

## Greenland halibut in SA 0 + Div. 1A offshore and Div. 1B-1F

**Recommendation:** Div. 0A+1AB: Considering the increasing trends in biomass and CPUE indices together with high CPUE and promising incoming year classes for Greenland halibut in Div. 0A and Div. 1AB Scientific Council advises that the TAC for the Greenland halibut in Div. 0A and Div. 1A offshore + Div. 1B could be increased to 16 000 t.

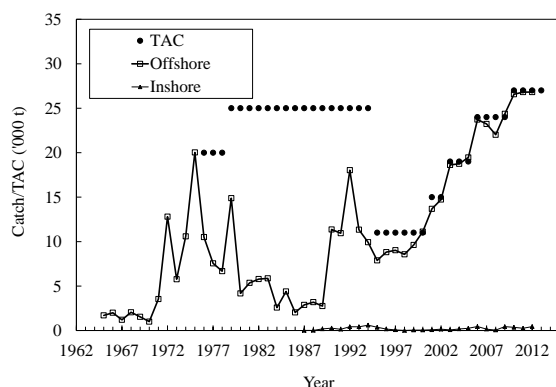
Div. 0B+1C-F: TAC was increased in 2010. The biomass and CPUE indices have been relatively stable. Scientific Council advises that there is a low risk to the Greenland halibut in Div. 0B and Div. 1C-F if the TAC for 2014 remains unchanged and should not exceed 14 000 t.

**Background:** The Greenland halibut stock in Subarea 0 + Div. 1A offshore and Div. 1B-1F is part of a common stock distributed in Davis Strait and southward to Subarea 3. Since 2002 advice has been given separately for the northern area (Div. 0A and Div. 1AB) and the southern area (Div. 0B and 1C-F).

**Fishery and Catches:** Due to an increase in offshore effort, catches increased from 3 000 tons in 1989 to 18 000 tons in 1992 and remained at about 10 000 tons until 2000. Since then catches increased gradually to 26 900 tons in 2010 primarily due to increased effort in Div. 0A and in Div. 1A but effort was also increased in Div. 0B and 1CD in 2010. Catches were at the 2010 level in 2011 and 2012.

Year	Catch ('000 t)		TAC ('000 t)
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2010	27	27	27 <sup>1</sup>
2011	27	27	27 <sup>1</sup>
2012	27	27	27 <sup>1</sup>
2013			27 <sup>1</sup>

<sup>1</sup> Including 13 000 t allocated specifically to Div. 0A and 1AB since 2006.



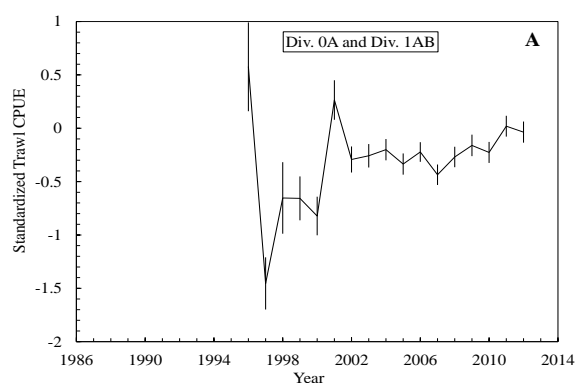
**Data:** Length distributions were available for assessment from SA0 and SA1. Unstandardized and standardized catch rates were available from Div. 0A, 0B, 1AB and 1CD. Biomass estimates from deep sea surveys in 2012 were available from Div. 0A and Div. 1CD. Further, biomass and recruitment data were available from shrimp surveys in Div. 1A-1F from 1989-2012.

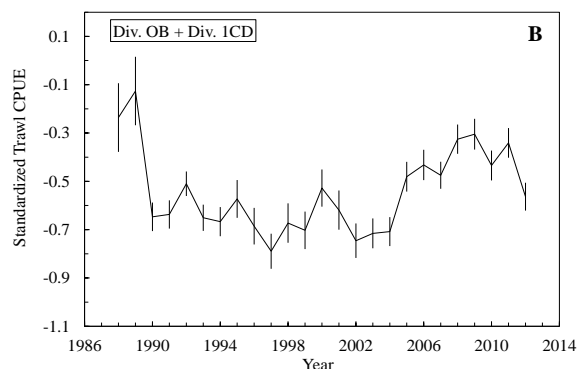
**Assessment:** No analytical assessment or risk analysis could be performed, therefore only qualitative statements on risk can be provided.

**Commercial CPUE indices.** Combined standardized trawl catch rates in Div. 0A and Div. 1AB decreased slightly in 2012 but has shown an increasing trend since 2007. Standardized CPUE for gillnets increased gradually from 2006-2011, with a slight decrease in 2012.

The combined Div. 0B and 1CD standardized catch rates were relatively stable from 1990-2004, then increased from 2004-2009. CPUE has decreased since 2009 but in 2012 it is still above the level observed during 1990 to 2004. The standardized CPUE for gillnets in Div. 0B has been increasing since 2007 and in 2012 was at the highest level in the time series.

Unstandardized gillnet CPUE is significantly higher in Div. 0A compared to Div. 0B and the unstandardized trawl CPUE in 2012 were also higher in Div. 0A and 1AB compared to Div. 0B-1CD.

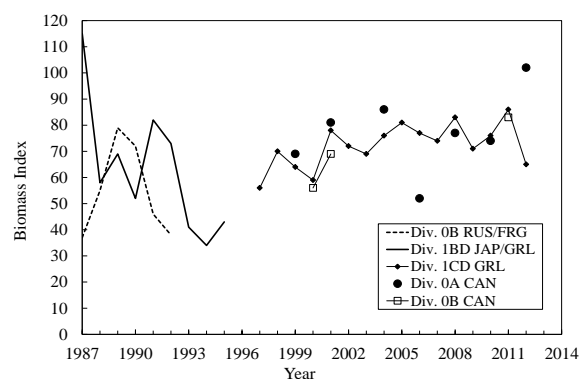




**Biomass:** The index of trawlable biomass for Div. 0A-South has been variable with a generally increasing trend from 1999 to 2012. The 2012 estimate is the highest of the time series. However, this result is influenced by one very large set when removed reduces the estimate by 15%. Div. 0A-North was surveyed again in 2012 with much better coverage than either of the previous surveys conducted in 2004 and 2010 resulting in a significant increase in biomass and abundance estimates for this area.

The survey biomass index in Div. 1CD has increased gradually over the fourteen year time series, was the highest observed in 2011, but decreased in 2012 to the lowest level seen since 2000.

**Recruitment:** Recruitment (age one) in the entire area covered by the Greenland shrimp survey has been rather stable from 2003-2010. Then recruitment increased to the highest level in the time series in 2011 but decrease to the lowest level seen since 1997 (1996 year-class) in 2012.



**Fishing Mortality:** Level not known.

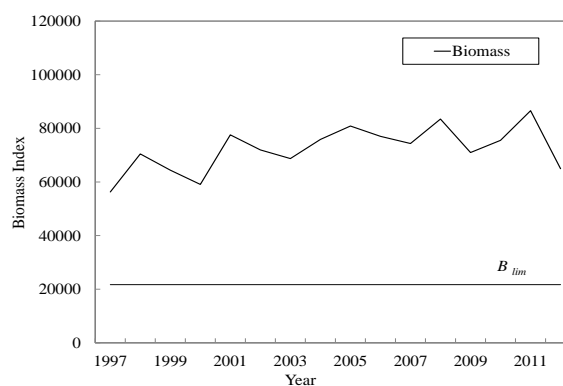
**State of the Stock:** Div. 0A+1AB: The biomass index in Div. 0A-South has been gradually increasing while abundance has remained relatively stable since 1999, the beginning of the time series. The biomass

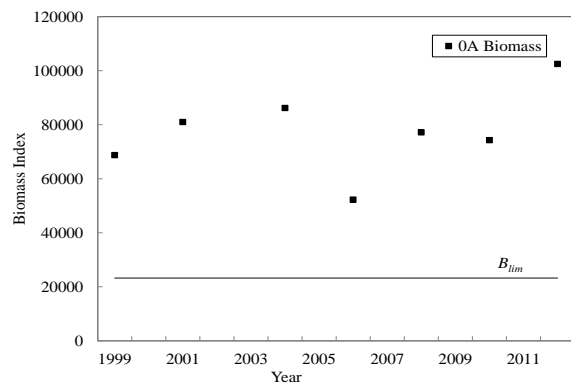
was in 2012 well above  $B_{lim}$ . Additional biomass has been estimated in Div. 0A-North with the improved coverage of the 2012 survey. Length composition in the surveys has varied without trend over the time series. Trawl catches have been relatively stable with some variation without trend in the gillnet catch frequencies. Standardized CPUE indices in Div. 0A and 1AB have been increasing in recent years.

**Div. 0B+1C-F:** The biomass index in Div. 1CD has shown an increasing trend since 1997, but decreased in 2012. The biomass was in 2012 well above  $B_{lim}$ . Length compositions in the catches and deep sea surveys have been stable in recent years. Standardized CPUE has decreased since 2009 but in 2012 it is still above the level observed during 1990 to 2004. The Standardized CPUE for gillnets in Div. 0B has been increasing since 2007 and in 2012 was at the highest level in the time series.

**Reference Points:** Age-based or production models were not available for estimation of precautionary reference points. A preliminary proxy for  $B_{lim}$  was set as 30% of the mean biomass index estimated for surveys conducted between 1997-2012 in Div. 1CD and 1999-2012 in Div. 0A-South.

$B_{msy}$  is not known for this stock. If it is assumed that the stock is at or close to  $B_{msy}$  the  $B_{lim}$  should according to Report of the NAFO Study Group on Limit Reference Points (SCS Doc. 04/12) be set at 30% of mean survey biomass. If the stock increases  $B_{lim}$  should be increased accordingly.





**Special Comments:** A quantitative assessment of risk at various catch options is not possible for this stock. Therefore it is not possible to quantitatively evaluate whether the advised increase in TAC is sustainable. If indices of stock size begin to decline in the short term (3 to 4 years), the TAC should be reduced.

Scientific Council noted that there is considerable uncertainty about accuracy in the current age reading methods. Results from validation for the SA0 and Div. 1A (offshore) and 1B-F stock indicate longevity is greater and growth rates lower than previously estimated.

The next Scientific Council assessment of this stock will be in 2014.

**Sources of Information:** SCR Doc. 13/06, 23, 33, 35; SCS Doc. 13/08, 9, 14.