



Aqua reports 2012:2

Cod catches onboard Swedish tour boats in the Sound during 2011

Vidar Øresland



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Aquatic Resources

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By Vidar Øresland

February 2012

SLU, Department of Aquatic Resources

Aqua reports 2012:2

ISBN: 978-91-576-9069-2 (electronic version)

This report may be cited as:

Øresland, V. (2012). Cod catches onboard Swedish tour boats in the Sound during 2011.

Aqua reports 2012:2. Swedish University of Agricultural Sciences, Lysekil, 19 pp.

Download the report from:

<http://www.slu.se/en/library/publish/search-epsilon/>

Address

Swedish University of Agricultural Sciences, Department of Aquatic Resources,
Institute of Marine Research, Turistgatan 5, S-453 30 Lysekil, Sweden

E-mail

Vidar.Oresland@slu.se

This report has been reviewed by:

Mattias Sköld, Patrik Jonsson

Photographs on front and back cover: Vidar Øresland, Lysekil

Abstract

According to the Data Collection Frame Work, DCF 2010/93/EU, member states shall evaluate the quarterly weight of the recreational catches of cod. This monitoring program was started in order to partially fulfil this need for data. The Sound (between Sweden and Denmark) was chosen for this study as it was considered the only area with significant Swedish recreational fishing for cod. This study reports the quarterly catches of cod (as kg cod kept) onboard Swedish tour boats in the Sound during 2011. All 10 Swedish tour boats operating in the Sound participated in the study. One new boat that started fishing in August was not included in the study. Daily catches were estimated, mainly visually, and reported by crew members. Control weightings of catches were carried out by IMR personnel indicating that crew members overestimated catches of cod in kg by 5 % ($n = 4$). Catches from 1 018 fishing days were reported. The total quarterly weight of cod taken was 15 656, 25 241, 39 174 and 5 065 kg. The total annual cod catch was 85 136 kg. This can be compared to 413 618 kg cod taken by the Swedish commercial fleet (56 boats) in the Sound during 2011. The total tour boat catch was 17 % of the combined tour boat and commercial catches. At present there are no verified estimates of the remaining recreational fishing for cod in the Sound. The present study is planned to continue during 2012 and number of control weightings will be increased and individual length of catches will be taken on those occasions and catch per tour, instead of per day, will be reported.

Sammanfattning

Enligt datainsamlingsförordningen, DCF 2010/93/EU, skall medlemsstater uppskatta den totala vikten av torsk fångad varje kvartal inom fritidsfisket. Studien är begränsad till fritidsfiske från turbåtar. Öresund har valts som undersökningsområde då det är endast där som turbåtsfisket bedrivs i större skala. Per kvartal fångades 15 656, 25 241, 39 174 and 5 065 kg torsk i Öresund. Totalt fångades 85 136 kg torsk under 2011 vilket var 17 % av den sammanlagda fångsten av det kommersiella svenska fisket och turbåtsfisket i Öresund.

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1 Introduction

During the last few years there has been a growing interest for quantitative data on recreational catches of certain fish species in Europe. According to the Data Collection Frame Work (DCF 2010/93/EU) member states shall evaluate the quarterly weight of the recreational catches of e.g. cod. It is also stated that surveys, where relevant, shall be carried out to estimate the importance of the recreational fisheries.

This monitoring program of cod catches onboard Swedish tour boats in the Sound during 2011 was carried out by the Institute of Marine Research (IMR) in collaboration with the tour operators to partially fulfil the need for DCF data. The program is the first of its kind in Sweden and it is based on the tour boat operator's own reports. The Sound area was chosen because here we have a regular operation of tour boats and a small professional gill net fishing fleet to which recreational cod catches can be compared. In addition, the recreational fishing for cod in the Sound is by far the largest in Sweden. The Sound area is highly populated on both the Swedish and the Danish side. Together, this makes monitoring of the Sound recreational fishery especially interesting and important.

The total catch of cod in kg will be presented on a quarterly and annual basis together with other data of interest. The remaining recreational fishing for cod from private boats and from land during 2011 is estimated in a separate mail study that will be reported elsewhere by the Swedish Agency for Marine and Water Management.

2 Methods

The 10 tour boat captains and crew were invited to a meeting before the study started where the purposes and methodology of the study were presented and discussed. As we received a very positive feed-back we decided during the meeting to jointly carry out the monitoring program. At this meeting we presented a report sheet where individual catch of each fisher should be noted and whether or not the fishers were Swedish residents. This was considered far too complicated by the tour boat operators and we agreed that they should only report total catch per day (kg cod kept). However, some operators did report catches of non-residents for some months (too few to be considered here). One boat reported number of fishers onboard and those data are reported here as an effort estimate (boat catch in kg cod versus number fishers onboard).

All tour boats ($n = 10$) and their fishing tours during 2011 are included in this study. However, one new boat that started fishing in July was not included in the study. Some tour boat operators reported that some minor catches of cod may not have been reported during 2011 when they were fishing mainly for other species. The identity of individual tour boats in relation to specific data are not given here in agreement with the tour operators. Names of tour boats are given in the Acknowledgements.

The total daily catch of cod in kg was normally estimated visually by a crew member. The crew estimates was reported on paper report sheets and sent to IMR every third month in pre-paid envelopes. In order to verify this method IMR employees joined seven tours (different tour boats) and weighed the catch. During the control weighting all fishes that had been weighed were cut by the throat (fishers were told not to do that). Weighting was done immediately after catch. The results were compared to catch estimates reported by the tour boat operators.

3 Results and discussion

Control of the visual weight estimates made by crew is obviously vital in monitoring studies like this. The visual estimates and control weightings (in kg) on the seven control occasions were 52/57, 30/25, 60/58, 240/226/, 11/11, 5/6 and 6/6. As a mean, the crew over estimated the catches by 5 % on the occasions when the catch >11 kg (n = 4). The number of controls needs to be increased. At least 20 controls are planned for the 2012 study after which the number of controls again will be evaluated.

Tables 1-4 (see chapter 5) show the tour boat data for each quarter. Table 5 shows the annual tour boat data. The fishing was affected considerably by severe ice conditions in the harbours at the start of the year and by extremely rough weather during December. The total quarterly weight of cod taken was 15 656, 25 241, 39 174 and 5 065 kg. The total annual cod catch was 85 136 kg.

The purpose of Figure 1 is to show that day catches vary considerably and to show all individual weight estimates for each boat during 2011. Figures 2 and 3 show that both the number of fishing days and the total catch were highest during summer. It is notable that the mean catch per tour was higher during summer than during the cod spawning season in spring (Table 3). Figure 4 shows no correlation between catch and number fishers onboard. These data comes from only one boat. The data, however, indicate that fishing effort cannot be used to estimate catch on tour boats in the Sound.

The Swedish commercial fleet operating in the Sound during 2011 landed 413 556 kg cod (data from the Swedish Agency for Marine and Water Management). This should be compared to the 2011 tour boat landing that was estimated to 85136 kg in this study. Mean catch of commercial and tour boats were 7.4 and 8.5 ton, respectively. Figure 5 shows that only 12 commercial boats landed over 10 ton in 2011. Since we do not have reliable estimates of

other recreational fishing for cod in the Sound we will not, at this point, speculate on total recreational landing of cod in the Sound. However, the total tour boat landing made up 17 % of the combined landing (498 692 kg) of the commercial fleet and the 10 tour boats. When better estimates of the total recreational landings are available the estimated proportion recreational landings will obviously increase.

A self reporting system as used here has many advantages; it is cheap, data can be verified through controls, and it increases positive contacts between tour operators, researchers, fishery administration, and fishers. Such a system utilizes a feeling of responsibility for common fish resources among tour operators and fishers. Only positive feedback was given during this study and fishers onboard tour boats were very positive when control weightings were carried out. The control, however, must be included and further developed in such a self reporting system. This study will be repeated during 2012. We will use a simplified monthly report sheet and data regarding foreign fishers will not be reported. Reporting catch estimates in Excel and using Email will be encouraged. Reporting catch estimates to a homepage will be discussed at a future meeting with boat operators. However, it is very important that individual boat operators can report their estimates according to their own wishes.

4 Acknowledgements

I thank the captains and the crews of M/S Amigo, M/S Confident, M/S Ellinor, M/S Emma, M/S Islandia, M/S Pelle, M/S Tummlaren, M/S Tärnö, M/S Vandia and M/S Wittskär for taking the responsibility of primary data collection and for very good collaboration in this joint study. I thank Ronnie Nilsson at the Institute of Marine Research for carrying out the control weightings. Commercial Swedish landings of cod from the Sound were taken from the data base “Loggbas” and were provided by Jarl Engquist (Swedish agency for marine and water management). The project data base containing weight data and calculations was quality checked by Patrik Jonsson. This report was by reviewed by Mattias Sköld and Patrik Jonsson. Photos were taken by the author. Front page photo is of M/S Wittskär© and back page photo is of M/S Islandia©.

5 Tables and figures

Table 1. Number fishing days and total boats catches per boat during January to March.

Boat code	Comments	No days	Total catch
1		42	4304
2		42	3505
3	Jan-Feb no fishing	12	1195
4	4 tours with non-res.	4	10
5		26	1559
6		12	835
7		25	1392
8	Jan-March no fishing	0	0
9		14	931
10		19	1925
No days		196	
Kg cod taken			15656
Mean kg cod /day			80

Table 2. Number fishing days and total boats catches per boat during April to June.

Boat code	Comments	No days	Total catch
1		35	2485
2		41	1672
3	May-June no fishing	8	86
4		13	550
5		28	750
6	Not fishing	0	0
7	May not fishing	19	797
8	April not fishing	24	4954
9		58	4781
10		63	9166
No days		289	
Kg cod taken			25241
Mean kg cod /day			87

Table 3. Number fishing days and total boats catches per boat during July to September.

Boat code	Comments	No days	Total catch
1		68	9216
2		63	2617
3	No cod fishing	0	0
4	July-Aug no fishing	13	477
5	July-Aug no fishing	7	293
6	Little fishing	1	145
7		58	2186
8		63	15665
9		51	3102
10		44	5473
No days		368	
Kg cod taken			39174
Mean kg cod /day			106

Table 4. Number fishing days and total boats catches per boat during October to December.

Boat code	Comments	No days	Total catch
1		23	438
2		37	286
3	No cod fishing	0	0
4		13	473
5		14	265
6		18	514
7		15	148
8	Not operating		
9		21	850
10		24	2091
n tours		165	
Kg cod taken			5065
Mean kg cod /day			31

Table 5. Number fishing days and total boats catches per boat during 2011.

Boat code	Comments	No days	Total catch
1		168	16443
2		183	8080
3		20	1281
4		43	1510
5		75	2867
6		31	1494
7		117	4523
8		87	20619
9		144	9664
10		150	18655
No days		1018	
Kg cod taken			85136
Mean kg cod /day			84

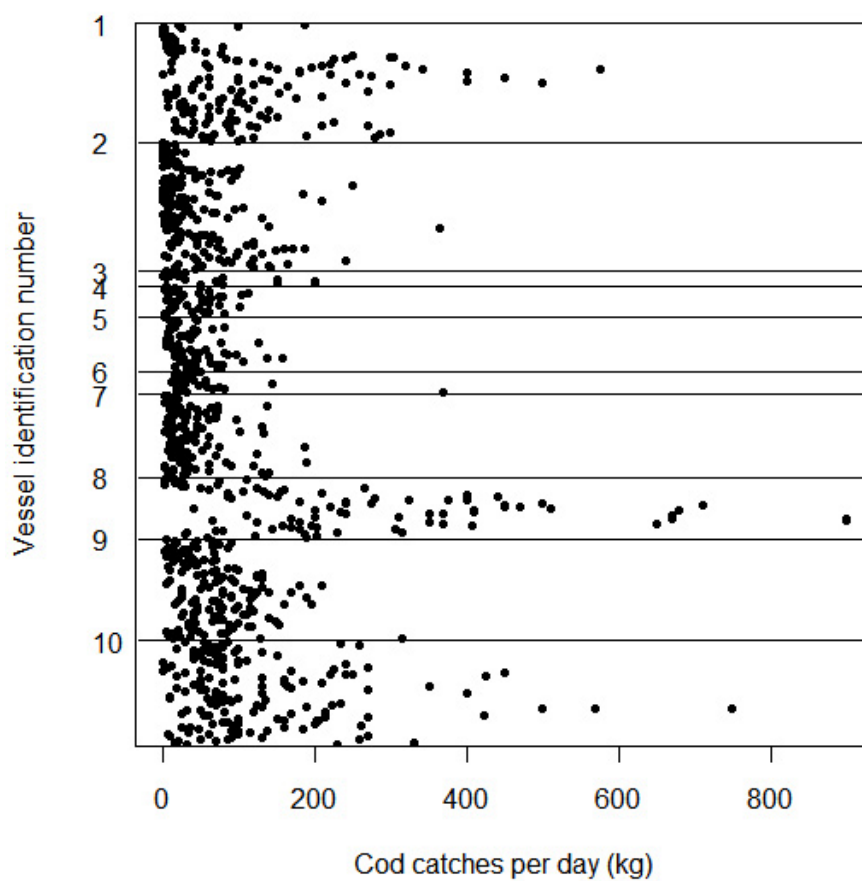


Figure 1. All day catches during 2011. n = 1 018 fishing days.

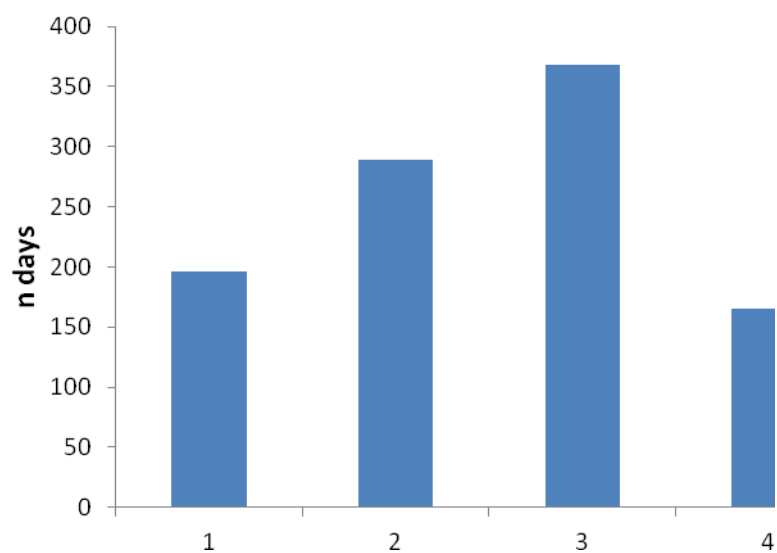


Figure 2. Number fishing days per quarter.

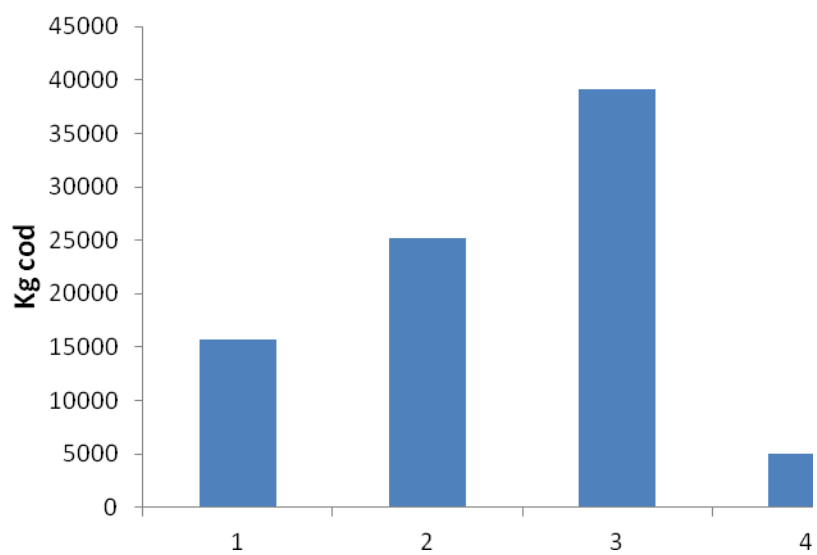


Figure 3. Catch in kg cod per quarter.

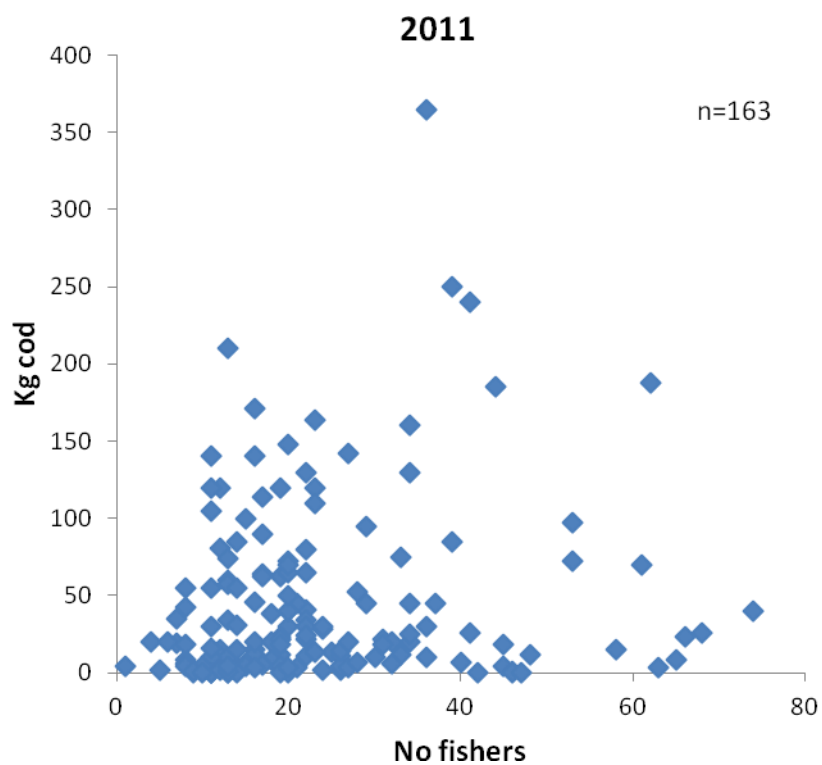


Figure 4. Catch of cod versus the number of fishers onboard reported from one of the boats. High number (>50) of fishers indicate that the catch and number of fishers are from 2-3 fishing tours (during the same day).

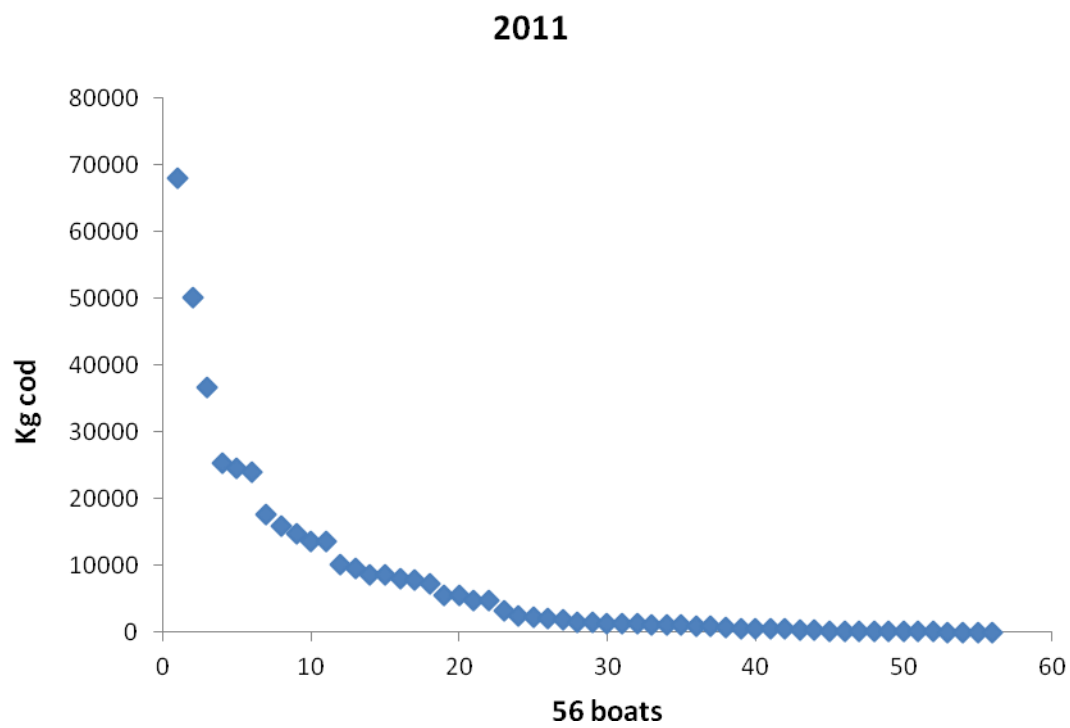


Figure 5. Commercial landing of cod in the Sound during 2011. The first boat landed almost 70 ton. Only 12 boats landed over 10 ton. Total landing was 414 ton.

