

ANNEX 1

Harvest Control Rule for *Sebastes mentella* – Request to ICES

The advice on catch levels for *Sebastes mentella* in ICES sub-areas I and II for 2013 was based on the ICES MSY-approach. As an approximation to the reference point F_{msy} , ICES used the reference point $F_{0.1}$.

The parties responsible for managing the stock of *Sebastes mentella* seek to establish a Harvest Control Rule (HCR) for this fish stock. Before such an HCR is adopted the parties would request ICES to assess the consequences of a few alternative rules, in particular the following:

- A. An HCR based on the ICES MSY-approach with a fishing mortality equal to $F_{0.1}$.
- B. As A, but where the fishing mortality is set to $\frac{3}{4}$ of $F_{0.1}$.
- C. As A, but where the fishing mortality is set to $\frac{4}{3}$ of $F_{0.1}$.

The fishing mortality indicated in the alternatives above should be the reference point for the annual TAC when the Spawning Stock Biomass is at a level capable of producing maximum sustainable yield. Hopefully, setting the fishing mortality to one of these levels will also sustain the SSB at a productive level. We have, however, seen that due to natural conditions any fish stock may be reduced below such a productive level. An HCR for *Sebastes mentella* should specify pre-agreed actions if such development is seen in the future. The natural thing to do will be to reduce fishing mortality, and the parties would ask ICES to assess two different ways of doing this.

Reduction of F when SSB falls below $B_{trigger}$

$B_{trigger}$ is not known for this stock, but should be the reference point beneath which fishing mortality should be reduced. In lack of a precise figure for $B_{trigger}$, the Parties would ask ICES to assess the consequences of various levels of $B_{trigger}$. For each of the alternatives A, B or C above, $B_{trigger}$ should be set to either B_{MSY} or $\frac{3}{4} B_{MSY}$. Should the SSB fall below $B_{trigger}$, fishing mortality should be reduced linearly with SSB. F should reach zero before SSB reaches zero, e.g., at $B_{stop} = \frac{1}{2} B_{MSY}$ or $B_{stop} = \frac{1}{4} B_{MSY}$. SSB refers to the Spawning Stock Biomass assessed in the year of assessment.

Reduction of F when recruitment is reduced

To the extent that recruitment is measured to be low in a series of years, this may call for a reduced fishing mortality when setting the annual TAC. The Parties would therefore ask ICES to assess the consequences of cutting fishing mortality by 25 or 50% if the average strength at age 2 for the year classes which are 3-12 years old in the year for which the TAC advice is given is at or below 33 % of average recruitment at age 2 for the period 1992-1996.

AKS

