



LDAC ADVICE FOR NAFO 43rd ANNUAL MEETING
Virtual Meeting, 20-24 September 2021

13 September 2021

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Approved by Executive Committee

BACKGROUND / AIM OF THIS ADVICE

The meeting of the Scientific Council (SCS) of NAFO, held by correspondence due to COVID-19 pandemic from the 27th of May to the 11th of June of 2021, assessed the state of main commercial stocks in NAFO and as a result a table with recommendations for fishing opportunities for 2022 was presented (see table 1).

A LDAC delegation composed by the Chair, a Vice Chair, the Executive Secretary and members of WG2 representing both the concerned EU MS fleets with commercial interest in the fishery and environmental NGOs participated at a coordination meeting with the DG MARE lead negotiator and his team held virtually on 24 August 2021. A summary overview was given on the report of the Scientific Council and its advice for 2022 and beyond in relation to the main stocks for decision, as well as other conservation issues including ecosystem considerations.

At the meeting there was also a short reference made to the work of several NAFO Working Groups: Risk Based Management Strategies (WG RBMS); Ecosystem Approach Framework to Fisheries Management (WG EAFFM); and Bycatch, Discards and Selectivity (WG BDS). Specific emphasis was given to the progress made by the EAFFM on the development of an ecosystem approach roadmap and its associated level objectives, including a multispecies assessment. There was also a summary of the last meeting of the Control and Compliance Committee (STACTIC).

At this preparatory meeting, the LDAC delegates held a preliminary exchange of views in reaction to EU proposals, based on their qualitative expertise and knowledge. As in previous years, the Secretary compiled the views and expressed that the LDAC was committed to produce a written advice prior to the 43rd NAFO Annual Meeting, which will be held by web conference on 20-24 September 2021.

Through the present advice, the LDAC would like to make several recommendations addressed to the negotiating team of DG MARE on behalf of the European Commission and the Fisheries Administrations of the Member States of the EU, based on the outcomes of the Scientific Council and relevant NAFO WGs.



The fishing opportunities for 2022 will be decided at that meeting, together with other management and conservation measures which are of relevance of the commercial fisheries for the LDAC members (both EU fleet and other interest groups incl. NGO) in NAFO RA.

For comparative analysis purposes, below is a summary table containing TACs approved for 2020 and 2021, as well as the level of catch in terms of quota consumption in 2020 – source: data agreed at the Joint Commission-Scientific Council “Catch Estimation Strategy Advisory Group” (CESAG) combining DCR (daily catch reports transmitted by fishing vessels to NAFO), port inspection reports for all stocks and countries and STATLANT 21A for Canada catch within its EEZ. Finally, this table also contains the recommended TAC made by the Scientific Council for 2022.

Figure 1. Estimated catch for 2020 (CESAG), TACs adopted for 2020 and 2021 and SC recommendations for TAC for 2022 for main commercial stocks of NRA.

Stock	Estimated Catch 2020 (t)	TAC 2020 (t)	TAC 2021 (t)	Recommended TAC for 2022 (t)
Greenland Halibut (GHT) 2+3JKLMNO	16 307	16 926	16 498	15 864
Cod 3M	8 458	8 531	1 500	3 000
Cod 3NO	588	ndf	ndf	ndf
American Plaice 3LNO	1 171	ndf	ndf	ndf
American Plaice 3M*	187	ndf	ndf	ndf
Witch Flounder 3NO*	655	1 175	1 175	ndf
Redfish 3M	8 520	8 590	8 448	10 933
Redfish 3LN*	11 092	18 100	18 100	18 100
Redfish 3O*	7 302	20 000	20 000	12 000??
White Hake 3NO	343	1 000	1 000	400
Capelin 3NO	1	ndf	ndf	ndf
Thorny Skate / Rays 3LNO*	4 321	7 000	7 000	3 511
Yellow Tail Flounder 3LNO	14 806	17 000	17 000	22 100
Squid 3+4 (3LMNO)*	773	34 000	34 000	34 000
Alfonsinos 6G*	0	ndf	ndf	ndf

ndf = no directed fishery

** Stocks assessed in previous years.*



REQUESTS FOR ADVICE MADE TO SC BY NAFO COMMISSION FOR 2022

The LDAC notes that the stocks for which SCS has undertaken full assessments with its respective levels of TACs determined for this year are:

- GHL Sub. 2 y Div. 3KLMNO (TAC 2022 applying the HCR)
- Cod Div. 3M (TAC 2022)
- Redfish Div. 3M (TACs 2022 and 2023)
- White hake Div. 3NO (TACs 2022 and 2023)
- American Plaice Div. 3LNO (TACs 2022, 2023 and 2024)
- Capelin Div. 3NO (TACs 2022,.....)
- Cod Div. 3NO (TACs 2022, 2023 and 2024)
- Yellow Tail Flounder Div. 3LNO (TACs 2022, 2023 and 2024)

The following stocks have been assessed in previous years and the recommendations made in line with a review of the available confirm the recommendations made for 2022.

- Redfish Div. 3O (TACs 2020, 2021 and 2022)
- Redfish Div. 3LN (TAC 2022 applying the HCR)
- American Plaice Div. 3M (TACs 2021, 2022 and 2023)
- Squid Div. SA 3+4 (TACs 2020, 2021 and 2022)
- Thorny Skate/Rays Div. 3LNO (TACs 2021 and 2022)
- Witch Flounder Div. 3NO (TACs 2021 and 2022)
- Alfonsinos Div. 6G (TACs 2020...)



SECTION I. FEEDBACK TO SC ADVICE ON TAC AND OTHER MANAGEMENT MEASURES FOR MAIN COMMERCIAL STOCKS OF INTEREST FOR THE LDAC

1. Cod on NAFO Div. 3M (Flemish Cap)

The LDAC acknowledges the worrying situation of this stock, with scientific advice indicating a substantial decline in SSB due to poor recruitments since the last strong year class in 2011. As in previous years, the LDAC acknowledges that the SC states in its recommendation for 2022 that, for any catch over 3 000 tonnes, the probability of being below Blim in all eight scenarios projected for a period 2022-2025 with different F values (except F = 0 or TAC = 1 500 t) exceeds the NAFO PA guidelines ($\leq 10\%$ of SSB being below Blim and of exceeding Flim). However, the SC also acknowledges that a yield of less than or equal to 5 000 tonnes in 2022 results in a very low probability ($\leq 10\%$) of SSB being below Blim in 2023 and a very low probability of exceeding Flim.

It must also be noted that, according to SC, the current SSB is estimated to be above Blim (15 408t) although it is declining rapidly and F in 2019 increased to be at levels close to Flim (median 0.196). This increase is partially explained by the TAC increase following a short-term recommendation from SC to catch old fish before it died due to natural causes (in fact, in 2020 F decreased again).

The LDAC reminds that the recommendation of a TAC of 1,000t for 2021 meant in practice and economic terms a dramatic reduction of catches from over 17 000 t to 1 500 t in three years. However, the LDAC notes that there are some early indications that the biomass and recruitments appear to have stabilised in 2021 and hopes the biomass increases in 2022 linked to a combination of low fishing pressure and better environmental conditions. The low TAC and technical (flanking) measures in force, including use of mandatory grid to avoid catch of small individuals and time area closure in the first quarter of the year to protect spawning aggregations and future recruitments, should contribute to that.

In any case, the LDAC restate its view that it strongly rejects any proposal for a moratorium of this fishery, which would render the fishery closed effectively for at least 4-5 years and would have draconian consequences for the socio-economic viability of demersal EU fleets, in particular demersal trawlers from Portugal and Spain. The LDAC reminds that the last moratorium lasted for 15 years and had little consequences in the improvement of the stock. The LDAC reminds that environmental factors are playing a major role in the poor recruitments observed in the last decade in the Flemish Cap.



In line with the precautionary approach and to achieve a proper balance between biological, social and economic sustainability, the LDAC would like to reiterate its proposal in adopting a robust medium-long term approach which can take into consideration the Management Strategy Evaluation (MSE) process for this stock to allow to set a correct baseline and flexibility mechanisms in the forthcoming years.

The LDAC also acknowledges the ongoing work of the Ecosystem Based Approach WG on species interactions and ecosystem productivity between cod, shrimp and capelin stocks, and encourages following this work in future years to develop consistent and robust models to inform managers and bring ecosystem considerations into the advice.

In summary, stability in catches must strike a balance with the outlook of HCR under development, within the remit of the scientific advice from SCSS and the PA framework, while if exploitation patterns will not vary substantially and will remain stable to allow the SCS to run tests on projections.

The LDAC is aware of the workload of the SCS, and the number of special requests received by the CPCs. However, given the economic and social importance of this stock for the EU fleet, the LDAC demands that work on this stock is given the highest priority and that resources dedicated to it are intensified.

LDAC Recommendations for Cod NAFO Div. 3M:

The SC makes the following recommendation for 2022 in its Advice report:
Yield of less than or equal to 5 000 tonnes in 2022 results in a very low probability ($\leq 10\%$) of SSB being below Blim in 2023 and a very low probability of exceeding Flim. However, given the present low level of the SSB and projected decline of total biomass under any fishing scenario, to promote growth in SSB, SC advises catches of no more than 3 000 tonnes in 2022.

- **The LDAC wishes to maintain the cod fishery open at the highest possible level of catches in accordance with scientific advice. The LDAC invites the Commission to reflect on the different catch option scenarios described in the SC report and associated risks being below Blim or exceeding Flim and SSB in 2024 being higher than SSB in 2021.**



- Regarding a specific figure for a TAC for 2022, the LDAC members have divergent views in terms of selecting F value from catch option scenarios:
 - The eNGOs support the SC recommendation of catches of no more than 3 000 t, based on future growths in SSB forecasted for the period 2022-2024, with the objective of rebuilding the biomass of the stock
 - The Spanish cod trawl industry supports a TAC of 5 000 t for 2022 in line with $F_{bar} = 1/2 F_{lim} = 0.098$.
 - The Portuguese cod trawl industry support a TAC of 7 160 t for 2022 in line with $F_{bar} = 3/4 F_{lim} = 0.147$.

- The LDAC notes the discrepancy between scientific estimations of biomass in their surveys and commercial information from skippers in relation to mean length size and age distribution of the catches.

- In view of the recommendation made by the NAFO Scientific Council since 2015, that a scientific protocol should be set in place with a sampling plan to carry out a selectivity trials for both collecting data and testing the effectiveness and impact of the use of sorting grids in the reduction in catches of juvenile and small cod.

- The LDAC continues supporting the implementation of the technical (flanking) measures adopted at the Annual Meeting in September 2020 to rebuild the stock and protect spawning aggregations of 3M Cod, namely:
 - Improving gear selectivity through the mandatory use of the sorting (“Norwegian”) grid and analogue devices for all demersal trawlers targeting cod operating in NAFO RA.
 - The time area closure for Subdivision 3M (Flemish Cap) from January to March 2022 to protect spawning aggregations of Cod, with fishing activity on cod allowed from April to December despite the significant impact on the fishing companies operations.

- Regarding an impact assessment of the effectiveness of the technical measures, the LDAC agrees with the SC that 2022 is still too early to draw conclusions and analysis as the measure was implemented for first time this year. More years will be needed to make a comparison of the impact in reduction of fishing effort and catch in VMEs, changes in spatial distribution, changes in catch size and age, and studying of by catch in cod fishery and the catch of cod as by-catch for other target fisheries such as redfish.



- The LDAC notes that the Faroese longline industry has developed their own science-industry partnership sponsoring a survey. However, the protocol and methodology have neither been planned nor validated by the SC.

Although this is a commendable initiative and is authorized under NAFO CEM (Green Bible rules), the LDAC recommends that a clear research plan, survey protocol and design is agreed beforehand and prepared by the SC to avoid bias and/or methodological inconsistencies and allow to incorporate these results for future stock assessments. This advice is consistent with what the LDAC has asked for by analogy for the Splendid Alfonsinos fisheries in Subdivision 6G.

2. Redfish (RED) 3M

Background:

The catch composition of redfish in this area includes three species from the gender *Sebastes*: the first two, *Sebastes mentella* and *Sebastes fasciatus*, are known as “beaked redfish”, and managed as one single stock belonging to the population structure of the Northwest Atlantic redfish. The third species is *Sebastes norvegicus* (= *S. marinus*), which is known as “golden redfish” and dealt separately in terms of assessment.

Projections have been made in the short term (period 2022-2024) under three different scenarios of F , namely $F_{\text{statusquo}} = F_{2018}$, $F_{0.1}$ and F_{max} . The SC chose the $F_{0.1}$ scenario in 2019 for its projections for 2020 and 2021. The SC reiterates this approach this year and advises that catches should not exceed $F_{0.1}$ given the recent very low productivity of the stock.

LDAC remarks:

The LDAC notes that F remains at relatively low levels when compared to the last decades of the last century. The catch has stabilised and all five scenarios considered Same five scenarios as considered in 2019. All scenarios are equal to TAC for 2021, projections shows that SSB will decrease between 22 and 37% and the advice is that catches do not exceed $F_{0.1}$ given the life of stock and uncertainty of future recruitments.



The LDAC also notes that for the Redfish 3LN stock, which is adjacent to 3M and might have potential stock mixing or population overlaps, a proposal for setting the TAC for 2022 to 18,100 t is maintained following the application of the HCR for this stock.

In the spirit of NAFO Convention, there should be promotion and coordination of conservation and management measures that applies to a stock or group of stocks found both within the Regulatory Area and within an area under national jurisdiction of a coastal State, when considering the ecosystem approach to fisheries.

Recommendation for Redfish 3M:

- **The LDAC notes that catch levels from EU fleet have remained stable and the TAC has been fully utilized.**
- **Considering some concerns on recent low recruitments affecting decreased levels of biomass in the last 5-year period, the SC advises that catches do not exceed F0.1 level, given the life history of the stock. This corresponds to a TAC of 10 933t in 2022 and 11 171 t in 2023. This means an increase from the current biannual period (2020 and 2021) which is fixed around 8500t.**
- **The LDAC supports the recommendations and observes that this biannual TAC provides stability to this fishery.**

3. White hake (WHK) 3NO

The management unit for this species for which advice is requested by NAFO is Division 3NO and Subdivision 3Ps (as it is part of a wider stock). This stock is considered data poor and relatively unknown with great uncertainty, relying on a qualitative trend-based assessment drawn from scientific surveys and catch indexes. The biomass for this stock fluctuates and it is variable at low levels and there have been no good recruitments since 1999-2000 when there was a peak observed. The fishing mortality remains low.

Given the absence of strong recruitment, the SC recommends for 2021-2022 that catches of white hake in 3NO should not increase, stating that average annual catches of the most recent five years were around 400 tonnes.



LDAC remarks

This stock has low levels of catch that are the result of a by-catch from other fisheries such as redfish and rays. The LDAC supports the SC proposal of not increasing catches of white hake. However, it does not agree with the wording of its recommendation as it might imply aligning the TAC (1000t) with the level of catches reported (400t). This would have implications in the allocation keys meaning a reduction de facto for the EU fleets.

LDAC Recommendations for White Hake 3NO

- **The LDAC would advice to keep the TAC in 1000t as in previous years as the level of catches has been stable and not increased (with the possibility of revising this should real catches increase in future years).**
- **Given the absence of new scientific information and the low recruitment indexes observed, the LDAC acknowledges and supports the recommendation from SCS to do not increase catches above the current level (around 400 t).**
- **The LDAC thinks that the SCS recommendation is consistent with maintaining the current TAC set for 2020 and 2021 in 1,000 tonnes as the average level of catches is stable around 400 t, allowing with this formula to couple it with the complexities of quota allocation keys for TAC of different species between CPs. The LDAC accepts the possibility of revising this should real catches increase in future years.**
- **The LDAC notes that white hake is a non-targeted fishery but mostly a by-catch fishery. It also highlights that this species appearance is variable and seasonal, depending on spawning aggregations. Therefore, it stresses the importance of setting in place an adaptive mechanism that allows to manage accidental catches due to these “booms”.**



4. American Plaice in Divisions 3LNO

The LDAC notes that there has been a change of assessment model this year and SC recommends no targeted fishery. This one of the biggest bycatch fisheries occurring in the groundfish fisheries with the highest frequency of catches observed at less than 200 meters associated with yellowtail flounder 3LNO, thorny skate 3LNO and cod 3M.

LDAC Recommendations for American Plaice in 3LNO

- **The LDAC supports the recommendation of the SC for this stock as “*non-directed fishery*” (ndf) allowing sporadic and documented by-catch of this stock under moratoria.**

5. Cod in Divs. 3NO

A TAC zero has been established for this stock. Due to the very low recruitments and poor state of the stock in terms of biomass, the SC recommends a non-directed fishery for the period 2022-2024.

LDAC Recommendations for Cod in Divs. 3NO

- **The LDAC notes that the level of catch for this stock is very low and F well below the Flim.**
- **The industry of the LDAC opposes in principle to the idea of a non-directed fishery and setting a moratorium for this stock, as it is linked in terms of stock distribution to the area where Canada has a TAC in place within their EEZ (namely Div. 3L).**

6. Yellowtail Flounder 3LNO

Background

In 2017, STACFIS recommended further investigation of the stock production model formulation used to assess this stock and/or alternate models that would be more responsive to the indices for the next full assessment of this stock.

As a result, this stock was assessed by a Bayesian surplus production model for first time. This model reflects more accurately the data collected in the surveys. The stock size has steadily increased since 1994, in particular between the period 1994-2000, and has remained at stable levels up to now, being at present 1.5 times Bmsy.



There is also a very low fishing mortality at different scenarios up to 85% Fmsy, corresponding to catches of 22 100t, 20 800 t and 19 900 t in years 2019, 2020 and 2021, respectively. This results in a risk below 30% of exceeding Flim and a probability higher to 80% of maintaining the stock above Bmsy. There is a very low (<1%) risk of the stock being below Bmsy or F being above Fmsy. Recent R appears to be higher than the average.

LDAC remarks:

The LDAC notes that the EU has not a direct commercial interest on this fishery as it has no quota allocated as target species but as by-catch in other fisheries. Catches during the last 10 years have remained stable and well below the TAC, at a level of around 10 000t per year, mainly due to the low activity of Canada, that according with the actual distribution key owns a 97.5% of the TAC and catch only less than 50% of its quota. St. Pierre et Miquelon has a 2% of the TAC and covers all its quota with a chartered vessel, while the 0.5% of the remaining quotas are covered by Russia, declaring a small quantity.

The LDAC also notes that this stock occurs in Divisions 3LNO, mainly concentrated on the southern Grand Bank so management decisions on this stock should also take into consideration impacts on other fisheries. For example, an increased catch of yellowtail flounder may increase as well the by-catch of Div. 3NO cod and 3LNO American plaice.

LDAC Recommendation for Yellowtail Flounder 3LNO

Considering that:

- **The SSB is at biologically safe levels, estimated to be well above Blim and 1.4 times higher than Bmsy; and F is estimated to be well below Flim and close to Fmsy;**
- **The stock is in the safe zone as defined in the NAFO Precautionary Approach Framework.**
- **This seems to be more a political and commercial issue (linked to higher quota shares for Canada) than a biological one;**

The LDAC supports the recommendation of the NAFO Scientific Council advising that fishing mortality up to 85% Fmsy for the next 3 years, corresponding to catches of 22 100 t in 2022, 20 800 t in 2023, and 19 900 in 2024 respectively, have risk of no more than 30% of exceeding Flim and are projected to maintain the stock above Bmsy.



7. Shrimp 3M

EU past and present catch effort

The LDAC expresses its gratitude for EC key-role in reopening the fishery in 2020. The EU is by far the largest stakeholder among the NAFO CPs, both in terms of the current fishing-day allocation share and historical catches from this stock. Within the EU, Estonia is the largest fishing nation of 3M shrimp followed by Latvia and Lithuania. The stock has also been harvested, to a lesser extent, by Denmark, Poland, Spain, and Portugal.

A Lithuanian trawler was fishing in October in 2020 for one trip. This year (2021) both Lithuanian and Danish trawlers have been fishing. Due to insufficient export documentation available from Canadian veterinary authorities EU vessel have not been able to discharge it's catches in Canada, causing a *de facto* landing ban for the EU fleet. This has negatively affected the EU effort since reopening of the fishery.

Lack of scientific methodology in recommendation for total allowable catch

The recommended total catch for the stock was provided by NAFO's Scientific Council in 2019 for the two following years was an annual total of 5 448 tonnes. It should be noted that the ground for this recommendation is questionable as no analytical assessment has been carried out. In other words, NAFO's SC has not defined the proportion of fishable biomass to be caught (MSY missing), accordingly F_{MAX} does not exist. The recommendation for 5 448 t corresponding to the landed catches in 2009 when low shrimp prices, high fuel price, and poor biological state of the stock resulted in low fishing effort. The LDAC does not understand the reasoning for landed catches in 2009 being used as a benchmark for recommended catches in 2020-2021.

Furthermore, the LDAC would like to stress the importance of further development and improvement of the scientific tools applied (and financing of same) and emphasise the necessity of an analytical assessment for this stock.

In the meantime, LDAC suggests simpler scientifically based proxy methodology where fishing mortality is set as a similar proportion of the fishable biomass in nearby waters (such as for 3L in the past or W-Greenland waters today), and CPUE in 2021 is compared with past figures and corresponding total catches at that time. Historically (1993-2007) the recommended, and/or actual, catches for this stock were from a low 24 000 tonnes, up to a high 67 000 tonnes.



Management regime change

The LDAC recognizes the ongoing attempt to change management regime of the stock over to TAC and supports EC proposals resulting in about 40% EU share. Agreeing a new management regime, and a new split of the fishing possibilities, at multi-international venue such as NAFO is complex. From a tactical point of view, it should be noted that TAC regime in NAFO 3M is of main concern to Canada.

Canada applies a quota system in domestic waters which partly overlaps with NAFO (3LNO shrimp). Therefore, Canada is strongly against maintaining a day effort system in zone 3M, while a TAC based regime applies to zone 3LNO. Canada has an autogenous motivation towards TAC regime for 3M shrimp. The LDAC ask EC to keep this in mind during the negotiation and suggest not to apply self-imposed deadline; but rather to maintain the prime focus on quota share, not on when a new management regime is implemented. The LDAC would like to emphasise the importance of securing reasonable quota share for its citizens and stress that no deal is better than a bad one.

Proposal on annual allocation mechanism

There is another important factor at play concerning EU's share in future fishing. The NAFO 3M shrimp fishing possibilities are divided between a total of 12 NAFO Contracting Parties. Some CP have barely ever fished for shrimp in NAFO. Other were quite active before the millennium but represent minor activity during this century. Because of how widespread the fishing possibilities are, it is impossible for all parties to fully utilize the fishing rights at their disposal within the same year. Hence, we have stock with inbuilt under-utilization of allocated possibilities, regardless of TAC or fishing day-based regime.

Therefore, LDAC suggests a reallocation mechanism between NAFO Contracting Parties involving unused 3M NAFO shrimp fishing possibilities from those not fishing, to those that have been active within the year. The aim of NAFO is to keep fishing effort within scientific limits, but at the same time fisheries management bodies need to consider socioeconomic aspects where sufficient quota utilization rate is essential. The reallocation mechanism becomes of greater importance in case of TAC regime, but in the example below we stick to the current fishing days for illustrative purpose only.



LDAC Recommendation for Shrimp 3M

- **The LDAC would like to ask the EC to examine the scientific background of any advice presented by NAFO SC and evaluate how founded it is.**
- **Self-imposed deadline in connection to regime change should be avoided. No deal is better than a bad deal.**
- **The LDAC urges EC to propose reallocation mechanism within a year and offers collaboration in developing a formal proposal on same. The suggested draft proposal reads as follows:**

If a NAFO Contracting Party has not started to utilize its fishing possibilities for 3M shrimp as of 30 September each year, 75% of its rights shall be redistributed to Contracting Parties fishing during the months of August and September. The redistribution to CPs fishing, shall be proportional and based on their existing allocation split. The above reallocation is without prejudice to the existing allocation key and will not create any catch history. Example: EU, DFG, and Norway are fishing in August and/or September. Russia (525 days), USA (25 days), Korea (25 days), and Japan (25 days) have not fished any of its total of 600 fishing days during the year. As EU holds 823 fishing days, DFG 531, and Norway 496 (total of 1850) the reallocation of 450 days (i.e., 600 x 75%) between the three parties will be the following: 200 days to the EU, 129 to DFG, and 121 to Norway. Those 450 fishing days EU, DFG, and Norway have received via annual reallocation can be harvested during the last quarter of the year.

8. Shrimp 3LNO

The main CP here is Canada, with around 87% of the TAC. The LDAC thinks that the shrimp stocks in 3LN and 3M should be treated in the same manner with regards to applied fishing mortality percentage. The LDAC finds it reasonable to show extra precautions regarding lifting the current moratorium. EC should be prepared for Canadian pressure to reopen this fishery and consider its counter strategy in respect to own aims for NAFO shrimp in general.



It should be noted that Canada did never apply a moratorium for this shrimp stock, the moratorium applied only for everyone else. The entire shrimp population found in waters of the east coast of Canada belong to the same stock and the only area closed for fishing is the one in the south referred to by Canadians as SFA7 (NAFO 3LNO). Furthermore, Canada has also allowed small domestic vessels to continue fishing in zone SFA7.

EC should seriously consider supporting DFG claim for increased TAC share of the 3LNO shrimp stock. DFG arguments are valid, and EU has similar ones.

Recommendation for Shrimp 3LNO

- **The LDAC encourages EC to use any attempts and pressure from Canada to have this fishery reopened as bargaining chip towards less hostile Canadian demands aimed against EU citizens.**
- **Any discussion on reopening provides EC a golden opportunity to revisit the unfair quota sharing arrangement of this stock, with 87% held by Canada.**



SECTION II. MONITORING OF STOCKS FOR WHICH MULTI YEAR ADVICE WAS PROVIDED IN 2019 OR 2020

9. Greenland Halibut (GHL) 2+3KLMNO

Background

The present HCR was adopted by the NAFO Commission at the Annual Meeting in 2017 to calculate TACs for GHL in the Subarea 2 + Div. 3KLMNO. The HCR has two components used to calculate the TAC: one based on the biomass to be achieved ("*target*") and the other on the trends shown by the surveys ("*slope*"). The final annual TAC is the result of the mean average of the estimation of TAC from both "*target*" and "*slope*", with the restriction of not allowing a TAC variation of +/- 10% between consecutive years.

As a result, the HCR calculation method agreed for TAC and the resulting proposed TAC for 2021 was of 16 498 t versus 16 926t in 2020. The SCS recommends a TAC for 2022 of 15,864t. The SC concluded that limiting factors triggering the application of "exceptional circumstances" have not occurred in 2021 and therefore the HCR has been applied without any issues.

LDAC remarks

The LDAC notes the considerable reduction in fishing effort made by the fishing fleets (mainly EU) since the HCR entered into force, with a decrease in catches from a TAC of approximately 45,000 t to the ceiling now established around 16 000 t. However, the industry admits that the HCR has helped to bring stability and long-term planning to this fishery, and therefore it is a valid tool despite the starting point being set quite low.

For 2022, the HCR foresees a TAC of 15 864t, namely a 4% decrease with respect of 2021 (16 498 t).

Whereas the LDAC accepts the rationale of this reduction because of the application of the HCR, the Spanish and Portuguese cod trawl fleet industry note that it seems to do not reflect the real situation in the fishing grounds, where they find all group ages of GHL in abundance in their trawls, showing a disparity between catch reports from fleets and scientific survey. One possible explanation could be attributable to the size and wide distribution of the stock. The scientific surveys only cover some sample areas and are an average of 5 different campaigns with different weight.



The LDAC also notes with concern the lack of data in the last three years of the Canadian spring survey, which has not been carried out. The area and time where this campaign takes place correlates with the best time and area (Subdiv. 3LN) to fish where more catches are reported by the commercial fleet. As a result, if this survey is excluded, the HCR automatically shows a reduction of the TAC superior to 3%.

LDAC Recommendation for Greenland Halibut 2+3KLMNO

- **The LDAC considers that the HCR are proving effective in providing stability to the management of this fishery and is conform with the SCS advice establishing a TAC of 15 864 t for 2021.**
- **The LDAC notes that in 2023 there will be a review of the HCR with a test of the two existing evaluation models (SSM and SCAA). The LDAC would like to be timely updated by DG MARE on the state of play of this review exercise. The LDAC would also ask the EU to consider revising upwards the starting point of the new HCR.**
- **The LDAC also wishes to note that “exceptional circumstances” have not occurred yet. However, the lack of data because of the absence of the Canadian spring survey, could affect to the HCR and suspend its application, as it would trigger in 2023 the exceptional circumstances subject to evaluation of SC to decide on other measures to propose a TAC recommendation.**
- **In case that Canada manifests its intention to not carry out their spring survey in 3LN due to lack of time, interest or adequate resources, the EU is recommended to take over and do it in 2022, given the importance of this survey for assessing the biomass of the stock and repercussions on the fixation of the TAC because of the application of the HCR. The repeated absence of spring survey for third consecutive year also bears the risk to trigger the exceptional circumstances and have a negative “knock on” effect for the economic performance of the concerned fishing fleets.**



10. Witch Flounder 3NO

The LDAC notes that the revised stock assessment was frontloaded from 2021 to 2020 under Scientific Council's own initiative due to expert availability. A Bayesian surplus production model was selected in 2018 and has continued to be applied since then. It is adopted to evaluate this stock taking into consideration the commercial catches and the spring and autumn Canadian surveys, including historical catches from 1960s.

The SCS report show an increase of the biomass from 1994 to 2013, followed by a decline during 2013-2015 and has since increased slightly. Although it is unclear if the recruitment index is representative, the one in 2019 is the highest in the time series.

The LDAC notes that, despite the uncertainty, the stock trends are positive:

- The biomass is increasing on a regular basis since 1994 (with an exception of the period 2013-2015).
- The fishing mortality remains at a very low risk (4%) of being above Flim ($F_{msy}=0.063$).
- The recruitment indexes have shown promising results with strong incoming year classes in 2017 and 2019.

After a closure of almost 20 years, this fishery was reopened in 2014 against the SA advice by request of Canada. The scientific advice recommended in that time "*no directed fishing and keeping the Bycatch at the lowest possible level*". Since then, the SC has maintained its advice, but the fishery has remained open at low levels of catches.

The agreed TAC for this stock in 2019 was 1,175t, and it was applicable to 2020 and 2021. It must be reminded that this decision was taken against the SC recommendation of *no directed fishing in 2020 and 2021*, by the pressure of Canada and supported by Russia, that have jointly the biggest share (86%) on the quota. The EU has only 13% of the quota.

For internal reasons, related to its 2021 Agenda, the SC in his annual meeting 28 May - 12 June 2020, decided "*on his own accord*" to frontload the revision of this stock one year in advance, and to proceed with a new assessment this year.

The SC decision is taken in the context of the NAFO Precautionary Approach framework which specifies that there should be a very low probability of being below Blim fixed at 10%.



On this basis, the SC recommends that there be no directed fishing in 2021 and 2022 as it considers that there is not sufficient evidence that the stock would be able to sustain a fishery at this time in the context of the NAFO Precautionary Approach.

However, the LDAC notes that the percentages of this probability are remarkably close to 10%, i.e., 11% in 2021. For 2022 and 2023, this probability ranges from 7% to 11% for scenarios with fishing mortality greater than zero.

Furthermore, the recruitment index registered on the 2019 Canadian spring and autumn scientific campaigns, scored a record value for the last 25 years and is the highest in the time series. The SC report said that it is unclear if this recruitment index is representative.

Recommendation for Witch Flounder 3NO

It is the opinion of the LDAC that, given the fact that the actual quotas and volume of catches reported are very reduced, the difference between keeping the fishery open at the present level; and closing the fishery will be almost imperceptible and will not undermine the precautionary approach framework of NAFO. In fact, the possibility of having some direct data from the fishery can provide interesting information on the stock for future assessments. In particular, the LDAC encourages scientists to look at recent increased level of recruitments and review this assessment in 2023 in light of NAFO PA given that probability of this stock of being below Blim is very close to 10%.



11. Thorny Skate in Division 3LNO

An updated assessment for this stock was completed in 2020 by the SCS and its recommendation for 2021-2022 is as follows: *The stock has been stable at recent catch levels (approximately 3 511 tones, 2015 - 2019). However, given the low resilience of this species and higher historic stock levels, Scientific Council advises no increase in catches.* The recommendation has not changed by the SC this year.

The main campaign is Canadian. The status of the stock is currently above Blim, and the probability that the current biomass is above Blim is >95%. Total survey biomass in Divs. 3LNOPs has remained stable since 2007. Recruitment in 2017 was above average but declined to below average in 2018 and was average in 2019. Fishing mortality is currently low.

The LDAC notes that with the same advice, the proposed TAC for division 3LNO has been set since 2013 at 7,000t, considering that the catch levels are stable around 3,500t given that the EU is the only CPCs having a directed fishing in the zone, with other CPCs (Russia and Canada) not participating in this fishery. The quota allocation of the 7,000 tones adopted for 2019 (last year of data available) was: European Union 4,408t (63%); Canada 1,167t (17%); Russia 1,167 (17%); and others, the remaining 3%.

There is also an independent skate fishery in 3PS managed as a separate unit and for which Canada maintain an independent quota of 1,050ts unchanged since 1997.

Total declared catches of thorny skate were of 4,463t in 2017; 2,412t in 2018; and 3,697 t in 2019; respectively, for a TAC of 7,000t for each year. This difference is mainly due to the lack of activity of Canada and Russia, which have each a 17% of the total 3LNO skate TAC, and that were not active in the fishery. In recent years only the EU has maintained a direct fishery in the zone.

Within the EU, the internal allocation gives to Spain 3,403t (77%), with a declared consumption in 2019 of 3,114t (92.4%). Portugal has assigned 660t (15%) and its declared catches have been stable in the last years above 300t.

Estonia has the remaining 8% with a total of 345t (no data of reported catches for 2019).



LDAC Recommendation for Thorny skate 3LNO

As in previous years, the LDAC agrees with the SC recommendation of “no increase in catches” which are stable in the region of 3,500t in average.

However, the LDAC does not support the specific translation into figures of the advice for the 3LNO portion as it cuts down the TAC almost in half, from 7,000t in the last years to 3,511 t for 2022 based on the average catch levels from 2015 to 2019. This interpretation *de facto* penalizes to the only one CPCs (the EU) fishing actively, resulting in a substantial reduction of its quota, without having a real impact in the conservation of the stock.

In this particular, the LDAC reminds the importance of the Thorny Skate 3LNO stock for some EU MS, in particular Spain, which fully utilise its allotted quota. This is the reason whereby individual MS should not be penalised or have detrimental effects on the TAC due to the under utilisation of the quota by other CPCs.

The LDAC encourage SCS to collect additional data to improve quality and reliability of the stock assessment in future.

The LDAC notes that the addition of the footnote on the catch table, as it was done in 2019 and in 2020, has demonstrated to be sufficient as a safeguard measure to avoid an effective increase in catches as it sets up a warning system once catches are reached at 5,000t.

12. Northern Shortfin Squid in Subareas 3+4

The LDAC notes that, in terms of fishing dynamics, since the 90s, the squid fishery has been mainly a seasonal one with low level of catches. However, there is several Spanish vessels represented in the LDAC which have become more active in the area targeting squid during the last years.

The SCS made a recommendation in 2019 for the period 2020–2022: *The primary biomass index (Div. 4VWX) and mean body size value for 2018 were not available for use in the assessment. The 2019 values indicated that the stock may be moving towards a high productivity period. SC advice is a TAC of no more than 34 000 tonnes/year.*



Recommendation for Squid in Subareas 3+4 (*Illex illecebrosus*):

- **The LDAC looks forward to having the interim monitoring for this stock that is planned to be carried out in September 2021.**
- **LDAD advises that the European Commission follows the SCS recommendation which considers the socio-economic importance of this fishery for the Spanish cephalopod freezer fleet.**

13. Northern Cod 2J3KL

As in previous years, the LDAC reiterates notes with concern the situation of this stock, caught within the Canadian EEZ, and expects that Canada reduces the fishing pressure within its EEZ. The LDAC recommends that the EU should follow closely the evolution of the catches in this area. To maintain pressure on Canada the EU should not exclude an option that in the future asking Canada to give entitlement to other countries to access to this fishery, as there is a consensus on a moratorium that everybody is implementing except Canada.

Not only has Canada not refrained from fishing in these areas of the RA, but the catches there have reportedly increased year after year. For instance, the TAC increased of 25% from 9,500 tons in 2018 to 12,350 tons in 2019, 2020 and 2021. For 2022, Canada increased the TAC to 12,999 tons while the EU fleet has not access to 3L cod and there is a moratorium on 3NO (leaving only 3M Cod as the only fishing ground)¹. Moreover, it seems that there is also a significant number of unreported catches and discards that need to be included when it comes to Canada's catches of cod 2J3KL².

This increase in TAC occurs despite scientific advice stating that “despite good growth in recent years, the stock is still in the critical zone with a low recruitment level”³. Also Fisheries and Oceans Canada (DFO) indicates that “management actions must promote stock growth and removals from all sources must be kept to the lowest possible level until the stock has cleared the critical zone.”⁴⁵

¹ More info: <https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2021-gp/atl-36-eng.html> and <https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2021-gp/atl-27-eng.html>

² For instance, page 6 and 7 of the Report of the Standing Committee on Fisheries and Oceans (March 2017) <https://www.ourcommons.ca/Content/Committee/421/FOPO/Reports/RP8826804/foporp10/foporp10-e.pdf>

³ Page 5 of the Report of the Standing Committee on Fisheries and Oceans (March 2017) <https://www.ourcommons.ca/Content/Committee/421/FOPO/Reports/RP8826804/foporp10/foporp10-e.pdf>

⁴ DFO, “Northern (NAFO Divs. 2J3KL) Cod Stock Update,” Canadian Science Advisory Secretariat Science Response 2015/018, May 2015, p. 8

⁵ <https://www.saltwire.com/atlantic-canada/business/cod-and-caplin-quota-decisions-in-newfoundland-and-labrador-alarm-oceana-canada-100594898/>



The LDAC would like to bring the attention of the EC to Parliamentary Canadian report where a former member of the New Democratic Party Caucus intervenes on the issue on discards and unreported mortality rates related to regulatory framework of stewardship northern cod fishery. From this intervention the LDAC understands that not all catches are reported and considering that the EU is a stakeholder in this stock it increases LDAC concern about Canadian disregard for internationally agreed moratorium⁶.

The existing agreement between Canada and the EU on the sharing of TAC in that area elapsed in 2005, but that does not mean Canada is entitled to unilaterally set a TAC for itself on this closed stock. Once the stock is in a good condition (which Canada seems to think it is) judging by its actions the EC should explore the possibilities to fish on those areas based on past track records and considering that this could be a good compensation for the possible reduction of fish in the Flemish Cap due to the new human activities in the area.

LDAC Recommendation for Cod 2J3KL

The LDAC is of the opinion that while Canada is still fishing for cod 2J3KL, all CPCs for which the cod 2J3KL quota had been reduced to 0, should receive a compensation. The level of compensation should be calculated based not only on subsequent TACs set by Canada but also on unreported catches and discards from Canadian EEZ.

The LDAC also recommends that Canada should be made aware that, regardless the technical nomenclature and arguments provided, the reality is that they are setting a unilateral TAC and conducting a targeted fishery on this area. It is also imperative that the EU, together with other CPCs, begin the process of obtaining fishing possibilities in the 2J3KL areas in line with past track records and the existing fishing activity in the area. Also, additional attention needs to be focused on unreported mortality.

Given the above, the LDAC would like the EU to ask for:

- **fishing data on cod 2J3KL from Canadian fishery covering not only official catches but also a level of unreported catches and discards,**
- **data and reporting by Canada on the seismic, deep-sea mining and oil drilling activity that are currently going on in that area.**

The LDAC is aware how sensitive the cod 2J3KL matter is. However, the LDAC believes that this is one of the issues that could be used by the EC to seek agreement in other dossiers of stocks of interest for the EU where Canada's position is crucial.

⁶ Page 8 of the Report of the Standing Committee on Fisheries and Oceans (March 2017)
<https://www.ourcommons.ca/Content/Committee/421/FOPO/Reports/RP8826804/foporp10/foporp10-e.pdf>



14. Splendid Alfonsinos in Division 6G

This is a data poor stock, with catch and effort data from the commercial fleet (only 1 Spanish flag vessel). The population structure for this species in the three seamounts of Corner Rise (NAFO Div. 6G) is unknown. Until there is more information available on this, the SCS assumes that each seamount constitutes an individual stock.

In 2018, an assessment was made advising not to increase the fishing effort in the area exploited ("Kükenthal Peak"). During the June meeting this year, 2018 were revised and it was observed a significant decrease in catches, with only 2t reported by the single vessel operating there, indicating a possible situation of depletion of the stock.

Therefore, the SCS decided to undertake a more comprehensive assessment and revise its advice for 2019 and beyond and concluded the following: *The substantial decline in CPUE and catches on the Kükenthal Peak in the past year indicates that the stock may be depleted. SC advises to close the fishery until biomass increases to exploitable levels.* The SCS recommendation for 2021 reiterates this advice.

As reflected in previous years' advice, the LDAC highlights that the absence of information and reliable stock assessment and information on population structure hampers a sound advice due to lack of abundance and exploitation data for these stocks. As a result, the SCS has been unable to provide an analytical assessment and set an appropriate TAC for 2019 and beyond. In contrast with the lack of specific data on this stock and considering the non-concerning conservation status of the species, and the small level of catches reported, the LDAC is of the opinion that this stock has been given a disproportionate attention and political focus by CPCs that have no interest in the fishery and/or market.

The LDAC reminds that Alfonsinos aggregations were discovered by Russians in the mid-70s in three seamounts of Corner Rise. Two of them fall within the scope of NAFO RA, namely Kükenthal and C-3. The third one, Milne Edwards is in the West Centre Atlantic. There is fishing activity from one Spanish boat currently in the Kükenthal Seamount, with catches being exported to and commercialised in Russia.

Overall, the LDAC finds it concerning that the SCS takes the CPUE from the commercial catch data as an index for abundance as there is only one fishing boat with very limited activity there. If the single boat were to cease this fishery, there would be virtually no more data being produced for this stock to be assessed.



The LDAC considers this as a risky approach as catches can differ substantially from one year to another as they are seasonal and variable, one of them being that this stock only migrates to the seamount's surface under specific environmental conditions (it is forbidden to use a bottom contacting gear). When not available, the catches are drastically reduced from one year to another, as it was the case for 2018 where lower catches are observed.

In terms of management decisions, the LDAC would like to share the divergent views of the fishing industry and the other interest group members on this matter:

- **The fishing industry of the LDAC is against closing this fishery (or establishing a moratorium) until there is scientific advice underpinning this.**
- **The NGO group argues that catches of Alfonsinos declined by 90% and this was after years of no agreement on management measures and regulations. In addition, there are no protocols for experimental scientific surveys, and the data required could have been collected over the past several years of the fishery, rather than proposing data collection after the stock has been decimated.**

Recommendation for Splendid Alfonsinos in Div. 6G

To break this vicious circle of lack of data, the LDAC proposes to set in motion an experimental scientific campaign for this stock in Kükenthal Peak for 2022. The LDAC suggests using the only Spanish flagged commercial vessel involved in this fishery with a scientific protocol validated by NAFO Commission, to allow further exploration and collect necessary data (through an echo sounder acoustic survey) for improving scientific assessments and knowledge on biology and behaviour of this species. This should be consistent with the CPUEs reported in previous years, which have always been in those dates. It is also confirmed that the referred vessels have a suitable equipment for performing such survey.

The LDAC looks forward to being informed by the SC at the Annual Report on the outcome of the Commission's request to review the submitted protocols for a survey methodology to inform the assessment of Splendid Alfonsino.

The fishing industry of the LDAC reminds that reported catches are very low but still can differ from one year to another as they are highly seasonal. This can be due to factors such as changes in Alfonsinos behaviour (migration of the stock up in the seamount surface depending on environmental conditions) and compliance with the NAFO management measures (not allowed to use a bottom gear contact with seafloor).



The OIG (NGO) of the LDAC argues that catches of Alfonsinos declined by 90% and this was after years of no agreement on management measures and regulations. In addition, there are no protocols for experimental scientific surveys, and the data required could have been collected over the past several years of the fishery, rather than proposing data collection after the stock has been decimated.

15. Grenadier in Subareas 2 and 3

The SCS has carried out in 2020 for first time a qualitative assessment which shows uncertainty in the results. The SCS concluded that there will be no new assessment until monitoring shows that conditions have changed. The same statement has been repeated this year.

LDAC Recommendation for Grenadier 2+3:

The LDAC is in favour of continuing monitoring this stock and improve the quality of the assessments before taking any management decision on this respect.



SECTION III. ECOSYSTEM CONSIDERATIONS

Review of Vulnerable Marine Ecosystems and proposals for closed areas

The LDAC notes the ongoing review of the adequacy of VME closures in the NRA, in addition to the 2021 assessment of Significant Adverse Impacts on VME indicator species in the NRA, which will apply all 6 criteria from the FAO Guidelines on Deep Sea Fisheries, progress can be made to advance VME protections this year. With the UNGA Review of bottom fishing measures postponed from August 2020 to August 2021, there remains opportunity for NAFO to continue to fill gaps in VME protections.

In 2021, The SC provides advice with regards to specific VMES where protection has been deemed poor or inadequate, that management measures be agreed in particular for the 30 coral closure, Area 1 and Areas 4-12 in addition to revisiting Area 14.

The LDAC appreciates the clarity of the traffic light system (Green, orange and red) to assess significant adverse impacts in VMEs looking at ecosystem indicators, protected areas, biomass for each indicator, area in risk and ratio caused by fishing activity in terms both of area covered and biomass. The ones that show high risk of impact by fishing are small gorgonians, black corals, bryozoans and arcidias. Pennatulaceans have medium risk and big gorgonians and sponges present a low risk.

The NAFO Commission should have a clear objective in terms of protection of VMEs and indicators to measure it, as it is not obvious to date or there is no reasoning on why they have been included based on FAO guidelines (there is no percentage of features or anything similar). Only WG ESA has estimated a good level of protection at 60% for the indicators, which is quite high and will be evaluated by WG EAFFM in September 2021.

In addition, the LDAC recommends that there should be studies outside the fishing footprint to include aspects of connectivity between ecosystems and relevance of the features protected so they can be reviewed if necessary.

The LDAC notes that there are several new areas expanded and changed in the proposal, most in the Grand Banks. Of particular concern for the industry are three new candidate areas for VMEs where there are existing fishing footprint and another two which would mean closing areas which might be potentially of fishing value as they are adjacent to existing fishing grounds for certain fleet segments.



As an overall reflection, there is a need to discuss if this continuing dynamic of proposing new VMEs area because of new sensitive habitats or features (such as bryozoans or ascidians) identified are duly justified, considering there are already many areas where there are no fishing footprint and fishing activities cannot be exercised unless there is an experimental campaign backed by science. The fishing industry of the LDAC is of the view that a freeze of the fishing footprint could be a solution to protect other areas with minimal affectation to existing activities in terms of fisheries footprint and buffer areas allowing expansion to adjacent fishing grounds.

LDAC Recommendations on VMEs and closed areas

- **The LDAC asks for coherence and full protection of VME features from all extractive and human activities that have an impact on them, such as mining for minerals or oil and gas prospections, and not only fishing. The LDAC understand that NAFO has not a dedicated legal mandate to do this, but understand this topic should be raised in the context of discussions within BBNJ based on international obligations and commitments made by MS and CPCs in the area of protection of marine ecosystems. In addition, Contracting Parties who are also coastal States with competency for the regulation of extractive activities should strive to ensure that areas closed to protect biodiversity at NAFO are similarly closed to extractive activities.**

- **In this sense, the LDAC supports the EU proposal reflected in the EC concept paper on looking at the current closed areas and divide the proposed new areas in three different groups to consider affectation to existing fishing activities and existing scientific knowledge. This will allow to avoid rushing into adopting additional closures without adequate scientific evidence and socio-economic impact assessment of all economic activities, including oil and gas prospection. The LDAC encourages NAFO to organize its announced workshop in 2022 on this topic ensuring participation of relevant scientists, managers, policy makers, concerned industry players and other stakeholders.**



Additional remarks from fishing industry on VMEs and SAIs

- **The fishing industry of the LDAC notes that, with exception of the reopening of Area 14 for sea plumes, there has been a steady expansion of closed areas for fishing in the last 10 years, while other extractive activities harmful (gas/oil prospecting) are still taking place there, one clear example being the Flemish Pass. The reduction in fishing effort is likely not to render any benefits for those sites if there are other human activities that are causing irreversible damage in the same convention area.**
- **Further, the fishing industry rejects simplistic impact analysis such as claiming that “1% of impact”. Impact can and must be measured in several different variables. It is entirely different to talk about 1% of area, 1% of time, 1% of catches in tons, 1% of catches in value, or 1% of CPUE. For example, 1% of area can be linked to for much more than 1% of catches. Or 1% of overall catches might be a very significant part of the catches in one specific stock or fleet. Closing areas can only be done with specific impact assessment, weighed against the desired benefit.**

Additional remarks from NGO on VMEs and SAIs

- **The NAFO Scientific Council “Review of Significant Adverse Impacts on VMEs” presents a reasonable case for increasing the protection of VMEs and that all proposed closures should be adopted. Proposals will impact less than 1% of the fishing activity and VMS data has already been included in the SC considerations for boundary amendments and new areas. NAFO CPs have had almost 15 years to fully implement UNGA 61/105. The new proposals will increase the protection of VME biomass by almost 60%. Some VMEs have zero protection and this is not acceptable. Further delay on making management decisions will leave VMEs vulnerable to SAI and will indicate a failure on behalf of CPs to adhere to commitments made in numerous international fora.**
- **All proposed amendments to the closure of seamounts and other features be adopted in full. There are active fisheries in these areas and the 2021 SC advice represents a comprehensive and consistent review of protections of VME elements within the NAFO Convention Area.**



Ecosystem Approach

Given the progress made over the past several years at the Scientific Council on an ecosystem approach to fisheries management, and with the view that at some point NAFO managers will be in the position to make decisions based on an ecosystem approach, there are key recommendations from the Scientific Council that can be agreed this year. The development of the NAFO Roadmap has meant significant investment by Contracting Parties and their scientists. However, the LDAC notes with regret that no progress has been made on this front in 2021, reiterating the advice provided in 2020.

LDAC Recommendations:

To ensure that this investment on developing an ecosystem approach to fisheries management ultimately benefits the sustainability of the fisheries in the NRA and advances RFMO progress on ecosystem-based decision making, the LDAC recommends the following to be agreed at the NAFO Annual Meeting:

- **The LDAC encourages NAFO to make progress in 2022 in further developing an ecosystem roadmap as a matter of priority, including the advancing in multi-species models and simulations to evaluate the reliability of decision rules for species aggregated (TCI) catch levels.**

- **As proposed at the WG-EAFFM meeting in August 2020 and as an interim measure in the implementation of the roadmap, that when the combined TACs of NAFO managed fisheries are two-fold above the Total Catch Indicator guidance, consequences to fisheries sustainability be considered. Such an agreement would be in keeping with NAFO's current fisheries sustainability sheets and ecosystem sheets and would advance the incorporation of NAFO's stoplight approach. Given the reduced protection potential of the 2JK and 3LNO ecosystem units (40% and 30% respectively), there is a need to better link this reduced potential to recommended catch levels.**



Mapping on Impact of Human Extractive Activities other than Fishing in NAFO RA

The LDAC commends the work carried out on a voluntary basis by the Spanish Research Institute IEO since 2018 compiling publicly available data and information from different sources to show where other extractive activities such as oil and gas exploration and exploitation licenses and activities (e.g., seismic prospections) occurring, including reported and documented incidents of oil spills, etc.

The LDAC encourages IEO to continue with this work and to NAFO WGESA to validate this work during its meeting. It also encourages the NAFO CPCs and the Commission to allocate sufficient funding and resources to identify relevant external experts in this field (currents, physics, and geology) that can take this work forward in the field. This would allow to address data gaps, build a robust database, and carry out in the longer term a fully-fledged study including an impact assessment of each of the activities found in the habitats (e.g., environmental degradation and resilience of VMEs and other selected features) and species (e.g., displacement of stocks caused by anthropogenic noise).

A pilot test case could be a study on Flemish Cap (3M) with findings to be included in the ecosystem summary sheet for this area to be developed in a joint ICES-NAFO Workshop scheduled for 2021 but now postponed until COVID allows a face-to-face meeting.

The LDAC believes that NAFO as prominent RFMO should take the initiative in the field despite the constraints in relation to its legal mandate. It should also work in cooperation with other international bodies and for a to feed in this work in international law instruments such as the future UN Treaty on Biodiversity Beyond National Jurisdiction (BBNJ) which will look at a coherent approach to multiple economic activities having an impact in a specific maritime area.

-END-