

**ECOREGION**      **Widely distributed and migratory stocks**  
**STOCK**           **Black scabbardfish (*Aphanopus carbo*) in Subareas VI, VII, and Divisions Vb and XIIb**

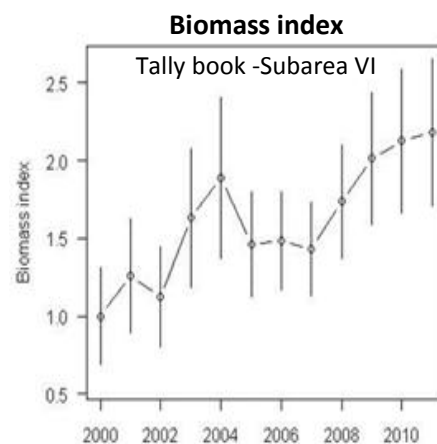
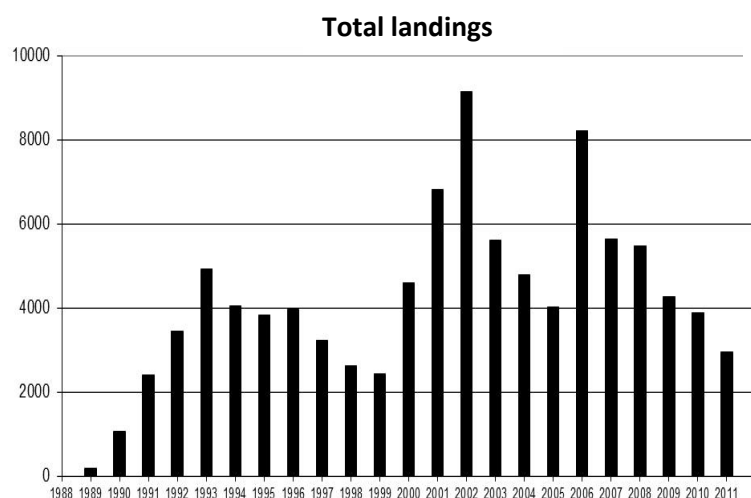
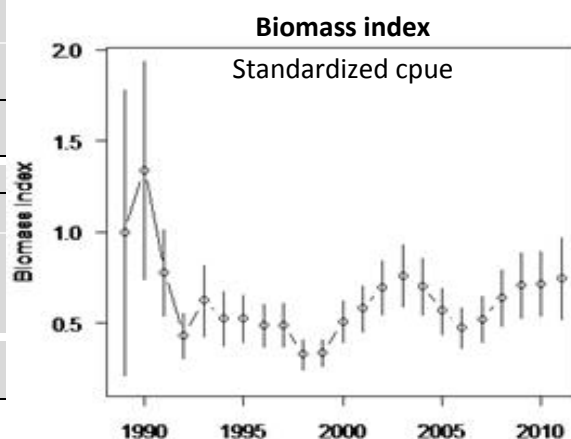
**Advice for 2013 and 2014**

Based on the ICES approach for data-limited stocks, ICES advises that catches should be no more than 4700 tonnes.

This is the first year ICES is providing quantitative advice for data-limited stocks (see Quality considerations).

**Stock status**

F (Fishing Mortality)		
		2009–2011
MSY ( $F_{MSY}$ )	?	Unknown
Precautionary approach ( $F_{pa}, F_{lim}$ )	?	Unknown
Qualitative evaluation	✓	Above poss ref points
SSB (Spawning-Stock Biomass)		
		2009–2011
MSY ( $B_{trigger}$ )	?	Unknown
Precautionary approach ( $B_{pa}, B_{lim}$ )	?	Unknown
Qualitative evaluation	✓	Above poss ref points



**Figure 9.4.16.1.1** Black scabbardfish in Subareas VI, VII, and Divisions Vb and XIIb. ICES estimates of landings (tonnes). Top right: Commercial catch per unit effort of French trawlers (cpue, logbook data where black scabbardfish >10% of landings). Right bottom panel: cpue of French trawlers (tally book) for Subarea VI, defined as tows where catches include >10% black scabbardfish.

Standardized cpue is at ca. 50% of its initial level which is considered to correspond to the start of the fishery. The tally-book index, which is considered to be a more reliable biomass index, shows an increasing trend since 2000.

**Management plans**

No specific management objectives are known to ICES.

## Biology

In ICES Subareas VI, VII, and Divisions Vb and XIIb there are only immature black scabbardfish. In the Northeast Atlantic the stock structure of black scabbardfish is uncertain. The studies made so far suggest that there is a linkage between the Northern (Subareas VI, VII, and Divisions Vb and XIIb) and the Southern (Subareas VIII and IX) components of the stock. Catches from the two components show a difference in modal length of specimens as well as in body weight. On average, specimens from the Southern component are 40% heavier than those from the Northern component.

Compared to some of the species included in the deep-water group the growth rate of black scabbardfish is relative fast (maximum age 15).

## The fisheries

In Subareas VI, VII, and XII, and Division Vb, black scabbardfish is mainly taken in mixed trawl fisheries along with roundnose grenadier and blue ling, although some trawl fisheries can target specific species within the mixed fishery. Mostly of the landings derive from Subarea VI. In recent years landings from Subarea VII have been greatly reduced. Due to the mixed nature of the trawl fisheries in Subareas VI, VII, XII, and Division Vb, any measure taken to manage this species in these areas should take into account the advice given for other species taken in the same mixed fishery.

## Effects of the fisheries on the ecosystem

Deep-water trawls impact the ocean floor, causing potential damage to deep-water coral communities. This is mitigated in some areas by area closures to protect vulnerable marine ecosystems (VMEs). As this fishery is part of a mixed fisheries, effort on black scabbardfish also impacts other commercial and non-commercial deep-water species.

## Quality considerations

The cpues of the two time-series do not stem from the same vessels, though some vessels may be common to both series.

The assessment could be improved with the addition of appropriate fisheries-independent data. The only survey currently supplying data for this stock is the Scottish deep-water survey (Figure 9.4.16.1.2), but the area of coverage is small relative to the assessment unit. The number of stations is relatively small and the confidence intervals wide. There remains an urgent need for an internationally coordinated survey in Subareas VI, VII, and Division XIIb to provide more robust indices of abundance and for ecosystem monitoring in line with EU's Marine Strategy Framework Directive (MSFD).

To get a better perception of the species dynamics in ICES Division Vb, where landings have increased in recent years, additional information beside landing and effort are required.

The methods applied to derive quantitative advice for data-limited stocks are expected to evolve as they are further developed and validated. The harvest control rules are expected to stabilize stock size, but they may not be suitable if the stock size is low and/or the stock overfished.

## Scientific basis

<b>Assessment type</b>	Commercial cpue trends-based assessment.
<b>Input data</b>	Cpue from French trawl fleet and French commercial tally books.
<b>Discards and bycatch</b>	There are no black scabbardfish discards.
<b>Indicators</b>	None.
<b>Other information</b>	Scottish deep-water survey.
<b>Working group report</b>	<a href="#">WGDEEP</a>

<b>ECOREGION</b>	<b>Widely distributed and migratory stocks</b>
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**Reference points**

No reference points have been proposed for this stock. However, the biomass as measured by the standardized commercial cpue index is about half of the virgin biomass and thus likely above any candidate values for  $MSY B_{trigger}$ .

**Outlook for 2013 and 2014**

No analytical assessment is available for this stock. Therefore, detailed management options cannot be presented.

***ICES approach to data-limited stocks***

This data-limited stock has reliable abundance information from standardized commercial cpue data. For harvest control rule ICES uses the abundance/biomass index-adjusted *status quo* catch, which provides advice based on a comparison of the last two years of abundance data compared to the previous three years, combined with the catch data available from previous years.

For this stock the abundance is estimated for both indices to have increased by 20% in 2007–2009 (average of the three years) and 2010–2011 (average of the two years). The catches from last year are assumed to be equal to the landings in 2010 rather than 2011 as these are preliminary and are probably lacking some Spanish catches. Because exploitation is not detrimental to the stock, no additional precautionary reduction is needed. ICES advises that catches should be no more than 4700 t in 2013.

**Additional considerations**

Information collected under the French deep-water sampling programme indicates that there are no discards of this species in the French trawl fishery. This implies that lpue are equivalent to cpue for this species.

**Source**

ICES. 2012. Report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP), 29 March–05 April 2012, ICES Headquarters, Copenhagen. ICES CM 2012/ACOM:17.

**Table 9.4.16.1.1** Black scabbardfish in Subareas VI, VII, and Divisions Vb and XIIb. ICES advice, management, and landings.

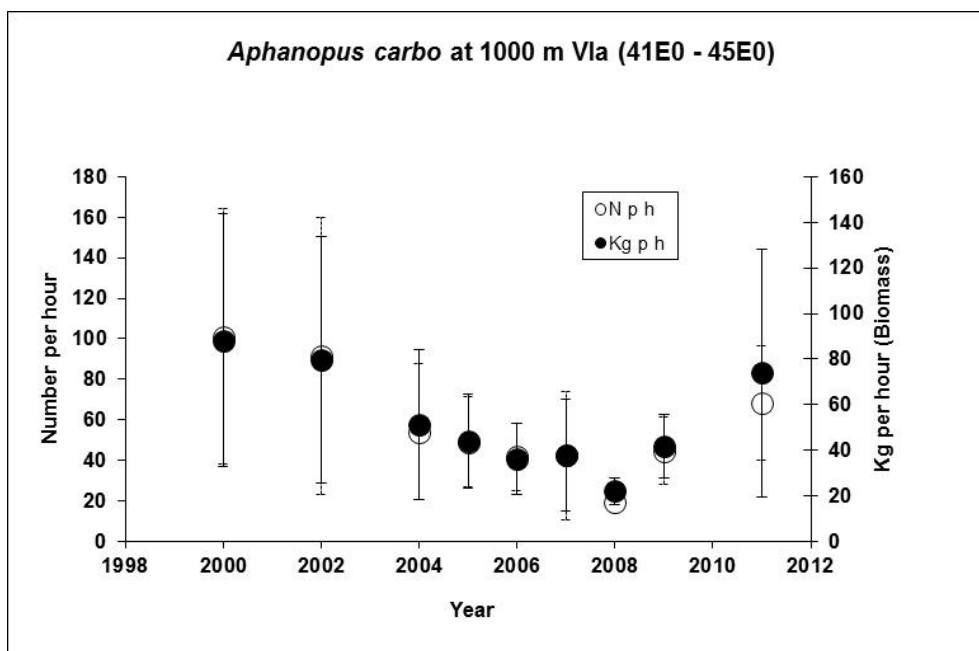
Year	ICES Advice	Predicted catch corresp. to advice	TAC EU Subareas V, VI, VII, XII	ICES landings in Division Vb, Subareas VI and VII, and Division XIIb
2003	Significant effort reduction	-	3.1	5.7
2004	Biennial	-	3.1	4.8
2005	Significant effort reduction	-	3.1	4.0
2006	Biennial	-	3.1	8.3
2007	Constrain catches to the level before the expansion period (1990–1996)	3.5	3.0	5.7
2008	Biennial	3.5	3.0	5.6
2009	Constrain catches to the 50% level before the expansion period (1993–1997)	2.0	2.7	4.3
2010	Biennial	2.0	2.4	3.9
2011	Same advice as previously	2.0	2.4	3.0
2012	No new advice, same as 2011		2.2	
2013	No more than 20% catch increase	4.7		
2014	No new advice, same as 2013			

Weights in thousand tonnes.

**Table 9.4.16.1.2** Black scabbardfish in Subareas VI, VII, and Divisions Vb and XIIb. ICES estimates of landings by country (tonnes).

Year	Faroes	France	Germany*	Scotland	E&W&NI	Spain	Russia*	Poland*	Ireland	Lithuania*	Estonia *	Poland*	Netherland*	Total
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	46	308	0	0	0	0	0	0	0	0	0	0	0	354
1990	12	1449	0	0	0	0	0	0	0	0	0	0	0	1461
1991	1	2536	0	0	0	0	0	0	0	0	0	0	0	2537
1992	7	3540	0	0	0	0	0	0	0	0	0	0	0	3547
1993	1315	3511	150	0	0	0	0	0	8	0	0	0	0	4984
1994	893	3101	91	2	0	0	0	0	3	0	0	0	0	4090
1995	550	3437	3	18	0	0	0	0	0	0	0	0	0	4008
1996	244	3773	2	36	1	41	0	0	0	0	0	0	0	4097
1997	123	2805	0	235	2	99	0	0	0	0	0	0	0	3264
1998	56	2416	0	148	1	137	0	0	0	0	0	0	0	2758
1999	13	2108	0	197	1	109	0	0	1	0	0	11	11	2451
2000	117	3745	0	386	40	238	0	0	59	0	0	7	7	4599
2001	406	5008	0	692	37	265	226	0	68	3	225	0	0	6930
2002	1362	4625	0	1037	43	1117	0	2	1050	9	0	23	23	9291
2003	1497	3423	0	99	5	444	7	3	160	13	7	2	2	5662
2004	859	3092	0	195	2	292	5	0	293	86	5	0	0	4829
2005	593	2881	0	100	0	365	11	0	79	5	12	0	0	4046
2006	758	2213	0	63	2	5139	3	0	71	1	5	0	0	8255
2007	755	2300	0	53	0	2508	0	0	69	0	7	0	0	5692
2008	1747	2846	0	26	0	940	5	0	0	0	0	14	14	5592
2009	1164	2604	0	81	0	422	0	0	0	0	0	0	0	4271
2010	916	2272	0	104	0	603	0	0	0	0	0	0	0	3895
2011**	446	2407	0	1	0	147	0	0	0	0	0	0	0	3001

\* From Statlant. \*\* Preliminary.



**Figure 9.4.16.1.2** Cpue by weight and number in the 1000 m stratum of the Scottish deep-water survey.