

**SAMPLING OF REDFISH DURING THE GERMAN ANNUAL GROUND FISH SURVEY SURVEY, GREENLAND, AUTUMN 2000 FOR THE EU FIFTH FRAMEWORK REDFISH PROJECT.**

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**SPECIES TO BE SAMPLED:** adult and juvenile *Sebastes mentella* and *S. marinus*.

**Contact persons for the morphological and gonad sampling procedure and sampling kits:**

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**Contact persons for the otolith sampling procedure and sampling kits:**

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**The sampling consists of (1) morphological & genetic sampling, (2) gonad sampling and (3) otolith sampling.**

Samples of both species are to be taken in as many strata as possible, aiming for a minimum of 4 for the (1) morphological & genetic sampling and (2) gonad sampling. For the (3) otolith sampling, all strata should be sampled and all occurring length classes should be covered.

**The following strata are covered in the survey: (1.1 & 1.2), (2.1 & 2.2), (3.1 & 3.2), (4.1 & 4.2), (5.1 & 5.2), (6.1 & 6.2), (7.1 & 7.2).**

The number of individuals for each species for Morphological & Genetic sampling at each stratum should be 140-160 fish (at least 50 in each haul if possible) and 100 juveniles (less than 17 cm) and 115 for the Gonad sampling (see tables below). As a minimum, four strata should be covered. The number of otolith samples will be around 620 for *S. marinus*, 460 for *S. mentella* and 200 for juveniles if all length classes by sex are covered.

**It is important to use fresh fish for Morphological & Genetic sampling and Gonad sampling. They should not to be taken from fish that has been on board for more than one hour.**

**NB: APPENDICES ARE FOUND IN THE FILE <APPENDIXFORMS.XLS>.**

(1) For the **Morphological & Genetic sampling**, the following length groups should be filled for each species for each stratum:

MORPHOLOGY AND GENETICS - WHOLE FROZEN INDIVIDUALS				
	Length class	FEMALE	MALE	UNCLASSIFIED
	cm	No. (10)	No. (10)	No. (20)
(1)	5-9			
(2)	10-14			
3	15-19			
4	20-24			
5	25-29			X
6	30-34			X
7	35-39			X
8	40-44			X
9	45 and bigger			X

**Morphological and Genetic sampling (use forms given in Appendix 1-3):**

**Redfish ( $\geq 17$  cm):**

**A) Gill filaments in EtOH filled 2.0 ml microtubes.** *Samples go to Jochen Trautner in Germany for DNA extraction and distribution.*

**B) Blood is sampled in sodium citrate tubes.** *Analysed on board by Anna Kristin Danielsdottir, Iceland.*

**C) Fish is wholefrozen.** *Samples sent to Thorsteinn Sigurdsson for a joint analysis by Iceland and Spain (Fran Saborido-Rey). Fish is measured morphologically and frozen liver and muscle (and eye lenses) sampled for genetic analysis analysis (Germany, Norway & Iceland). Otolith pairs will be taken (carefully, need to be unbroken for shape analysis) and sent to Christoph Stransky, Germany.*

**Juvenile redfish (<17 cm):**

**D) Fish is wholefrozen.** *Samples sent to Thorsteinn Sigurdsson for a joint analysis of Iceland and Spain (Fran Saborido-Rey). Fish is measured morphologically. Gills in EtOH taken and frozen liver and muscle (and eye lens) sampled for genetic analysis (Germany, Norway & Iceland).*

**SAMPLING INSTRUCTIONS:**

The sex and length of the fish ( $\geq 17$  cm) is recorded and blood and gill samples taken. Then the fish is labelled with the same number as the gill and blood samples. A label or gill tube can be put into the mouth of the fish. Then wholefrozen as quick and straight as possible in a plastic bag.

**Juveniles (<17 cm)** are wholefrozen and labelled with survey and station. Overview of adult and juvenile samples is recorded (see forms). Whole frozen individuals are stored at  $-20^{\circ}\text{C}$ .

**A) Gill filament SAMPLES:**

TAKE few **gill filaments** and transfer into **2.0 ml tube w/EtOH**. Important!! - make sure that the volume of tissue is less than 1/3 of the volume of EtOH. Store samples at  $4^{\circ}\text{C}$  or  $-20^{\circ}\text{C}$

**B) Blood samples:**

Blood is taken by a 2.0 ml syringe from veins under the gillarch and put into sodium citrate microtubes (min. 0.25 ml) and stored on ice and  $4^{\circ}\text{C}$ .

**Information needed along with morphological & genetic samples:** Date of catch, survey and station No., species, location, type of fishing gear, depth and changes of depth of the trawl, type of redfish, length and sex.

**(2) For the Gonad sampling** the following length groups should be filled for each species for each stratum:

<b>GONADS - FORMALIN SAMPLES</b>			
	Length class	<b>FEMALE</b>	<b>MALE</b>
	cm	No. (15)	No. (8)
1	<b>25-29</b>		
2	<b>30-34</b>		
3	<b>35-39</b>		
4	<b>40-44</b>		
5	<b>45 and bigger</b>		

**SAMPLING INSTRUCTIONS:**

**Gonad sampling (use forms given in Appendix 4):**

**A)** Record length, weight ungutted and gutted, sex, maturity (6-stage scale by Fran Saborido-rey) and take otoliths. Take gonads and put into provided bags with a label (survey name, station number, species and individual number as on otolith bag). Tie a knot and then as soon as possible put it in the 25 liter formalin container and make sure to immerse the bag into the formalin. Shake container occasionally.

**Information needed along with gonad samples:** Date of catch, survey and station no., location, type of fishing gear, depth and changes of depth of the trawl, type of redfish, length, weight ungutted and gutted, sex and maturity.

**(3) Otolith sampling**

**SAMPLING INSTRUCTIONS (use forms given in Appendix 5):**

- All observed length classes (usually covering a length range of 5 to 60+ cm) and both sexes will be sampled with an even distribution, if possible 5 pairs per 1-cm class & sex per cruise and per species (*S. marinus*, *S. mentella* and juvenile redfish <17cm). If possible, also look for some particularly big fish (60-80? cm, i.e. giants for radiometric age validation purposes).
- It is essential that both otoliths (left & right) are taken, and that they both remain unbroken (not even the tip of the rostrum).
- Immediately after taking the otoliths, please wash/clean them for a few seconds in freshwater, rubbing off any adhering blood or tissue with your fingers, then dry them with paper tissue and put them into the paper envelopes/tubes (see below).
- The otolith samples will be stored in paper envelopes with an identification no. drawn onto it, to be identifiable with the corresponding biological data (length, ungutted weight, sex, maturity) and station data.
- Record corresponding biological data and station data (station no., date, position lat/long, fishing depth, otolith identification no., fish length, ungutted weight, sex, maturity)
- When sending otoliths, please embed the paper envelopes into a soft environment (avoid breakage !), before putting them into the hard paper box.