributions, most notably from Poland. The group was, however, hampered by incomplete fishing effort and catch information from some nations and the incorporation of Polish data (covering only 2004 onwards) implied a shorter time series for the overall analysis. STECF suggests that every attempt should be made by the Commission and Member State authorities to provide a more complete submission in 2011 and future years and **recommends** that countries providing Baltic Sea data be encouraged to attend any future effort management workshops referred to above.

- STECF notes that there is a particular shortage of catch data (limited range of species and limited estimates of discards) and suggests that particular focus should be placed on the provision of these data.

- STECF notes that on the basis of the effort data supplied, the overall effort in the Baltic has reduced by about 42% (from 2004). Given that there were i)marked reductions in effort in Areas A and B (the regions particularly important for cod) ii) reductions in landings and discards of cod since 2003 and iii) in view of the shift from regulated gears to unregulated pelagic gears, it seems likely that effort and mortality on cod has decreased.

ANNEX I

STECF/SGMOS-10-05 WORKING GROUP REPORT

27 September – 1 October 2010, Edinburgh, Scotland
Prepared in draft by SGMOS-10-04: 14 – 18 June 2010, Lisbon, Portugal

This report does not necessarily reflect the view of the European Commission and in no way anticipates the Commission's future policy in this area

1. EXECUTIVE SUMMARY AND RECOMMENDATIONS

Review of Baltic Sea catch and effort in the context of the management plan for Baltic cod Council Regulation (EC) No 1098/2007

- STECF SGMOS made good progress with the available data but was hampered by the lack of adequate fishing effort information from some nations, and incomplete information from a number of nations.
- The limited availability of discard data for some gear categories and concerns over the extent to which it is representative means that estimates of catch and CPUE require to be used cautiously.
- On the basis of the partial effort data supplied, the overall effort in the Baltic has reduced by about 42% from 2004 onwards. Given that there were marked reductions in Area A and B (the regions particularly important for cod) it seems likely that effort on cod has decreased.
- Owing to incomplete information on special conditions, it is not possible to quantify the extent to which the BACOMA trawl has been adopted.
- Landings and discards of cod are estimated to have declined markedly since 2003.
- There are regional differences in the importance of different gears for the capture of cod. In areas A and B otter trawls are ranked highest whereas in area C gillnets are important.
- Under 8m vessels account for about 3-4% of landings of cod but this is an underestimate since only a few countries supplied data.
- The restricted number of countries supplying material confounds interpretation of spatial information on effort. Existing evidence suggests there has been a westward shift in effort since 2003.

2. INTRODUCTION

The STECF sub-group on "fishing effort management" held its first annual meeting in Lisbon in Portugal, 14-18 June 2010 (SGMOS-10-04). A follow-up meeting (SGMOS 10-05) took place in Edinburgh, Scotland, 27 September – 01 October 2010. A progress report from the first meeting was presented at the June STECF plenary. This report summarises data presented and the discussions and results of both meetings.

2.1. Terms of Reference for SGMOS-10-05

The SGMOS-10-05 is requested to assess the fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Baltic Sea cod management plan **R(EC) No 1098/2007**:

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

Areas covered by the R(EC) No 1098/2007 (Baltic Sea)

(i) ICES division 22 to 24,
(ii) ICES divisions 25 to 28, by distinguishing areas 27 and 28.2
(iii) ICES divisions 29 to 32,

The data should also be broken down by
Member State;
regulated gear types designed in R(EC) No 1098/2007;
unregulated gear types catching cod in fishing areas (i), (ii) and (iii);

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and fishing activity measured in days absent from port (according to definitions adopted in R(EC) No 1098/2008) and fishing capacity measured in kW and in number of vessels concerned.
b. Catches (landings and discards provided separately) of cod in the Baltic Sea by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod in the Baltic Sea by species, by weight and by numbers at age
d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod in the Baltic Sea (such data shall be issued by Member state, fishing area (i), (ii) and (iii) and fishing gear concerned in accordance with Art. 3 of **R(EC) No 2187/2005**).

2. If relevant data are available, to comment on the quality of estimations on total catches and discards.

3. To assess the fishing effort and catches (landings and discards) of cod in the Baltic Sea and associated species corresponding to vessels of length overall smaller than 8 metres in each fishery, by gear and by Member State according to sampling plans implemented to estimate these parameters.

4. To assess the correlation between fishing mortality rates and the effort deployed by Member States.

If a good correlation between fishing mortality rates and spend fishing effort is found, the SGMOS is asked to explain or describe it.
In case the correlation between the nominal fishing effort and the fishing mortality rates is weak, the SGMOS is asked to describe whether this is due to a wrong descriptor (fe wrong descriptor for fishing capacity) or due to other factors.

5. To assess fishing mortality corresponding to the effort deployed and effort available.

6. To compare the evolution of days allocated to the cod fleet (allowed activity) and really used by that fleet and highlight possible shifts between metiers.

7. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Baltic Sea, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

8. To highlight any unexpected evolutions shown by the data which are not in line with general trend.

2.2. Participants

Participants of the 2 meetings, SGMOS-10-04 and SGMOS-10-05, are grouped by STECF members, invited experts, JRC experts, stakeholder, and EU-Commission representatives and are listed in Appendix I. Appendix II provides a link to the experts' declarations.

For the second meeting, regular SGMOS participation was augmented by 2 experts in Deep Sea biology who made valuable contributions in areas beyond the expertise normally present.

In 2007, STECF and its subgroups adopted a new working style with stakeholder involvement as observers to improve transparency in scientific evaluations. Observers were invited to comment on the TORs and related analyses and results. The stakeholder involvement was in accordance with the protocol for STECF meetings observers, Brussels, 20 September 2006. Two stakeholders attended both the June and September meetings in 2010. Experience during the 2010 meetings again showed that representatives of stakeholder organisations were very interested in the evaluation of the basic information regarding the trends in fleet specific information and specific data deficiencies. Contributions took the form of constructive questions, clarifying comments mainly focussed on recent experience of fishing activity by different fleets and queries which led to the correction of software.

2.3. History of technical measures and effort restrictions in the Baltic

The International Baltic Fishery Commission (IBSFC) regulated the cod fishery in the Baltic by TACs and technical measures until 2005. Up to 1994 the minimum mesh size (MMS) for in the Baltic cod fishery was 105 mm and the minimum landing size (MLS) 33 cm. In 1994 the IBSFC decided to increase the MMS to 120 mm in diamond mesh and to increase the minimum landing size of cod to 35 cm.

In 2002, following the results from the BACOMA project (Improving Technical Management in Baltic Cod Fishery) a 120 mm BACOMA exit panel in a 105 mm codend was introduced. Additionally, the MMS in the diamond mesh increased from 120 to 130 mm. However, the effect of the implementation of 120 mm BACOMA window in cod trawls in the Baltic Sea was virtually eliminated by the technical response by the industry. This prevented the expected effect on cod trawl selectivity and thus the effective implementation of the BACOMA exit window.

> *In 2003 the 130 mm diamond mesh was prohibited allowing only trawls equipped with a 110 mm BACOMA window (a decrease from 120mm). This was expected to enhance the compliance and to be in better accordance with the minimum landing size, which was changed from 35 to 38 cm in the same year. On the 1st of March 2010 the BACOMA 120 mm was re-introduced along with a extended BACOMA window (5.5 m), to further decrease discard and the minimum landing size was kept at 38 cm.*

In 2006 another gear type, the,T90 (mesh size110 mm) was introduced for cod trawl fisheries in the Baltic Sea in addition to the BACOMA trawls.

2.4. Temporal closures and effort regulation

From 1995 onwards a three month summer closure (1 June to 31 August) has been implemented for all cod fishery in the Baltic Sea. In 2006 and 2007 there were additional closed periods imposed in addition to the summer ban. From 2008 the terminology changed and the term 'allowed days at sea' was introduced, the summer closure period was, however, retained. Fishing has to be stopped when TACs arre exhausted even when days at sea are still available.

The text table below shows the effort restrictions for trawls, Danish seines, gill nets, entangling nets or trammel nets with mesh size >=90mm and longlines.

Area	2006 (closed days)	2007(closed days)	2008 (days at sea)	2009 (days at sea)
22-24	92	117	223	201
25-28	119*	183*	178**	160**

*There was no closed periods in Sub-divisions 28-32 in 2006-2007
** There was no closed periods in Sub-divisions 29-32 in 2008-2009

2.5. Description of the current management plan for Baltic cod

The EC established the Multi-annual Management Plan (MMP) for the cod stocks in the Baltic Sea and for cod fisheries in September 2007 (EC 1098/2007). The MMP should ensure the sustainable exploitation of the cod stocks concerned by gradually reducing and maintaining the fishing mortality rates at a certain minimum level.

For Western Baltic cod (SD 22-24) the aim is to reach and maintain a fishing mortality rate at 0.6 for ages 3-6. For Eastern Baltic cod (SD 25-32) the target fishing mortality was set at 0.3 for ages 4-7 in order to rebuild and maintain the stocks and fisheries. This should be reached through a stepwise reduction of fishing mortality (F) by 10% in relation to the fishing mortality estimated for the preceding year. However, the plan also sets a maximum change of 15% of the TAC between consecutive years as an overarching rule, unless the fishing mortality is estimated to be higher than 1 for Western Baltic cod and higher than 0.6 for Eastern Baltic cod. In these cases the TAC shall be set in correspondence to the reduction of fishing mortality by 10%. Alongside the reductions in F, the plan also specifies a 10% reduction in total number of fishing days at sea per year until the target F has been reached. This rule applies to trawls, Danish seines, gill nets, entangling nets or trammel nets with mesh size >=90mm and longlines. In addition, fishing with the aforementioned gears and net types is totally closed from 1st to 30th April in SD 22-24 and from 1st July to 31st August in SD 25-28. However, by way of derogation, fishing vessels with an overall length between 8 and 12 meters are permitted to use up to five days per month divided into periods of at least two consecutive days from the maximum number of days absent from port during the closed periods. The plan is complemented with a number of additional closed areas and as additional effort restriction, the maximum fleet capacity measured in kW is limited to the reference value calculated for 2005 for each member state. ICES evaluated the management plan in 2009 and considered it to be in accordance with the precautionary approach.

2.6. Allocated TACs for Baltic cod by Member State

In 2009 TACs for cod in the western Baltic were mainly shared between Denmark (43% of total TAC), Germany (21%), Sweden (16%) and Poland (12%) according to Council Regulation (EC) 1322/2008 (Figure 3.5.1). Highest TAC shares for Eastern Baltic cod (Figure 3.5.2) belonged to Poland (26%), Sweden (23%), Denmark (23%) and Germany (9%). The remaining TACs are shared between Estonia, Latvia, Lithuania and Finland.

Species:	Cod *Gadus morhua*	**Zone:**	EC waters of subdivisions 22-24 COD/3B23.; COD/3C22.; COD/3D24.
Denmark	7 130		
Germany	3 487		
Estonia	158		
Latvia	590		
Lithuania	383		
Poland	1 908		
Finland	140		
Sweden	2 541		
EC	16 337		
TAC	16 337	Analytical TAC. Article 3 of Regulation (EC) No 847/96 does not apply. Article 4 of Regulation (EC) No 847/96 does not apply. Article 5(2) of Regulation (EC) No 847/96 applies.	

Figure 3.5.1: TACs available to members states for western Baltic cod (SD 22-24) in 2009 as listed in council regulation (EC) 1322/2008.

Species:	Cod *Gadus morhua*	**Zone:**	EC waters of subdivisions 25-32 COD/3D25.; COD/3D26.; COD/3D27.; COD/3D28.; COD/3D29.; COD/3D30.; COD/3D31.; COD/3D32.
Denmark	10 241		
Germany	4 074		
Estonia	998		
Latvia	3 808		
Lithuania	2 509		
Poland	11 791		
Finland	784		
Sweden	10 375		
EC	44 580		
TAC	Not relevant	Analytical TAC. Article 3 of Regulation (EC) No 847/96 does not apply. Article 4 of Regulation (EC) No 847/96 does not apply. Article 5(2) of Regulation (EC) No 847/96 applies.	

Figure 3.5.2: TACs available to member states for Eastern Baltic Cod (SD 25-32) in 2009 as listed in council regulation (EC) 1322/2008.

2.7. Report notations

To identify the categories assessed for effort and catch this working group adopts terminology that matches definitions made in the management plan for Baltic cod (R(EC) 1098/2007). This means that

all trawls, Danish seines, gill nets, entangling nets or trammel nets with mesh size >=90mm and longlines were assumed to be regulated gears (Table 2.7.1). This includes gears and mesh sizes where cod is only an incidental by-catch. Remaining gear and mesh size combinations were taken to be unregulated gears (Table 2.7.2).

However, the definition in the cod management plan is not consistent with regulation R(EC) No 2187/2005) since, as pointed out above, the cod plan also deals with gears where cod is only an incidental by-catch. According to the 2005 regulation it is only permissible to fish for cod with mesh size >=105mm using otter trawls, Danish seines or similar gears. When using static gears mesh size has to be above 110mm. In TOR 1e it is explicitly asked to calculate Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod in the Baltic Sea by member state, fishing area and fishing gear concerned in accordance with Art. 3 of R(EC) No 2187/2005. However, to be consistent within the report we also used the gear categories from the cod management plan (Council Regulation (EC) 1098/2007) for this TOR.

Sub-Areas were defined according to Council Regulation (EC) 1098/2007. This means that Subdivision 22-24 is declared as fishing area "A", Subdivision 25-28 as "B" and Subdivision 29-32 as "C". Effort trends and catch compositions for Subdivisions 27 and 28.2 separately were not analysed owing to data problems and limited time available.

Table. 2.7.1 Regulated gear types, mesh sizes and special conditions as defined in Reg. (EC) No. 1098/2007.

Gear	Mesh Size	SPECON
OTTER	>=90mm	none
OTTER	>=90mm	BACOMA
Danish Seine	>=90mm	none
Danish Seine	>=90mm	BACOMA
Pelagic Trawl	>=90mm	none
Pelagic Trawl	>=90mm	BACOMA
Pelagic Seine	>=90mm	none
Pelagic Seine	>=90mm	BACOMA
Gill net	>=90mm	none
Trammel net	>=90mm	none
BEAM	>=90mm	none
Longlines		

Table 2.7.2 Unregulated gear types, mesh sizes and special conditions as defined in Reg. (EC) No. 1098/2007.

Gear	Mesh Size	SPECON
OTTER	<90mm	none
Danish Seine	<90mm	none
Pelagic Trawl	<90mm	none
Pelagic Seine	<90mm	none
Gill net	<90mm	none
Trammel net	<90mm	none
Beam Trawl	<90mm	none
DREDGE	all	none
POTS	all	none

3. DATA AND METHODS

3.1. Data call

On 27th April 2010 (12th May corrigendum) the Commission's DG Mare invited the relevant institutes to electronically submit fleet specific catch and effort data. The 2010 data call and its format with example tables are documented on the Joint Research Centre's (JRC) fisheries data collection web site: https://datacollection.jrc.ec.europa.eu/home.

3.2. Data policy, formats and availability

Originally, the catch and effort data base structures used by STECF-SGMOS (former title) were developed by the ICES Study Group on the Development of Fishery-based Forecasts (ICES CM 2004/ACFM:11, 41 pp.) with amendments required for the review of fishery regulations.

3.2.1. Data policy

Experts reported on the national data policies for the national fleet specific landings, discards and effort data and generally supported the continued use of the data by STECF-SGMOS but with required permission for any use by other scientific or non-scientific groups. This implies that national experts need to be contacted for their consent before granting access to the data. However, Denmark and Portugal reserves the right of the deletion of the national data on request.

JRC requested to be informed about applications for data access and any notifications.

3.2.2. Nominal fleet specific effort data 2000-2009

Member states were expected to have delivered data in the format outlined in the data call from 27th April 2010. In the following section the focus is on deviations from the data call (Table 3.2.2.1).

A full set of data was provided by Germany. Sweden provided data from 2003 onwards. Poland provided data from 2004 onwards. Denmark provided no information on special conditions, i.e. no vessels fishing with BACOMA-trawls could be identified based on available logbook data. There are also no data on effort in 27 and 28.2. Latvia only provided data for 2003 to 2009. Estonia provided no information on mesh size and special conditions; this makes a distinction between regulated and unregulated gears impossible. In addition, only vessels above 15m were taken into account in the calculations and data were provided for 2006-2009 only. Lithuania provided data for 2005 – 2009. For these years, however, the data set was complete. Data from Finland were not consistent with the data call and could not be taken into account in the analyses.

A full data set on fishing activity (measured in days at sea) was only delivered by Germany (Table 3.2.2.2). All other countries either delivered data only for some years and/or only for regulated gears.

Table 3.2.2.1. Summary of shortcomings in effort data reports covering 2000-2009 provided by EU member states with and without special conditions.

Country	**Effort data 2000-2009**
Denmark	no special conditions, no data for Subdivisions 27 and 28.2 separately
Estonia	only 2006-2009, no specon, no mesh size and only for vessels > 15m till 2008
Finland	no data consistent with the data call
Germany	no shortcomings
Latvia	only for 2003 to 2009
Lithuania	only for 2005 to 2009, wrong vessel length categories till 2008
Poland	only for 2004 to 2009
Sweden	only for 2003 to 2009

Table 3.2.2.2. Summary of shortcomings in fishing activity reports covering 2000-2009 provided by EU member states with and without special conditions.

Country	**Fishing activity data 2000-2009**
Denmark	only for 2008 and 2009, only for some regulated gears
Estonia	only for 2009, no specon, no mesh size and only for vessels > 15m till 2008
Finland	no data consistent with the data call
Germany	no shortcomings
Latvia	only for 2003 to 2009
Lithuania	only for 2009, only regulated gears, wrong vessel length categories till 2008
Poland	only for 2004 to 2009, regulated gears only.
Sweden	only for 2003 to 2009

3.2.3. Effective fleet specific effort data by rectangle 2003-2009

Member states were expected to have delivered rectangle data in the format outlined in the data call from 27th April 2010. In the following section the focus is on deviations from these data calls (Table 3.2.3.1).

A full set of data was provided by Germany and Latvia. Denmark provided no information on special conditions and no data for 27 and 28.2 separately. Estonia delivered data for 2007 and 2009 only and

details on mesh size and special conditions are lacking. Finland delivered no data. Lithuania and Sweden delivered data for 2009 only. Poland delivered no spatial disaggregated effort data for 2003.

Table 3.2.3.1 Summary of shortcomings in spatial effort data reports covering 2003-2009 provided by EU member states.

Country	**Effort data 2003-2009**
Denmark	no specons, no data for 27 and 28.2 separately
Estonia	only 2007 and 2009, no specon, no mesh size and only > 15m for 2007
Finland	no consistent data
Germany	no shortcomings
Latvia	no shortcomings
Lithuania	only for 2009
Poland	only for 2004 to 2009
Sweden	only for 2009

3.2.4. Fleet specific landing and discard data 2003-2009

Member states were expected to have delivered data in the format outlined in the data call from 27th April 2010. In the following section the focus is on deviations from these data calls (Table 3.2.4.1).

A full set of data on age disaggregated landings and discards were provided by Latvia and Germany only. For Denmark information on special conditions is missing as well as catches for 27 and 28.2. Finland did not deliver data consistent with the data call. Estonia delivered data on landings for 2006-2009 only, without information on mesh size, no discard data were provided.. Lithuania, Poland and Sweden delivered catch data for cod only. Lithuania provided data for 2005 – 2009 only. Given the available data it was decided to focus on cod catches only in this report. Consequently TOR 1c could not be adequately addressed in this report.

In addition, according to the experts, none of the national data bases includes unallocated landings. Assignment of special conditions is based on best expert knowledge and data availability.

Some Member States did not provide essential quality parameters of the data. Consequently, STECF-SGMOS is in a poor situation regarding the description of the quality of the fleet specific estimates of discards and age disaggregated catches, mainly due to lack of requested information (no. of discard samples, fish measured and aged). Therefore, TOR 2 was not addressed.

Table 3.2.4.1: Summary of shortcomings in 2003-2009 landings data reports provided by EU member states.

Country	Landings data 2003-2009
Denmark	no specon, no data for 27 and 28.2 separately
Estonia	only years 2006-2009, no mesh size, only COD and PRA
Finland	no consistent data
Germany	no shortcomings
Latvia	no shortcomings
Lithuania	only 2005-2009, no specon, only cod
Poland	only for 2004-2009; only cod
Sweden	landings, age composition only cod

Table 3.8.4.2: Summary of shortcomings in 2003-2009 discard data reports provided by EU member states.

Country	Discard data 2003-2009
Denmark	no specon, no data for 27 and 28.2 separately
Estonia	no discard information
Finland	no consistent data
Germany	no shortcomings
Latvia	none shortcomings
Lithuania	only for 2005-2009, no specon, only cod
Poland	only for 2004-2009, discard , age composition only for cod
Sweden	discard, age composition only cod

3.2.5. Fleet specific landing and effort data 2003-2009 of small boats (<8m)

The data were provided by Denmark, Germany, Sweden and Poland.

Denmark: Under 8m data were provided by Denmark. The Danish data include all trip information from vessels below 10 m (with declarations of fishing area ("farvandseklæring") and being allocated an effort of 1 (one) fishing day. Landings information comes from the sale slips register.

Germany: Germany provided aggregated data regarding the fleet of vessels <8m. The data cover landings by area and species. However, no mesh size information is available from the landings declarations given in the years 2003-2009.

Sweden: Effort and landing data for vessels less than 8m were made available by Sweden in the same format as for larger vessels. Vessels <8 m that are using trawl and demersal seines are obliged to use the same logbook as larger vessels. Vessels <8m using other gears are using the "coastal fishing journal" which predominantly follows the same structure as the standard logbook. Sweden reported landings for vessels (<8m) for 2003-2009.

Poland: Vessels less than 8 meters are obliged to provide monthly catch reports in which the amount of fish caught as well as fishing days are reported by fishing area and gear deployed. Data for this vessel's group was provided in the same format as for larger vessels.

3.3. Estimation of fleet specific international landings and discards

The estimation of fleet specific international landings and discards is based on linking the information about fleet specific catch and discards at age among countries and replacing invalid or missing values with aggregated information from other countries.

Reported data by country are aggregated by fleet properties and raised to the officially reported landings or discards in the SGDFF 2004 (ICES 2004) format. Fleet definitions are based on area, year, quarter, gear, mesh size groups, special conditions as defined in Council Regulation (EC) 41/2007 Annexes 2A-C and national fisheries (metiers) definitions.

The data management and estimation procedures follow the simple raising strategies outlined below:

Data management:

The fleets are classified to their management areas, years, quarters and effort regulated gear groups disregarding the countries and fisheries (metiers).

Estimation of discard rates by fleet (DR):

Let the following notation be: D=discards, L= landings, *snf* = sampled national fleet, *unf* = unsampled or poorly sampled national fleet.

A poorly sampled fleet is defined as such when $SOP_{snf} < 0.75$ or $SOP_{snf} > 1.25$

The available landings and discards are aggregated (summed) by fleets and mean discard rates are calculated:

$$DR = \frac{\sum_{snf} D_{snf}}{\sum_{snf} (L_{snf} + D_{snf})}$$ with $D_{snf} \geq 0$ and with $L_{snf} + D_{snf} > 0$ otherwise 0 (means no catch)

Fleet specific discard amounts are calculated when no discard information is available by

$$D_{unf} = \frac{L_{unf} . DR}{(1 - DR)}$$ when D_{unf} is null (empty)

Fleets without any discards information remain as such.

Estimation of landings in numbers and mean weight at age for non or poorly sampled national fleets

Let *i* be the age reference

Landings in numbers ($N_{snf,i}$) and mean weight at age ($W_{snf,i}$) are aggregated by sampled fleets when $SOP_{snf} \geq 0.75$ and $SOP_{snf} \leq 1.25$.

Raising of numbers and mean weights at ages 0-11 to non or poorly sampled fleets by

$$N_{unf,i} = \frac{\sum_{snf}(N_{snf,i}).L_{unf}}{\sum_{snf} L_{snf}}$$

$$W_{unf,i} = mean(W_{snf,i})$$

The mean weights are unweighted and an appropriate weighing procedure, i.e. number of fish measured, should be explored.

Fleets without any landings at age information remain as such.

Estimation of discards in numbers and mean weight at age for non or poor sampled fleets

Discards in numbers ($N_{snf,i}$) and mean weight at age ($W_{snf,i}$) are aggregated by sampled fleets when $SOP_{snf} \geq 0.75$ and $SOP_{snf} \leq 1.25$ along the same procedure as for the landings.

Raising of numbers and mean weights at ages 0-11 to non or poorly sampled fleets by

$$N_{unf,i} = \frac{\sum_{snf}(N_{snf,i}).D_{unf}}{\sum_{snf} D_{snf}}$$

$$W_{unf,i} = mean(W_{snf,i})$$

The mean weights are un-weighted. An appropriate weighing procedure, i.e. number of fish measured, should be explored.

Fleets without any landings at age information remain as such.

An example of this raising procedure is given in Table 15.2.3.2 under the header "Discards", the values between parenthesis are the estimated values.

Catch at age estimation including discards

Catches by fleets are estimated as the sum of landings and discards. Missing discards are ignored.

Catches at ages 0-20 in numbers are estimated as the sum of landings at age in numbers and discards at age in numbers. Missing discards are ignored.

Mean weights at ages 0-20 are estimated at weighted means (according to ratios of landings at age and discards at age to catches at age).

Finally, all fleets' catches and catches at ages in numbers and mean weights are aggregated finally over management areas, years and effort regulated gear groups.

Fleets without any information on discards or landings at age and discards at age remain unchanged and need to be raised separately on an agreed basis in case that they constitute significant landings.

The STECF-SGMOS notes that sampling of catch at sea including discards is expensive and difficult. This means that sampling coverage tends to be rather limited especially for gears and mesh sizes others than the gears and mesh sizes used to catch cod. Estimates of discards are subject to high uncertainty especially for non-regulated gears. In some cases the discard estimates presented represent the first attempt to use the discard data from some fisheries in the context of fisheries advice. Where the coverage is considered adequate to estimate the overall catch compositions of specific fleets these are presented, but they are intended only to provide an approximate indication of fleet catch compositions. In cases where there are little data, the estimated discard rates may be biased and imprecise (Stratoudakis *et al.*, 1999). The mean weights are estimated as un-weighted means. This results in a biased estimate. An appropriate weighing procedure, i.e. number of fish measured, should be explored.

STECF-SGMOS further notes that the approach of discard estimation applied is generally consistent with the method used in the discard estimates published by the FAO (Kelleher, 2004). However, the group also notes that the design of a discard sampling scheme might differ depending on whether the objective was to estimate total discards, or discard for specific fleets. In the current context estimates from sampling schemes designed for the former purpose are being used for the latter purpose which again means the estimates should only be used with caution. Where this is the case, comparisons are made between the estimates of total discards used for assessment purposes, and the fleet-specific estimates used here.

STECF-SGMOS notes that the analyses presented here are mainly intended to quantify the catch compositions of the various fleets and gears of interest. For this purpose it is the species compositions and the estimated landings and discards that are of primary importance. Age composition data are included but are only of secondary importance. Applying the age compositions to the national catches by fleet and gear is a complex process not least because it typically involves considerable filling-in to account for categories which do not correspond to those within national sampling schemes. Future data compilation and analyses would much more efficient if age composition data were not required. While there is clearly a trade-off between efficiency on one hand and providing additional information on the other, the group notes that in the context of the Baltic, age composition data add little information. As a result it proposes that any future data requests and analyses should be restricted to age-aggregated information unless specific age related questions are indicated in the TOR (eg see section below).

3.4. Treatment of CPUE data

STECF-SGMOS notes that CPUE series are often interpreted and used as stock abundance indicator. However, STECF-SGMOS emphasises that the trends in CPUE by fleets presented here are subject to selective fishing strategies (area, gear, mesh size etc.) and thus maybe biased. On the other hand, CPUE derived from targeted fisheries may provide very useful information on stock abundance trends. Furthermore, it must be taken into consideration that the for many gear categories the CPUE trends represent only overall weights in the landings (LPUE) without discards or with poorly estimated

discards. Ideally, the CPUE should be based on age disaggregated abundance rather than overall weights and reflect technological creep when trends over longer periods are evaluated. Time constraints prevented STECF-SGMOS from estimations of CPUE trends by age and full evaluations of these. STECF-SGMOS recommends that CPUE in units of numbers at age/(kw*days) be estimated and compared with the recent assessment results provided by ICES.

STECF-SGMOS presents CPUE by derogations in units of g/(kW*days) Where discard estimates are not available, the trends in LPUE (landings per unit of effort) are given in the same units**. STECF wishes to stress again that great care should be used in the interpretation of these data owing to the incomplete nature of information on discarded fish.**

3.5. Summary of effort and landings by 'unregulated' gears

This report also includes a detailed analysis of effort and catches from gear types not regulated in the cod management plan Commission Regulation (EC) 1098/2007. A definition of regulated and unregulated gear types can be found in section 2.7.

3.6. Presentation of information on vessels under 8m

This STECF-SGMOS report provides an overview of landings data provided by the experts regarding their national fisheries of vessels <8m, which are not obliged to report their landings through logbooks but rather do landings declarations. In this report an attempt is made to compile available information for each sub-area into overall figures. Since not all countries were able to fulfil this part of the data call, the aggregate estimates for each region must be considered as minimum estimates. Nevertheless, they begin to give an idea of the scale of landings contributed by these smaller classes of vessel.

3.7. Presentation of spatial information on effective effort

STECF-SGMOS notes that minimum geographic resolution in the available logbook information on landings and effective effort is by ICES rectangle and considers analyses to only be possible at that resolution at the present time. The effective effort values of certain nations were given in days fished which were then converted to trawled hours by applying a factor of 24. STECF-SGMOS notes that attention should only be paid to major changes in the geographical distribution patterns given the imprecision of the created data set. A full set of figures is available on the website but a selection of key gears is included in this report.

3.8. Effort management categories and Data Collection Framework (DCF) metiers

In this report metier definitions were aligned with the current cod management plan for the Baltic. However, metier definitions also exist from the DCF regulations. At present these represent two rather different systems for classifying fishing activity.

From the above descriptions, it is clear that the DCF matrix represents a much more detailed approach to describing fishing activity than the effort management categorisation in the cod management plan. In particular, the DCF approach involves more detailed information on gear type and also on catch composition (in relation to the different target assemblages). In contrast, the effort management categories include only information corresponding to DCF level three (gear group) and level six (mesh

size & selective devices). As a result, an effort management category may include both multiple gear types and multiple target assemblages. The latter information is more critical, given that the intention of effort management is to protect specific components of the target assemblages.

In order to identify the correspondence between effort management categories and DCF métiers, it will be necessary to review the effort management categories and identify cases where these may involve multiple gear types and/or multiple target assemblages. A future review should also identify cases where special conditions associated with a particular grouping involve a difference in gear selectivity characteristics or target assemblage. This was beyond the scope of the present meeting.

3.9. TORs impossible to answer from the results of the data call

Capacity (TOR 1b)

STECF assumes that "Capacity" means the sum of kW's over vessels engaged in a certain fishery (gear type, mesh size, area) ie:

$$Capacity = \sum_{i=1}^{n} kw_{vessel\ i}$$

If capacity has to be given by year and for sub-divisions 22-24 (A), 25-28 (B) and 29-32 (C), the data call in its current form (by subdivision, quarter) is not suitable to answer this TOR. When aggregating capacity values, vessels would be counted numerous times (vessels fish in more than one quarter and/or in more than one subdivision). Therefore, for future data calls capacity values have to be provided in a pre-aggregated way (by year and subarea) to be able to answer this TOR. Future data calls should define exactly what aggregation level would be needed here.

Comparison between allowed activity and days at sea used (TOR 5 and 6)

STECF assumes that "allowed activity" means the allowed number of days absent from port per vessel (e.g., 201 days for **sub-divsions** 25-32 in 2009). This is a value per vessel, per year and for the western and eastern Baltic cod management **units in SD** 22-24 and 25-32. In the data call, days at sea (needed to calculate days at sea used to allow for the comparison with available effort) have to be given by quarter and subdivision and also not per vessel (or as mean value over all vessels engaged). Calculating a mean value per vessel, per year and for the manage**ment units** 22-24 and 25-32 based on the data call would lead to highly biased results. The correct number of vessels in the two management areas and per year is not known from the data call because vessels would be counted numerous times (vessels fish in more than one quarter and/or in more than one subdivision). Therefore, to answer this TOR the data call either has to ask for the mean days at sea for vessels fishing with regulated gears in the two **cod management units (**areas**)** directly or at least the number of vessels have to be given in the correct aggregation level (per management area and per year)

4. REVIEW OF THE EFFORT REGIME IN THE CONTEXT OF THE COD MANAGEMENT PLAN (COUNCIL REGULATION (EC) 1098/2007)

4.1. General remarks

This is only the second report for the Baltic. Therefore, results have to be treated with caution.

In general, the data situation for the Baltic has improved slightly compared to last year but is still rather poor. Polish effort and catch data are now available from 2004 onwards. This, however, implies that effort and catch trends before 2004 can no longer be taken into account due to bias unless Polish data would be available also for these years. Similar, data from Sweden are available from 2003 onwards only. . Also information from Estonia could only be used to a very limited extent since information on mesh sizes was not provided. Therefore, all effort and catches from Estonia appear under unregulated gears even if in reality regulated gears were used. In addition, data from Finland did not match the formats needed for the inclusion in the data base. Lithuania provided data for 2005 – 2008 only and this could provide misleading trends in effort and catch over time. Due to the absence of separate data for subareas 27 and 28.2 from Denmark and limited time available, it was decided to only analyse the main Areas A,B and C without separate analyses for 27 and 28.2.

STECF-SGMOS notes that assignment of special conditions is based on best expert knowledge and data availability. Data errors may exist taking into consideration the very large size of data bases involved. Specific technical or gear configurations defined in the special conditions are often not registered in the logbook databases, i.e. BACOMA and T90. STECF-SGMOS notes that it was not possible to distinguish between trawls equipped with special condition BACOMA or T90 for all member states. In addition, it had to be often assumed that all Otter Trawls, Danish seines or similar gears with mesh size >= 105mm are BACOMA trawls from 2006 onwards (e.g., German data) in accordance with Council Regulation (EC) 2187/2005. Denmark provided no information on the usage of BACOMA trawls at all. Therefore, analyses on the usage of BACOMA trawls have to be seen preliminary and have to be interpreted with care.

Several countries only delivered catch data for cod and not for other species. Therefore, it was decided to focus on cod catches by gear category, sub-area and member state in this report. Catches from other species (i.e. herring and sprat) were not analysed.

4.2. Trends in nominal effort 2000-2009 by gear category, sub-area and Member State

Table 4.2.1 lists the effort for gear categories defined in the cod management plan Council Regulation (EC) 1098/2007 in kW*days for the whole Baltic. Table 4.2.2 lists the effort by gear category, sub-area and member state. Table 4.2.3 lists effort by gear category and sub-area. Figures 4.2.1 – 4.2.6 show effort trends in regulated and unregulated gear categories by sub-area.

In accordance with the TOR respective tables by gear-category, sub-area and member states in GT*days (gross tonnage), activity (in days absent from port) and number of vessels will shortly be available on the internet at this site:

http://stecf.jrc.ec.europa.eu/48?p_p_id=62_INSTANCE_Hk1G&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&p_p_col_id=column-2&p_p_col_count=1&_62_INSTANCE_Hk1G_struts_action=%2Fjournal_articles%2Fview&_62_IN

STANCE_Hk1G_groupId=1416&_62_INSTANCE_Hk1G_articleId=710846&_62_INSTANCE_Hk1G_version=1.0.

STECF-SGMOS emphasises that the number of vessels need to be interpreted with care and cannot be added across gear categories as the individual vessels may have been engaged in more than one of the defined fleets and thus could be multiple counted.

Note that the category 'none none' contains a combination of the effort information for gears which were not covered by the data call and effort information for vessels which recorded no gear type or mesh size.

There are marked reductions in effort measured in kW-days especially for regulated gears in accordance with Council Regulation (EC) 1097/2007, the total effort deployed in the Baltic in 2009 was 42 % lower compared to 2004 (Table 4.2.1). A reduction in total effort could be observed for sub-area A and B (Figures 4.2.1 and 4.2.3). Only in Area C the effort deployed with unregulated gears stayed at a similar level (Figure 4.2.5). Since the vast majority of cod catches stem from areas A and B (see section 4.3), the decrease in total effort in areas A and B most likely decreased the fishing pressure on Baltic cod.

The decrease in total effort for the main gear catching cod in areas A and B (r-Otter, see section 4.5) was obvious for all member states (Table 4.2.2). When combining specon BACOMA and none, the reductions were most pronounced for Denmark (-50%) and Germany (-41%) in area A and most pronounced for Poland (-79%) and Sweden (-48%) in area B. In contrast, the effort for r-Gill (the second most important gear, see section 4.5) increased for Denmark and Germany in Area A (by 49% and 41% respectively). This indicates a certain shift between metiers. In area B the effort decreased also for r-Gill substantially for all member states (-81% for Poland and -74% for Latvia).

The relative annual effort dynamics varied by gears and areas remarkably without any clear pattern in the beginning of the period (Table 4.2.4.). However, the most recent years revealed quite clear decreasing trend in relative annual effort. Also, certain spatial pattern can be observed. In the case of all regulated gears combined, the relative annual decrease in effort in all regulated gears has been higher in the main area of the cod fishery, in Areas A and B in 2007-2009 (in the range of -13 to -15% annually), while a moderate annual decrease (– 3% to -8%) was observed in area C.

The use of BACOMA-trawls increased over the years (see Figures 4.2.2; 4.2.4; 4.2.6). However, as already mentioned several member states were not able to identify vessels fishing with BACOMA-trawls from logbook data. Therefore, the increase in the usage of BACOMA-trawls is most likely underestimated substantially and trends are highly uncertain.

Table 4.2.1 Trend in nominal effort (kW*days at sea) by gear categories according to Council Regulation (EC) 1098/2007, 2000-2009. Data qualities are summarised in section 3.2. An "r" in front of the gear type indicates regulated gears. Gear types without an "r" are non-regulated gears (see also section 3.6). **NOTE: data from Sweden and Poland were only available from 2003 or 2004 respectively; therefore relative change shown from 2004 to 2009.**

REG GEAR COD	SPECON	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	rel. change
BEAM	none			184			132	1090	881	27566	16298	1.00
DEM_SEINE	none	284	315	544	1273	50829	31250	20892	20597	12522	4784	-0.91
DREDGE	none	99673	104105	89661	58965	78384	72955	97700	110931	45088	57512	-0.27
GILL	none	305835	331773	354328	606761	1375990	1606111	1407810	1451525	1152460	928685	-0.33
none	none	186427	157846	141221	126257	99719	177258	201146	184449	168836	194947	0.95
OTTER	none	1588537	1634628	1133115	1695208	2634231	2312575	1867006	1583972	1289005	1463951	-0.44
PEL_SEINE	none				1176	2499				3528	16173	5.47
PEL_TRAWL	none	1778816	1252103	1370213	7892395	13655592	12644181	10479474	11268379	10247460	9705691	-0.29
POTS	none	11535	11075	13134	412779	915393	920209	726925	624436	496830	478433	-0.48
r-BEAM	BACOMA									3867		0.00
	none		412	3971	442							0.00
r-DEM_SEINE	BACOMA							35178	46741	46182	62042	1.00
	none	459177	616908	479465	368532	403303	276935	262342	242811	181854	118870	-0.71
r-GILL	none	1728095	1874127	1543192	5685259	8516584	7581565	6801226	5898324	5542198	4528668	-0.47
r-LONGLINE	none	254464	379144	324822	732269	1266776	1523793	1500030	881364	678046	803789	-0.37
r-OTTER	BACOMA				1137276	6920160	5925567	8194325	6236557	5264005	4035303	-0.42
	none	8641307	9115770	6949926	8382320	6435068	6451016	3605102	2626025	2491509	2205436	-0.66
	T90										9536	1.00
r-PEL_TRAWL	BACOMA					931281	324353	1255661	865316	152231	364273	-0.61
	none	405408	515371	265881	104484	363554	223680	122741	37349	3841	6774	-0.98
r-TRAMMEL	none	212853	223783	193345	260374	238204	474207	432987	501747	540670	604712	1.54
TRAMMEL	none	6562	2426	842	20451	19165	30980	32505	31588	25999	11012	-0.43
Grand total		15678973	16219786	12863844	27486221	43906732	40576767	37044140	32612992	28373697	25616889	-0.42

Table 4.2.2 Trend in nominal effort (kW*days at sea) by gear categories according to Council Regulation (EC) 1098/2007, sub-area and Member State for 2000-2009. Data qualities are summarised in section 3.2. An "r" in front of the gear type indicates regulated gears (see section 3.6). Gear types without an "r" are non-regulated gears. **NOTE: data from Sweden and Poland were only available from 2003 or 2004 respectively: therefore relative change shown from 2004 to 2009.**

REG AREA COD	REG GEAR COD	SPECON	COUNTRY	Year 2000	YEAR 2001	Year 2002	Year 2003	Year 2004	Year 2005	Year 2006	Year 2007	Year 2008	Year 2009	rel. change
A	BEAM	none	GER			184			132	1090	881	27566	16298	1.00
	DEM_SEINE	none	DEN	284	315		126	560	186	1441	259	35	35	-0.94
			GER			544								0.00
			POL					32546	28808	15805	14124	10365	2985	-0.91
	DREDGE	none	DEN	99673	104105	89661	58965	78384	58087	75344	97071	32422	50456	-0.36
			GER						14868	22356	13860	11340	7056	1.00
	GILL	none	DEN	45770	93497	73089	32304	26087	111558	65000	52891	32147	20341	-0.22
			EST							22850	12969	29966		0.00
			GER	230224	206598	257368	210038	249110	594432	472636	529139	466843	351458	0.41
			POL					256301	194068	133900	124381	83150	78546	-0.69
			SWE				27333	34779	24994	24277	24862	27471	70074	1.01
	none	none	DEN	88040	90350	67955	53479	49824	91362	83305	96660	99444	127513	1.56
			GER	90091	58186	68880	60632	36418	46260	95652	54645	40422	34437	-0.05
			POL								48			0.00
			SWE				2252	1983	23346	7454	16268	18539	16758	7.45
	OTTER	none	DEN	1008289	1159123	634228	454748	612212	523686	439246	269424	178565	155413	-0.75
			GER	80498	93054	230678	276426	295692	335694	279312	239883	202848	208338	-0.30
			POL					27687	76128	4965	11497	11569	25416	-0.08
			SWE				5241	10952	3404	8304	2205		503	-0.95
	PEL_SEINE	none	SWE										294	1.00
	PEL_TRAWL	none	DEN	477006	461907	256868	284307	302555	360973	327859	177323	189618	136054	-0.55
			EST								1058			0.00
			GER	110818	57221	205763	256483	252751	250186	274905	298004	318514	189920	-0.25
			LAT								882			0.00
			POL					247814	415994	317336	145627	281115	289534	0.17
			SWE				604521	659146	464659	418823	371790	364400	281328	-0.57
	POTS	none	DEN	2116	1699	1011		580	64294	69429	79997	71579	77124	131.97
			GER	9419	9376	12123	12893	6388	13507	25915	28062	23664	26987	3.22
			POL					140562	120342	114865	118630	108013	97031	-0.31
			SWE				37418	33086	32465	24264	24628	12006	11543	-0.65
	r-BEAM	BACOMA	GER									3867		0.00
		none	GER		412	3971	442							0.00
	r-DEM_SEINE	BACOMA	GER							23422	37741	38400	42327	1.00
		none	DEN	457619	616400	479273	367803	394203	266393	252561	238431	181854	118870	-0.70
			GER					7398	1912					-1.00
	r-GILL	none	DEN	725135	832640	620339	571865	548685	1292689	996895	805567	873961	816545	0.49
			EST										41349	1.00
			GER	724175	781400	728828	786357	662527	1135980	1449940	1457215	1247682	932027	0.41
			LAT				79148	142491	171002	161456	30116	12676	3528	-0.98
			LIT						19111	32901				0.00
			POL					156979	237887	152597	245290	162174	91031	-0.42
			SWE				725668	618365	656133	567878	544645	620820	511707	-0.17
	r-LONGLINE	none	DEN	52371	141329	62733	104894	91833	190411	205287	128411	32694	36906	-0.60
			GER	67962	68781	76247	78859	80543	122727	119348	100892	97335	122409	0.52
			LIT						12533	0				0.00
			POL					17816	89844	32333	32553	16260	6163	-0.65
			SWE				7730	44891	112010	40339	19061	14536	43237	-0.04
	r-OTTER	BACOMA	GER							1438618	1468708	1176929	1009887	1.00
			LAT								18488			0.00
			LIT						57602	84342				0.00
			POL					185078	305537	187581	550012	306110	182017	-0.02
			SWE				168300	195372	192957	320452	399366	334888	190189	-0.03
		none	DEN	4656418	5130737	3655376	3376295	2927587	3073583	2063167	1822436	1680846	1460281	-0.50
			GER	2908511	2973126	2269630	1906314	1753928	1686831	42769	23067	30793	18759	-0.99
			LAT				880		17632					0.00
			POL					113141	74203	50523	73520	53418	73235	-0.35
			SWE				110203	25345	22729	15113	26527	10447	88	-1.00
	r-PEL_TRAWL	BACOMA	GER							20259	30856	3443		0.00
			LIT						16799	0				0.00
			POL					2220	13878	1257	1875			-1.00
			SWE					2882	2424	4198		720		-1.00
		none	DEN	76168	86777	30466	22012	13656	18809	26622	6246	2831	2744	-0.80
			GER	22822	5310	4483	14111	3975	17039	440				-1.00
	r-TRAMMEL	none	DEN	199418	207969	179852	203360	176945	368235	311504	309804	351748	358269	1.02
			GER	13435	15814	13493	10392	21308	40549	67494	132416	128657	134669	5.32
			POL						38					0.00
			SWE				34418	28638	58480	45260	44664	49409	94684	2.31
	TRAMMEL	none	DEN	2586	2426	842	2596	984	9276	4076	1070	992	1023	0.04
			GER	3976					4752	4719	4824	13887	2916	1.00
			POL					1570	1372	179	365		45	-0.97
			SWE				4751		154					0.00

Table 4.2.2 continued

B	DEM_SEINE	none	POL					17193	374		3214	1534		-1.00
			SWE				147					588	1764	1.00
	DREDGE	none	DEN									1326		0.00
	GILL	none	DEN	29841	31678	23871	11388	28229	15309	21992	7574	4895	924	-0.97
			EST							89972	61937	31416		0.00
			GER										114	1.00
			POL					517969	403672	338121	357400	260879	187500	-0.64
			SWE				17974	11543	9350	8532	22603	17277	10826	-0.06
	none	none	DEN	8296	9310	4386	4124	567	5646	1266	2424	1670	4481	6.90
			SWE				5770	8386	9100	11925	12603	6960	8380	0.00
	OTTER	none	DEN	462325	376749	261214	400005	275197	242185	163707	130140	96627	167652	-0.39
			EST							7052	11050			0.00
			GER		2652		67270		7208		5145	23223	76150	1.00
			LAT				6388			220				0.00
			POL					726652	391633	213898	234264	118715	173070	-0.76
			SWE				236884	429667	490289	460078	420564	406051	417169	-0.03
	PEL_SEINE	none	SWE				1176	2499				3528	15879	5.35
	PEL_TRAWL	none	DEN	1140838	690647	839486	493325	397556	647725	415185	715624	765500	987284	1.48
			EST							60776	118378	98815		0.00
			GER			41794	203289	439969	273715	272149	326914	293399	202248	-0.54
			LAT				420992	425988	244888	184455	296450	219451	217847	-0.49
			POL					3830460	3029431	2080027	2235238	1825141	2392108	-0.38
			SWE				5115135	6107212	5647622	5334006	5206259	4668557	3934490	-0.36
	POTS	none	DEN						45		117		96	1.00
			POL					368363	361510	197160	148431	133317	96850	-0.74
			SWE				92951	104208	101080	101183	67756	43000	38787	-0.63
	r-DEM_SEINE	BACOMA	GER							11756	9000	7782	19715	1.00
		none	DEN	1558	508	192	729	880	8630	9781	4380			-1.00
			GER					822						-1.00
	r-GILL	none	DEN	257978	250451	182221	255291	239932	243786	254043	189372	195012	172298	-0.28
			EST										31107	1.00
			GER	20807	9636	11804	11696	8290	43704	14527	11824	5048	6594	-0.20
			LAT				1397564	1471236	701180	596996	568781	539579	387778	-0.74
			LIT						93187	55397	90686	128949	86375	1.00
			POL					3158758	1764081	1447588	1078801	809153	595808	-0.81
			SWE				1782688	1434519	1148379	993308	811863	887227	795212	-0.45
	r-LONGLINE	none	DEN	133468	168592	184090	212604	107249	127573	154932	85371	45181	63747	-0.41
			GER	663	442	1752	10248	11771	15007	9881	11920	17580	12580	0.07
			LIT						264	59543	35332	34991	6553	1.00
			POL					539537	509033	558119	306635	221448	311408	-0.42
			SWE				316942	373136	344391	320248	161189	197941	200786	-0.46
	r-OTTER	BACOMA	GER							163096	80177	189211	215009	1.00
			LAT							350925	186093	229860	198632	1.00
			LIT						342503	192759	170844	382050	276951	1.00
			POL					4904788	3585520	3994363	2327665	1509570	1010621	-0.79
			SWE				968976	1634922	1441448	1462189	1035204	1133227	951997	-0.42
		none	DEN	910361	803562	784198	1095043	774695	791940	1255868	568490	640633	610697	-0.21
			GER	166017	208345	240722	334236	211999	280977			1987	5835	-0.97
			LAT				458330	322019	242532					-1.00
			POL					4840	121	54	735	1352	54	-0.99
			SWE				1101019	301514	260064	177608	111250	72033	36487	-0.88
		T90	SWE										9536	1.00
	r-PEL_TRAWL	BACOMA	EST										219177	1.00
			GER							141492	70379	16691	36135	1.00
			LAT							29965	122803	10521	14473	1.00
			LIT						1100	89918	85447	61407	18764	1.00
			POL					781540	169019	556240	375522	22590	35231	-0.95
			SWE					144639	121133	412332	178434	36859	40493	-0.72
		none	DEN	107781	134313	77816	63296	49327	40022	95679	31103	1010	4030	-0.92
			GER	198637	288971	153116		182107	143688					-1.00
			LAT				5065	114489	4122					-1.00
	r-TRAMMEL	none	DEN				3108	2064	5598	7550	12631	5910	15546	6.53
			POL					1330	70					-1.00
			SWE				9096	7919	1237	914	2232	4946	1544	-0.81
	TRAMMEL	none	SWE				13104	15993	12164	18403	22391	7638	5613	-0.65
C	DEM_SEINE	none	SWE				1000	530	1882	3646	3000			-1.00
	GILL	none	EST							664				0.00
			SWE				307724	251972	252728	229866	257769	198416	208902	-0.17
	none	none	SWE				0	2541	1544	1544	1801	1801	3378	0.33
	OTTER	none	DEN	37425	3050	6995	8350		1879	14065	4564	5549		0.00
			GER				7688		1540			3675	4410	1.00
			POL								258			0.00
			SWE				232208	256172	238929	276159	254978	242183	235830	-0.08
	PEL_TRAWL	none	DEN	50154	42328	19682	15067	37216	6428	18960	52871	156824	182836	3.91
			GER			6620	16110	72616	76898	27064	81547	69053	59504	-0.18
			POL										22084	1.00
			SWE				483166	882309	1225662	747929	1240414	997073	810454	-0.08
	POTS	none	SWE				269517	262206	226966	194109	156815	105251	130015	-0.50
	r-GILL	none	SWE				74982	74802	74446	77700	64164	59917	57309	-0.23
	r-LONGLINE	none	SWE				992					80		0.00
	r-OTTER	BACOMA	SWE									2160		0.00
		none	SWE						404					0.00
	r-TRAMMEL	none	SWE							265				0.00
	TRAMMEL	none	SWE					618	3262	5128	2938	3482	1415	1.29
Grand total				15678973	16219786	12863844	27486221	43906732	40576767	37044140	32612992	28373697	25616889	-0.42

Table 4.2.3. Trend in nominal effort (Kw *days at sea) by gear categories and sub-area 2000-2009. Data qualities are summarised in section 3.2. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 3.6). Gear types without an "r" are non-regulated gears. **NOTE: data from Sweden and Poland were only available from 2003 or 2004 respectively. Therefore relative change shown from 2004 to 2009.**

REG AREA COD	REG GEAR COD	SPECON	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	rel. change
A	BEAM	none			184			132	1090	881	27566	16298	1.00
	DEM_SEINE	none	284	315	544	126	33106	28994	17246	14383	10400	3020	-0.91
	DREDGE	none	99673	104105	89661	58965	78384	72955	97700	110931	43762	57512	-0.27
	GILL	none	275994	300095	330457	269675	566277	925052	718663	744242	639577	520419	-0.08
	none	none	178131	148536	136835	116363	88225	160968	186411	167621	158405	178708	1.03
	OTTER	none	1088787	1252177	864906	736415	946543	938912	731827	523009	392982	389670	-0.59
	PEL_SEINE	none										294	1.00
	PEL_TRAWL	none	587824	519128	462631	1145311	1462266	1491812	1338923	994684	1153647	896836	-0.39
	POTS	none	11535	11075	13134	50311	180616	230608	234473	251317	215262	212685	0.18
	r-BEAM	BACOMA									3867		0.00
		none		412	3971	442							0.00
	r-DEM_SEINE	BACOMA							23422	37741	38400	42327	0.00
		none	457619	616400	479273	367803	401601	268305	252561	238431	181854	118870	-0.70
	r-GILL	none	1449310	1614040	1349167	2163038	2129047	3512802	3361667	3082833	2917313	2396187	0.13
	r-LONGLINE	none	120333	210110	138980	191483	235083	527525	397307	280917	160825	208715	-0.11
	r-OTTER	BACOMA				168300	380450	556096	2030993	2436574	1817927	1382093	2.63
		none	7564929	8103863	5925006	5393692	4820001	4874978	2171572	1945550	1775504	1552363	-0.68
	r-PEL_TRAWL	BACOMA					5102	33101	25714	32731	4163		-1.00
		none	98990	92087	34949	36123	17631	35848	27062	6246	2831	2744	-0.84
	r-TRAMMEL	none	212853	223783	193345	248170	226891	467302	424258	486884	529814	587622	1.59
	TRAMMEL	none	6562	2426	842	7347	2554	15554	8974	6259	14879	3984	0.56
B	DEM_SEINE	none				147	17193	374		3214	2122	1764	-0.90
	DREDGE	none									1326		0.00
	GILL	none	29841	31678	23871	29362	557741	428331	458617	449514	314467	199364	-0.64
	none	none	8296	9310	4386	9894	8953	14746	13191	15027	8630	12861	0.44
	OTTER	none	462325	379401	261214	710547	1431516	1131315	844955	801163	644616	834041	-0.42
	PEL_SEINE	none				1176	2499				3528	15879	5.35
	PEL_TRAWL	none	1140838	690647	881280	6232741	1.1E+07	9843381	8346598	8898863	7870863	7733977	-0.31
	POTS	none				92951	472571	462635	298343	216304	176317	135733	-0.71
	r-DEM_SEINE	BACOMA							11756	9000	7782	19715	1.00
		none	1558	508	192	729	1702	8630	9781	4380			-1.00
	r-GILL	none	278785	260087	194025	3447239	6312735	3994317	3361859	2751327	2564968	2075172	-0.67
	r-LONGLINE	none	134131	169034	185842	539794	1031693	996268	1102723	600447	517141	595074	-0.42
	r-OTTER	BACOMA				968976	6539710	5369471	6163332	3799983	3443918	2653210	-0.59
		none	1076378	1011907	1024920	2988628	1615067	1575634	1433530	680475	716005	653073	-0.60
		T90										9536	1.00
	r-PEL_TRAWL	BACOMA					926179	291252	1229947	832585	148068	364273	-0.61
		none	306418	423284	230932	68361	345923	187832	95679	31103	1010	4030	-0.99
	r-TRAMMEL	none				12204	11313	6905	8464	14863	10856	17090	0.51
	TRAMMEL	none				13104	15993	12164	18403	22391	7638	5613	-0.65
C	DEM_SEINE	none				1000	530	1882	3646	3000			-1.00
	GILL	none				307724	251972	252728	230530	257769	198416	208902	-0.17
	none	none				0	2541	1544	1544	1801	1801	3378	0.33
	OTTER	none	37425	3050	6995	248246	256172	242348	290224	259800	251407	240240	-0.06
	PEL_TRAWL	none	50154	42328	26302	514343	992141	1308988	793953	1374832	1222950	1074878	0.08
	POTS	none				269517	262206	226966	194109	156815	105251	130015	-0.50
	r-GILL	none				74982	74802	74446	77700	64164	59917	57309	-0.23
	r-LONGLINE	none				992					80		0.00
	r-OTTER	BACOMA									2160		0.00
		none						404					0.00
	r-TRAMMEL	none							265				0.00
	TRAMMEL	none					618	3262	5128	2938	3482	1415	1.29
Grand total			15678973	1.6E+07	1.3E+07	2.7E+07	4.4E+07	4.1E+07	3.7E+07	3.3E+07	2.8E+07	25616889	-0.42

Table 4.2.4. Relative annual effort dynamics in Baltic cod r-GILL and r- OTTER fisheries in 2004-2009.

REG GEAR COD	REG AREA COD	SPECON	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009
r-GILL	A	none	0.65	-0.04	-0.08	-0.05	-0.18
r-GILL	B	none	-0.37	-0.16	-0.18	-0.07	-0.19
r-GILL	C	none	0.00	0.04	-0.17	-0.07	-0.04
r-OTTER	A	BACOMA	0.46	2.65	0.20	-0.25	-0.24
r-OTTER	A	none	0.01	-0.55	-0.10	-0.09	-0.13
r-OTTER	B	BACOMA	-0.18	0.15	-0.38	-0.09	-0.23
r-OTTER	B	none	-0.02	-0.09	-0.53	0.05	-0.09
All regulated gears	A		0.25	-0.15	-0.02	-0.13	-0.15
All regulated gears	B		-0.26	0.08	-0.35	-0.15	-0.14
All regulated gears	C		0.00	0.04	-0.18	-0.03	-0.08

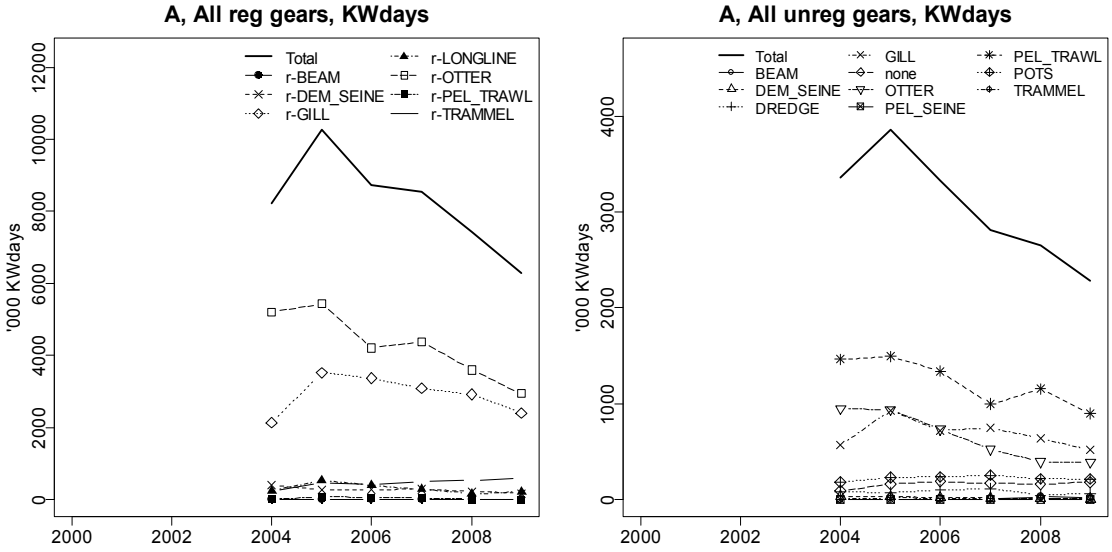

Figure 4.2.1. Area A Baltic: Trend in nominal effort by gear types 2004-2009 (Kw *days at sea). Left: Regulated gears. Right Unregulated gears. **Note that data from Poland are only available from 2004 onwards. Therefore, effort trends are only shown from 2004 to 2009. In addition, there are only limited data from Estonia and no data from Finland.**

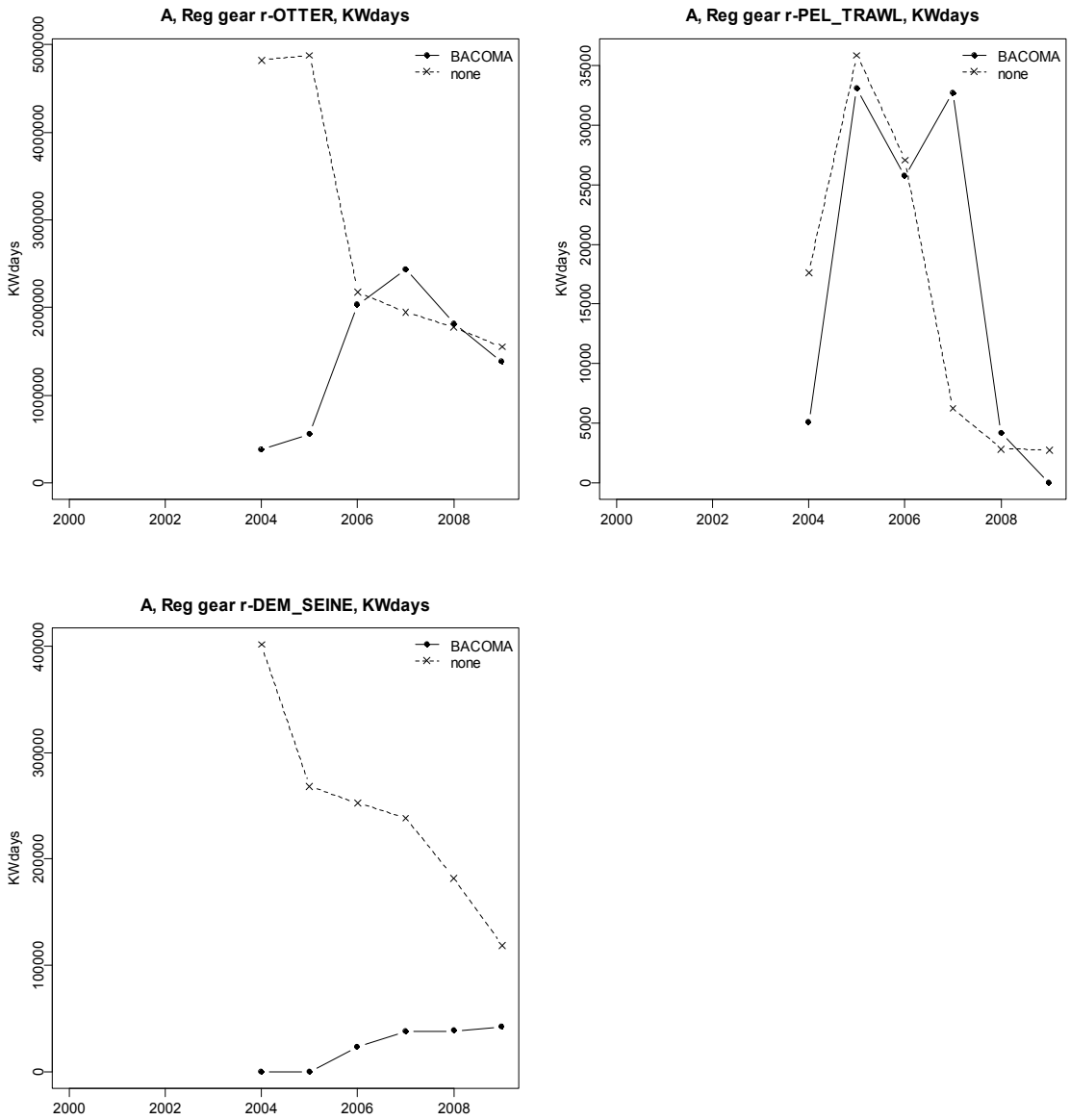

Figure 4.2.2. Area A Baltic: Trend in nominal effort by special conditions, 2004-2009 (kw *days at sea). **Note that data from Poland are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2009. In addition, there are only limited data from Estonia and no data from Finland.**

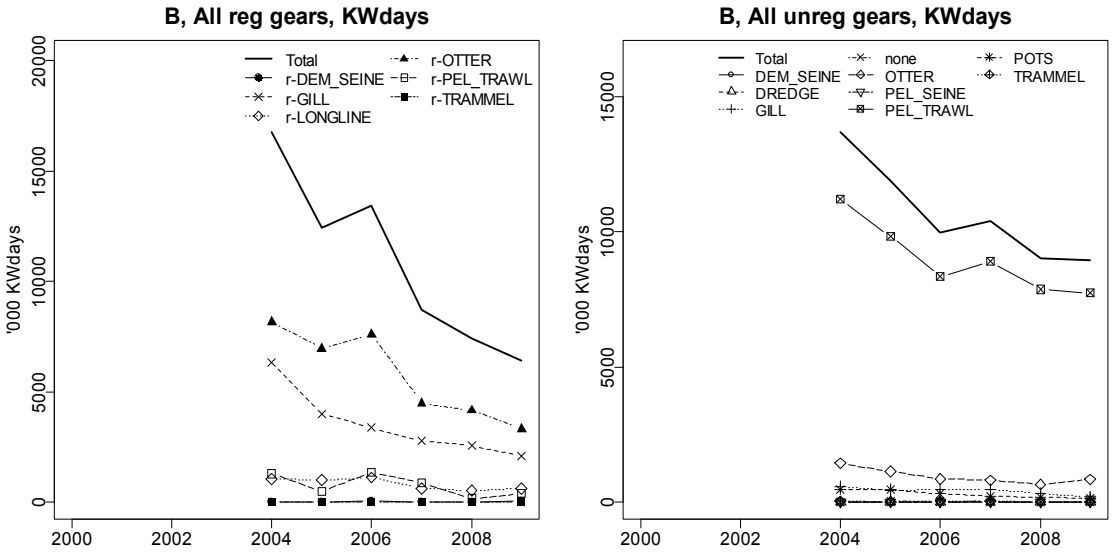

Figure 4.2.3. Area B Baltic: Trend in nominal effort by gear types 2004-2009 (kW *days at sea). Left: Regulated gears. Right: Unregulated gears. **Note that data from Poland are only available from 2004 to 2009. Therefore, effort trends are shown from 2004 onwards. In addition, there are only limited data from Estonia and no data from Finland.**

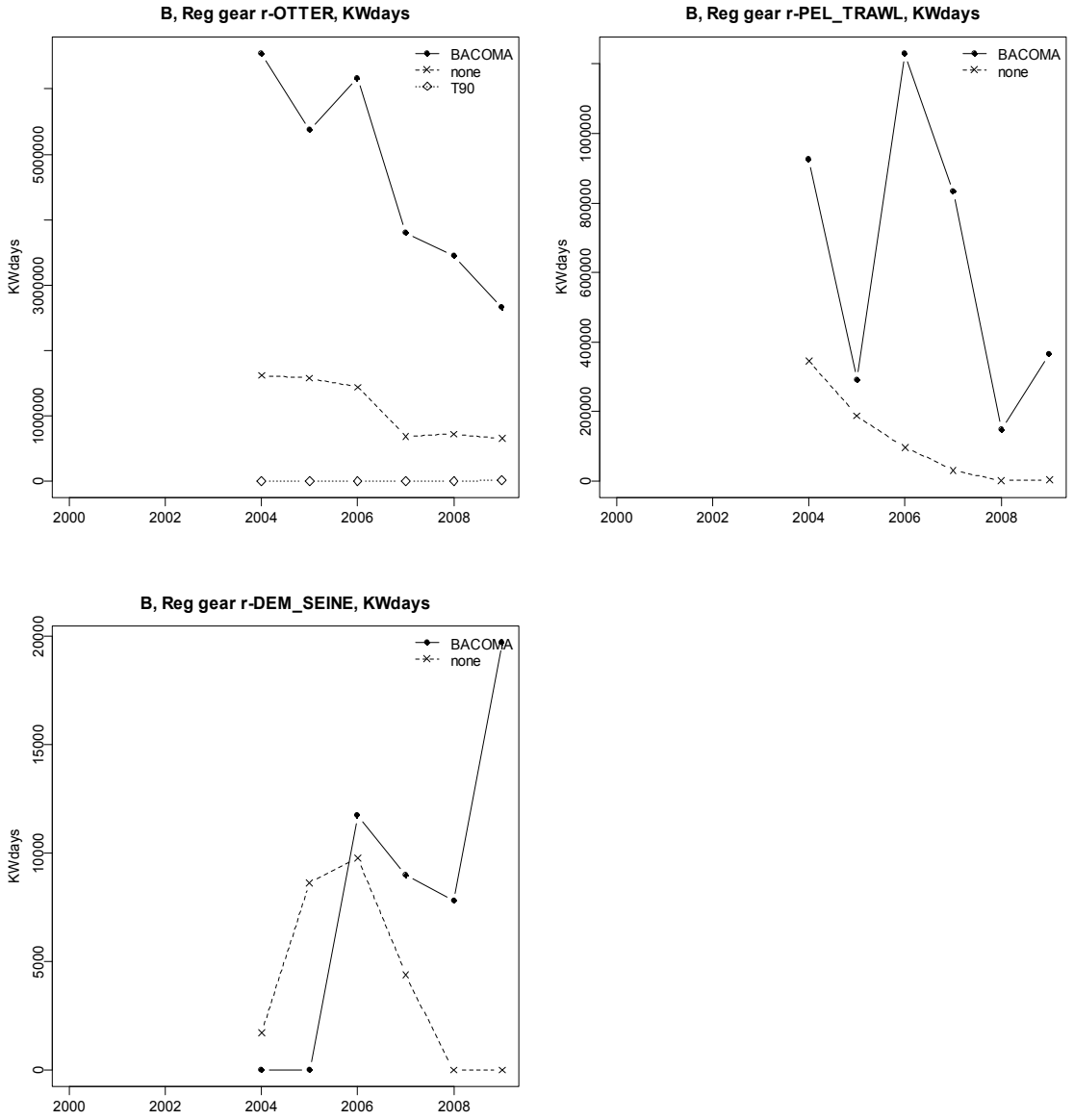

Figure 4.2.4. Area B Baltic: Trend in nominal effort by special conditions, 2004-2009 kW *days at sea). **Note that data from Poland are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2009. In addition, there are only limited data from Estonia and no data from Finland.**

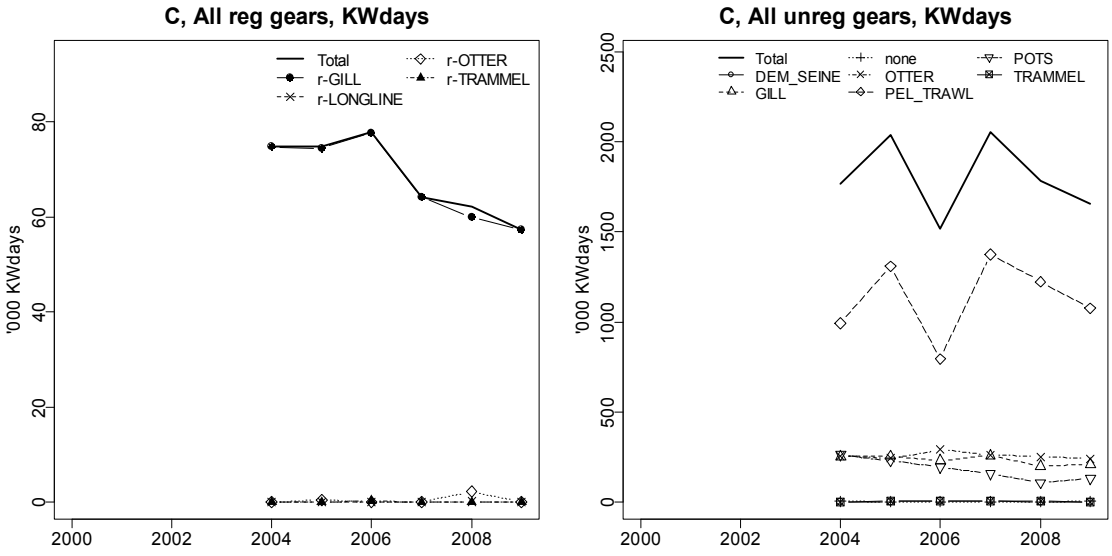

Figure 4.2.5. Area C Baltic: Trend in nominal effort by gear types 2004-2009 (kW *days at sea). Left: Regulated gears. Right: Unregulated gears. **Note that data from Poland are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2009. In addition, there are only limited data from Estonia and no data from Finland.**

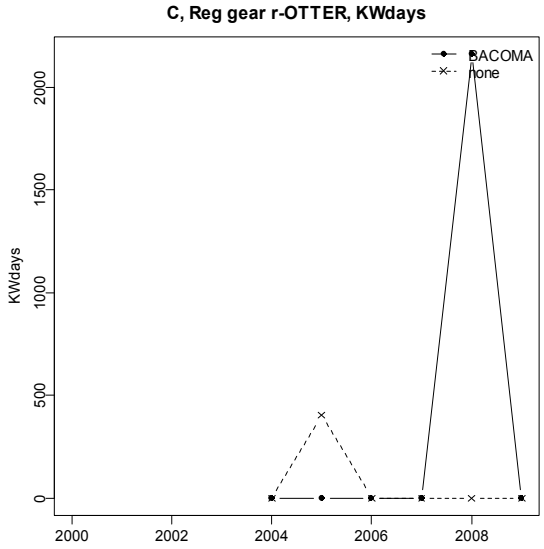

Figure 4.2.6. Area C Baltic: Trend in nominal effort by special conditions, 2004-2009 (kW *days at sea). **Note that data from Poland are only available from 2004 onwards. Therefore, effort trends are shown from 2004 to 2009. In addition, there are only limited data from Estonia and no data from Finland.**

4.3. Trends in Baltic cod catch estimates in weight and numbers at age by gear category, sub-area and member state 2003 - 2009

The following tables list the landings and discards for cod by gear category, sub-area and member state (Table 4.3.1) as well as aggregated over member states (Table 4.3.2). Discard rates per year, gear category, sub-area and country can be found in table 4.3.3 and aggregated over member states in table 4.3.4. A detailed list of catches and discard estimates by age can be found in Table 4.3.5. Figures on landings and discards for the most important gear categories catching cod were also provided (Figure 4.3.1). A full set of figures for all gear categories will be made available on the web.

The over-riding problem affecting this section is the poor quality of discard data especially in the minor gear categories and non-regulated gears as already outlined in section 3.9. In addition, data from Poland are only available from 2004 onwards. Therefore, for the analyses of catch and discard trends year 2003 had to be excluded.

The overall landings of Baltic cod in 2009 were 7.5% lower compared to 2004 (Table 4.3.2). Discards fluctuate around low values without trend over years. Most cod landings stem from areas A and B. Area C only plays a very limited role according to available data (landings 2009 A+B = 55792 tonnes; landings 2009 C = 34 tonnes (<0.1%)).

Discard rates for cod are highest for area B followed by area A (Table 4.3.3). For area C hardly any discard data are available. This probably reflects the distribution of the cod stock.. Discard rates were in general higher for otter trawls, demersal seines and pelagic trawls (up to 28% in sub-area A, however, <15% from 2005 onwards in most cases) compared to gillnets (<10%). Discard rates amongst member states are generally of the same order of magnitude. In area B discard rates for r-Otter are significantly higher in some years for Sweden, Germany and Poland compared to the other countries. Unfortunately a comparison between BACOMA trawls and non-BACOMA trawls was not possible due to the inability to distinguish between vessels equipped with BACOMA trawls and vessels not equipped with BACOMA-trawls especially for the years before 2005. Such a comparison would have been helpful but relies on the submission of detailed information from all member states.

A ranking of gear categories according to cod catches in the different sub-areas can be found in section 4.5.

Table 4.3.1: Landings (t) and discards (t) for cod in 2003-2009 by gear category, area and member state. Data qualities are summarised in section 3.2. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 3.6). Gear types without "r" are non-regulated gears. **NOTE: data from Poland are only available from 2004 onwards**

REG_AREA	REG_GEAR	SPECON	COUNTRY	2003 L	2003 D	2004 L	2004 D	2005 L	2005 D	2006 L	2006 D	2007 L	2007 D	2008 L	2008 D	2009 L	2009 D
A	DEM_SEINE	none	DEN			0	0	0	0	6	0	0	0				
A	DEM_SEINE	none	POL			0	0					0	0				
A	DREDGE	none	DEN	8	0												
A	GILL	none	DEN	105	0	56	0	258	4	122	0	119	0	20	0	12	0
A	GILL	none	EST							78	0	52	0	112	0		
A	GILL	none	GER	6	0	0	0	22	0	21	0	17	0	4	0	1	0
A	GILL	none	POL			9	0	1	0	1	0	5	0	3	0	1	0
A	GILL	none	SWE	0	0	0	0	1	0	0	0	1	0	0	0	1	0
A	none	none	DEN	2952	0	2782	0	426	0	808	0	99	0	52	0	24	0
A	none	none	GER	7	0	3	0	18	0	34	0	9	0	3	0	3	0
A	none	none	SWE	2	0	1	0	23	0	7	0	35	0	15	0	6	0
A	OTTER	none	DEN	99	0	72	0	121	0	122	0	49	0	22	0	23	0
A	OTTER	none	GER	54	0	21	0	77	0	60	0	39	0	57	0	33	0
A	OTTER	none	POL			3	0	3	0	1	0	1	0	0	0		
A	OTTER	none	SWE	0	0	1	0	0	0	1	0	0	0			0	0
A	PEL_TRAWL	none	DEN	34	0	35	0	94	0	88	0	46	0	27	0	19	0
A	PEL_TRAWL	none	EST									10	0				
A	PEL_TRAWL	none	GER	22	0	26	0	65	0	83	0	50	0	47	0	17	0
A	PEL_TRAWL	none	LAT									11	0			0	0
A	PEL_TRAWL	none	POL			10	0	35	0	40	0	9	0	16	0	0	0
A	PEL_TRAWL	none	SWE	66	0	60	1	71	0	53	0	31	0	27	0	23	0
A	POTS	none	DEN					268	0	83	0	174	0	64	0	58	0
A	POTS	none	GER			2	0	0	0	2	0	0	0	1	0	4	0
A	POTS	none	POL			0	0			1	0						
A	POTS	none	SWE	4	0	3	0	3	0	4	0	6	0	1	0	0	0
A	r-BEAM	BACOMA	GER											9	0		
A	r-BEAM	none	GER	1	0												
A	r-DEM_SEINE	BACOMA	GER							51	0	143	0	250	0	194	0
A	r-DEM_SEINE	none	DEN	1351	80	1318	81	1045	67	1339	64	1425	136	1222	2	581	9
A	r-DEM_SEINE	none	GER			6	0	37	4								
A	r-GILL	none	DEN	1504	21	1444	15	2998	125	2310	0	2098	0	1865	1	1398	74
A	r-GILL	none	EST													191	8
A	r-GILL	none	GER	1055	16	624	13	1140	45	1744	0	1699	0	1534	0	874	87
A	r-GILL	none	LAT	124	1	247	2	406	19	580	0	90	0	30	0	23	1
A	r-GILL	none	POL			316	7	449	18	436	0	884	0	641	0	266	36
A	r-GILL	none	SWE	1315	21	1217	18	1151	46	1063	0	1153	0	1245	2	946	39
A	r-LONGLINE	none	DEN	352	4	309	1	718	36	478	0	413	0	131	0	123	1
A	r-LONGLINE	none	GER	15	0	24	0	59	3	32	0	20	0	20	0	13	0
A	r-LONGLINE	none	LIT					8	0								
A	r-LONGLINE	none	POL			33	0	258	12	128	0	265	0	78	0	10	0
A	r-LONGLINE	none	SWE	29	0	113	3	204	7	100	0	54	0	58	0	157	0
A	r-OTTER	BACOMA	GER							4944	332	4941	319	3155	231	2623	300
A	r-OTTER	BACOMA	LAT	2	0			57	0	1	0	173	13				
A	r-OTTER	BACOMA	POL			129	13	309	0	177	13	1182	78	611	37	238	20
A	r-OTTER	BACOMA	SWE	642	0	755	40	634	2	1217	61	1525	132	1256	51	879	91
A	r-OTTER	none	DEN	7821	50	7748	7	7273	17	6441	5	6921	9	5502	11	5353	10
A	r-OTTER	none	GER	3673	1460	3685	320	4670	504	22	0	9	0	18	0	4	0
A	r-OTTER	none	LIT					129	0	42	0						
A	r-OTTER	none	SWE	227	40												
A	r-PEL_TRAWL	BACOMA	GER							76	0	187	0	5	0		
A	r-PEL_TRAWL	BACOMA	POL					27	0	2	0	3	0				
A	r-PEL_TRAWL	BACOMA	SWE			8	0	5	0	7	0			2	0		
A	r-PEL_TRAWL	none	DEN	49	1	23	0	59	0	98	0	19	0	7	0	23	0
A	r-PEL_TRAWL	none	GER	44	0	11	0	35	0	0	0						
A	r-PEL_TRAWL	none	LIT					10	0								
A	r-TRAMMEL	none	DEN	274	3	240	3	461	14	479	0	456	0	454	0	286	13
A	r-TRAMMEL	none	GER	2	0	2	0	16	0	29	0	88	0	96	0	61	8
A	r-TRAMMEL	none	SWE	24	1	24	0	65	5	80	0	36	0	47	0	47	1
A	TRAMMEL	none	DEN	2	0	4	0	18	0	4	0	5	0	6	0	0	0
A	TRAMMEL	none	GER					3	0	2	0	3	0	1	0	0	0
A	TRAMMEL	none	POL			0	0										
A	TRAMMEL	none	SWE	2	0												

Table 4.3.1 continued

B	DREDGE	none	DEN													6	0		
B	GILL	none	DEN	21	0	47	0	35	0	54	0	42	0	7	0	1	0		
B	GILL	none	EST							266	0	229	0	145	0				
B	GILL	none	POL			6	0	2	0	2	0	1	0	1	0	2	0		
B	GILL	none	SWE					0	0	0	0	0	0	0	0	0	0		
B	none	none	DEN	924	0	1057	0	41	0	82	0	9	0	3	0				
B	none	none	SWE	2	0	5	0	3	0	11	0	8	0	7	0	4	0		
B	OTTER	none	DEN	46	0	60	0	66	0	33	0	10	0	3	0	6	1		
B	OTTER	none	EST							25	0	62	0						
B	OTTER	none	GER	0	0									0	0	6	0		
B	OTTER	none	LAT	5	0														
B	OTTER	none	POL			38	0	32	0	8	0	3	0	2	0				
B	OTTER	none	SWE	10	0	24	0	22	0	15	0	16	0	16	0	22	2		
B	PEL_TRAWL	none	DEN	26	0	29	0	80	0	21	0	24	0	6	0	13	2		
B	PEL_TRAWL	none	EST							239	0	486	0	582	0				
B	PEL_TRAWL	none	GER	8	0	5	0					0	0						
B	PEL_TRAWL	none	LAT	26	0	57	0	69	0	56	0	207	0	149	0	177	25		
B	PEL_TRAWL	none	POL			321	0	352	0	262	0	133	0	143	0	58	8		
B	PEL_TRAWL	none	SWE	29	0	102	0	96	0	36	0	100	0	79	0	96	12		
B	POTS	none	DEN					0	0			0	0						
B	POTS	none	POL			0	0	0	0	1	0								
B	POTS	none	SWE	0	0	0	0	0	0	0	0	0	0	1	0	12	1		
B	r-DEM_SEINE	BACOMA	GER							67	0	58	0	94	0	339	0		
B	r-DEM_SEINE	none	DEN	7	0	0	0	89	0	82	0	45	0						
B	r-DEM_SEINE	none	GER			1	0												
B	r-GILL	none	DEN	845	18	595	13	605	15	719	28	729	45	871	30	789	30		
B	r-GILL	none	EST													162	4		
B	r-GILL	none	GER	49	1	19	1	172	5	16	0	2	0	8	0	19	0		
B	r-GILL	none	LAT	3075	75	3380	146	2106	70	1821	70	1657	194	1964	73	2302	73		
B	r-GILL	none	LIT					442	14	1302	63	516	20	230	5	845	38		
B	r-GILL	none	POL			5217	158	3496	109	3582	154	2048	116	2788	65	3448	151		
B	r-GILL	none	SWE	4015	98	2894	40	1864	57	1629	66	1517	78	1969	72	1835	98		
B	r-LONGLINE	none	DEN	300	7	238	2	378	5	319	0	192	0	113	0	89	6		
B	r-LONGLINE	none	GER			0	0	1	0	0	0			0	0				
B	r-LONGLINE	none	LIT					16	0	180	0	152	0	30	0	56	2		
B	r-LONGLINE	none	POL			2122	26	1804	25	2553	0	1371	0	913	3	514	37		
B	r-LONGLINE	none	SWE	943	25	1197	16	951	19	896	0	537	0	724	1	621	48		
B	r-OTTER	BACOMA	GER							1199	220	596	110	1960	123	1991	260		
B	r-OTTER	BACOMA	LAT	766	41	623	26	931	23	1603	106	1043	39	1658	156	1776	130		
B	r-OTTER	BACOMA	LIT													2019	201		
B	r-OTTER	BACOMA	POL			5366	280	5291	358	6282	704	3399	506	4466	272	5478	491		
B	r-OTTER	BACOMA	SWE	3479	509	7131	426	4502	649	5357	1334	6108	1459	5792	665	6830	990		
B	r-OTTER	none	DEN	4619	66	3427	65	2964	75	6443	365	4539	125	5842	160	6683	157		
B	r-OTTER	none	GER	1240	71	1039	36	1570	72					26	1	34	1		
B	r-OTTER	none	LIT					5999	245	3471	233	2213	115	3210	210	2148	193		
B	r-OTTER	none	SWE	2827	537											156	21		
B	r-OTTER	T90	SWE													77	12		
B	r-PEL_TRAWL	BACOMA	EST													471	41		
B	r-PEL_TRAWL	BACOMA	GER							728	124	870	94	260	12	842	78		
B	r-PEL_TRAWL	BACOMA	LAT	31	0	348	9	6	0	140	28	751	86	32	3	122	10		
B	r-PEL_TRAWL	BACOMA	LIT													202	17		
B	r-PEL_TRAWL	BACOMA	POL			1188	20	235	0	1111	22	1378	21	34	2	261	8		
B	r-PEL_TRAWL	BACOMA	SWE			494	26	321	0	1596	393	1226	227	162	32	394	46		
B	r-PEL_TRAWL	none	DEN	154	0	394	3	174	6	543	0	356	0	14	0	91	0		
B	r-PEL_TRAWL	none	GER			1530	22	578	22										
B	r-PEL_TRAWL	none	LIT					143	4	827	0	1784	0			218	0		
B	r-TRAMMEL	none	DEN	10	0	7	0	2	0	4	0	36	0	26	0	68	0		
B	r-TRAMMEL	none	SWE	2	0	2	0	1	0	0	0	0	0	1	0	0	0		
B	TRAMMEL	none	DEN							0	0	1	0						
B	TRAMMEL	none	SWE	0	0	1	0	0	0	0	0			0	0				
C	GILL	none	EST							0	0								
C	GILL	none	SWE					1	0	0	0								
C	OTTER	none	SWE			0	0	0	0	4	0								
C	PEL_TRAWL	none	DEN	0	0														
C	r-GILL	none	SWE	14	0	12	0	10	0	10	0	13	0	15	0	34	2		
C	r-LONGLINE	none	SWE											0	0				
C	r-OTTER	BACOMA	SWE											1	0				
Grand total				45340	3146	60340	1839	59180	2701	67092	4385	59022	3922	53067	2220	55826	3894		

Table 4.3.2: Landings (t) and discards (t) for cod in 2003-2009 by gear category and area. Data qualities are summarised in section 3.2. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 3.6). Gear types without "r" are non-regulated gears. **NOTE data from Poland were only available from 2004 onwards.**

REG_AREA	REG_GEAR	SPECON	2003 L	2003 D	2004 L	2004 D	2005 L	2005 D	2006 L	2006 D	2007 L	2007 D	2008 L	2008 D	2009 L	2009 D
A	DEM_SEINE	none			0	0	0	0	6	0	0	0				
A	DREDGE	none	8	0												
A	GILL	none	111	0	65	0	282	4	222	0	194	0	139	0	15	0
A	none	none	2961	0	2786	0	467	0	849	0	143	0	70	0	33	0
A	OTTER	none	153	0	97	0	201	0	184	0	89	0	79	0	56	0
A	PEL_TRAWL	none	122	0	131	1	265	0	264	0	157	0	117	0	59	0
A	POTS	none	4	0	5	0	271	0	90	0	180	0	66	0	62	0
A	r-BEAM	BACOMA											9	0		
A		none	1	0												
A	r-DEM_SEINE	BACOMA							51	0	143	0	250	0	194	0
A		none	1351	80	1324	81	1082	71	1339	64	1425	136	1222	2	581	9
A	r-GILL	none	3998	59	3848	55	6144	253	6133	0	5924	0	5315	3	3698	245
A	r-LONGLINE	none	396	4	479	4	1247	58	738	0	752	0	287	0	303	1
A	r-OTTER	BACOMA	644	0	884	53	1000	2	6339	406	7821	542	5022	319	3740	411
A		none	11721	1550	11433	327	12072	521	6505	5	6930	9	5520	11	5357	10
A	r-PEL_TRAWL	BACOMA			8	0	32	0	85	0	190	0	7	0		
A		none	93	1	34	0	104	0	98	0	19	0	7	0	23	0
A	r-TRAMMEL	none	300	4	266	3	542	19	588	0	580	0	597	0	394	22
A	TRAMMEL	none	4	0	4	0	21	0	6	0	8	0	7	0	0	0
B	DREDGE	none											6	0		
B	GILL	none	21	0	53	0	37	0	322	0	272	0	153	0	3	0
B	none	none	926	0	1062	0	44	0	93	0	17	0	10	0	4	0
B	OTTER	none	61	0	122	0	120	0	81	0	91	0	21	0	34	3
B	PEL_TRAWL	none	89	0	514	0	597	0	614	0	950	0	959	0	344	47
B	POTS	none	0	0	0	0	0	0	1	0	0	0	1	0	12	1
B	r-DEM_SEINE	BACOMA							67	0	58	0	94	0	339	0
B		none	7	0	1	0	89	0	82	0	45	0				
B	r-GILL	none	7984	192	12105	358	8685	270	9069	381	6469	453	7830	245	9400	394
B	r-LONGLINE	none	1243	32	3557	44	3150	49	3948	0	2252	0	1780	4	1280	93
B	r-OTTER	BACOMA	4245	550	13120	732	10724	1030	14441	2364	11146	2114	13876	1216	18094	2072
B		none	8686	674	4466	101	10533	392	9914	598	6752	240	9078	371	9021	372
B		T90													77	12
B	r-PEL_TRAWL	BACOMA	31	0	2030	55	562	0	3575	567	4225	428	488	49	2292	200
B		none	154	0	1924	25	895	32	1370	0	2140	0	14	0	309	0
B	r-TRAMMEL	none	12	0	9	0	3	0	4	0	36	0	27	0	68	0
B	TRAMMEL	none	0	0	1	0	0	0	0	0	1	0	0	0		
C	GILL	none					1	0	0	0						
C	OTTER	none			0	0	0	0	4	0						
C	PEL_TRAWL	none	0	0												
C	r-GILL	none	14	0	12	0	10	0	10	0	13	0	15	0	34	2
C	r-LONGLINE	none											0	0		
C	r-OTTER	BACOMA											1	0		
Total t			45340	3146	60340	1839	59180	2701	67092	4385	59022	3922	53067	2220	55826	3894

Table 4.3.3: Discard rates for cod 2003-2009 by gear category, area and country. Data qualities are summarised section 3.2. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 3.6). Gear types without "r" are non-regulated gears. **NOTE: data from Poland were only available from 2004 onwards.**

REG_AREA	REG_GEAR	SPECON	COUNTRY	2003	2004	2005	2006	2007	2008	2009
A	DEM_SEINE	none	DEN	0	0	0	0	0	0	0
A	DEM_SEINE	none	POL	0	0	0	0	0	0	0
A	DREDGE	none	DEN	0	0	0	0	0	0	0
A	GILL	none	DEN	0	0	0.02	0	0	0	0
A	GILL	none	EST	0	0	0	0	0	0	0
A	GILL	none	GER	0	0	0	0	0	0	0
A	GILL	none	POL	0	0	0	0	0	0	0
A	GILL	none	SWE	0	0	0	0	0	0	0
A	none	none	DEN	0	0	0	0	0	0	0
A	none	none	GER	0	0	0	0	0	0	0
A	none	none	SWE	0	0	0	0	0	0	0
A	OTTER	none	DEN	0	0	0	0	0	0	0
A	OTTER	none	GER	0	0	0	0	0	0	0
A	OTTER	none	POL	0	0	0	0	0	0	0
A	OTTER	none	SWE	0	0	0	0	0	0	0
A	PEL_TRAWL	none	DEN	0	0	0	0	0	0	0
A	PEL_TRAWL	none	EST	0	0	0	0	0	0	0
A	PEL_TRAWL	none	GER	0	0	0	0	0	0	0
A	PEL_TRAWL	none	LAT	0	0	0	0	0	0	0
A	PEL_TRAWL	none	POL	0	0	0	0	0	0	0
A	PEL_TRAWL	none	SWE	0	0.02	0	0	0	0	0
A	POTS	none	DEN	0	0	0	0	0	0	0
A	POTS	none	GER	0	0	0	0	0	0	0
A	POTS	none	POL	0	0	0	0	0	0	0
A	POTS	none	SWE	0	0	0	0	0	0	0
A	r-BEAM	BACOMA	GER	0	0	0	0	0	0	0
A	r-BEAM	none	GER	0	0	0	0	0	0	0
A	r-DEM_SEINE	BACOMA	GER	0	0	0	0	0	0	0
A	r-DEM_SEINE	none	DEN	0.06	0.06	0.06	0.05	0.09	0.00	0.02
A	r-DEM_SEINE	none	GER	0	0	0.10	0	0	0	0
A	r-GILL	none	DEN	0.01	0.01	0.04	0	0	0.00	0.05
A	r-GILL	none	EST	0	0.0	0	0	0	0	0.04
A	r-GILL	none	GER	0.01	0.02	0.04	0	0	0	0.09
A	r-GILL	none	LAT	0.01	0.01	0.04	0	0	0	0.04
A	r-GILL	none	POL	0	0.02	0.04	0	0	0	0.12
A	r-GILL	none	SWE	0.02	0.01	0.04	0	0	0.00	0.04
A	r-LONGLINE	none	DEN	0.01	0	0.05	0	0	0	0.01
A	r-LONGLINE	none	GER	0	0	0.05	0	0	0	0
A	r-LONGLINE	none	LIT	0	0	0	0	0	0	0
A	r-LONGLINE	none	POL	0	0	0.04	0	0	0	0
A	r-LONGLINE	none	SWE	0	0.03	0.03	0	0	0	0

Table 4.3.3 continued

A	r-OTTER	BACOMA	GER	0	0	0	0.06	0.06	0.07	0.10
A	r-OTTER	BACOMA	LAT	0	0	0	0	0.07	0	0
A	r-OTTER	BACOMA	POL	0	0.09	0	0.07	0.06	0.06	0.08
A	r-OTTER	BACOMA	SWE	0	0.05	0	0.05	0.08	0.04	0.09
A	r-OTTER	none	DEN	0.01	0	0	0.00	0.00	0.00	0.00
A	r-OTTER	none	GER	0.28	0.08	0.10	0	0	0	0
A	r-OTTER	none	LIT	0	0	0	0	0	0	0
A	r-OTTER	none	SWE	0.15	0	0	0	0	0	0
A	r-PEL_TRAWL	BACOMA	GER	0	0	0	0	0	0	0
A	r-PEL_TRAWL	BACOMA	POL	0	0	0	0	0	0	0
A	r-PEL_TRAWL	BACOMA	SWE	0	0	0	0	0	0	0
A	r-PEL_TRAWL	none	DEN	0.02	0	0	0	0	0	0
A	r-PEL_TRAWL	none	GER	0	0	0	0	0	0	0
A	r-PEL_TRAWL	none	LIT	0	0	0	0	0	0	0
A	r-TRAMMEL	none	DEN	0.01	0.01	0.03	0	0	0	0.04
A	r-TRAMMEL	none	GER	0	0	0	0	0	0	0.12
A	r-TRAMMEL	none	SWE	0.04	0	0.07	0	0	0	0.02
A	TRAMMEL	none	DEN	0	0	0	0	0	0	0
A	TRAMMEL	none	GER	0	0	0	0	0	0	0
A	TRAMMEL	none	POL	0	0	0	0	0	0	0
A	TRAMMEL	none	SWE	0	0	0	0	0	0	0
B	DREDGE	none	DEN	0	0	0	0	0	0	0
B	GILL	none	DEN	0	0	0	0	0	0	0
B	GILL	none	EST	0	0	0	0	0	0	0
B	GILL	none	POL	0	0	0	0	0	0	0
B	GILL	none	SWE	0	0	0	0	0	0	0
B	none	none	DEN	0	0	0	0	0	0	0
B	none	none	SWE	0	0	0	0	0	0	0
B	OTTER	none	DEN	0	0	0	0	0	0	0.14
B	OTTER	none	EST	0	0	0	0	0	0	0
B	OTTER	none	GER	0	0	0	0	0	0	0
B	OTTER	none	LAT	0	0	0	0	0	0	0
B	OTTER	none	POL	0	0	0	0	0	0	0
B	OTTER	none	SWE	0	0	0	0	0	0	0.08
B	PEL_TRAWL	none	DEN	0	0	0	0	0	0	0.13
B	PEL_TRAWL	none	EST	0	0	0	0	0	0	0
B	PEL_TRAWL	none	GER	0	0	0	0	0	0	0
B	PEL_TRAWL	none	LAT	0	0	0	0	0	0	0.12
B	PEL_TRAWL	none	POL	0	0	0	0	0	0	0.12
B	PEL_TRAWL	none	SWE	0	0	0	0	0	0	0.11

Table 4.3.3 continued

B	POTS	none	DEN	0	0	0	0	0	0	0
B	POTS	none	POL	0	0	0	0	0	0	0
B	POTS	none	SWE	0	0	0	0	0	0	0.08
B	r-DEM_SEINE	BACOMA	GER	0	0	0	0	0	0	0
B	r-DEM_SEINE	none	DEN	0	0	0	0	0	0	0
B	r-DEM_SEINE	none	GER	0	0	0	0	0	0	0
B	r-GILL	none	DEN	0.02	0.02	0.02	0.04	0.06	0.03	0.04
B	r-GILL	none	EST	0	0	0	0	0	0	0.02
B	r-GILL	none	GER	0.02	0.05	0.03	0	0	0	0
B	r-GILL	none	LAT	0.02	0.04	0.03	0.04	0.10	0.04	0.03
B	r-GILL	none	LIT	0	0	0.03	0.05	0.04	0.02	0.04
B	r-GILL	none	POL	0	0.03	0.03	0.04	0.05	0.02	0.04
B	r-GILL	none	SWE	0.02	0.01	0.03	0.04	0.05	0.04	0.05
B	r-LONGLINE	none	DEN	0.02	0.01	0.01	0	0	0	0.06
B	r-LONGLINE	none	GER	0	0	0	0	0	0	0
B	r-LONGLINE	none	LIT	0	0	0	0	0	0	0.03
B	r-LONGLINE	none	POL	0	0.01	0.01	0	0	0.00	0.07
B	r-LONGLINE	none	SWE	0.03	0.01	0.02	0	0	0.00	0.07
B	r-OTTER	BACOMA	GER	0	0	0	0.16	0.16	0.06	0.12
B	r-OTTER	BACOMA	LAT	0.05	0.04	0.02	0.06	0.04	0.09	0.07
B	r-OTTER	BACOMA	LIT	0	0	0	0	0	0	0.09
B	r-OTTER	BACOMA	POL	0	0.05	0.06	0.10	0.13	0.06	0.08
B	r-OTTER	BACOMA	SWE	0.13	0.06	0.13	0.20	0.19	0.10	0.13
B	r-OTTER	none	DEN	0.01	0.02	0.02	0.05	0.03	0.03	0.02
B	r-OTTER	none	GER	0.05	0.03	0.04	0	0	0.04	0.03
B	r-OTTER	none	LIT	0	0	0.04	0.06	0.05	0.06	0.08
B	r-OTTER	none	SWE	0.16	0	0	0	0	0	0.12
B	r-OTTER	T90	SWE	0	0	0	0	0	0	0.13
B	r-PEL_TRAWL	BACOMA	EST	0	0	0	0	0	0	0.08
B	r-PEL_TRAWL	BACOMA	GER	0	0	0	0.15	0.10	0.04	0.08
B	r-PEL_TRAWL	BACOMA	LAT	0	0.03	0	0.17	0.10	0.09	0.08
B	r-PEL_TRAWL	BACOMA	LIT	0	0	0	0	0	0	0.08
B	r-PEL_TRAWL	BACOMA	POL	0	0.02	0	0.02	0.02	0.06	0.03
B	r-PEL_TRAWL	BACOMA	SWE	0	0.05	0	0.20	0.16	0.16	0.10
B	r-PEL_TRAWL	none	DEN	0	0.01	0.03	0	0	0	0
B	r-PEL_TRAWL	none	GER	0	0.01	0.04	0	0	0	0
B	r-PEL_TRAWL	none	LIT	0	0	0.03	0	0	0	0
B	r-TRAMMEL	none	DEN	0	0	0	0	0	0	0
B	r-TRAMMEL	none	SWE	0	0	0	0	0	0	0
B	TRAMMEL	none	DEN	0	0	0	0	0	0	0
B	TRAMMEL	none	SWE	0	0	0	0	0	0	0
C	GILL	none	EST	0	0	0	0	0	0	0
C	GILL	none	SWE	0	0	0	0	0	0	0
C	OTTER	none	SWE	0	0	0	0	0	0	0
C	PEL_TRAWL	none	DEN	0	0	0	0	0	0	0
C	r-GILL	none	SWE	0	0	0	0	0	0	0.06
C	r-LONGLINE	none	SWE	0	0	0	0	0	0	0
C	r-OTTER	BACOMA	SWE	0	0	0	0	0	0	0

Table 4.3.4: Discard rates for cod 2003-2009 by gear category and area. Data qualities are summarised in section 3.2. An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 3.6). Gear types without "r" are non-regulated gears. **NOTE: data from Poland were only available from 2004 onwards.**

REG_AREA	REG_GEAR	SPECON	2003	2004	2005	2006	2007	2008	2009
A	DEM_SEINE	none	0	0	0	0	0	0	0
A	DREDGE	none	0	0	0	0	0	0	0
A	GILL	none	0	0	0.01	0	0	0	0
A	none	none	0	0	0	0	0	0	0
A	OTTER	none	0	0	0	0	0	0	0
A	PEL_TRAWL	none	0	0.01	0	0	0	0	0
A	POTS	none	0	0	0	0	0	0	0
A	r-BEAM	BACOMA	0	0	0	0	0	0	0
A	r-BEAM	none	0	0	0	0	0	0	0
A	r-DEM_SEINE	BACOMA	0	0	0	0	0	0	0
A	r-DEM_SEINE	none	0.06	0.06	0.06	0.05	0.09	0	0.02
A	r-GILL	none	0.01	0.01	0.04	0	0	0	0.06
A	r-LONGLINE	none	0.01	0.01	0.04	0	0	0	0
A	r-OTTER	BACOMA	0	0.06	0	0.06	0.06	0.06	0.1
A	r-OTTER	none	0.12	0.03	0.04	0	0	0	0
A	r-PEL_TRAWL	BACOMA	0	0	0	0	0	0	0
A	r-PEL_TRAWL	none	0.01	0	0	0	0	0	0
A	r-TRAMMEL	none	0.01	0.01	0.03	0	0	0	0.05
A	TRAMMEL	none	0	0	0	0	0	0	0
B	DREDGE	none	0	0	0	0	0	0	0
B	GILL	none	0	0	0	0	0	0	0
B	none	none	0	0	0	0	0	0	0
B	OTTER	none	0	0	0	0	0	0	0.08
B	PEL_TRAWL	none	0	0	0	0	0	0	0.12
B	POTS	none	0	0	0	0	0	0	0.08
B	r-DEM_SEINE	BACOMA	0	0	0	0	0	0	0
B	r-DEM_SEINE	none	0	0	0	0	0	0	0
B	r-GILL	none	0.02	0.03	0.03	0.04	0.07	0.03	0.04
B	r-LONGLINE	none	0.03	0.01	0.02	0	0	0	0.07
B	r-OTTER	BACOMA	0.11	0.05	0.09	0.14	0.16	0.08	0.1
B	r-OTTER	none	0.07	0.02	0.04	0.06	0.03	0.04	0.04
B	r-OTTER	T90	0	0	0	0	0	0	0.13
B	r-PEL_TRAWL	BACOMA	0	0.03	0	0.14	0.09	0.09	0.08
B	r-PEL_TRAWL	none	0	0.01	0.03	0	0	0	0
B	r-TRAMMEL	none	0	0	0	0	0	0	0
B	TRAMMEL	none	0	0	0	0	0	0	0
C	GILL	none	0	0	0	0	0	0	0
C	OTTER	none	0	0	0	0	0	0	0
C	PEL_TRAWL	none	0	0	0	0	0	0	0
C	r-GILL	none	0	0	0	0	0	0	0.06
C	r-LONGLINE	none	0	0	0	0	0	0	0
C	r-OTTER	BACOMA	0	0	0	0	0	0	0

Table 4.3.5: Cod landings (L) and discards (D) at ages 1-9 (‘000) by gear category and area 2003-2009. An “r” in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007. Gear types without an “r” are non-regulated gears. Data on age distribution were available for sub-areas A and B only. **NOTE: data from Poland were only available from 2004 onwards.**

REG_AREA	SPECIES	REG_GEAR	SPECON	AGE	2003_L	2003_D	2004_L	2004_D	2005_L	2005_D	2006_L	2006_D	2007_L	2007_D	2008_L	2008_D	2009_L	2009_D
A	COD	DEM_SEINE	none	1					0.001		0.502		0.006					
A	COD	DEM_SEINE	none	2					0.321		1.996		0.083					
A	COD	DEM_SEINE	none	3					0.092		2.729		0.075					
A	COD	DEM_SEINE	none	4					0.08		0.283		0.065					
A	COD	DEM_SEINE	none	5					0.011		0.056		0.017					
A	COD	DEM_SEINE	none	6					0.003		0.022		0.002					
A	COD	DEM_SEINE	none	7					0.002		0.011		0					
A	COD	DEM_SEINE	none	8					0		0.006		0					
A	COD	DEM_SEINE	none	9							0.002		0					
A	COD	DREDGE	none	1	1.239													
A	COD	DREDGE	none	2	9.417													
A	COD	DREDGE	none	3	1.089													
A	COD	DREDGE	none	4														
A	COD	DREDGE	none	5														
A	COD	DREDGE	none	6														
A	COD	DREDGE	none	7														
A	COD	DREDGE	none	8														
A	COD	DREDGE	none	9														
A	COD	GILL	none	1	3.367		3.235		14.237		3.752		1.258		0.368		0.408	0.006
A	COD	GILL	none	2	31.01		9.006		155.71		29.957		42.98		11.19		0.435	0.018
A	COD	GILL	none	3	29.512		25.531		41.284		99.269		42.928		24.123		1.235	0.007
A	COD	GILL	none	4	10.539		4.687		39.042		7.689		53.639		19.278		2.669	0
A	COD	GILL	none	5	2.489		1.412		7.959		3.687		11.729		15.904		1.695	0
A	COD	GILL	none	6	1.222		0.294		2.52		0.554		2.115		7.902		0.615	
A	COD	GILL	none	7	0.332		0.071		0.817		0.105		0.269		2.319		0.304	
A	COD	GILL	none	8	0.034		0		0.257		0.029		0.099		0.835		0.03	
A	COD	GILL	none	9					0.006		0.012		0.049		0.013		0	
A	COD	none	none	1	195.562		206.939		10.597		12.749		0.786		0.315		3.515	
A	COD	none	none	2	1176.279		675.406		191.321		113.703		28.535		6.354		4.802	
A	COD	none	none	3	712.154		1318.615		58.008		448.044		27.127		15.599		9.484	
A	COD	none	none	4	245.126		201.666		76.153		36.832		33.827		11.298		11.49	
A	COD	none	none	5	53.616		38.844		13.724		25.389		8.876		7.677		4.292	
A	COD	none	none	6	28.719		9.34		6.131		4.109		2.105		3.473		1.591	
A	COD	none	none	7	8.176		2.266		1.173		0.915		0.345		0.994		0.416	
A	COD	none	none	8	0.315		0.193		0.747		0.576		0.154		0.374		0.094	
A	COD	none	none	9					0.009		0.106		0.073		0.007		0.006	
A	COD	OTTER	none	1	21.786		9.926		6.976		0.282		0.081		0.018		1016.518	0.002
A	COD	OTTER	none	2	90.743		26.246		124.449		15.23		14.231		1.426		0.454	0.009
A	COD	OTTER	none	3	36.326		46.838		31.696		130.528		16.203		6.229		3.991	0.004
A	COD	OTTER	none	4	7.536		6.138		30.894		6.067		24.439		4.733		7.597	0
A	COD	OTTER	none	5	1.097		1.349		6.444		5.143		4.641		2.581		5.241	
A	COD	OTTER	none	6	0.585		0.304		1.78		0.738		1.346		1.101		1.506	
A	COD	OTTER	none	7	0.16		0.081		0.36		0.147		0.15		0.215		0.729	
A	COD	OTTER	none	8	0.005		0		0.18		0.136		0.098		0.155		0.14	
A	COD	OTTER	none	9					0.01		0.011		0.051		0.004			
A	COD	PEL_TRAWL	none	1	8.201		2.161	0.202	19.112		1.392		0.08		163.15		139.355	
A	COD	PEL_TRAWL	none	2	69.607		23.48	0.302	138.325		27.535		13.064		47.191		49.965	
A	COD	PEL_TRAWL	none	3	39.137		49.636	0.101	29.096		165.965		20.082		14.311		9.755	
A	COD	PEL_TRAWL	none	4	8.136		7.257		31.939		9.785		42.489		13.294		5.527	
A	COD	PEL_TRAWL	none	5	1.307		1.551		7.344		6.775		8.638		10.057		3.642	
A	COD	PEL_TRAWL	none	6	0.74		0.363		2.954		1.257		2.42		5.229		1.266	
A	COD	PEL_TRAWL	none	7	0.294		0.085		0.728		0.363		0.315		1.378		0.877	
A	COD	PEL_TRAWL	none	8	0.034		0.001		0.387		0.288		0.192		0.572		0.176	
A	COD	PEL_TRAWL	none	9					0.015		0.053		0.101		0			
A	COD	POTS	none	1					39.316		3.598		3.127		1.82		16.071	
A	COD	POTS	none	2					220.18		23.549		64.205		12.501		16.821	
A	COD	POTS	none	3					27.567		51.43		55.742		21.538		14.342	
A	COD	POTS	none	4					15.44		3.273		49.22		13.523		16.407	
A	COD	POTS	none	5					3.496		0.904		11.013		6.672		6.361	
A	COD	POTS	none	6					0.587		0.137		1.619		2.566		1.394	
A	COD	POTS	none	7					0.205		0.05		0.226		0.87		0.32	
A	COD	POTS	none	8					0.009		0.038		0.054		0.125		0.061	
A	COD	POTS	none	9					0.009		0.009		0.028		0.007		0	
A	COD	r-DEM_SEINE	none	1	141.798	57.83	95.238	33.495	83.986	98.499	31.738	28.074	6.235	252.374	8.144	6.91	10.966	5.78
A	COD	r-DEM_SEINE	none	2	671.326	142.27	325.636	153.42	781.996	105.029	195.954	111.83	351.521	196.09	110.552	1.41	16.69	11.609
A	COD	r-DEM_SEINE	none	3	439.22	45.88	819.498	55.411	158.968	30.537	1015.075	42.505	380.874	55.554	414.228	0.2	122.564	10.497
A	COD	r-DEM_SEINE	none	4	101.381	5.53	55.816	6.323	145.72	3.187	51.533	5.205	461.559	4.97	279.735	0.02	215.344	1.792
A	COD	r-DEM_SEINE	none	5	11.823	0.59	10.157	0.791	19.44	0.36	19.808	0.864	83.965	0.72	167.307		102.863	0.284
A	COD	r-DEM_SEINE	none	6	6.389	0.06	1.559	0.051	4.807	0.03	2.921	0.02	15.407	0.02	66.205		25.533	0.045
A	COD	r-DEM_SEINE	none	7	1.513		0.547		0.633		0.826		1.82		17.534		7.326	
A	COD	r-DEM_SEINE	none	8	0.11		0.001		0.359		0.39		0.614		2.662		0.752	
A	COD	r-DEM_SEINE	none	9					0.013		0.17		0.33		0.152		0	
A	COD	r-GILL	none	1	191.713	11.174	144.728		206.837	49.765	113.576	0.191	46.668	0.303	6.415	0.466	110.423	43.962
A	COD	r-GILL	none	2	1437.638	31.013	698.335		2741.824	38.752	909.536	0.166	934.455	0.752	226.955	1.832	162.818	164.276
A	COD	r-GILL	none	3	1027.16	4.077	1599.098		812.124	2.444	2936.589	0.069	1040.054	0.06	741.076	0.914	469.492	243.437
A	COD	r-GILL	none	4	350.883		315.254		790.595	0.045	307.782		1362.737		448.849	0.104	701.038	86.104
A	COD	r-GILL	none	5	70.184		70.641		196.639		157.931		374.782		350.324	0.007	350.007	5.129
A	COD	r-GILL	none	6	33.492		15.217		75.015		26.227		90.18		167.196		138.967	0.299
A	COD	r-GILL	none	7	11.118		3.759		27.219		6.373		13.849		52.805		53.882	

Table 4.3.5: continued

A	COD	r-GILL	none	8	0.664		0.259		9.644		1.923		4.363		19.767		10.976		
A	COD	r-GILL	none	9					0.307		0.828		1.871		0.275		1.089		
A	COD	r-LONGLINE	none	1	7.622		25.909		20.077		6.591		4.214		4.23		11.391		0.692
A	COD	r-LONGLINE	none	2	143.518		106.176		604.882		112.838		133.014		37.839		16.919		2.221
A	COD	r-LONGLINE	none	3	164.2		241.11		200.849		420.531		135.101		80.329		51.741		0.836
A	COD	r-LONGLINE	none	4	45.696		37.396		193.047		28.09		173.786		55.693		91.567		0.028
A	COD	r-LONGLINE	none	5	5.696		6.027		43.748		17.969		46.794		29.733		39.859		0.003
A	COD	r-LONGLINE	none	6	2.57		1.477		15.662		3.376		10.569		12.948		15.626		
A	COD	r-LONGLINE	none	7	0.557		0.393		7.363		0.64		1.997		3.98		5.372		
A	COD	r-LONGLINE	none	8	0.019		0.021		2.089		0.659		1.064		0.832		1.205		
A	COD	r-LONGLINE	none	9					0.065		0.048		0.469		0.04		0.072		
A	COD	r-OTTER	BACOMA	1							190.925	374.631	681.367	700.85	138.263	195.363	14.309		118.15
A	COD	r-OTTER	BACOMA	2						1.71	1509.086	300.3	2293.944	674.622	1489.189	438.133	272.286		310.083
A	COD	r-OTTER	BACOMA	3					8.768	3.419	3806.33	161.139	1764.361	72.631	2306.211	192.906	1194.768		367.205
A	COD	r-OTTER	BACOMA	4					64.01	0.57	95.523		1146.095	25.98	765.941	20.621	1096.295		132.903
A	COD	r-OTTER	BACOMA	5					56.995		34.134		44.341		213.853	0.708	272.874		8.158
A	COD	r-OTTER	BACOMA	6					29.813		2.378		14.93		8.533		84.253		1.378
A	COD	r-OTTER	BACOMA	7									0.536		4.162		11.296		
A	COD	r-OTTER	BACOMA	8					1.754				0.22		2.323		1.75		
A	COD	r-OTTER	BACOMA	9									0.59		0.882		1.297		
A	COD	r-OTTER	none	1	1132.676	932.936	640.812	415.127	418.881	707.1	118.419	4.773	41.697	15.832	53.625	18.221	322.178		15.312
A	COD	r-OTTER	none	2	6186.382	2416.389	3131.414	388.368	6673.821	528.751	1022.277	7.642	1667.457	11.596	677.274	17.986	464.318		17.115
A	COD	r-OTTER	none	3	3687.89	209.248	6348.471	44.898	1645.394	1.536	4501.082	2.741	1639.089	3.445	1464.901	5.586	1215.248		5.764
A	COD	r-OTTER	none	4	877.963	0.106	696.05	0.011	1423.472	0.247	244.705	0.37	2019.189	0.663	1005.707	1.209	1725.443		1.291
A	COD	r-OTTER	none	5	139.89	0.01	132.425		274.103	0.029	153.741	0.05	364.712	0.01	638.215	0.033	807.725		0.045
A	COD	r-OTTER	none	6	62.475		26.604		86.504		23.696		93.867		266.539		234.117		
A	COD	r-OTTER	none	7	17.595		8.021		24.926		4.815		8.608		68.581		74.155		
A	COD	r-OTTER	none	8	0.886		1.204		9.497	0.01	1.399		3.952		28.589		13.274		
A	COD	r-OTTER	none	9	0.013				0.145		0.522		1.649		0.219		0.593		
A	COD	r-PEL_TRAWL	BACOMA	1															
A	COD	r-PEL_TRAWL	BACOMA	2						0.029									
A	COD	r-PEL_TRAWL	BACOMA	3					0.884	0.225									
A	COD	r-PEL_TRAWL	BACOMA	4					6.265	0.008									
A	COD	r-PEL_TRAWL	BACOMA	5					2.137										
A	COD	r-PEL_TRAWL	BACOMA	6															
A	COD	r-PEL_TRAWL	BACOMA	7					0.147										
A	COD	r-PEL_TRAWL	BACOMA	8															
A	COD	r-PEL_TRAWL	BACOMA	9															
A	COD	r-PEL_TRAWL	none	1	14.175	0.629	3.25		0.994		9.189		0.346		0.01		5.444		
A	COD	r-PEL_TRAWL	none	2	54.646	1.754	12.207		70.232		37.824		5.203		0.98		6.113		
A	COD	r-PEL_TRAWL	none	3	19.297	0.245	17.649		20.587		56.597		4.94		1.131		5.6		
A	COD	r-PEL_TRAWL	none	4	4.119		2.827		16.877		3.829		5.498		0.843		6.205		
A	COD	r-PEL_TRAWL	none	5	0.457		0.297		4.253		0.949		1.188		0.846		2.232		
A	COD	r-PEL_TRAWL	none	6	0.088		0.085		1.038		0.108		0.221		0.41		0.516		
A	COD	r-PEL_TRAWL	none	7	0.007		0.011		0.292		0.025		0.023		0.114		0.134		
A	COD	r-PEL_TRAWL	none	8			0		0.112		0.01		0.007		0.055		0.042		
A	COD	r-PEL_TRAWL	none	9					0.001		0.004		0.003				0		
A	COD	r-TRAMMEL	none	1	7.666		3.688		6.236		2.473		0.396		0.567	0.046	2.901		11.44
A	COD	r-TRAMMEL	none	2	48.33		13.911		84.467		29.237		20.792		12.654	0.126	3.929		35.718
A	COD	r-TRAMMEL	none	3	38.652		53.046		40.106		196.202		30.394		47.133	0.078	13.083		21.735
A	COD	r-TRAMMEL	none	4	31.23		23.178		78.031		31.435		108.467		48.494	0.025	36.621		3.491
A	COD	r-TRAMMEL	none	5	11.701		11.493		20.939		34.764		34.99		52.878	0.003	40.037		0.107
A	COD	r-TRAMMEL	none	6	7.041		2.778		13.486		7.465		15.874		23.394		15.147		0.02
A	COD	r-TRAMMEL	none	7	2.541		0.693		4.962		1.586		1.941		7.499		9.534		
A	COD	r-TRAMMEL	none	8	0.071		0.068		2.279		0.416		1.033		5.269		2.53		
A	COD	r-TRAMMEL	none	9					0.027		0.109		0.376		0.129		0.301		
A	COD	TRAMMEL	none	1	0.275				0.279		0.006		0.011						
A	COD	TRAMMEL	none	2	2.173		0.098		4.641		0.135		0.996						
A	COD	TRAMMEL	none	3	0.859		0.784		2.005		1.597		1.252		0.094				
A	COD	TRAMMEL	none	4	0.321		0.492		3.422		0.286		2.148		0.307				
A	COD	TRAMMEL	none	5	0.056		0.204		0.704		0.278		0.395		0.569				
A	COD	TRAMMEL	none	6	0.033		0.046		0.352		0.071		0.124		0.288				
A	COD	TRAMMEL	none	7	0.008		0.008		0.108		0.019		0.008		0.073				
A	COD	TRAMMEL	none	8	0				0.043		0.014		0.005		0.058				
A	COD	TRAMMEL	none	9					0.002		0.003		0.003						
B	COD	DREDGE	none	1															
B	COD	DREDGE	none	2											0.043				
B	COD	DREDGE	none	3											0.858				
B	COD	DREDGE	none	4											2.858				
B	COD	DREDGE	none	5											2.557				
B	COD	DREDGE	none	6											0.751				
B	COD	DREDGE	none	7											0.099				
B	COD	DREDGE	none	8											0.006				
B	COD	DREDGE	none	9											0.001				
B	COD	GILL	none	1															
B	COD	GILL	none	2	0.613		1.789		3.784		77.795		2.309		4.438				
B	COD	GILL	none	3	11.417		17.892		8.067		217.982		28.305		31.327		0.168		
B	COD	GILL	none	4	6.644		18.115		13.437		54.028		105.637		38.255		0.479		
B	COD	GILL	none	5	0.776		3.364		5.564		12.28		59.596		29.497		0.417		
B	COD	GILL	none	6	0.115		0.926		0.633		2.264		7.789		12.166		0.13		

Table 4.3.5: continued

B	COD	GILL	none	7	0.025		0.333		0.162		0.32		1.183		1.902		0.026	
B	COD	GILL	none	8			0.059		0.018		0.179		0.834		0.151		0.003	
B	COD	GILL	none	9			0.013		0.006		0.059		0.095		0.028			
B	COD	none	none	1														
B	COD	none	none	2	97.408		60.055		3.432		11.003		0		0.062			
B	COD	none	none	3	483.702		356.007		17.15		59.082		1.352		1.055			
B	COD	none	none	4	214		355.396		19.589		20.97		7.69		1.905			
B	COD	none	none	5	51.617		64.172		4.194		4.791		4.736		1.648			
B	COD	none	none	6	12.931		16.392		0.419		0.995		0.704		0.635			
B	COD	none	none	7	3.721		5.482		0.145		0.194		0.159		0.125			
B	COD	none	none	8	0.366		0.809		0.02		0.085		0.104		0.033			
B	COD	none	none	9			0.096		0.006		0.033		0.015		0.008			
B	COD	OTTER	none	1														0.361
B	COD	OTTER	none	2	6.365		10.12		17.505		11.668		1.538		0.237		0.148	4.626
B	COD	OTTER	none	3	43.397		50.884		44.261		56.202		15.717		2.95		5.005	3.546
B	COD	OTTER	none	4	12.686		34.852		44.838		17.74		47.232		6.12		17	0.233
B	COD	OTTER	none	5	1.652		4.165		10.175		3.859		21.221		5.179		10.97	0
B	COD	OTTER	none	6	0.626		1.764		2.085		0.924		2.543		1.732		2.973	
B	COD	OTTER	none	7	0.218		0.767		0.853		0.329		0.336		0.294		0.617	
B	COD	OTTER	none	8	0.015		0.128		0.128		0.083		0.416		0.047		0.26	
B	COD	OTTER	none	9			0.023		0.048		0.045		0.038		0.015		0.047	
B	COD	PEL_TRAWL	none	1														1.269
B	COD	PEL_TRAWL	none	2	10.275		61.492		93.581		96.869		2.977		32.469		0.107	53.884
B	COD	PEL_TRAWL	none	3	46.681		239.921		220.857		490.732		94.455		240.69		29.573	68.634
B	COD	PEL_TRAWL	none	4	19.006		160.101		206.097		146.658		472.884		320.5		90.718	3.534
B	COD	PEL_TRAWL	none	5	5.321		19.924		42.863		26.328		306.009		245.753		84.661	0
B	COD	PEL_TRAWL	none	6	1.555		7.302		9.563		4.932		39.452		95.923		35.566	
B	COD	PEL_TRAWL	none	7	0.539		3.136		4.142		1.352		5.472		15.254		12.947	
B	COD	PEL_TRAWL	none	8	0.047		0.482		0.662		0.357		3.155		1.381		3.971	
B	COD	PEL_TRAWL	none	9			0.1		0.224		0.191		0.531		0.317		0.807	
B	COD	POTS	none	1														
B	COD	POTS	none	2					0.022				0.007					
B	COD	POTS	none	3					0.067				0.054					
B	COD	POTS	none	4					0.077				0.137					
B	COD	POTS	none	5					0.017				0.05					
B	COD	POTS	none	6					0.001				0.008					
B	COD	POTS	none	7					0				0.002					
B	COD	POTS	none	8									0.002					
B	COD	POTS	none	9					0				0					
B	COD	r-DEM_SEINE	none	1														
B	COD	r-DEM_SEINE	none	2	4.258		0.014		36.387		9.889		0.001					
B	COD	r-DEM_SEINE	none	3	3.38		0.177		29.443		56.552		4.431					
B	COD	r-DEM_SEINE	none	4	0.364		0.096		15.303		20.222		24.796					
B	COD	r-DEM_SEINE	none	5	0.056		0.008		4.785		4.248		14.834					
B	COD	r-DEM_SEINE	none	6	0.004		0.004		0.931		0.852		1.918					
B	COD	r-DEM_SEINE	none	7	0.001		0.002		0.301		0.197		0.291					
B	COD	r-DEM_SEINE	none	8	0		0.001		0.059		0.049		0.144					
B	COD	r-DEM_SEINE	none	9			0		0.016		0.016		0.016					
B	COD	r-GILL	none	1				8.261				1.342		45.989		0.811		28.13
B	COD	r-GILL	none	2	717.591	12.478	126.724	49.106	302.301	29.475	169.625	19.799	22.849	182.076	22.477	127.034	53.54	335.681
B	COD	r-GILL	none	3	1922.261	25.178	1881.88	152.67	1864.892	120.45	1125.648	106.228	729.223	175.412	1265.469	165.025	623.231	246.091
B	COD	r-GILL	none	4	1456.398	13.742	3038.285	42.58	2328.855	43.622	1541.605	112.752	2582.259	51.709	1685.076	49.917	1256.99	10.47
B	COD	r-GILL	none	5	841.46	6.942	1409.652	23.985	894.518	8.301	990.715	8.655	1414.168	44.907	1440.51	24.252	1904.215	
B	COD	r-GILL	none	6	180.373	0.47	402.9	7.12	172.786	2.129	229.224	0.062	309.289	13.794	466.756	3.739	979.507	
B	COD	r-GILL	none	7	52.312	0.043	97.65	0.741	45.519	0.532	43.083		67.963	2.686	110.916	0.073	314.768	
B	COD	r-GILL	none	8	9.956		14.254		5.511		7.553		16.209		16.303		42.869	
B	COD	r-GILL	none	9	0.226		3.607		3.207		2.137		5.186		2.256		9.995	
B	COD	r-LONGLINE	none	1						0.113								21.357
B	COD	r-LONGLINE	none	2	71.491		316.944		448.862		361.497		4.649		5.619		106.68	179.888
B	COD	r-LONGLINE	none	3	374.547		1283.902		1379.441	19.118	2094.748		379.733		473.061		496.268	88.59
B	COD	r-LONGLINE	none	4	248.818		998.512		1012.278		1147.047		1119.73		780.677		322.46	2.634
B	COD	r-LONGLINE	none	5	110.97		182.028		240.715		292.368		434.905		256.927		148.816	
B	COD	r-LONGLINE	none	6	46.685		78.901		49.332		44.921		91.271		79.165		51.871	
B	COD	r-LONGLINE	none	7	14.985		36.704		13.374		15.784		11.358		9.431		20.849	
B	COD	r-LONGLINE	none	8	1.857		5.777		2.485		6.961		6.804		2.528		5.068	
B	COD	r-LONGLINE	none	9			1.267		0.959		3.673		1.382		0.754		2.903	
B	COD	r-OTTER	BACOMA	1		7.545				13.138		1.762			173.798	170.408	32.096	190.633
B	COD	r-OTTER	BACOMA	2	2.435	182.651		147.946	59.008	938.938	421.214	1371.121	31.842	673.868	1851.315	942.251	1006.075	2346.651
B	COD	r-OTTER	BACOMA	3	446.545	1008.081	605.673	407.316	1965.841	1223.946	5509.571	3736.899	1637.084	2336.389	5206.419	1546.441	8864.979	2322.97
B	COD	r-OTTER	BACOMA	4	1982.105	258.587	1721.955	91.806	2649.276	320.05	5742.25	261.711	3505.502	161.632	5567.228	159.255	5721.044	234.916
B	COD	r-OTTER	BACOMA	5	1599.822	4.434	1297.787	1.599	1694.186	40.533	2381.819	44.053	3763.8		1710.958	26.812	1636.121	8.718
B	COD	r-OTTER	BACOMA	6	357.236		370.028		528.008		811.71	2.098	1475.717		556.629		520.898	1.484
B	COD	r-OTTER	BACOMA	7	107.819		120.93		123.152		192.705		290.399		274.916		87.106	
B	COD	r-OTTER	BACOMA	8	49.256		73.974		33.112		49.579		53.711		52.679		34.699	
B	COD	r-OTTER	BACOMA	9	9.725		16.3		10.347		16.317		15.06		13.873		6.251	
B	COD	r-OTTER	none	1	193.11	256.056	56.559	45.891		127.914		43.831		44.501		42.366		58.772
B	COD	r-OTTER	none	2	1625.259	1219.829	717.67	130.126	596.408	451.982	1148.909	598.173	45.992	192.739	120.227	613.162	92.333	478.616
B	COD	r-OTTER	none	3	4704.274	612.699	2216.117	82.321	3835.199	263.511	5877.679	841.443	995.903	357.567	2096.692	555.498	2255.077	525.825
B	COD	r-OTTER	none	4	1791.554	122.096	1304.436	18.517	6668.151	62.41	3256.939	168.936	4125.159	75.639	4355.53	69.837	4276.982	138.256
B	COD	r-OTTER	none	5	532.152	18.646	149.195	3.389	790.033	11.056	1201.577	39.568	1973.072	11.63	2482.033	12.356	2607.934	29.113

Table 4.3.5: continued.

B	COD	r-OTTER	none	6	84.534	2.549	27.742	0.411	182.714	0.938	459.133	5.908	226.83	1.479	795.293	1.595	650.794	3.531
B	COD	r-OTTER	none	7	25.172	0.075	9.433	0.021	66.048	0.064	44.221	0.64	59.112	0.151	166.329	0.154	129.901	0.31
B	COD	r-OTTER	none	8	3.126		2.917		5.183		12.348		30.761		43.903		35.996	
B	COD	r-OTTER	none	9	0.364		0.317		3.712		4.704		6.409		10.649		4.466	
B	COD	r-PEL_TRAWL	BACOMA	1									229.583	257.435	12.532	14.035	4.243	11.969
B	COD	r-PEL_TRAWL	BACOMA	2			0.966	20.113				155.946	698.394	418.4	138.181	64.076	119.285	128.849
B	COD	r-PEL_TRAWL	BACOMA	3			310.747	86.213			2353.115	1070.217	1353.471	304.802	216.152	39.184	845.09	206.036
B	COD	r-PEL_TRAWL	BACOMA	4			854.516	0.105			980.319		1924.663	34.732	98.735	4.123	815.537	62.391
B	COD	r-PEL_TRAWL	BACOMA	5			275.568				209.21		254.688		34.082	0.134	214.669	5.807
B	COD	r-PEL_TRAWL	BACOMA	6			47.06				35.373		22.694		3.577		51.972	0.505
B	COD	r-PEL_TRAWL	BACOMA	7			20.599				12.791		8.484		1.793		8.467	
B	COD	r-PEL_TRAWL	BACOMA	8			21.849				7.795		3.108		0.138		2.274	
B	COD	r-PEL_TRAWL	BACOMA	9			7.858				9.744		0.819				0.851	
B	COD	r-PEL_TRAWL	none	1			59.274	17.324	24.519	53.573								
B	COD	r-PEL_TRAWL	none	2	11.845		434.71	33.007	436.397	31.064	138.629		0.182		0.344		0.953	
B	COD	r-PEL_TRAWL	none	3	114.53		823.655	4.906	217.326		1069.225		256.777		4.129		49.074	
B	COD	r-PEL_TRAWL	none	4	35.725		318.333		126.872		414.881		1266.744		5.614		170.975	
B	COD	r-PEL_TRAWL	none	5	7.886		51.643		20.86		81.534		776.518		4.155		114.834	
B	COD	r-PEL_TRAWL	none	6	1.499		9.294		2.491		12.591		73.345		1.479		23.635	
B	COD	r-PEL_TRAWL	none	7	0.415		7.032		1.073		1.538		6.244		0.146		3.789	
B	COD	r-PEL_TRAWL	none	8	0.034		3.01		0.185		0.465		3.392		0.017		2.104	
B	COD	r-PEL_TRAWL	none	9			0.059		0.033		0.183		0.612		0.006		0.121	
B	COD	r-TRAMMEL	none	1														0.009
B	COD	r-TRAMMEL	none	2	0.413		0.609		0.265		0.525		0.068		0.495		0.057	0.038
B	COD	r-TRAMMEL	none	3	6.61		5.68		0.291		2.276		0.642		7.959		3.117	0.006
B	COD	r-TRAMMEL	none	4	3.179		3.291		0.255		0.713		3.512		8.789		12.824	0.001
B	COD	r-TRAMMEL	none	5	0.496		0.233		0.222		0.217		3.886		5.547		14.165	
B	COD	r-TRAMMEL	none	6	0.105		0.061		0.099		0.083		2.312		2.102		6.719	
B	COD	r-TRAMMEL	none	7	0.033		0.025		0.026		0.011		1.187		0.428		2.938	
B	COD	r-TRAMMEL	none	8	0.001		0.006		0.008		0.008		0.759		0.09		0.923	
B	COD	r-TRAMMEL	none	9			0.001		0.006		0.006		0.2		0.029		0.17	
B	COD	TRAMMEL	none	1														
B	COD	TRAMMEL	none	2							0.032		0.035					
B	COD	TRAMMEL	none	3							0.062		0.147					
B	COD	TRAMMEL	none	4							0.007		0.398					
B	COD	TRAMMEL	none	5							0.002		0.237					
B	COD	TRAMMEL	none	6							0.001		0.049					
B	COD	TRAMMEL	none	7							0		0.017					
B	COD	TRAMMEL	none	8							0		0.008					
B	COD	TRAMMEL	none	9									0.001					

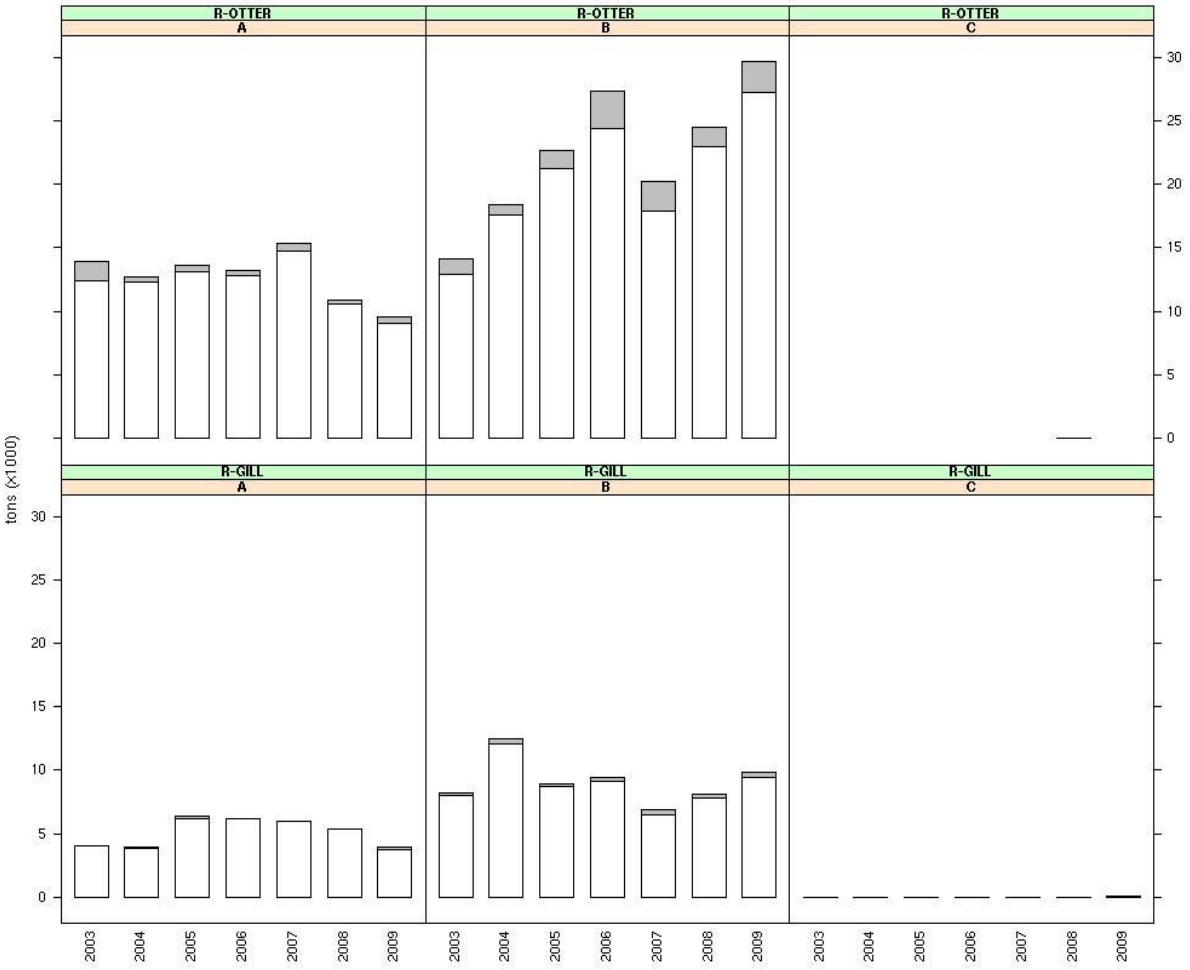

Figure 4.3.1 Catch and landings in tonnes of Baltic cod by sub-area and gear category for the dominant gear groups in terms of the amount of landed cod (r-Otter and r-Gill) in 2003-2009. Black bars show landings, grey bars catches (landings + discards). An "r" in front of the gear type indicates regulated gears in accordance with Council Regulation (EC) 1098/2007 (see section 3.6). Gear types without an "r" are non-regulated gears. **NOTE: data from Poland were only available from 2004 onwards.**

4.4. Trends in CPUE and LPUE for Baltic cod by gear category in accordance with Council Regulation (EC) 2187/2007 and sub-area.

4.4.1. General considerations regarding CPUE and LPUE estimates

STECF-SGMOS notes that CPUE and LPUE series are often interpreted and used as stock abundance indicators. However, STECF-SGMOS emphasises that the trends in CPUE or LPUE by fleets presented here are subject to selective fishing strategies (area, gear, mesh size etc.) and thus maybe biased. On the other hand, CPUE and LPUE derived from targeted fisheries may provide very useful information on stock abundance trends. Furthermore, it must be recognised that, especially for minor gear categories and non-regulated gears, the CPUE trends essentially represent landings per unit of

effort (LPUE) due to no discard information or poorly estimated discards. Ideally, the CPUE should be based on age disaggregated abundance rather than overall weights and reflect technological creep when trends over longer periods are evaluated. Time constraints prevented STECF-SGMOS from estimations of CPUE trends by age and full evaluations of these. STECF-SGMOS recommends that CPUE in units of numbers at age/(kW*days) be estimated and compared with the recent assessment results provided by ICES.

STECF-SGMOS presents CPUE by derogations given in units of g/(kW*days) in the following sections by management area.

4.4.2. Trends in CPUE and LPUE for Baltic cod by gear categories in accordance with Council Regulation (EC) 2187/2005 and area

Although the TORs explicitly asked for analysis of CPUE and LPUE time series of Baltic cod for gear categories which are in accordance with Council Regulation (EC) 2187/2005 only, we used the categories from the cod management plan to be consistent within the report.

The following tables Table 4.4.2.1 to 4.4.2.4 provide data on CPUE and LPUE by year, derogation and country as well as data aggregated over countries. The CPUE figures in the table should only be considered indicative since estimated discard ratios are often based on poor data (see Section 4.4.1).

The relative coverage of landings with discard estimates (share of landings with discard information available by main cod fishery areas (A and B) and gears (r-OTTER and r-GILL), however, leads to the conclusion that there is fairly good coverage over the period. The only pronounced gaps in coverage can be observed for r-GILL in area A in 2006-2008 (see text-table below)

Text table: Coverage of landings with discard information for r-OTTER and r-GILL in areas A and B (2003-2009).

ANNEX	SPECIES	REG_AREA	REG_GEAR	SPECON	2003	2004	2005	2006	2007	2008	2009
Bal	COD	A	r-GILL	none	100	100	100	0	0	58.5	100
Bal	COD	A	r-OTTER	BACOMA	99.7	100	63.4	99.98	100	100	100
Bal	COD	A	r-OTTER	none	100	100	98.9	99.0	99.9	99.7	99.9
Bal	COD	B	r-GILL	none	100	100	100	99.8	99.97	99.9	99.8
Bal	COD	B	r-OTTER	BACOMA	100	100	100	100	100	100	100
Bal	COD	B	r-OTTER	none	100	100	100	100	100	100	100

CPUEs and LPUEs were in general higher for otter trawls, demersal seines and pelagic trawls compared to gill nets. CPUES and LPUES varied considerably between countries (Table 4.4.2.1 and 4.4.2.3). Aggregated over countries, a general trend over the years was only obvious for r-Otter in Area A. In area B, CPUEs and LPUEs increased considerably in recent years for both of the main gears catching cod (r-Otter and r-Gill; Figures 4.4.2.1 and 4.4.2.2). This may be related to the recent increase of the Eastern Baltic cod stock.

Table 4.4.2.1 Baltic: Cod CPUE (g/kW*days) by derogation, country and year, 2003-2009 for areas A, B, C.

ANNEX	SPECIES	REG AREA CC	REG GEAR CC	SPECON	COUNTRY	CPUE 2003	CPUE 2004	CPUE 2005	CPUE 2006	CPUE 2007	CPUE 2008	CPUE 2009
Bal	COD	A	DEM_SEINE	none	DEN		0	0	4164	0		
Bal	COD	A	DEM_SEINE	none	POL		0			0		
Bal	COD	A	DREDGE	none	DEN	136						
Bal	COD	A	GILL	none	DEN	3250	2147	2340	1877	2269	622	541
Bal	COD	A	GILL	none	EST				3414	4010	3738	
Bal	COD	A	GILL	none	GER	29	0	37	44	32	9	3
Bal	COD	A	GILL	none	POL		31	10	7	40	36	13
Bal	COD	A	GILL	none	SWE	0	0	40	0	40	0	0
Bal	COD	A	none	none	GER	115	110	389	355	165	74	87
Bal	COD	A	none	none	SWE	888	504	985	1073	2151	809	358
Bal	COD	A	OTTER	none	DEN	216	118	231	278	182	123	148
Bal	COD	A	OTTER	none	GER	195	71	229	215	163	286	154
Bal	COD	A	OTTER	none	POL		108	53	201	87	0	
Bal	COD	A	OTTER	none	SWE	0	91	0	0	0		0
Bal	COD	A	PEL_TRAWL	none	DEN	123	116	260	265	259	142	140
Bal	COD	A	PEL_TRAWL	none	EST					9452		
Bal	COD	A	PEL_TRAWL	none	GER	86	103	256	302	164	148	90
Bal	COD	A	PEL_TRAWL	none	LAT					12472		
Bal	COD	A	PEL_TRAWL	none	POL		40	82	126	62	57	0
Bal	COD	A	PEL_TRAWL	none	SWE	108	93	153	127	83	74	82
Bal	COD	A	POTS	none	DEN			4168	1195	2175	894	752
Bal	COD	A	POTS	none	GER		313	0	77	0	42	111
Bal	COD	A	POTS	none	POL		0		9			
Bal	COD	A	POTS	none	SWE	107	91	92	165	244	83	0
Bal	COD	A	r-BEAM	BACOMA	GER						2327	
Bal	COD	A	r-BEAM	none	GER	2262						
Bal	COD	A	r-DEM_SEINE	BACOMA	GER				2177	3789	6510	4583
Bal	COD	A	r-DEM_SEINE	none	DEN	3893	3546	4174	5555	6551	6731	4963
Bal	COD	A	r-DEM_SEINE	none	GER		811	21444				
Bal	COD	A	r-GILL	none	DEN	2667	2659	2416	2318	2604	2134	1803
Bal	COD	A	r-GILL	none	EST							4813
Bal	COD	A	r-GILL	none	GER	1362	961	1043	1203	1166	1229	1031
Bal	COD	A	r-GILL	none	LAT	1579	1747	2485	3592	2988	2367	6803
Bal	COD	A	r-GILL	none	POL		2058	1963	2857	3608	3953	3307
Bal	COD	A	r-GILL	none	SWE	1842	1999	1823	1870	2115	2007	1927
Bal	COD	A	r-LONGLINE	none	DEN	3384	3376	3960	2328	3216	4007	3360
Bal	COD	A	r-LONGLINE	none	GER	190	298	505	268	208	205	106
Bal	COD	A	r-LONGLINE	none	LIT			638				
Bal	COD	A	r-LONGLINE	none	POL		1796	2994	3959	8171	4797	1785
Bal	COD	A	r-LONGLINE	none	SWE	3752	2562	1875	2479	2833	3990	3608
Bal	COD	A	r-OTTER	BACOMA	GER				3667	3581	2876	2894
Bal	COD	A	r-OTTER	BACOMA	LAT					10061		
Bal	COD	A	r-OTTER	BACOMA	POL		762	1008	1013	2291	2120	1417
Bal	COD	A	r-OTTER	BACOMA	SWE	3821	4069	3301	3985	4147	3900	5100
Bal	COD	A	r-OTTER	none	DEN	2331	2649	2371	3124	3803	3280	3673
Bal	COD	A	r-OTTER	none	GER	2693	2284	3067	538	390	585	213
Bal	COD	A	r-OTTER	none	SWE	2423						
Bal	COD	A	r-PEL_TRAWL	BACOMA	GER				3751	6060	1162	
Bal	COD	A	r-PEL_TRAWL	BACOMA	POL			1946	1591	1600		
Bal	COD	A	r-PEL_TRAWL	BACOMA	SWE		2776	2063	1667		2778	
Bal	COD	A	r-PEL_TRAWL	none	DEN	2271	1611	3137	3719	2882	2473	8382
Bal	COD	A	r-PEL_TRAWL	none	GER	3118	2767	2113	0			
Bal	COD	A	r-TRAMMEL	none	DEN	1362	1373	1290	1538	1475	1291	835
Bal	COD	A	r-TRAMMEL	none	GER	192	94	370	444	672	746	505
Bal	COD	A	r-TRAMMEL	none	SWE	726	838	1197	1768	806	951	507
Bal	COD	A	TRAMMEL	none	DEN	1156	4065	1833	981	4673	6048	0
Bal	COD	A	TRAMMEL	none	GER			631	424	622	72	0
Bal	COD	A	TRAMMEL	none	POL		0					
Bal	COD	A	TRAMMEL	none	SWE	421						

Table 4.4.2.1 continued

Bal	COD	B	DREDGE	none	DEN						4525	
Bal	COD	B	GILL	none	DEN	1756	1665	2286	2455	5545	1430	1082
Bal	COD	B	GILL	none	EST				2956	3697	4615	
Bal	COD	B	GILL	none	POL		12	5	6	3	4	5
Bal	COD	B	GILL	none	SWE			0	0	0	0	0
Bal	COD	B	none	none	SWE	347	596	330	922	635	1149	477
Bal	COD	B	OTTER	none	DEN	115	218	273	202	77	21	42
Bal	COD	B	OTTER	none	EST				3545	5611		
Bal	COD	B	OTTER	none	GER	0					0	79
Bal	COD	B	OTTER	none	LAT	783						
Bal	COD	B	OTTER	none	POL		52	82	37	9	17	
Bal	COD	B	OTTER	none	SWE	46	56	45	33	36	39	58
Bal	COD	B	PEL_TRAWL	none	DEN	53	73	122	51	34	7	16
Bal	COD	B	PEL_TRAWL	none	EST				3932	4105	5890	
Bal	COD	B	PEL_TRAWL	none	GER	44	11			0		
Bal	COD	B	PEL_TRAWL	none	LAT	62	134	282	304	698	679	927
Bal	COD	B	PEL_TRAWL	none	POL		84	116	126	60	78	28
Bal	COD	B	PEL_TRAWL	none	SWE	6	17	17	7	19	17	28
Bal	COD	B	POTS	none	DEN			0		0		
Bal	COD	B	POTS	none	POL		0	0	5			
Bal	COD	B	POTS	none	SWE	0	0	0	0	0	23	309
Bal	COD	B	r-DEM_SEINE	BACOMA	GER				5699	6444	12079	17195
Bal	COD	B	r-DEM_SEINE	none	DEN	9602	0	10313	8384	10046		
Bal	COD	B	r-DEM_SEINE	none	GER		1217					
Bal	COD	B	r-GILL	none	DEN	3384	2534	2539	2940	4087	4625	4753
Bal	COD	B	r-GILL	none	EST							5336
Bal	COD	B	r-GILL	none	GER	4275	2413	4050	1033	169	1585	2881
Bal	COD	B	r-GILL	none	LAT	2254	2397	3105	3168	3254	3775	6125
Bal	COD	B	r-GILL	none	LIT			4893	24640	5911	1822	10223
Bal	COD	B	r-GILL	none	POL		1701	2044	2582	2005	3526	6042
Bal	COD	B	r-GILL	none	SWE	2308	2045	1674	1706	1963	2302	2431
Bal	COD	B	r-LONGLINE	none	DEN	1439	2238	3002	2059	2249	2501	1506
Bal	COD	B	r-LONGLINE	none	GER		0	67	0		0	
Bal	COD	B	r-LONGLINE	none	LIT			60606	3006	4302	857	8851
Bal	COD	B	r-LONGLINE	none	POL		3983	3597	4574	4474	4132	1769
Bal	COD	B	r-LONGLINE	none	SWE	3054	3248	2817	2798	3331	3663	3332
Bal	COD	B	r-OTTER	BACOMA	GER				8694	8806	11014	10465
Bal	COD	B	r-OTTER	BACOMA	LAT				4873	5820	7887	9596
Bal	COD	B	r-OTTER	Bacoma	LIT							8016
Bal	COD	B	r-OTTER	BACOMA	POL		1151	1576	1749	1678	3139	5905
Bal	COD	B	r-OTTER	BACOMA	SWE	4116	4622	3573	4575	7309	5699	8215
Bal	COD	B	r-OTTER	none	DEN	4278	4506	3836	5422	8202	9369	11202
Bal	COD	B	r-OTTER	none	GER	3922	5071	5840			13588	5998
Bal	COD	B	r-OTTER	none	SWE	3055						4851
Bal	COD	B	r-OTTER	T90	SWE							9333
Bal	COD	B	r-PEL_TRAWI	BACOMA	EST							2336
Bal	COD	B	r-PEL_TRAWI	BACOMA	GER				6022	13697	16296	25460
Bal	COD	B	r-PEL_TRAWI	BACOMA	LAT				5607	6816	3327	9120
Bal	COD	B	r-PEL_TRAWI	Bacoma	LIT							11671
Bal	COD	B	r-PEL_TRAWI	BACOMA	POL		1547	1384	2039	3723	1549	7664
Bal	COD	B	r-PEL_TRAWI	BACOMA	SWE		3595	2642	4821	8137	5263	10891
Bal	COD	B	r-PEL_TRAWI	none	DEN	2433	8048	4498	5675	11446	13861	22581
Bal	COD	B	r-PEL_TRAWI	none	GER		8522	4176				
Bal	COD	B	r-TRAMMEL	none	DEN	3218	3391	357	530	2850	4569	4374
Bal	COD	B	r-TRAMMEL	none	SWE	220	253	808	0	0	202	0
Bal	COD	B	TRAMMEL	none	SWE	0	0	0	0		0	
Bal	COD	C	GILL	none	EST				0			
Bal	COD	C	GILL	none	SWE			4	0			
Bal	COD	C	OTTER	none	SWE		0	0	14			
Bal	COD	C	PEL_TRAWL	none	DEN	0						
Bal	COD	C	r-GILL	none	SWE	173	160	134	129	187	234	611
Bal	COD	C	r-LONGLINE	none	SWE						0	
Bal	COD	C	r-OTTER	BACOMA	SWE						463	

Table 4.4.2.2 Baltic: Cod CPUE (g/KW*days) by derogation, and year, 2003-2009 for areas A, B, C.

ANNEX	SPECIES	REG AREA COD	REG GEAR COD	SPECON	CPUE 2003	CPUE 2004	CPUE 2005	CPUE 2006	CPUE 2007	CPUE 2008	CPUE 2009	CPUE 2007-2009
Bal	COD	A	DEM_SEINE	none		0	0	348	0	0	0	0
Bal	COD	A	DREDGE	none	136				0	0	0	0
Bal	COD	A	GILL	none	412	113	309	309	262	217	25	182
Bal	COD	A	none	none	25446	31590	2901	4560	847	442	185	485
Bal	COD	A	OTTER	none	206	102	215	250	170	204	141	172
Bal	COD	A	PEL_TRAWL	none	107	90	176	196	157	101	66	109
Bal	COD	A	POTS	none	80	28	1175	384	716	307	287	452
Bal	COD	A	r-BEAM	BACOMA	0	0	0	0	0	2327	0	2327
Bal	COD	A	r-BEAM	none	2262	0	0	0	0	0	0	0
Bal	COD	A	r-DEM_SEINE	BACOMA	0	0	0	2177	3789	6510	4583	4955
Bal	COD	A	r-DEM_SEINE	none	3893	3496	4297	5555	6551	6731	4963	6262
Bal	COD	A	r-GILL	none	1876	1834	1821	1824	1922	1822	1646	1808
Bal	COD	A	r-LONGLINE	none	2084	2046	2470	1858	2684	1785	1457	2068
Bal	COD	A	r-OTTER	BACOMA	3832	2460	1802	3321	3432	2937	3003	3167
Bal	COD	A	r-OTTER	none	2460	2440	2583	2998	3567	3115	3457	3382
Bal	COD	A	r-PEL_TRAWL	BACOMA	0	1568	967	3306	5805	1441	0	5313
Bal	COD	A	r-PEL_TRAWL	none	2602	1872	2929	3658	2882	2473	8382	4061
Bal	COD	A	r-TRAMMEL	none	1225	1186	1198	1388	1195	1127	706	994
Bal	COD	A	TRAMMEL	none	681	1566	1286	669	1278	470	0	597
Bal	COD	B	DREDGE	none	0	0	0	0	0	4525	0	4525
Bal	COD	B	GILL	none	681	95	86	702	605	487	10	443
Bal	COD	B	none	none	93693	118508	2984	6974	1131	1159	311	849
Bal	COD	B	OTTER	none	87	85	106	96	111	31	44	64
Bal	COD	B	PEL_TRAWL	none	14	46	61	74	107	122	51	94
Bal	COD	B	POTS	none	0	0	0	3	0	6	88	25
Bal	COD	B	r-DEM_SEINE	BACOMA	0	0	0	5699	6444	12079	17195	13453
Bal	COD	B	r-DEM_SEINE	none	9602	588	10313	8384	10046	0	0	10046
Bal	COD	B	r-GILL	none	2372	1974	2242	2811	2515	3149	4720	3354
Bal	COD	B	r-LONGLINE	none	2360	3490	3213	3579	3752	3448	2309	3159
Bal	COD	B	r-OTTER	BACOMA	4949	2118	2189	2727	3489	4383	7600	4902
Bal	COD	B	r-OTTER	none	3132	2827	6932	7334	10274	13197	14386	12605
Bal	COD	B	r-OTTER	T90	0	0	0	0	0	0	9333	9333
Bal	COD	B	r-PEL_TRAWL	BACOMA	0	2252	1923	3368	5586	3620	6847	5711
Bal	COD	B	r-PEL_TRAWL	none	2253	5634	4935	14319	68804	13861	76675	68146
Bal	COD	B	r-TRAMMEL	none	983	796	434	473	2422	2579	3979	3083
Bal	COD	B	TRAMMEL	none	0	0	0	0	45	0	0	28
Bal	COD	C	GILL	none			4	0	0	0	0	0
Bal	COD	C	OTTER	none		0	0	14	0	0	0	0
Bal	COD	C	PEL_TRAWL	none	0				0	0	0	0
Bal	COD	C	r-GILL	none	173	160	134	129	187	234	611	336
Bal	COD	C	r-LONGLINE	none		0	0	0	0	0	0	0
Bal	COD	C	r-OTTER	BACOMA	0	0	0	0	0	463	0	463

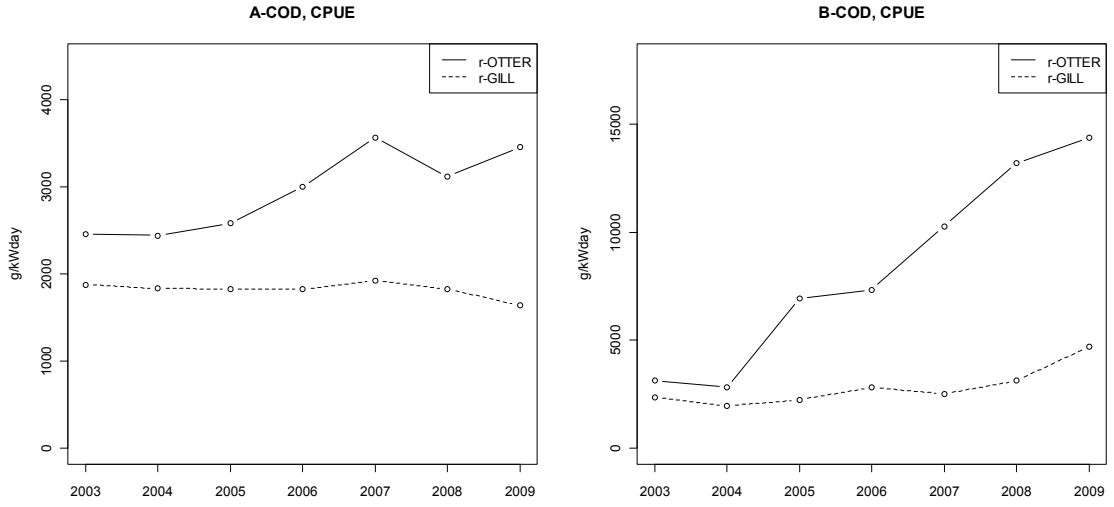

Figure 4.4.2.1. Baltic cod CPUE (g/kW*days) for r-OTTER and r-GILL in 2003-2009 for areas A and B.

Table 4.4.2.3 Baltic: Cod LPUE (g/KW*days) by derogation, country and year, 2003-2009 for areas A, B, C.

ANNEX	SPECIES	REG AREA COD	REG GEAR COD	SPECON	COUNTRY	LPUE 2003	LPUE 2004	LPUE 2005	LPUE 2006	LPUE 2007	LPUE 2008	LPUE 2009
Bal	COD	A	DEM_SEINE	none	DEN		0	0	4164	0		
Bal	COD	A	DEM_SEINE	none	POL		0			0		
Bal	COD	A	DREDGE	none	DEN	136						
Bal	COD	A	GILL	none	DEN	3250	2147	2304	1877	2269	622	541
Bal	COD	A	GILL	none	EST				3414	4010	3738	
Bal	COD	A	GILL	none	GER	29	0	37	44	32	9	3
Bal	COD	A	GILL	none	POL		31	10	7	40	36	13
Bal	COD	A	GILL	none	SWE	0	0	40	0	40	0	0
Bal	COD	A	none	none	GER	115	110	389	355	165	74	87
Bal	COD	A	none	none	SWE	888	504	985	1073	2151	809	358
Bal	COD	A	OTTER	none	DEN	216	118	231	278	182	123	148
Bal	COD	A	OTTER	none	GER	195	71	229	215	163	286	154
Bal	COD	A	OTTER	none	POL		108	53	201	87	0	
Bal	COD	A	OTTER	none	SWE	0	91	0	0	0		0
Bal	COD	A	PEL_TRAWL	none	DEN	123	116	260	265	259	142	140
Bal	COD	A	PEL_TRAWL	none	EST					9452		
Bal	COD	A	PEL_TRAWL	none	GER	86	99	256	302	164	148	90
Bal	COD	A	PEL_TRAWL	none	LAT					12472		
Bal	COD	A	PEL_TRAWL	none	POL		40	82	126	62	57	0
Bal	COD	A	PEL_TRAWL	none	SWE	108	91	153	127	83	74	82
Bal	COD	A	POTS	none	DEN			4168	1195	2175	894	752
Bal	COD	A	POTS	none	GER		313	0	77	0	42	111
Bal	COD	A	POTS	none	POL		0		9			
Bal	COD	A	POTS	none	SWE	107	91	92	165	244	83	0
Bal	COD	A	r-BEAM	BACOMA	GER						2327	
Bal	COD	A	r-BEAM	none	GER	2262						
Bal	COD	A	r-DEM_SEINE	BACOMA	GER				2177	3789	6510	4583
Bal	COD	A	r-DEM_SEINE	none	DEN	3676	3341	3919	5302	5977	6720	4888
Bal	COD	A	r-DEM_SEINE	none	GER		811	19351				
Bal	COD	A	r-GILL	none	DEN	2630	2632	2319	2318	2604	2133	1712
Bal	COD	A	r-GILL	none	EST							4619
Bal	COD	A	r-GILL	none	GER	1342	942	1004	1202	1166	1229	937
Bal	COD	A	r-GILL	none	LAT	1567	1733	2374	3592	2988	2367	6519
Bal	COD	A	r-GILL	none	POL		2013	1887	2857	3604	3953	2911
Bal	COD	A	r-GILL	none	SWE	1812	1968	1754	1870	2115	2004	1849
Bal	COD	A	r-LONGLINE	none	DEN	3346	3365	3771	2328	3216	4007	3333
Bal	COD	A	r-LONGLINE	none	GER	190	298	481	268	208	205	106
Bal	COD	A	r-LONGLINE	none	LIT			638				
Bal	COD	A	r-LONGLINE	none	POL		1796	2861	3959	8171	4797	1785
Bal	COD	A	r-LONGLINE	none	SWE	3752	2517	1812	2479	2833	3990	3608
Bal	COD	A	r-OTTER	BACOMA	GER				3437	3365	2681	2597
Bal	COD	A	r-OTTER	BACOMA	LAT					9357		
Bal	COD	A	r-OTTER	BACOMA	POL		692	1008	944	2149	1999	1308
Bal	COD	A	r-OTTER	BACOMA	SWE	3821	3864	3291	3798	3816	3748	4622
Bal	COD	A	r-OTTER	none	DEN	2316	2647	2366	3122	3798	3273	3666
Bal	COD	A	r-OTTER	none	GER	1927	2101	2769	538	390	585	213
Bal	COD	A	r-OTTER	none	SWE	2060						
Bal	COD	A	r-PEL_TRAWL	BACOMA	GER				3751	6060	1162	
Bal	COD	A	r-PEL_TRAWL	BACOMA	POL			1946	1591	1600		
Bal	COD	A	r-PEL_TRAWL	BACOMA	SWE		2776	2063	1667		2778	
Bal	COD	A	r-PEL_TRAWL	none	DEN	2226	1611	3137	3719	2882	2473	8382
Bal	COD	A	r-PEL_TRAWL	none	GER	3118	2767	2113	0			
Bal	COD	A	r-TRAMMEL	none	DEN	1347	1356	1252	1538	1475	1291	798
Bal	COD	A	r-TRAMMEL	none	GER	192	94	370	444	672	746	453
Bal	COD	A	r-TRAMMEL	none	SWE	668	838	1111	1768	806	951	496
Bal	COD	A	TRAMMEL	none	DEN	1156	4065	1833	981	4673	6048	0
Bal	COD	A	TRAMMEL	none	GER			631	424	622	72	0
Bal	COD	A	TRAMMEL	none	POL		0					
Bal	COD	A	TRAMMEL	none	SWE	421						

Table 4.4.2.3 continued

Bal	COD	B	DREDGE	none	DEN						4525	
Bal	COD	B	GILL	none	DEN	1756	1665	2286	2455	5545	1430	1082
Bal	COD	B	GILL	none	EST				2956	3697	4615	
Bal	COD	B	GILL	none	POL		12	5	6	3	4	5
Bal	COD	B	GILL	none	SWE			0	0	0	0	0
Bal	COD	B	none	none	SWE	347	596	330	922	635	1149	477
Bal	COD	B	OTTER	none	DEN	115	218	273	202	77	21	36
Bal	COD	B	OTTER	none	EST				3545	5611		
Bal	COD	B	OTTER	none	GER	0					0	79
Bal	COD	B	OTTER	none	LAT	783						
Bal	COD	B	OTTER	none	POL		52	82	37	9	17	
Bal	COD	B	OTTER	none	SWE	46	56	45	33	36	39	53
Bal	COD	B	PEL_TRAWL	none	DEN	53	73	122	51	34	7	14
Bal	COD	B	PEL_TRAWL	none	EST				3932	4105	5890	
Bal	COD	B	PEL_TRAWL	none	GER	44	11			0		
Bal	COD	B	PEL_TRAWL	none	LAT	62	134	282	304	698	679	812
Bal	COD	B	PEL_TRAWL	none	POL		84	116	126	60	78	24
Bal	COD	B	PEL_TRAWL	none	SWE	6	17	17	7	19	17	25
Bal	COD	B	POTS	none	DEN			0		0		
Bal	COD	B	POTS	none	POL		0	0	5			
Bal	COD	B	POTS	none	SWE	0	0	0	0	0	23	309
Bal	COD	B	r-DEM_SEINE	BACOMA	GER				5699	6444	12079	17195
Bal	COD	B	r-DEM_SEINE	none	DEN	9602	0	10313	8384	10046		
Bal	COD	B	r-DEM_SEINE	none	GER		1217					
Bal	COD	B	r-GILL	none	DEN	3314	2480	2478	2830	3850	4472	4579
Bal	COD	B	r-GILL	none	EST							5208
Bal	COD	B	r-GILL	none	GER	4189	2292	3936	1033	169	1585	2881
Bal	COD	B	r-GILL	none	LAT	2200	2297	3005	3050	2913	3640	5936
Bal	COD	B	r-GILL	none	LIT			4743	23485	5701	1784	9783
Bal	COD	B	r-GILL	none	POL		1651	1982	2475	1897	3444	5789
Bal	COD	B	r-GILL	none	SWE	2252	2017	1624	1640	1867	2220	2306
Bal	COD	B	r-LONGLINE	none	DEN	1406	2219	2963	2059	2249	2501	1412
Bal	COD	B	r-LONGLINE	none	GER		0	67	0		0	
Bal	COD	B	r-LONGLINE	none	LIT			60606	3006	4302	857	8546
Bal	COD	B	r-LONGLINE	none	POL		3935	3546	4574	4474	4118	1651
Bal	COD	B	r-LONGLINE	none	SWE	2975	3208	2764	2798	3331	3658	3093
Bal	COD	B	r-OTTER	BACOMA	GER				7345	7434	10364	9255
Bal	COD	B	r-OTTER	BACOMA	LAT				4571	5610	7209	8941
Bal	COD	B	r-OTTER	Bacoma	LIT							7290
Bal	COD	B	r-OTTER	BACOMA	POL		1094	1476	1573	1460	2959	5421
Bal	COD	B	r-OTTER	BACOMA	SWE	3591	4362	3123	3663	5899	5112	7174
Bal	COD	B	r-OTTER	none	DEN	4218	4422	3741	5131	7984	9119	10943
Bal	COD	B	r-OTTER	none	GER	3713	4901	5584			13085	5827
Bal	COD	B	r-OTTER	none	SWE	2568						4303
Bal	COD	B	r-OTTER	T90	SWE							8075
Bal	COD	B	r-PEL_TRAWL	BACOMA	EST							2149
Bal	COD	B	r-PEL_TRAWL	BACOMA	GER				5145	12362	15517	23302
Bal	COD	B	r-PEL_TRAWL	BACOMA	LAT				4672	6115	3042	8429
Bal	COD	B	r-PEL_TRAWL	Bacoma	LIT							10765
Bal	COD	B	r-PEL_TRAWL	BACOMA	POL		1521	1384	1999	3667	1461	7437
Bal	COD	B	r-PEL_TRAWL	BACOMA	SWE		3408	2642	3871	6865	4368	9755
Bal	COD	B	r-PEL_TRAWL	none	DEN	2433	7988	4348	5675	11446	13861	22581
Bal	COD	B	r-PEL_TRAWL	none	GER		8402	4023				
Bal	COD	B	r-TRAMMEL	none	DEN	3218	3391	357	530	2850	4569	4374
Bal	COD	B	r-TRAMMEL	none	SWE	220	253	808	0	0	202	0
Bal	COD	B	TRAMMEL	none	SWE	0	0	0	0		0	
Bal	COD	C	GILL	none	EST				0			
Bal	COD	C	GILL	none	SWE			4	0			
Bal	COD	C	OTTER	none	SWE		0	0	14			
Bal	COD	C	PEL_TRAWL	none	DEN	0						
Bal	COD	C	r-GILL	none	SWE	173	160	134	129	187	234	593
Bal	COD	C	r-LONGLINE	none	SWE						0	
Bal	COD	C	r-OTTER	BACOMA	SWE						463	

Table 4.4.2.4 Baltic: Cod LPUE (g/kW*days) by derogation and year, 2003-2009 for areas A; B, C.

ANNEX	SPECIES	REG AREA COD	REG GEAR COD	SPECON	LPUE 2003	LPUE 2004	LPUE 2005	LPUE 2006	LPUE 2007	LPUE 2008	LPUE 2009	LPUE 2007-2009
Bal	COD	A	DEM_SEINE	none		0	0	348	0	0	0	0
Bal	COD	A	DREDGE	none	136				0	0	0	0
Bal	COD	A	GILL	none	412	113	305	309	262	217	25	182
Bal	COD	A	none	none	25446	31590	2901	4560	847	442	185	485
Bal	COD	A	OTTER	none	206	102	215	250	170	204	141	172
Bal	COD	A	PEL_TRAWL	none	107	89	176	196	157	101	66	109
Bal	COD	A	POTS	none	80	28	1175	384	716	307	287	452
Bal	COD	A	r-BEAM	BACOMA	0	0	0	0	0	2327	0	2327
Bal	COD	A	r-BEAM	none	2262	0	0	0	0	0	0	0
Bal	COD	A	r-DEM_SEINE	BACOMA	0	0	0	2177	3789	6510	4583	4955
Bal	COD	A	r-DEM_SEINE	none	3676	3294	4029	5302	5977	6720	4888	5987
Bal	COD	A	r-GILL	none	1848	1807	1749	1824	1921	1821	1542	1778
Bal	COD	A	r-LONGLINE	none	2063	2033	2360	1858	2684	1785	1452	2066
Bal	COD	A	r-OTTER	BACOMA	3832	2321	1798	3121	3210	2762	2706	2942
Bal	COD	A	r-OTTER	none	2173	2372	2476	2996	3562	3108	3451	3377
Bal	COD	A	r-PEL_TRAWL	BACOMA	0	1568	967	3306	5805	1441	0	5313
Bal	COD	A	r-PEL_TRAWL	none	2575	1872	2929	3658	2882	2473	8382	4061
Bal	COD	A	r-TRAMMEL	none	1205	1172	1158	1388	1195	1127	670	980
Bal	COD	A	TRAMMEL	none	681	1566	1286	669	1278	470	0	597
Bal	COD	B	DREDGE	none	0	0	0	0	0	4525	0	4525
Bal	COD	B	GILL	none	681	95	86	702	605	487	10	443
Bal	COD	B	none	none	93693	118508	2984	6974	1131	1159	311	849
Bal	COD	B	OTTER	none	87	85	106	96	111	31	41	63
Bal	COD	B	PEL_TRAWL	none	14	46	61	74	107	122	45	92
Bal	COD	B	POTS	none	0	0	0	3	0	6	88	25
Bal	COD	B	r-DEM_SEINE	BACOMA	0	0	0	5699	6444	12079	17195	13453
Bal	COD	B	r-DEM_SEINE	none	9602	588	10313	8384	10046	0	0	10046
Bal	COD	B	r-GILL	none	2316	1917	2175	2697	2351	3053	4530	3206
Bal	COD	B	r-LONGLINE	none	2301	3449	3164	3579	3752	3440	2153	3102
Bal	COD	B	r-OTTER	BACOMA	4382	2006	1997	2343	2933	4030	6820	4357
Bal	COD	B	r-OTTER	none	2907	2765	6684	6916	9922	12679	13815	12126
Bal	COD	B	r-OTTER	T90	0	0	0	0	0	0	8075	8075
Bal	COD	B	r-PEL_TRAWL	BACOMA	0	2192	1923	2907	5072	3276	6297	5206
Bal	COD	B	r-PEL_TRAWL	none	2253	5562	4765	14319	68804	13861	76675	68146
Bal	COD	B	r-TRAMMEL	none	983	796	434	473	2422	2579	3979	3083
Bal	COD	B	TRAMMEL	none	0	0	0	0	45	0	0	28
Bal	COD	C	GILL	none			4	0	0	0	0	0
Bal	COD	C	OTTER	none		0	0	14	0	0	0	0
Bal	COD	C	PEL_TRAWL	none	0				0	0	0	0
Bal	COD	C	r-GILL	none	173	160	134	129	187	234	593	331
Bal	COD	C	r-LONGLINE	none		0	0	0	0	0	0	0
Bal	COD	C	r-OTTER	BACOMA	0	0	0	0	0	463	0	463

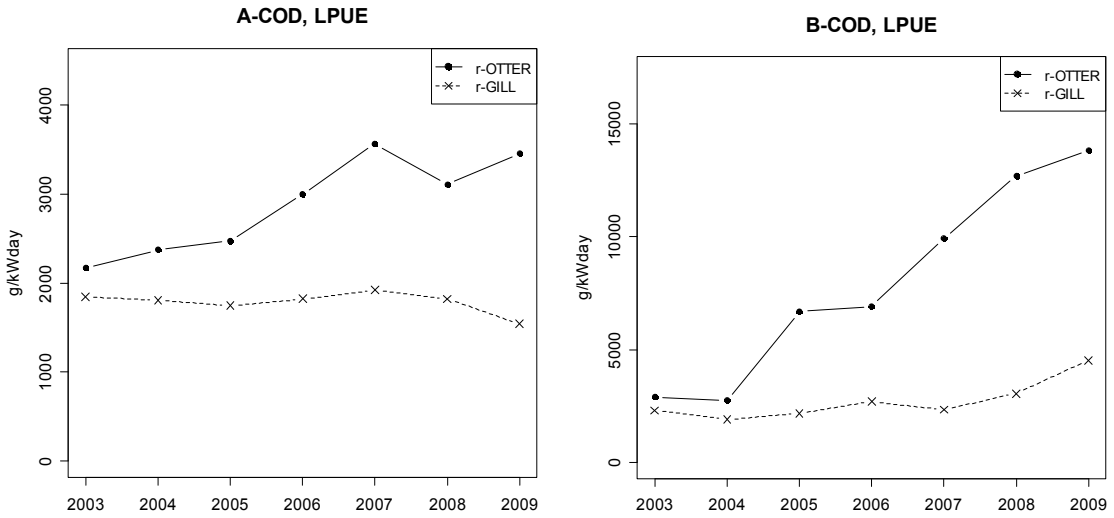

Figure 4.4.2.2. Baltic cod LPUE (g/kW*days) for r-OTTER and r-GILL in 2003-2009 for areas A and B.

4.5. Ranked gear categories according to the proportional catches and landings of cod

Ranked gear categories according to catches and landings of cod by area can be found in Tables 4.5.1 and 4.5.2.

There are some differences in the dominating gear that are responsible for the cod catches. In 2009 the otter trawl fishery was dominant in Areas A and B with gillnet fishery as the second most important cod catching gear. In area C, gillnets were the major gears although the total amount of cod catches was low compared to area A and B. The variation in the dominance of certain gear types between years is limited in Areas A and B. However, in area C larger shifts occurred. Note that the ranking was made based on data for 2009. Gears not listed had marginal catches of cod in 2009. According to available data, cod catches from unregulated gear types do not play a significant role.

Table 4.5.1 Ranked gear categories according to the proportional catches of cod 2003-2009

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel
Bal	A	COD	r-OTTER	0.59	0.58	0.55	0.55	0.61	0.57	0.63
Bal	A	COD	r-GILL	0.17	0.18	0.26	0.26	0.23	0.28	0.26
Bal	A	COD	r-DEM_SEINE	0.06	0.06	0.05	0.06	0.07	0.08	0.05
Bal	A	COD	r-TRAMMEL	0.01	0.01	0.02	0.02	0.02	0.03	0.03
Bal	A	COD	r-LONGLINE	0.02	0.02	0.05	0.03	0.03	0.02	0.02
Bal	A	COD	none	0.13	0.13	0.02	0.04	0.01	0	0

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel
Bal	B	COD	r-OTTER	0.57	0.46	0.61	0.58	0.54	0.68	0.67
Bal	B	COD	r-GILL	0.33	0.31	0.24	0.2	0.18	0.22	0.22
Bal	B	COD	r-PEL_TRAWL	0.01	0.1	0.04	0.12	0.18	0.02	0.06
Bal	B	COD	r-LONGLINE	0.05	0.09	0.09	0.08	0.06	0.05	0.03

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel
Bal	C	COD	r-GILL	1	1	0.91	0.71	1	0.94	1
Bal	C	COD	r-OTTER						0.06	
Bal	C	COD	GILL			0.09	0			
Bal	C	COD	OTTER		0	0	0.29			

Table 4.5.2 Ranked gear Categories according to the proportional landings of cod 2003-2009

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel
Bal	A	COD	r-OTTER	0.57	0.58	0.55	0.55	0.60	0.56	0.63
Bal	A	COD	r-GILL	0.18	0.18	0.26	0.26	0.24	0.28	0.25
Bal	A	COD	r-DEM_SEINE	0.06	0.06	0.05	0.06	0.06	0.08	0.05
Bal	A	COD	r-TRAMMEL	0.01	0.01	0.02	0.03	0.02	0.03	0.03
Bal	A	COD	r-LONGLINE	0.02	0.02	0.05	0.03	0.03	0.02	0.02
Bal	A	COD	none	0.14	0.13	0.02	0.04	0.01	0.00	0.00

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel
Bal	B	COD	r-OTTER	0.55	0.45	0.60	0.56	0.52	0.67	0.66
Bal	B	COD	r-GILL	0.34	0.31	0.25	0.21	0.19	0.23	0.23
Bal	B	COD	r-PEL_TRAWL	0.01	0.10	0.04	0.11	0.18	0.01	0.06
Bal	B	COD	r-LONGLINE	0.05	0.09	0.09	0.09	0.07	0.05	0.03

ANNEX	REG_AREA	SPECIES	REG_GEAR	2003 Rel	2004 Rel	2005 Rel	2006 Rel	2007 Rel	2008 Rel	2009 Rel
Bal	C	COD	r-GILL	1	1	0.91	0.71	1	0.94	1
Bal	C	COD	r-OTTER	0	0	0	0	0	0.06	0
Bal	C	COD	GILL	0	0	0.09	0	0	0	0
Bal	C	COD	OTTER	0	0	0	0.29	0	0	0

4.6. Information on landings from vessels under 8m

The vessels under 8m are responsible for around 3.1 % of the total cod landings in the Baltic during 2009(Table 4.6.1). In area A they were responsible for around 3.5% of cod landings and for 2.9% in area B. These figures are underestimates of the amount since only Sweden, Denmark Germany and Poland (for 2004 onwards) have delivered data for vessels under 8m.

Table 4.6.1. Cod landings taken by under 8 m vessels in 2003-2009 (t). (Only data from Germany, Denmark, Sweden and Poland)

REG AREA COD	COUNTRY	REG GEAR COD	2003	2004	2005	2006	2007	2008	2009
A	DEN	GILL	8.10	1.51	9.20	8.94	11.55	15.20	5.66
		none	716.78	646.84	584.61	468.11	336.75	321.60	221.90
		OTTER				0.08		0.03	
		POTS			19.63	8.85	9.21	1.01	1.43
		r-DEM_SEINE			0.02				
		r-GILL	0.22	0.01	90.02	60.21	66.16	73.39	45.81
		r-LONGLINE	1.15	0.68	19.96	9.69	41.51	16.14	9.80
		r-OTTER		0.71	0.02	0.19	0.05	0.55	0.02
		r-TRAMMEL	1.03		2.78	3.34	5.23	8.92	3.45
		TRAMMEL				0.20		0.01	0.02
	DEN Total		727.29	649.74	726.24	559.60	470.46	436.84	288.09
	GER	GILL	378.37	318.36	426.54	371.40	375.49	274.34	193.61
		none	0.15	0.02	2.78	0.29	0.29		
		POTS		0.06		0.14	0.35	0.09	0.30
		r-LONGLINE	0.14	2.88	3.80	3.46	2.29	1.16	0.20
	GER Total		378.66	321.33	433.12	375.29	378.42	275.59	194.11
	POL	GILL		0.65	0.40	0.23	0.51	0.95	0.13
		POTS		0.20			0.002		
		r-GILL		36.70	13.37	15.39	23.14	17.90	15.84
		r-LONGLINE						0.37	
	POL Total			37.55	13.77	15.62	23.65	19.22	15.96
	SWE	none	0.04	1.43	1.44	2.17	3.38	5.81	0.08
		POTS	6.93	9.59	13.55	6.75	13.21	4.28	2.67
		r-GILL	34.48	38.98	41.16	30.32	39.14	62.26	23.73
		r-LONGLINE		6.32	3.15				
		r-TRAMMEL	3.60	1.40	3.14	0.12		0.02	0.36
	SWE Total		45.04	57.70	62.44	39.36	55.73	72.36	26.84
A Total			**1150.99**	**1066.33**	**1235.56**	**989.87**	**928.27**	**804.02**	**525.01**
B	DEN	GILL						0.17	
		none	107.25	178.59	142.02	147.03	131.90	163.19	174.05
		r-GILL			3.68		5.86	22.27	20.91
		r-LONGLINE			0.32		4.44	13.20	16.85
		r-OTTER						0.25	
	DEN Total		107.25	178.59	146.02	147.03	142.20	199.08	211.81
	LIT	r-GILL							31.91
		r-LONGLINE							5.73
	LIT Total								37.64
	POL	GILL		5.65	1.74	4.24	1.44	2.07	5.88
		POTS		0.79	1.86	0.81	0.01	0.21	0.43
		r-GILL		285.32	420.45	382.06	194.84	329.04	794.47
		r-LONGLINE		32.27	52.88	102.68	66.00	43.58	82.98
	POL Total			324.03	476.92	489.78	262.28	374.90	883.75
	SWE	GILL			0.14	0.001	0.001	0.09	0.06
		none	1.06	0.21		5.42	1.79	2.95	1.42
		POTS	22.73	13.46	12.08	12.95	11.38	13.75	7.05
		r-GILL	138.40	117.98	59.76	74.42	96.48	99.64	86.21
		r-LONGLINE	69.95	57.47	57.70	32.65	24.71	37.13	17.31
		r-TRAMMEL	0.02	0.11	0.36	0.20	0.31	0.15	0.02
		TRAMMEL	0.12	0.18	0.19	0.29		0.01	0.00
	SWE Total		232.28	189.40	130.23	125.94	134.67	153.72	112.07
B Total			**339.53**	**692.02**	**753.17**	**762.75**	**539.15**	**727.70**	**1245.27**
C	SWE	GILL		0.20	0.004		0.002	0.25	
		POTS	9.00						
		r-GILL							0.12
	SWE Total		9.00	0.20	0.004		0.002	0.25	0.12
C Total			**9.00**	**0.20**	**0.004**		**0.002**	**0.25**	**0.12**
Grand Total			**1499.52**	**1758.55**	**1988.74**	**1752.62**	**1467.42**	**1531.97**	**1770.40**

4.7. Spatial distribution patterns of effective effort

There were data reported for 2009 only on the spatial distribution of effort from Sweden, and Lithuania and only a limited amount of data was reported by Estonia. Finland did not provide data in accordance with the data call. Data from Poland are only available from 2004 onwards.. Hence the confidence in these results is low. Below, only figures for the dominant gear groups in terms of the amount of landed cod (r-Otter and r-Gill) are presented. A full set of figures, however, will be made available on the web.

STECF-SGMOS reiterates that at the present time the minimum geographic resolution in the available logbook information on landings and effective effort is the ICES statistical rectangle. The effective effort values of certain nations were given in days fished which were then converted to trawled hours by applying a factor of 24. STECF-SGMOS notes that only major changes in the geographical distribution patterns should be given attention given the imprecision of the created data set.

According to available data, the spatial distribution of deployed effort showed a westward shift over the years. Especially in sub-area C there was almost no effort by the main gears catching cod after 2003. The distribution pattern of effort in the most recent period follows well the general distribution of cod in the Baltic Sea (ICES, 2010)

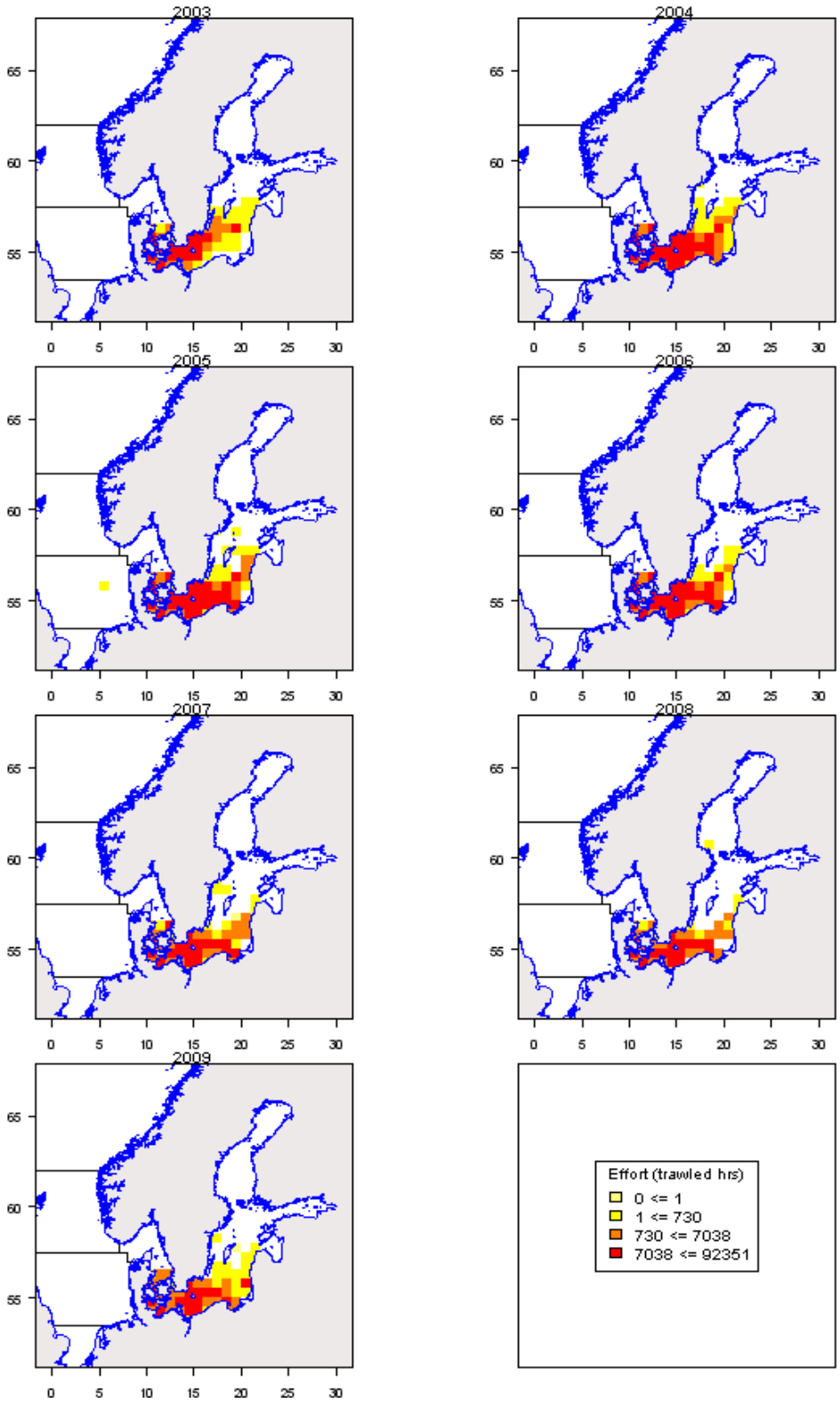

Figure. 4.7.1 Spatial distribution of effective effort (trawled hours) r-OTTER 2003-2009. There was no data reported on the spatial distribution of effort from Sweden, Poland and Lithuania and only a limited amount of data reported from Estonia and Finland.

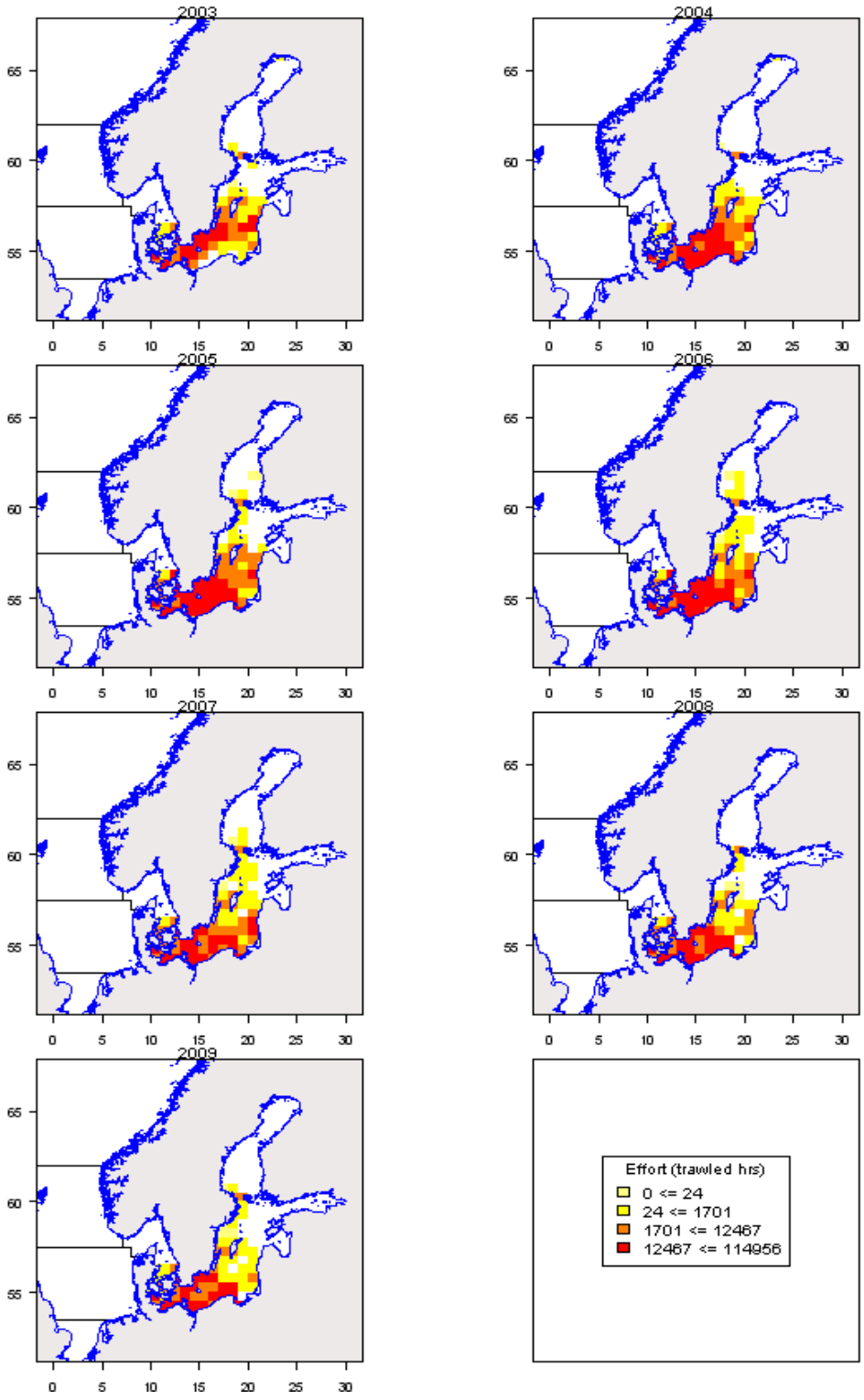

Figure. 4.7.2 Spatial distribution of effective effort (fishing hours) r-Gill 2003-2009. There was no data reported on the spatial distribution of effort from Sweden, Poland and Lithuania and only a limited amount of data reported from Estonia and Finland.

5. F VERSUS FISHING EFFORT ANALYSIS

Relationships between fishing mortality and effort deployed (for all regulated gears combined) are strong for both western Baltic cod and eastern Baltic cod. Results change to some extent depending on whether the analysis is based on F from ICES assessments or an STECF partial F assuming that effort data show the same bias as STECF catch estimates (i.e. without unallocated removals) compared to ICES catch estimates (i.e. with unallocated removals). The general conclusions, however, hold true for both types of analyses. The intersection of the regression line with the x-axis would imply a zero catch of eastern Baltic cod already at around 5 million kW*days. This is a hint that the relationship is to some extent spurious and other factors besides effort reductions are responsible for the drop in F during the last years. For example, improved productivity of the stock and the TAC constraint of +/- 15% in the cod management plan contributed. Therefore interpretation of these results should be carried out cautiously (Figure 5.1).

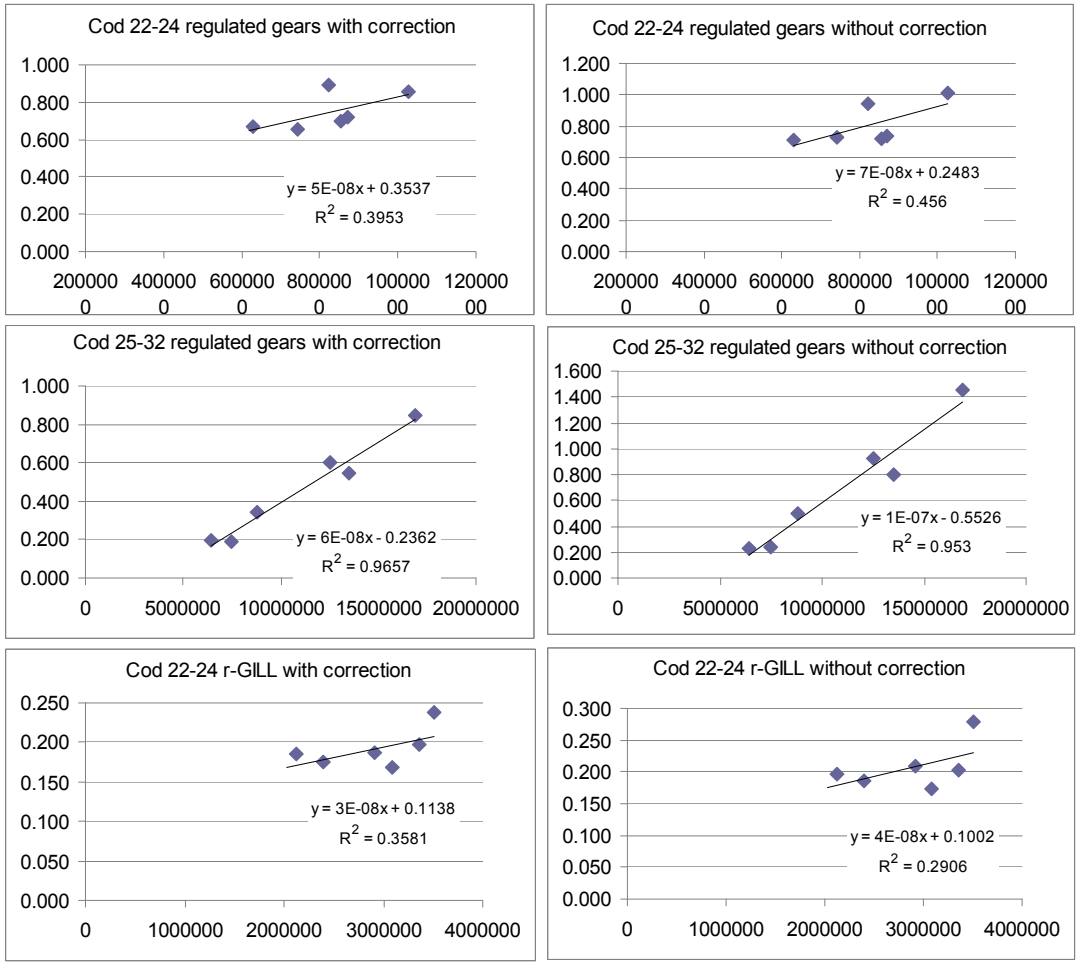

Figure 5.1. Results of F (vertical axis) versus fishing effort analysis (kW*days at sea). **Note that not only effort reductions are responsible for the drop in F during the last years. An improved productivity of the stock and the TAC constraint of +/- 15% in the cod management plan could also have contributed. Interpretation of these results should be carried out cautiously**!

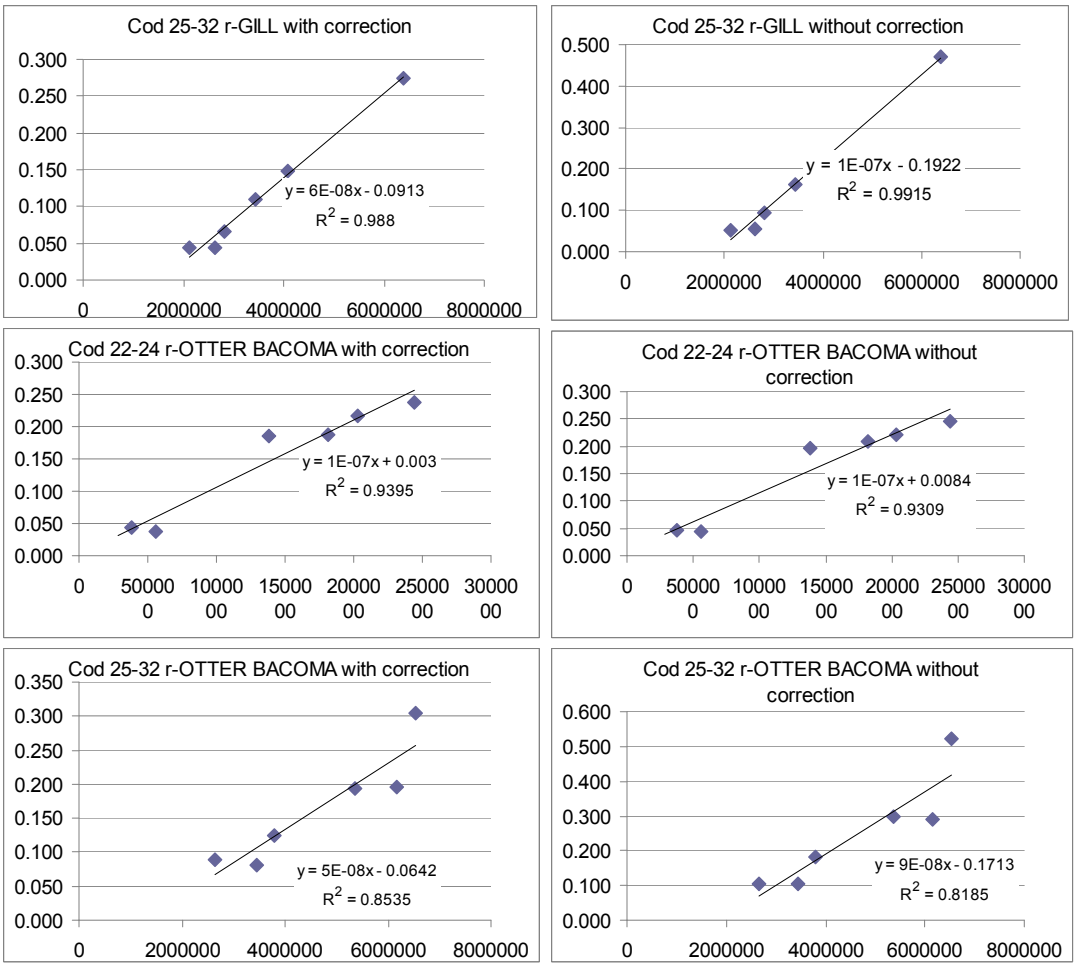

Figure 5.1. (continued).

6. REFERENCES

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APPENDIX I: STECF SGMOS-10-04 AND 10-05 LIST OF PARTICIPANTS

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APPENDIX II: EXPERT DECLARATIONS

Declarations of invited experts are published on the STECF web site on https://stecf.jrc.ec.europa.eu/home together with the final report.

European Commission

EUR 24632 EN **– Joint Research Centre – Institute for the Protection and Security of the Citizen**
Title: Scientific, Technical and Economic Committee for Fisheries. Report of the SGMOS-10-05 Working Group on Fishing Effort Regime in the Baltic.

Author(s): Bailey N., Vanhee W., Davie S., Barratt K., Ulrich Rescan C., Silva C., González Herraiz I., Gómez Suárez F. J., Holmes S., Jardim E., Reeves S., Kempf A., Kuzebski E., Ozernaja O., Raid T., Vermand Y., Beare D., Neat F., Dransfield L., Mitrakis N. and Rätz H.-J.

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Abstract
SGMOS-10-05 meeting was held on 27 September - 1 October 2009 in Edinburgh (UK), while the SGMOS-10-04 meeting, which contributed to the report of all 3 regions, the Baltic Sea (1), Annex IIA areas and the Celtic Sea (2) and Western Waters as well as the Deep Sea (3). This section of the report covers the Baltic Sea and provides fleet specific trends in catch (including discards), nominal effort and catch (landings) per unit of effort in order to advise on fleet specific impacts on stocks under multiannual management plans. STECF reviewed the report during its November 2010 plenary.

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