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FISHERIES COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2015 AND BEYOND OF CERTAIN STOCKS IN SUBAREAS 2, 3 AND 4 AND OTHER MATTERS

1. The Fisheries Commission with the concurrence of the Coastal State as regards to the stocks below which occur within its jurisdiction ("Fisheries Commission") requests that the Scientific Council provide advice in advance of the 2014 Annual Meeting, for the management of Northern shrimp in Div. 3M and in Div. 3LNO in 2015. The advice should be provided as a range of management options and a risk analysis for each option (rather than a single TAC recommendation) in accordance to Annex A or B as appropriate.
2. Fisheries Commission requests that the Scientific Council provide advice for the management of the fish stocks below according to the assessment frequency presented below. The advice should be provided as a range of management options and a risk analysis for each option (rather than a single TAC recommendation).

Two year basis

American plaice in Div. 3LNO
 Capelin in Div. 3NO
 Cod in Div. 3M
 Redfish in Div. 3LN
 Redfish in Div. 3M
 Thorny skate in Div. 3LNO
 White hake in Div. 3NO
 Yellowtail flounder in Div. 3LNO

Three year basis

American plaice in Div. 3M
 Cod in Div. 3NO
 Northern shortfin squid in SA 3+4
 Redfish in Div. 3O
 Witch flounder in Div. 2J+3KL
 Witch flounder in Div. 3NO

To continue this schedule of assessments, the Scientific Council is requested to conduct the assessment of these stocks as follows:

In 2014, advice should be provided for 2015 only for Witch Flounder in Div. 3NO, for 2015 and 2016 for American plaice in Div. 3LNO, Redfish in Div. 3LN, Thorny skates in Div. 3LNO and for 2015, 2016 and 2017 for American plaice in Div. 3M.

Advice should be provided using the guidance provided in **Annexes A or B as appropriate**, or using the predetermined Harvest Control Rules in the cases where they exist.

The Fisheries Commission also requests the Scientific Council to continue to monitor the status of all these stocks annually and, should a significant change be observed in stock status (e.g. from surveys) or in bycatches in other fisheries, provide updated advice as appropriate.

3. The Fisheries Commission adopted in 2010 an MSE approach for Greenland halibut stock in Subarea 2 + Division 3KLMNO (FC Doc. 10/12). This approach considers a survey based harvest control rule (HCR) to set a TAC for this stock on an annual basis. The Fisheries Commission requests the Scientific Council to:
 - a) Monitor and update the survey slope and to compute the TAC according to HCR adopted by the Fisheries Commission according to Annex 1 of FC Document 10/12.

- b) Advise on whether or not an exceptional circumstance is occurring.
4. The scientific advice for Div. 3LNO shrimp is based on the assessment of fishable biomass and the trends of exploitation rates. Interactions between stocks are likely to occur and may substantially contribute to the total mortality of shrimp.

The Fisheries Commission requests the Scientific Council to incorporate as much as possible information on stock interaction between these stocks in the management advice of Div. 3LNO shrimp and to provide sustainable exploitation rates on that basis.

5. The Fisheries Commission requests the Scientific Council to continue the work on reference points and provide B_{msy} and F_{msy} for cod in Div. 3M.
6. The Fisheries Commission requests the Scientific Council to provide reference points for Div. 3NO witch flounder including B_{lim} , B_{msy} and F_{msy} through modelling or proxies.
7. The Fisheries Commission requests the Scientific Council to conduct a full assessment of Div. 3M cod and provide advice for 2015 on a range of management options and associated risks regarding reference points, according to Annexes A or B.
8. The Fisheries Commission requests the Scientific Council to develop a work plan to perform a Management Strategy Evaluation for Div. 3M cod, to explore operating models that could be used and report back through the Working Group on Risk-Based Management Strategies.
9. The Fisheries Commission requests the Scientific Council to analyze and provide advice on management measures that could improve selectivity in the Div. 3M cod and Div. 3M redfish fishery in the Flemish Cap in order to reduce possible by catches and discards. The objective is to reduce the mixed fisheries between cod and redfish, the by-catch of non-targeted stocks and to analyze if the selectivity pattern could be improved to reduce the catch of undersized fish.
10. The Scientific Council provides advice for a number of stocks based only on qualitative assessments of survey trends and catches (e.g. Div. 3NO white hake, Div. 3O redfish). For some of these stocks the advice is to lower the TAC to recent level of catches. On the other hand, there is an important effort in biological sampling, collection of fishing activity data and fishery independent surveys. There is also an important progress in providing more data to the Scientific Council such as VMS. In spite of these efforts, no progress has been reached regarding quantitative assessments of many stocks. The Fisheries Commission requests the Scientific Council to provide an overview for all stocks on what biological and fishery information is currently available by Contracting Party and what is necessary to improve in terms of data collection in order to develop quantitative assessments and biological reference points for stocks managed by NAFO.
11. The Fisheries Commission requests the Scientific Council to explore models that could be used to conduct a Management Strategy Evaluation for Div. 3LN redfish and report back through the Working Group on Risk-Based Management Strategies during their next meeting.
12. The Fisheries Commission requests the Scientific Council to continue to develop work on Significant Adverse Impacts in support of the reassessment of NAFO bottom fishing activities required in 2016, specifically an assessment of the risk associated with bottom fishing activities on known and predicted VME species and elements in the NRA.
13. Considering that the current closures for VME indicators (i.e. species and elements in Annex I.E VI and VII) established under Chapter II of the NAFO Conservation and Enforcement Measures (NCEM) are due for revision in 2014, the Fisheries Commission requests the Scientific Council to:
- a. Summarize and assess all the data available collected through the NEREIDA project, CP RV surveys, and any other suitable source of information, to identify VMEs in the NRA, in accordance to FAO Guidelines and NCEM.

- b. Based on these analyses, evaluate and provide advice in the context of current closures specified in the NCEM for the protection of VMEs and prioritize areas for consideration by the Ecosystem Approach to Fisheries Working Group.
14. Recognizing the work done in NAFO to prevent significant adverse impacts to vulnerable marine ecosystems, and the need for effective stock assessments;

Further recognizing that modifications to survey designs occur on regular basis in fisheries surveys in many cases,

Fisheries Commission requests that Scientific Council investigate the impacts of removing the closed areas from the survey design for relevant stock surveys for consideration in the review of closed areas in 2014.

15. The Fisheries Commission Working Group on Vulnerable Marine Ecosystems (WGFMS-VME) considered the scientific advice available at the time of its last meeting held in April 2013. No consensus was reached between Contracting Parties regarding specific management measures that are best suited in protecting areas 13 and 14 as reflected in Figure 2 of the Working Group report (NAFO/FC Doc. 13/3) and defined by the coordinates indicated in page 10 of that report.

New information from the EU Flemish Cap survey was expected to be available on sea pens later in 2013, which would help to clarify what type of management measures would best suit areas 13 and 14.

The Fisheries Commission requests the Scientific Council to provide the Fisheries Commission with the preliminary results or analysis, regarding occurrence of sea pens in areas towed close to areas 13 and 14 and advise if these reveal significant concentrations of VME indicators.

16. The Fisheries Commission requests the Scientific Council to evaluate and provide recommendations on the methodology for establishing standardized conversion factors outlined in STACTIC WP 13/3.

ANNEX A: Guidance for providing advice on Stocks Assessed with an Analytical Model

The Fisheries Commission request the Scientific Council to consider the following in assessing and projecting future stock levels for those stocks listed above. These evaluations should provide the information necessary for the Fisheries Commission to consider the balance between risks and yield levels, in determining its management of these stocks:

1. For stocks assessed with a production model, the advice should include updated time series of:

- Catch and TAC of recent years
- Catch to relative biomass
- Relative Biomass
- Relative Fishing mortality
- Stock trajectory against reference points
- And any information the Scientific Council deems appropriate.

Stochastic short-term projections (3 years) should be performed with the following constant fishing mortality levels as appropriate:

- For stocks opened to direct fishing: $2/3 F_{msy}$, $3/4 F_{msy}$, $85\% F_{msy}$, $75\% F_{2013}$, F_{2013} , $125\% F_{2013}$,
- For stocks under a moratorium to direct fishing: F_{2013} , $F = 0$.

The first year of the projection should assume a catch equal to the agreed TAC for that year.

Results from stochastic short term projection should include risks of stock population parameters increasing above or falling below available biomass and fishing mortality reference points. The table indicated below should guide the Scientific Council in presenting the short term projections.

F in 2014 and following years*	Yield 2014 (50%)	Yield 2015 (50%)	Yield 2016 (50%)	Limit reference points												P(B2016 > B2013)		
				P(F>Flim)			P(B<Blim)			P(F>Fmsy)			P(B<BmsyP)					
				2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016			
$2/3 F_{msy}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$3/4 F_{msy}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$85\% F_{msy}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$0.75 \times F_{2013}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
F_{2013}	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$1.25 \times F_{2013}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$F=0$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%

2. For stock assessed with an age-structured model, information should be provided on stock size, spawning stock sizes, recruitment prospects, historical fishing mortality. Graphs and/or tables should be provided for all of the following for the longest time-period possible:

- historical yield and fishing mortality;

ANNEX B Guidance for providing advice on Stocks Assessed without a Population Model

For those resources for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.

The following graphs should be presented, for one or several surveys, for the longest time-period possible:

- a) time trends of survey abundance estimates
- b) an age or size range chosen to represent the spawning population
- c) an age or size-range chosen to represent the exploited population
- d) recruitment proxy or index for an age or size-range chosen to represent the recruiting population.
- e) fishing mortality proxy, such as the ratio of reported commercial catches to a measure of the exploited population.
- f) Stock trajectory against reference points

And any information the Scientific Council deems appropriate