

ECOREGION **Iceland and East Greenland**
SUBJECT **NEAFC Request to review the stock structure of *S. mentella* in the Irminger Sea and adjacent areas**

Introduction

ICES advised on the stock structure of pelagic redfish in the Irminger Sea in 2009 (ICES, 2009¹). It concluded on the basis of the information available by February 2009 that there were two distinct biological stocks, and it recommended two management units instead of the single unit that had been the basis for previous advice and management. Accordingly, ICES assessed the two redfish stocks separately and gave catch advice in 2009 based on the recommended management units.

Subsequently, two papers were submitted by a contracting party to NEAFC disagreeing with the scientific basis for the definition of two management units instead of one. The papers were referred to ICES by NEAFC with the following request:

*a1. NEAFC requests ICES to continue to review the stock structure of *S. mentella* in the Irminger Sea and adjacent areas and consider, inter alia, NEAFC AM documents AM 2009/23 and AM 2009/29-rev 1 along with any other relevant evidence that may become available.*

ICES Response

ICES reaffirms its 2009 advice (Section 2.3.3.1) on the stock structure and management units for pelagic redfish in the Irminger Sea. Based on an evaluation of the scientific evidence, ICES concludes that there are two stocks as follows:

- 1) a 'Deep Pelagic' stock (NAFO 1–2, ICES V, XII, XIV >500 m) – primarily pelagic habitats, and includes demersal habitats west of the Faroe Islands;
- 2) a 'Shallow Pelagic' stock (NAFO 1–2, ICES V, XII, XIV <500 m) – extends to ICES I and II, but primarily pelagic habitats, and includes demersal habitats east of the Faroe Islands;

ICES recommends two management units as follows:

- 1) Northeast Irminger Sea Management Unit: ICES Areas Va, XII, and XIV. The coordinates of the recommended MU are given in Table 2.3.3.1.1.
- 2) Southwest Irminger Sea Management Unit: NAFO areas 1 and 2, ICES Areas Vb, XII, and XIV.

Background

ICES considered Documents AM 2009/23 and AM 2009/29 provided by NEAFC. The documents were evaluated by specialists in stock identification. While the documents provided an interesting perspective on stock identification of pelagic redfish of the Irminger Sea, most of the information in the documents had already been taken into account in ICES 2009 advice.

One important argument put forward in the documents concerns temporal stability of genetic results. Document AM 2009/23 argues that temporal stability was not proven. Although absolute proof is rarely possible (if ever), it should be noted that protein loci usually exhibited strong differences. Although it would be preferable to obtain long-term temporal studies (which will take several decades, considering the high longevity of redfish), they are not necessary for the definition of separate stocks as all the genetic studies that have been performed over the last 15 years revealed a significant differentiation.

The documents provided by NEAFC also raise concerns about mechanisms for natural selection by depth zone or year classes. However, the genetic evidence that formed the basis for ICES advice reflects genetic selection on an evolutionary time scale, not the daily or life cycle scales of vertical migrations or year class differences. The usefulness for stock discrimination of genetic markers that are subject to selection is well documented in the scientific literature.

¹ The cited advice (ICES Advice 2009, Book 2, Section 2.3.3.1) concerns three biological stocks and three management units. One of these is for the Icelandic Slope stock and management unit. The Icelandic Slope is not the subject of the current NEAFC request, and therefore, it is not addressed in this advice.

References

- ICES. 2009. NEAFC request to provide information on the stock structure of *Sebastes mentella* fished in pelagic and demersal fisheries, i.e. relationship between the redfish in ICES Areas I, II, V, VI, X, XII, and XIV and the NAFO regulatory area. ICES Advice, 2009. Book 2: 3–8.
- ICES. 2010. Report of the Stock Identification Methods Working Group (SIMWG), 21–23 June 2010, Öregrund, Sweden. ICES CM 2010/SSGSUE:04. 30 pp.
- Makhrov, A.A. 2009. Critical analysis of data on genetic differences between two groupings of redfish (*Sebastes mentella*) in the Irminger sea. AM 2009/23 provided by NEAFC
- Bakay, Yu.I., Vinnichenko, V.I., Popov, V.I., Rolsky, A.Yu., Makhrov, A.A. 2009. On structure and fisheries management of pelagic beaked redfish (*Sebastes mentella*) stock in the Irminger Sea. AM 2009/29rev1 provided by NEAFC