

**Council**

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**DESCRIPTION OF METHODS CURRENTLY USED FOR ESTIMATING  
UNREPORTED SALMON CATCHES IN NORWAY**

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### *Legal basis for catch reports*

The duty to report catches is regulated by law. Everybody who catches anadromous salmonids has to report its catch either directly to Statistics Norway (sea fishery) or the fishing right owner. Fishing right owners report the catch to the County Governors. CG's compile data for rivers and report to Statistics Norway.

### *Main approach to estimate unreported catches*

The main approach to estimate unreported catch is to divide total unreported catch into components and then establish estimates for each component in relation to reported catches. Trends on the size of the fishery or catches from year to year are taken into account. Total unreported catch is divided into the following components:

- Illegal takes in sea
- By-catch in marine commercial fisheries
- Legal takes in sea by bag net and bend net
- Legal takes in sea by angling
- Illegal takes in rivers
- Legal takes in rivers, mainly by angling

In total we estimate the unreported catches to be about 30% of the total catches. The uncertainty is considered to be +/- 25%.

Overall trends in all fisheries in recent years give reason to believe that unreported catches are slightly declining.

### *Illegal takes in sea – about 20% of reported sea catch*

A study on illegal fishing in Norway (ØF-Rapport nr. 23/1996) was conducted in 1996. In the report the extent of illegal fishing in sea (mainly gill nets, but also drift nets) and the size of illegal catches were estimated. The study indicated that catches might be significant. Since then information on annual numbers of confiscation of fishing gear and reported offences are used to estimate trends in levels of illegal fishing and illegal catches. Estimates are based upon this study and trends from reports on surveillance activities. Trend in recent years: stable or slightly declining. Estimates are considered to be very uncertain.

### ***By-catch in marine commercial fisheries – about 5% of reported sea catch***

A system for reporting by-catch of salmon in marine commercial fisheries is not established, and the knowledge on by-catches from different types of these fisheries is limited. However, by-catch by marine commercial fisheries in home waters is in general not considered to be a major contributor to the total figure of unreported catches. Test fishing by mackerel gill nets, which are considered to be the most likely problem, has given information about by-catch of salmon in this type of fishery. Estimates are based upon these studies, reports on the increase or decrease of this fishery and an overall consideration of potential by-catch in other commercial fisheries. Trend in recent years: most likely stable. Estimates are considered to be reasonably certain.

### ***Legal takes in sea by bag net and bend net – about 20 % of reported sea catch***

The reporting system for legal takes by bag net and bend net has been improved by introduction of catch journals in 1993 mailed directly to Statistics Norway by the fishermen themselves. The return rate of catch journals has been about 95 % ever since. A study by Mørkved & Krokan conducted in 1996 “An analysis of Norwegian bag- and bend net fishermen” indicates that catches are slightly underreported. However, this study was not specially designed to explore the size of unreported catches. The introduction of a buy-out scheme of the bag-net fishery in the Trondheimfjord also indicates that catches in this fishery might have been underreported – maybe significantly, although return rates of catch journals have been high.

Current estimates are based on the study from 1996 and adjustments made based on more “common knowledge” of the fisheries, which still gives reason to believe that catches are underreported. Trend in recent years: stable or slightly declining. Estimates are considered to be reasonably certain.

### ***Legal takes in sea by angling – about 15 % of reported sea catches***

Although every fisherman has an obligation to report salmon catches in sea by angling to the Statistics Norway, there is no specific system in place to report these catches. The lack of a specific system is mainly due to the fact that no fishing license is necessary, and it therefore is difficult and costly to contact these fishermen and to implement an effective control system.

A few surveys on the size of catches in this type of fishery have been carried out for some rather limited geographical areas like fjords. In order to try to get an oversight on catches a nationwide study (ØF-rapport nr.7/1997) was conducted in 1996 in co-operation with Statistics Norway. This study indicated that there might be substantial catches in this fishery – on the other hand these estimates were statistically rather uncertain. Estimates are made on the background of these studies. Trend in recent years: most likely stable. Estimates are considered to be very uncertain.

### ***Illegal takes in rivers – about 5% of reported river catches***

Information derived from reports on surveillance activities is used to estimate trends in illegal fishing and catches in rivers. There is reason to believe that surveillance activities in rivers by fishing right holders have increased over the years due to substantial efforts for better organization and local management of salmon rivers. Illegal takes in rivers are in general not

considered to be a major contributor to the total figure of unreported catches. Current estimates are based on these reports and detected trends. Trend in recent years: stable or slightly declining. Estimates are considered to be reasonably certain.

***Legal takes in rivers, mainly by angling – about 15% of reported river catches***

The reporting system for legal takes in rivers by angling has been improved due to better organization of fishing right holders and local management of salmon rivers. Several studies conducted in different rivers show that a catch report return-rate of 30-50%, which was common in Norway some years ago, equals about 60%-75% of the total catch. In later years deposits on fishing licenses have been introduced in many rivers, which are refunded when catch reports are returned. In these rivers catch-reports are improved and the return-rate of catch reports has risen to 85-95%. However there is still reason to believe that also catches in rivers are underreported. Trend in recent years: most likely declining. Estimates are considered to be reasonably certain.

**Example for the 2006 fisheries - total catch, reported and unreported catches**

	2006	
	Tonnes	%
Total catch	1330	100 %
Reported catch - total	931	70 %
Reported catch sea fisheries	511	
Reported catch river fisheries	420	
Unreported catch *)	399	30 %

Uncertainty total and unreported catch	± 100	
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\*) Uncertainty 25%

Estimated unreported catches by components

	2006	
	Tonnes	ca. % of reported sea catch
Illegales takes in sea	102	20 %
By-catch by commercial sea fishing	26	5 %
Legal takes in sea by bag-net and bend net	102	20 %
Legal takes in sea by angling	77	15 %
	Tonnes	ca. % of reported river catch
Illegal takes in rivers	21	5 %
Legal takes in rivers, mainly by angling	63	15 %

Total unreported	391	
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