

**ECOREGION**  
**SUBJECT**

**NORTH SEA**  
**EC request on in-year management advice for sandeel in the North Sea**

**Request**

The European Community (EC) requested ICES to provide further advice to allow EC to apply the procedure described in COUNCIL REGULATION (EC) No 23/2010, ANNEX IID.

ICES understands the method referred to in the request as the method for setting the TAC for sandeel in the North Sea as suggested by ICES in its advice on harvest control rules and long-term management strategies for sandeels (ICES 2009). The TAC calculated by this method shall apply to all catches of sandeel (EC and Norway).

Annex IID prescribes a Real-Time Monitoring (RTM) fishery of sandeel from 1 April to 6 May 2010 to estimate the abundance of the 2009 year class. These estimates are used in the formula

$$TAC_{2010} = -333 + 3.692 * N1$$

where N1 is the real-time estimate of age group 1 sandeel in billions derived from the exploratory fishery in 2010; the TAC is expressed in 1000 tonnes.

The estimation of the 2009 year class (N1) is as previously outlined in ICES (2009).

**ICES response**

Based on real-time monitoring data available from weeks 15 to 18 in 2010, the estimated stock size of age 1 sandeels in 2010 is approximately 159 billion individuals and the estimated mean weight of an age 1 sandeel in 2010 is 3.12 g. Using these estimates, the calculated 2010 TAC value based on the formula above is 253,000 t.

Technical Background

This response is based on 2010 data from the Danish fishery (extracted from the Danish Fishery Directorate's database on 6 May 2010). No data from the Norwegian fishery were available. Total landings of 45 809 t, have been reported so far this year of which 26 636 t was used for estimation of the standardised catch-per-unit-effort (CPUE). Logbook information from 62 trips and data from 65 biological samples of sandeel landings obtained between 1 April and 6 May 2010 were used to estimate the abundance of the 2009 cohort of sandeels at age 1.

International landings during April-May 2010 were concentrated in a band stretching from the Dogger Bank area to the coast of the northern Jutland. The maps in Figure 6.3.3.1.1 indicate the spatial distribution of the sandeel harvests and samples during the real-time monitoring period in 2010. The spatial distribution of landings was wider than in 2008 and 2009. Based on real-time monitoring data from weeks 15 to 18 in 2010, the estimated stock size of age 1 sandeels in 2010 is 158.708 billion individuals and the estimated mean weight of an age 1 sandeel in 2010 is 3.12 g. Using these estimates the TAC for 2010 is estimated at 253,000 tonnes by the agreed procedure described in COUNCIL REGULATION (EC) No 23/2010, ANNEX IID.

The standardized CPUE in 2010 was relatively stable over the monitoring period – varying from 39.7 t day<sup>-1</sup> in week 15 to 39.2 t day<sup>-1</sup> in week 18. Statistics for age 1 sandeel in 2010 are presented below. Values by weeks are based on cumulative data, including the given week.

Week number	Dates (day/month–day/month)	Cumulative Mean weight (g)	Cumulative CPUE (number caught per standardized day absent, in millions)	Cumulative Estimated age 1 sandeel numbers in the sea (billions)	Standardised CPUE (tonnes/day)
15-16	01/04-22/04	2.46	12.778	183	34.6
17	01/04-29/04	2.68	11.777	164	34.4
18	01/04-06/05	3.12	9.812	159	36.0

In contrast to the previous years, CPUE was decreasing in weeks 16 and 17 from the opening of the fishery. However, contrary to previous years, the CPUE had not stabilised between weeks 17 and 18. For week 19, a 50% increase in CPUE was observed compared to week 18 (Table 6.3.3.1.1). During the beginning of the RTM period the sandeel CPUE was apparently affected by low stock availability. Sandeel remains buried in the sediment out of reach for the fishery when the availability of food is low. The very low mean weight observed in combination with a low oil content of the sandeel indicate that sandeel have had poor feeding conditions so far in the spring 2010. This might be linked to the relative cold winter, which might have delayed the spring bloom of zooplankton and the availability of sandeel to the fishery.

In providing in-year advice last year, ICES raised concerns about the validity of the current modelling approach and its reliance on a single index. A benchmark workshop on sandeel will be hosted by ICES on 6-10 September 2010 to further investigate these concerns and to fully evaluate available life-history data (including stock weights). For the present, ICES provides the requested in-year management advice using the established methodology.

### **Sources**

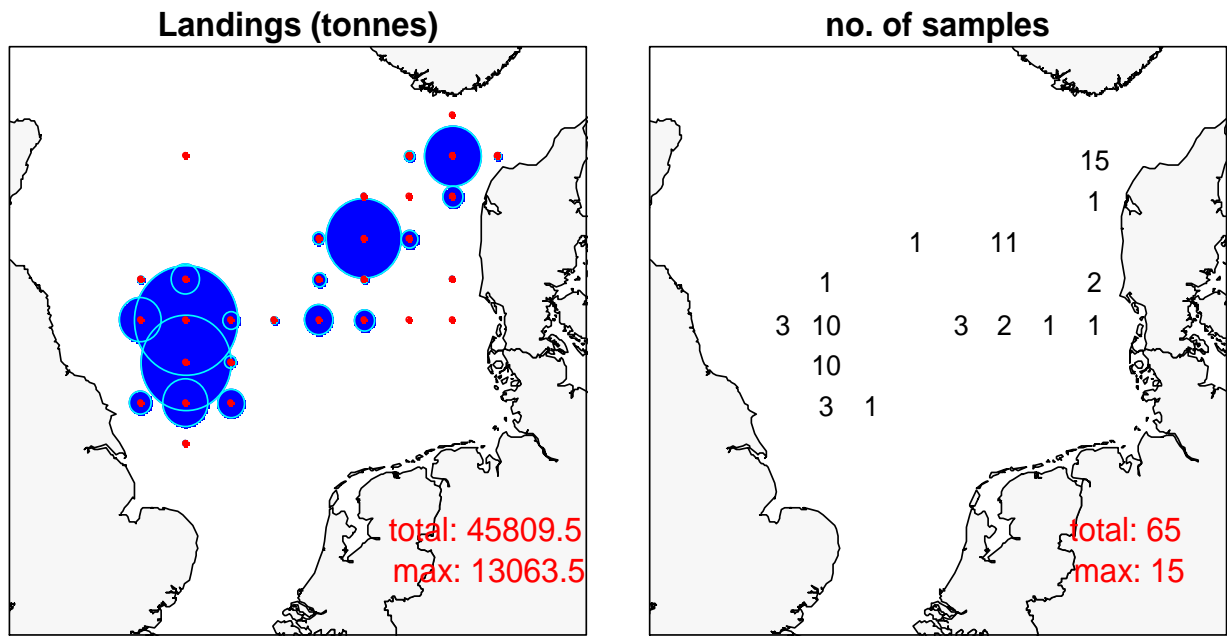
Christensen, S. 2010. Real-time monitoring of the North Sea sandeel fishery in 2010. Final report. 13 pp.

ICES 2009. Report of the *ad hoc* Group on Sandeel - II, 19-21 October 2009, ICES HQ. ICES CM 2009/ACOM:51

**Table 6.3.3.1.1 Fishing effort and CPUE used for real-time monitoring of the North Sea sandeel fishery.**  
 Effort is given as number of fishing trips and as days absent from harbour standardised to a 200 GT vessel. CPUE is calculated as catch weight per standardised days absent. The week number is calculated such that week 1 includes the first 7 days of 2010.

	Week no								
	15			16			17		
	no. of trips	stand. days absent	stand. CPUE (t/day)	no. of trips	stand. days absent	stand. CPUE (t/day)	no. of trips	stand. days absent	stand. CPUE (t/day)
<b>GT</b>									
<b>000-099</b>	.	.	.	.	.	.	1	1	37.0
<b>100-199</b>	.	.	.	5	14	42.2	6	13	40.9
<b>300-399</b>	6	74	45.0	4	44	40.4	3	40	43.2
<b>400-499</b>	4	68	38.6	5	81	29.1	7	94	32.4
<b>500-599</b>	2	34	40.6	2	36	33.2	2	41	29.5
<b>all</b>	12	176	41.7	16	175	33.8	19	190	34.7

	Week no								
	18			19			all		
	no. of trips	stand. days absent	stand. CPUE (t/day)	no. of trips	stand. days absent	stand. CPUE (t/day)	no. of trips	stand. days absent	stand. CPUE (t/day)
<b>GT</b>									
<b>000-099</b>	16	13	40.0	4	4	53.0	21	18	42.5
<b>100-199</b>	8	16	39.1	4	10	35.3	23	53	39.6
<b>300-399</b>	5	56	41.1	2	17	68.4	20	231	44.6
<b>400-499</b>	9	128	43.8	5	40	64.0	30	412	39.4
<b>500-599</b>	4	61	49.5	2	20	90.5	12	192	44.9
<b>all</b>	42	274	44.0	17	92	66.9	106	907	42.0



**Figure 6.3.3.1.1.** Landings weight from all available trips (left hand panel) and number of biological samples (right hand panel) by ICES rectangle for the Danish North Sea sandeel fishery in 2010. The area of the *bubbles* illustrates landings' weight. The total landings weight (total) and the maximum landing weight (max) per rectangle are given as text (unit tonnes). Similarly, for the total and maximum number of samples by ICES rectangle.