

West Greenland Commission

WGC(15)3

Report of the Inter-sessional Meeting of the West Greenland Commission

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Hotel Hans Egede, Nuuk, Greenland 24 - 26 February 2015

1. **Opening of the Meeting**

- 1.1 The Chairman of the West Greenland Commission (WGC), Mr Ted Potter (European Union), opened the meeting and welcomed participants from the Member Parties and accredited NGOs (Annex 1). He referred to the previous valuable exchanges of information at the Commission's meetings in 2014 and noted that it had been agreed that States of origin would share experiences with Greenland on approaches to improving the monitoring of landings with a view to ensuring full reporting. An Ad hoc Working Group had been established *inter alia* to recommend options to enhance the monitoring and control of the West Greenland salmon fishery. He thanked the Group and Denmark (in respect of the Faroe Islands and Greenland) for preparing a Draft Plan to implement the Group's recommendations. He indicated that over the two days available to it, the Commission needed to review events in the 2014 fishery at West Greenland, discuss the Draft Plan for enhanced monitoring and management of the salmon fishery at West Greenland, consider how the six tenets of effective management of an Atlantic salmon fishery might be applied to an evaluation of the salmon fisheries of other Parties and establish, at a minimum, a framework or parameters for the development of a new agreement taking into consideration the Draft Plan developed by Denmark (in respect of the Faroe Islands and Greenland). He noted that the past work of the Commission had been characterised by an excellent spirit of international cooperation and a strong commitment to developing regulatory measures that are closely aligned with the scientific advice from ICES. These measures involved major sacrifices for Greenland that are recognised and appreciated internationally as important conservation measures. However, the situation facing the wild Atlantic salmon is severe and while the importance of this fishery to Greenland is recognised, there are real concerns about the increase in harvests in recent years compounded by uncertainty in catch reporting. It is important, therefore, that a new measure can be agreed that takes into account the status of the stocks and the dependency of Greenland on salmon fisheries.
- 1.2 An opening statement was made by NASCO's accredited NGOs (Annex 2).
- 1.3 A list of participants is attached as Annex 3.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, WGCIS(15)4 (Annex 4).

3. Nomination of a Rapporteur

3.1 Mr Marc Owen (European Union) was appointed rapporteur for the meeting.

4. **Objectives of the Meeting**

4.1 The Chairman indicated that while there are no Terms of Reference for the meeting the Commission had agreed that an inter-sessional meeting would be needed to establish, at a minimum, a framework or parameters for the development of a new regulatory measure, taking into consideration the Draft Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery in Greenland, WGCIS(15)3. Recognising that the catch advice from ICES was not yet available, he proposed that the objectives for the meeting would be to review events in the internal consumption fishery at West Greenland in 2014 (and any new information on the status and management of Multi-Sea-Winter salmon from States of origin), consider the findings of the Working Group on Monitoring and Control, review and adopt the Draft Plan from Denmark (in respect of the Faroe Islands and Greenland) for implementing that Group's recommendations, agree an approach to apply the six tenets to evaluate the salmon fisheries of the other Members of the Commission and consider a framework or parameters for a new regulatory measure to apply in 2015 and possibly subsequent years. These objectives were accepted by the Commission.

5. Report on the internal consumption salmon fishery at West Greenland in 2014

- 5.1 A representative of Denmark (in respect of the Faroe Islands and Greenland) from the Greenland Institute for Natural Resources provided an overview of the salmon fishery at West Greenland in 2014 (WGCIS(15)7) (Annex 5). The total provisional catch in the fishery in 2014 was 57.8t. This total comprised 35t of salmon landed at fish factories, 11.8t sold at open-air markets, to hotels, institutions etc., and 11t for private consumption.
- 5.2 The representative of Canada asked whether the total catch of 57.8t included unreported catch. The representative of Denmark (in respect of the Faroe Islands and Greenland) advised that this total did not include unreported catch. He added that this year catch estimates for professional fishermen would be improved because approximately two thirds of licensed fishermen had been contacted as part of a new questionnaire survey undertaken and the information obtained will be presented to the ICES Working Group on North Atlantic Salmon. However, unreported catch from unlicensed fishermen remains unknown.
- 5.3 The representative of the European Union suggested that in representing catch data graphically it would be important to show this separately for the last 16 years in addition to presenting data for the longer time series from 1960. She also noted that it would be interesting to investigate relationships between catch and stock status, and that these issues might be considered by ICES.
- 5.4 The Chair suggested that these points could be picked up informally by the ICES Working Group when it prepares the data for consideration at the next meeting of the Commission.

6. Report of the Commission's *Ad Hoc* Working Group on Monitoring and Control

6.1 At the 2014 Annual Meeting, the Commission agreed to establish an *Ad hoc* Working Group on Monitoring and Control to evaluate the current management of the Atlantic

salmon fishery at West Greenland, taking into consideration the NASCO Guidelines for the Management of Salmon Fisheries. The Group's Terms of Reference (see WGC(14)8) were as follows:

- 1. Review data on the 2009 2013 (2014 as available) fishery, including identifying the degree to which harvest related information is collected for each component of the Atlantic salmon fishery off West Greenland;
- 2. Review the management and management systems for each component of the fishery;
- 3. Review fisheries monitoring and management control methods in use in other countries with particular reference to fisheries with similar components as the Greenland fishery (e.g., Canada and Ireland) and consider novel methods; and
- 4. Recommend and compare options to enhance the monitoring and management of the Atlantic salmon fishery off West Greenland and ensure more complete implementation of the NASCO Guidelines for Management of Salmon Fisheries. Consideration should be given to legislative tools, feasibility and costs of implementation.
- 6.2 The Working Group met in Nuuk, Greenland, during 28 30 October 2014, and its report, WGCMC(14)14, (Annex 6) was circulated on 20 November 2014, well in advance of the deadline of 1 January, to allow Denmark (in respect of the Faroe Islands and Greenland) time to prepare a Draft Plan to implement the Group's recommendations. The Chairman of the Working Group, Mr Richard Nadeau (Canada), presented the Group's report. He indicated that the Group had worked in a productive and open manner.
- 6.3 The representative of the European Union referred to information presented in the table in paragraph 8.2 of the Working Group's report and advised that the correct status of rivers in 2013 and 2014 was as follows:

		Number of Rivers 2014	Number of Rivers 2013
1SW	Open	57	58
1SW	Catch & release	30	26
1SW	Closed	56	59
	Total	143	143
MSW	Open	11	11

MSW	Open	11	11
MSW	Catch & release	3	2
MSW	Closed	2	3
	Total	16	16

6.4 The representative of the United States referred to the fact that tenet 2 ('Effectively limiting catch') included two elements. These were that deviation from managing on the basis of the scientific advice should only be done in cases of extreme need and should still minimise the potential for adverse effects on the stocks and that there should be tools to effectively limit catch. He asked if both elements had been taken into account by the Working Group. The Working Group Chairman responded that the evaluation had been based only on whether there were tools in use to limit the catch

through the use of harvest (e.g. quotas) or effort (e.g. number of nets, season length) restrictions. The representative of the United States indicated that the Commission was not necessarily endorsing the evaluation by the Working Group and that some aspects might need to be considered further when consideration is given to the Draft Plan developed by Denmark (in respect of the Faroe Islands and Greenland).

- 6.5 The representative of the European Union referred to the evaluation relating to 'Effective communication of management rules' and noted that although the Working Group considered that the principle in this tenet had been met, in 2014 one buyer had not been aware of the rules and had purchased fish after the quota for factory landings had been met. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that this was a special situation that related to a small factory making fish products that had not previously purchased salmon and it should not recur in the future.
- 6.6 The Commission welcomed and accepted the Working Group's report and thanked it for its work.

7. Presentation of a Draft Plan for enhanced monitoring and management of the salmon fishery at West Greenland from 2015

- 7.1 The Terms of Reference for the *Ad hoc* Working Group on Monitoring and Control, WGC(14)8, state that a Draft Plan to implement the Group's findings should be prepared by Denmark (in respect of the Faroe Islands and Greenland) and presented for discussion at the 2015 inter-sessional meeting of the West Greenland Commission in order to allow sufficient time for implementation in the 2015 fishery. The representative of Denmark (in respect of the Faroe Islands and Greenland) presented a Draft Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery in Greenland, WGCIS(15)3 (Annex 7).
- 7.2 The *Ad hoc* Working Group on Monitoring and Control had recognised the need to know the pool of participants in the fishery and the Ministry of Fisheries, Hunting and Agriculture, in cooperation with the Greenland Fisheries License Control Authority (GFLK) and Greenland Institute of Natural Resources (GN), was already implementing this recommendation through a telephone questionnaire survey of 2014 licence holders.
- 7.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that the process for taking the Draft Plan forward would be that, in the light of feedback from the Commission, Denmark (in respect of the Faroe Islands and Greenland) would amend the Draft Plan and, following its agreement by the Commission, approval would be sought for the revised plan from the Government of Greenland prior to the Thirty-Second Annual Meeting of NASCO in June. In response to a question from the representative of the NGOs, the representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that he was confident that fishermen could be informed of the changes detailed in the plan in advance of the 2015 fishery through the KNAPK magazine and the media.
- 7.4 The measures set out in the Draft Plan presented by Denmark (in respect of the Faroe Islands and Greenland) were considered by the Commission in relation to the six tenets for effective management.

Known pool of participants

- 7.5 In relation to the introduction of licences or permits for all fishermen, it was suggested that there might in future be just two categories of fishermen: licensed professional fishermen and licensed non-professional fishermen; only professional fishermen would be allowed to sell their catch.
- 7.6 The representative of the United States asked whether introduction of a requirement to obtain a licence would act as a disincentive to remaining a private fisherman and result in an increase in the number of professional licences being issued. The representative of Denmark (in respect of the Faroe Islands and Greenland) advised that this would not be the case because in order to obtain a professional licence an individual would need to be a professional fisherman/hunter.
- 7.7 The representative of the United States asked whether consideration could be given to registering factories that are approved to receive salmon and notifying fishermen that salmon can only be landed to these designated factories. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that factories have to inform the Government of their intention to buy/process salmon but indicated that the Executive Order could be changed such that only certain designated factories can receive salmon.

Effectively limiting catch

- 7.8 The representative of the United States noted that the measures proposed by Denmark (in respect of the Faroe Islands and Greenland) did not include a measure related to the second tenet, but that this would merit consideration as controls on the fishery such as a quota would have implications for reporting, and that this may need to be considered as it may raise the prospect of consideration of additional measures, which may alter the timetable for implementation. The Chair noted that considerations in this area may not be possible until after the Thirty-Second Annual Meeting of the Commission. It was agreed to consider this issue after other relevant areas such as carcass tagging had been sufficiently discussed.
- 7.9 The representative of Canada suggested that it may be appropriate to set a limit on the number of fish that can be caught by each licensed individual. It was generally agreed, however, that this can be difficult or impossible to implement for a gill net fishery.

Accurate, effective and timely reporting

7.10 The Chair noted that there were four relevant measures that had been addressed in the Draft Plan (verification of catches, establishing a pool of participants, conducting a telephone survey of fishermen that did not submit reports to confirm if they had fished in 2014 and withdrawal of a right to a licence to those who do not report). The representative of the United States asked whether a time limit would be imposed for reporting. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that time limits for both reporting and for applying for a licence for the following year would be considered.

- 7.11 The representative of the NGOs asked how long the withdrawal of a right to a licence would last. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that it may be for over a year and potentially up to five years. The Chair asked whether notification of this requirement would be issued as part of the overall communications process. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that this would be the case.
- 7.12 The representative of the European Union asked whether consideration would be given to reporting information in addition to the catch, similar to the requirements to complete logbooks in the European Union. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that there are already such requirements and these would continue to apply to professional and non-professional fishermen.
- 7.13 The representative of Canada asked whether the number of private fishermen is constant or whether there are notable numbers of new entrants and dropouts from the fishery each year. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that it may be possible to look at the data for individual fishermen over a number of years, but noted that catches can vary significantly between years based on a number of factors including, in particular, the distribution of the salmon in any given year.
- 7.14 The representative of the NGOs noted that effective regulation requires regular reporting, and that, for example, a quota serves no purpose if there is no way of indicating whether it has been reached/exceeded until the end of the season. The Chair noted that this will be addressed to an extent by the new compulsory reporting mechanism, but asked whether weekly returns, for example, would be practicable, based on past experience. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that weekly reporting would be difficult to implement other than in fish factories.
- 7.15 The representative of the NGOs noted that a tagging system would provide an alternative means of addressing this issue as it would effectively limit catch but without creating problems with regards to reporting. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that whilst a tagging system had been considered, on the basis of experience and given the logistical challenge it would present it would not be possible to implement. The Chair asked if more information could be provided by Denmark (in respect of the Faroe Islands and Greenland) on what the issues preventing implementation of a carcass tagging system might be, as other Parties have found carcass tagging useful in terms of both monitoring/reporting and effectively limiting catch. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that whilst they understand the potential benefits, many fishermen in Greenland are located in isolated communities which would make it very difficult to implement a carcass tagging system, and fishermen would still be likely to fish without using the tags; this is in addition to the logistical issues implementing such a system would entail. He confirmed that whilst such a system has been trialed in other areas (e.g. hunting) it was discontinued for much the same reasons. The representative of the European Union suggested that there might be a limited pilot project in one or two less isolated communities. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that if they were going to introduce such a system they would want to implement it throughout Greenland. He

also noted that in many areas wildlife officers are not operating so tagging would not offer benefits, and furthermore there would be resource issues involved in implementing such a system. The representative of the NGOs asked whether KNAPK has a representative in every community that could be tasked with trialing such a system. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that this could be problematic as they will want payment and also as not all fishers are KNAPK members. The representative of Canada asked whether the focus should be on larger communities as the catch would appear to be primarily for subsistence in the smaller communities. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that this might be a possibility but noted that there are also factories in some of the smaller communities. The representative of the European Union suggested that despite the difficulties consideration of carcass tagging should be integrated somehow into the Draft Plan. The representative of the United States said that despite the difficulties presented a concrete way of calculating catch and of stopping catch once a certain point has been reached is needed and that he would appreciate assistance from Denmark (in respect of the Faroe Islands and Greenland) in establishing what this might be.

7.16 The representative of the European Union asked whether Denmark (in respect of the Faroe Islands and Greenland) could consider some kind of sanction/disincentive to discourage fishermen from not reporting, e.g. the introduction of a charge for a licence. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that ultimately there is always some unreported catch and that this is the case in fisheries in other countries also.

Effective communication of management rules

7.17 The Chair noted that there were no recommendations about communications but that Denmark (in respect of the Faroe Islands and Greenland) had suggested that it may introduce new mechanisms to provide fishermen with more information on, for example, the sampling programme, and ensuring that this information is useful for the fishermen. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that the current NASCO brochure, available in English, Danish and Greenlandic, could be updated to provide such information. It will be important to communicate the conservation imperatives effectively and it has been suggested that NASCO work with Denmark (in respect of the Faroe Islands and Greenland) to effectively communicate this to the fishermen. It was agreed to set up a group to work on communicating the key messages surrounding the sampling programme to the fishermen, with the aim of developing material in time for the 2015 fishery.

Control and enforcement

- 7.18 The Chair asked whether it would be possible for licensed professional fishermen to report more frequently. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that this brought with it a risk of increased confusion in the reporting.
- 7.19 The representative of the United States asked whether it would be possible to communicate the aim and intention behind having a more timely reporting process to all professional fishermen, as it would be desirable under the tenets and under any

regulatory scheme to have more timely information on catch levels throughout the course of the season from all of the professional fishermen. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that unlike other species where the onus is on the factories to report, for salmon the onus is on the fishermen, and as they are not used to reporting, it could be difficult to implement. He added that the reporting scheme has been amended and different options have been considered so there may be scope to consider other options further. For example, the supervisor of open-air markets could be required to ensure that reporting of fish offered for sale is undertaken or it could be a condition of being approved to sell at such markets. The representative of the United States noted that such reporting will be important when considering potential regulatory measures, so this is welcomed; he also noted that given that in 2014 the reported catch for private consumption was higher than that reported as going to open-air markets, extending the reporting to private consumption could be helpful and would negate the need for some sort of proxy/estimate to cover this aspect.

7.20 The Chair noted that there is not currently reliable weekly reporting from the fishery which presents a challenge in understanding the level of catch other than in the factories.

Sampling

- 7.21 The Chair noted that the final measure proposed by Denmark (in respect of the Faroe Islands and Greenland) was to address gaps in the sampling programme and asked whether there would be sanctions in place to enforce this. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that communications with KNAPK would be particularly important, but that Denmark (in respect of the Faroe Islands and Greenland) could consider making it a fundamental condition of the fishing licence that samplers are given access to the catch to obtain samples.
- 7.22 The Chair also asked the representative of Denmark (in respect of the Faroe Islands and Greenland) about the expected output at the end of the process and if there was a longer term plan/strategy for improvements. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that the intention is to analyse the results of the telephone surveys in further detail to assess how reliable reporting is and what improvements could be made, but that the first task would be to implement the measures, see how well they work and fine tune them accordingly.
- 7.23 The representative of the European Union thanked Denmark (in respect of the Faroe Islands and Greenland) for the level of transparency exhibited and for accepting/recognising the outcomes of the 'six tenets' evaluation of the West Greenland salmon fishery. She also suggested that over the long term Greenland should aim to achieve a 'green' rating for every tenet, although resource limitations were recognised. She suggested that a pilot/exchange programme could be set up where Greenlandic and European Union officers meet to exchange best practice. The representative of Denmark (in respect of the Faroe Islands and Greenland) agreed that this could be considered. The Chair noted the need to look beyond the plan and consider effective mechanisms for monitoring and control.

- 7.24 In the light of the discussions, a revised plan was presented by Denmark (in respect of the Faroe Islands and Greenland), WGCIS(15)5, and agreed by the Commission (Annex 8).
- 7.25 The Chair noted that the aim was for Denmark (in respect of the Faroe Islands and Greenland) to take the seven actions outlined forward as far as possible ahead of the NASCO Annual Meeting in June and report on progress at the Annual Meeting, with the three further actions to be undertaken over a longer timescale as resources permit.
- 7.26 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that taking these actions forward ahead of the Annual Meeting may be challenging given resource limitations. He stated that a key undertaking for Denmark (in respect of the Faroe Islands and Greenland) ahead of the Annual Meeting will be to make revisions to the Executive Order in order to progress the actions focused on licencing and reporting, and that Denmark (in respect of the Faroe Islands and Greenland) will consider what further actions can be taken forward ahead of the Annual Meeting.
- 7.27 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that there may be legal issues affecting how the third action can be progressed which Denmark (in respect of the Faroe Islands and Greenland) will need to consider.
- 7.28 The representative of the United States asked whether all fish markets have a supervisor who can take responsibility for reporting sales, and whether assessing reporting in a proportion of the markets might allow for assessment of the fishery if reporting was not possible from all markets. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that 5 or 6 large cities have open air markets with a supervisor in place, and that the aim will be for the supervisors of these markets to report. In smaller settlements the markets are much simpler and may not have the infrastructure/supervisory staff to effectively report. The representative of the United States, noting this, asked whether those smaller markets have open-air landings that could be reported. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that the market is not required to report but that the fishermen are required to report. The representative of the United States asked what proportion of the landing was via these smaller communities. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that due to the informal nature of markets in those communities this was difficult to determine. The Chair asked whether it would be possible to calculate how much of the catch was in the larger communities. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that it may be difficult and that attempting to report such data may prove too complicated. The representative of the United States stated his aim of getting an idea of the efficacy and completeness of the reporting and how useful it was in terms of working towards a quota.
- 7.29 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted, regarding the longer-term action concerning the provision of information by Denmark (in respect of the Faroe Islands and Greenland) on the dependency of communities in Greenland on the salmon fishery, that communities were dependent on a range of living marine resources and not simply salmon. The Chair noted that the fishery is being justified on the basis of communities' dependence on the salmon resource, and that based on the scientific advice only the catch would be zero; it is therefore important to

communicate the importance of the salmon resource effectively, and that it would be useful for example to provide information on why some communities are dependent on landing larger quantities than others (relative to the size of the community, number of fishers, etc.), and any other relevant information. The representative of the United States asked whether there has been any need to define what constitutes a community or defines dependency in NASCO in the past. The Chair was not aware of any such definitions but noted that this has been a longstanding issue. The representative of the United States suggested that it would be useful to consider whether there is any substitute for salmon should there be no salmon fishing opportunities for these communities, and to consider what other opportunities e.g. 'downstream' opportunities might be lost through exploitation of the salmon at West Greenland.

7.30 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that, with regards to the third action concerning potentially conducting a pilot carcass tagging project, resources would be insufficient to do this. The representative of Canada suggested that it may be possible to consider a system that applies only to some aspects of the fishery e.g. the subsistence fishery in smaller communities. The Chair asked other Parties how keen they are for a pilot to be undertaken. The representative of the European Union stated that they had been considering an additional action concerning knowledge sharing with Greenland, to be included in any new regulatory measure. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that they would need to better understand what the resource/financial implications of any such project might be.

8. The Six Tenets of Effective Management of an Atlantic salmon Fishery

- 8.1 Prior to the meeting of the Working Group on Monitoring and Control, the United States had tabled a paper entitled 'The Six Tenets for Effective Management of an Atlantic Salmon Fishery' (WGCMC(14)2). The Working Group had agreed a matrix to evaluate the monitoring and control of the West Greenland salmon fishery using the six tenets and, following this evaluation, Denmark (in respect of the Faroe Islands and Greenland) had developed a Draft Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery in Greenland, WGCIS(15)3, (see paragraphs 6.3 and 7.2 above). The Group had recommended that all Members of the West Greenland Commission, and possibly all NASCO Parties, should consider completing the matrix to evaluate the management and control systems in place for their fisheries against the six tenets. The Group had recognised that there would be a need to consider how this might best be achieved in order that the evaluation was consistent with that undertaken for the salmon fishery at West Greenland.
- 8.2 The European Union made two presentations showing how the evaluation was undertaken for UK (England and Wales) and the Republic of Ireland, which also generated some insights into how the process might be used more widely by Parties/jurisdictions. The representative of the European Union emphasised the need for some fine tuning to adapt the process to make it more usable by other Parties/jurisdictions and the need to reduce subjectivity in how the evaluation is conducted.

- 8.3 There was support, in principle, for taking the approach forward within the Commission. There would be need for further consultation and consideration of the approach to be adopted prior to and at the Commission's next Annual Meeting, including whether the Commission would recommend application of the matrix by all Parties and that Denmark (in respect of the Faroe Islands and Greenland) would consider raising this during the Annual Meeting of the Council. The representative of the United States noted that it was an effective shorthand for assessing the different approaches to salmon fishery management.
- 8.4 The representative of the NGOs noted that there is a difference between having the powers in place and making appropriate use of them to manage a fishery effectively.

9. Future regulatory measures for the West Greenland salmon fishery

- 9.1 The Chair noted the importance of making as much progress as possible in establishing a framework for a new regulatory measure and that although the latest ICES advice is not yet available, progress could be made on the basis of the pattern of catch advice in recent years, noting Greenland's expressed need for a fishery but recognising the concerns associated with the recent increased catches in the internal consumption fishery. The Chair noted that an approach would be required that addressed these needs and concerns.
- 9.2 The representative of the United States noted the commitments to improve management control and catch accountability by Denmark (in respect of the Faroe Islands and Greenland) and he understood that Denmark (in respect of the Faroe Islands and Greenland) may feel that the Commission is imposing accountability on it. However, he indicated that all are accountable; NASCO is judged against its Convention and the United States delegation is held to account by members of Congress, indigenous/native people's associations, environmental NGOs etc. He indicated that a lot is being asked of Denmark (in respect of the Faroe Islands and Greenland) because a lot is being asked of NASCO, the United States and other Parties. He suggested that the starting point for discussions of a new measure should be the Convention and NASCO's agreements.
- 9.3 The representative of Canada referred to the establishment of a new Commission in Canada to investigate the problems facing salmon stocks given decreased returns in 2014. The Commission will report after the NASCO Annual Meeting and he indicated that there was a need for a measure for the Greenland fishery to protect salmon.
- 9.4 The representative of the European Union noted that the current regulatory measure is insufficient. A new regulatory measure should refer to the Draft Plan developed by Denmark (in respect of the Faroe Islands and Greenland) and its effectiveness, and place a limit on catches in the West Greenland fishery that will ensure any harvests are sustainable. The starting point should be the principles in the Convention. She noted that, as Article 9 of the Convention requires that the interests of communities dependent on salmon fisheries are taken into account, it will be important to clarify the socio-economic aspects of the West Greenland fishery and individual communities in Greenland as part of the basis for agreeing a limit on the fishery, noting that the paper put forward by Denmark (in respect of the Faroe Islands and Greenland) on the socio-economic aspects of the fishery was helpful but in some respects vague. The representative of the United States agreed that more information is required to

substantiate the conclusions of the report about the socio-economic importance of the salmon fishery in West Greenland, if the report is to form part of the basis/rationale for a new regulatory measure. For example the report noted that salmon comprise 2.2% of income to fishermen, but is said to have 'enormous value' but this is not explained; similarly it is not explained why the fishery has great social and economic benefit for local communities. The representative of the United States noted that in some places there are conclusions that may be obvious to those close to the issues, but the report does not support them, and instead presents the fishery as having a relatively small economic value, and that whilst this might be magnified in small communities, the report cannot currently be used to support decision making.

- 9.5 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that establishing the socio-economic importance of the salmon fishery more clearly was made difficult by the fact that various activities utilising living marine resources were, in combination, socio-economically important for small communities in Greenland, making it difficult to extract information relating to the importance of the salmon fishery in particular.
- 9.6 The Chair suggested that it would be important to understand how dependency on the salmon catch has changed over the last 15 years and whether and how this justifies the increases in catches noted over that period. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that the size of the catch demonstrates the need for the subsistence fishery and that Denmark (in respect of the Faroe Islands and Greenland) would need to analyse the distribution of catches across the country ahead of the Annual Meeting of the Commission in June 2015. He noted that Denmark (in respect of the Faroe Islands and Greenland) had reduced the factory landing quota in 2014 and would be willing to consider further reducing it in future.
- 9.7 The representative of the United States asked whether Denmark (in respect of the Faroe Islands and Greenland) is able to identify those communities that are dependent on salmon fisheries and made a comparison between Arsuk where there are 9 licensed fishermen in a population of 104 and Nuuk which is a much bigger city with other employment opportunities. He noted that in 2009, 2010 and 2011 only 68kg, 78kg and 65kg of salmon were landed at Atamik but a decision had been taken to allow factory landings in that community in 2012. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that it would be possible but not straightforward and the loss of the salmon fishery would affect different communities in different ways. It was also difficult to obtain details of the income of salmon fishermen. The representative of the United States asked whether Denmark (in respect of the Faroe Islands and Greenland) would be able to consider how different communities would be affected and whether there was a way of identifying whether a community was dependent on the salmon fishery and what the rationale for defining this might be.
- 9.8 The Chair recalled the development of the 1993 agreement based on biological requirements that resulted in major reductions in the commercial fishery for export at that time. He noted that it is now acknowledged that a fishery exists on a subsistence/dependency basis and a basis of establishing the level of subsistence/dependency is required, as is an effective mechanism for placing an appropriate level of restriction on the fishery. The representative of the European Union agreed that this sets out well what many Parties are looking for, and noted that this

information has not been set out clearly in Denmark (in respect of the Faroe Islands and Greenland)'s socio-economic report but it would be appreciated if Denmark (in respect of the Faroe Islands and Greenland) could offer additional data/information as a basis for further consideration. She asked what had changed in 2012 that led to factory landings of salmon being permitted. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that this decision was taken to create fishing possibilities in the communities concerned and to create employment.

- 9.9 The representative of the United States suggested that consideration of the rationale might be based around the factory quota for the last two to three years and the extent to which the communities that host these factories are dependent on the salmon fishery. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that this might be possible but that time would be needed to gather and analyse the data. The Chair welcomed this and noted that the onus would be on Denmark (in respect of the Faroe Islands and Greenland) to obtain the data and communicate the needs of their communities. He also noted that the factories are the one part of the fishery that Denmark (in respect of the Faroe Islands and Greenland) is able to manage carefully and that this may give an indication of the level of total landings.
- 9.10 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that the reflection on the historical restrictions on the export fishery were very relevant, that Denmark (in respect of the Faroe Islands and Greenland) had placed a quota on the factories and would consider other limitations on other components of the fishery, and would welcome suggestions from other Parties.
- 9.11 The representative of the European Union noted that the starting point for any discussion has to be the scientific advice which is for zero catch, and if a regulatory measure opening fishing possibilities is being considered, there needs to be a good justification for not following the scientific advice. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that when the factory landings were established, despite the scientific advice it was within the current regulatory agreement. The representative of the United States again emphasised that whilst the socio-economic report on the fishery includes some very helpful information, not all of the conclusions are well substantiated and would need to be more compelling to underpin a decision on the fishery.
- 9.12 The Chair noted the need to explore the issues around the setting of a catch level prior to the Annual Meeting of the Commission in June 2015 and recalled that Denmark (in respect of the Faroe Islands and Greenland) had already proposed, in its Draft Plan, changing the fishing season. The representative of Denmark (in respect of the Faroe Islands and Greenland) added that it could consider starting the fishing season at West Greenland on 1 September, which will allow for a reduction in the number of salmon caught as the fish gain substantial weight in August. The representative of the European Union welcomed this proposal. The representative of the United States advised that some consideration be given to ICES information on temporal and spatial distribution of catch by origin.
- 9.13 The Chair noted that the next steps would be for a modified version of the plan developed by Denmark (in respect of the Faroe Islands and Greenland) to be put forward for agreement, and if possible for a draft regulatory measure to be developed

as far as possible, particularly given the need for Denmark (in respect of the Faroe Islands and Greenland) to work through aspects of it ahead of the upcoming Annual Meeting of the Commission.

- 9.14 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that they will be starting to make changes to the Executive Order in advance of the Annual Meeting so that changes to licensing can be in place for the 2015 fishery. Given this, Denmark (in respect of the Faroe Islands and Greenland) will make a proposal shortly, and following consultations with KNAPK and the government (noting the recent change of government) and will present progress at the Annual Meeting in June 2015.
- 9.15 The representative of the United States raised the idea of a potential cap on total catch, covering all professional fishers and asked how there might be an assurance that the whole fishery would be covered under such a cap if a rationale is established which leads to a decision on an appropriate catch limit.
- 9.16 The representative of the European Union raised the idea of a factory landing quota that, once reached, meant all fishing in all components of the fishery was stopped. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that one quota with different amounts therein allocated to different components of the fishery is an option.
- 9.17 The Chair asked whether Denmark (in respect of the Faroe Islands and Greenland) would be able to close the fishery once the catch limit was met. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that they would want to establish what the appropriate figure for any limit would be. The Chair noted that the rationale could not simply be an average of previous catches.
- 9.18 The representative of the European Union asked which elements would be covered by changes to the Executive Order, and what this would include in addition to the proposed changes to licences, fishing season etc. The representative of Denmark (in respect of the Faroe Islands and Greenland) said this would depend on discussions of the six tenets with the fishing organisations.
- 9.19 The Chair suggested that discussion might be progressed by clarifying the Draft Plan which could then be approved in Greenland and brought forward to the Annual Meeting of the Commission in June 2015, for adoption as part of the new regulatory measure. In the meantime Denmark (in respect of the Faroe Islands and Greenland) would do some work to help develop the rationale for limits on the catch, season time restrictions, and any other restrictions and these could be implemented through an order of the Council.
- 9.20 The representative of the United States re-emphasised the need to continue to discuss and develop measures by which catches can be controlled and to effectively enforce this, and what mechanisms could be part of the plan to be considered. He asked Denmark (in respect of the Faroe Islands and Greenland) whether it would be realistic to reach a point where the fishery was managed to a set number. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that it would be possible over the long term, and that they would see what they can do in the shorter

term with a focus on improving reporting prior to the Annual Meeting of the Commission in June 2015.

- 9.21 The Chair noted that many of the aspects of the plan that have been agreed are expected to be completed by the time of the Annual Meeting of the Commission in June 2015 which would necessitate an update of the plan to be included in any regulatory measure.
- 9.22 The representative of Canada noted the importance of the plan being consistent with what it is felt can be achieved in Greenland with the available resources and, in case of show stopping due to lack of resources, asked Denmark (in respect of the Faroe Islands and Greenland) to share information on this in order that other Parties may be able to offer some assistance.
- 9.23 The representative of Canada noted that some sort of commitment to establishing a catch limit is required and is central to all of the other areas where there has been agreement on a way forward at this meeting. He acknowledged the need for Denmark (in respect of the Faroe Islands and Greenland) to establish a fishery but this has to be linked to the capacity of home rivers to support a breeding population that would support such a fishery, and establishing a threshold is central to this.
- 9.24 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that they were not able to commit to a catch limit at this stage as this would be subject to political agreement. The representative of the United States asked Denmark (in respect of the Faroe Islands and Greenland) whether it was the concept of a catch limit that was not agreeable, or some other factor preventing their acceptance of a limit. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that he would not be in a position to answer that question until the Annual Meeting in June. The representative of the United States noted that the United States could be willing to accept some level of catch but that this would need to follow the NASCO Convention, guiding documents etc. to ensure sound decisions can be made following an agreed framework. He emphasized that the United States wants to continue to work with Denmark (in respect of the Faroe Islands and Greenland) to meet these aims. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated they are also willing to work towards a solution.
- 9.25 The Chair noted that all Parties recognise the dependency of Greenland on fisheries, but that the concern remains regarding establishing the appropriate level of salmon catch and not to allow ongoing increases in catch.
- 9.26 The representative of the European Union noted that several sacrifices have been made in the European Union fisheries, based on scientific advice only despite socio-economic costs. She recognised the principles in the NASCO Convention and the need for a subsistence fishery in Greenland, but also the need for a catch limit in the regulatory measure, and that the European Union would like to see a substantial reduction in the catch levels seen in recent years.
- 9.27 The representative of the United States suggested that the NASCO 'Guidelines for incorporating social and economic factors in decisions under a precautionary approach' document provides a potential framework for developing an appropriate rationale for a

fishery. He suggested that this document could guide development of a rationale that all Parties to the Commission could work with.

- 9.28 The representative of the United States noted Greenland's dependency on natural resources including fisheries. He asked the representative of Denmark (in respect of the Faroe Islands and Greenland) whether those decision-makers in the Greenland government have a full understanding of the complexity of the life-cycle of the Atlantic salmon and the potential impacts upon it throughout its range. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that they keep their government informed of the position in negotiations regarding Atlantic salmon.
- 9.29 A Draft Framework for a Multi-Annual Regulatory Measure for Fishing for Salmon at West Greenland for 2015, 2016 and 2017 (WGC(15)6) was presented by the Chair, who explained that the Draft was based on discussions at the inter-sessional meeting and intended not as a basis for discussion of the development of a framework for a potential measure to be agreed at the Annual Meeting in 2015, rather than a formal proposal itself.
- 9.30 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that, concerning a ban on exports, the Government of Greenland is under pressure to allow export of salmon in future, but understood that a ban on exports would renew the measure that had been in place for a number of years already.
- 9.31 The Chair explained that the third item, concerning any incidences of a catch level being exceeded in any given year and subsequent reductions in the catch limit for the following year, was intended to address the ongoing increases in catch each year in excess of the limits agreed.
- 9.32 The representative of Denmark (in respect of the Faroe Islands and Greenland) asked who would undertake the actions outlined in the fourth item, concerning temporal or spatial restrictions to protect weaker stocks, and how this would be done. The Chair recalled that ICES had provided some analysis of this and suggested that there would be an opportunity for ICES to indicate whether there was any information that they can provide to assist with considerations in this area. The representative of Denmark (in respect of the Faroe Islands and Greenland) asked whether this request had already been made of ICES. The representative of the United States said that ICES had been asked for more information in this year's advice. The Chair noted that it would be mainly based around data from the sampling programme. The representative of the United States suggested that the item should be focused on implementing restrictions rather than simply identifying them. The representative of Denmark (in respect of the Faroe Islands) suggested that the item should reference both identifying and implementing restrictions; the Commission agreed this.
- 9.33 The representative of the United States suggested that in-season reporting would need to be reconsidered as part of the Draft Plan if catch limits are going to continue to be considered.
- 9.34 After revision, the Commission agreed the Framework for a Multi-Annual Regulatory Measure for Fishing for Salmon at West Greenland, WGCIS(15)8 (Annex 9). This

document is intended to assist Parties in preparing for the Annual Meeting of the Commission in 2015 and not as a formal proposal.

10. Other Business

10.1 There was no other business.

11. Report of the Meeting

11.1 The Commission agreed a report of the inter-sessional meeting.

12. Close of the Meeting

- 12.1 A closing statement was made by Canada (Annex 10).
- 12.2 The Chairman thanked the participants for the open and friendly manner in which some very challenging issues had been discussed. He indicated that while major work lies ahead in June to finalise and agree a new regulatory measure, some positive steps had been taken in that direction with the agreement of the plan and the framework for a new regulatory measure. He hoped that the meeting had given all Parties a better understanding of the challenges that other Parties face in developing a new regulatory measure. He thanked all participants for their contributions, wished delegates a safe journey home and closed the meeting.

Opening Statement by the Chairman of the West Greenland Commission

Good afternoon Ladies and Gentlemen. It is a great pleasure to welcome you all to Nuuk for this inter-sessional meeting of the West Greenland Commission. I would like to thank our hosts for the arrangements made for this meeting and to all of you for making the long journey here.

You will recall that this Commission held an inter-sessional meeting in April last year that allowed for a detailed exchange on the fishery at West Greenland and on the status and management of Multi-Sea-Winter salmon stocks. This highlighted that many of the stocks exploited in the West Greenland fishery are in a critical condition despite the sacrifices made by Greenland over the years and the efforts and investment by States of origin to reduce harvests and to protect and restore salmon habitat. The meeting also allowed for an initial exchange on the future management of the West Greenland salmon fishery.

This was discussed further at the Commission's Annual Meeting in Saint-Malo last June. It was noted that the Greenland Government had adopted an Executive Order in 2012 aimed at improving catch accounting but, given uncertainties in reporting, it was agreed that States of origin would share experiences with Greenland on the development of approaches to improve the monitoring of landings with a view to ensuring full reporting. In order to take this work forward, an *Ad Hoc* Working Group was established to recommend options to enhance the monitoring and control of the West Greenland salmon fishery, taking into consideration the NASCO Guidelines for the Management of Salmon Fisheries. That Working Group, under the chairmanship of Richard Nadeau (Canada), had a very constructive meeting here in Nuuk at the end of October and its report has been circulated. The Commission had agreed that, following the Working Group meeting, Greenland would develop a Draft Plan to implement its recommendations which would be discussed this week so that there would be sufficient time to allow actions to be taken forward for the 2015 fishery.

I would like to thank the Working Group for its work, not least for the timely way in which it completed its business. This was important in giving Greenland as much time as possible to develop its Draft Plan which I am very pleased to say has been circulated. So our thanks to our colleagues from Greenland for this.

The Commission also agreed in Saint-Malo that this inter-sessional meeting should establish, at a minimum, a framework or parameters for the development of a new agreement, taking into consideration the Draft Plan developed by Greenland. Over the next two days I hope that we can review the events in the internal consumption fishery at Greenland in 2014, discuss how we will take forward the recommendations of the Working Group and commence work on developing a new regulatory measure for the West Greenland salmon fishery in 2015 and possibly subsequent years. Time will be limited when we meet in Happy Valley – Goose Bay so I am keen to make as much progress as possible this week.

I would again highlight that NASCO's objectives are the conservation, restoration, and rational management of salmon stocks. The past work of this Commission has been characterised by an excellent spirit of international cooperation and a strong commitment to developing regulatory measures that are closely aligned with the scientific advice from ICES. NASCO measures have been in place in all but 4 of the last 30 years and in all years since 1997. In most years since 1998, in response to the scientific advice, the fishery at West Greenland has been restricted to harvests for internal consumption with the export of salmon being prohibited. This has involved major sacrifices for Greenland that we all recognise and appreciate as important conservation measures. However, the situation facing the wild Atlantic salmon in many rivers is severe and while the importance of this fishery to Greenland is recognised, there are real concerns about the increase in the harvests in recent years compounded by uncertainty in catch reporting. We cannot ignore the fact that if we are to conserve this resource, as our Convention requires, for the enjoyment and benefit of future generations, continuing sacrifices will be needed by all Parties, recognising the needs of communities which are particularly dependent on salmon fisheries.

So, we have very important issues to consider over the two days, and Peter and I very much look forward to working with you all in planning for a new agreement that recognises both the importance of the fishery to Greenland and the serious situation facing Multi-Sea-Winter salmon around the North Atlantic.

I would now like to ask if there are any Opening Statements by the Parties.

Opening Statement on behalf of the Non-Governmental Organizations

Wild Atlantic salmon runs in 2014 were disappointing throughout most of eastern Canada, all of northeastern United States and in Europe. The NGOs are alarmed at the steep decline in numbers of wild Atlantic salmon, which, last year, reached a crisis state in many rivers.

For the third straight year, there were especially poor returns to North America.

The Miramichi River exemplifies the situation, with the 2014 run expected to be the poorest on record when the final scientific report on North American salmon populations is available. The Miramichi run historically has accounted for more than 20% of the production of Atlantic salmon in North America. Preliminary numbers indicate that no branch of the river met even minimum conservation limits and the Northwest Miramichi met only 22% of these minimum limits.

The situation is so bad that Fisheries and Oceans Canada has appointed a Ministerial Advisory Committee to consult with people in eastern Canada and recommend action to deal with the challenges to salmon conservation and restoration in the Atlantic Provinces and Quebec.

The situation is very similar in Europe, which had one of the worst salmon runs on record in 2014. The salmon harvested at Greenland tend to be the important Multi-Sea-Winter component of the stock, which is under particular threat in European rivers. Scotland provides the largest number of fish exploited in the Greenland fishery. Scotland itself supports coastal mixed-stock fisheries (MSFs) in its home waters, adding to the harvesting pressure on these vulnerable salmon. There is an urgent need for all Parties to show restraint in the way they exploit salmon stocks.

The fishery at Greenland harvested a reported 47 tonnes of salmon in 2013, up from 33 tonnes in 2012 and the largest harvest since 1997. North American salmon comprised 82% of the salmon killed.

In addition to this reported harvest, it is estimated that ten tonnes goes unreported. It is becoming obvious from discussion on monitoring and control measures, that this is a significant underestimate. The fishery to supply factories is the easiest to monitor and control. This is not true of the licensed fishery to supply the open markets and for private consumption. This involves about 320 fishermen who apply for a free license each year. They are given the personal responsibility to voluntarily report and Greenland does not track whether or not this is being done. In addition, all residents of Greenland can fish for private consumption without a license. Out of a population of 50,000, only 29 unlicensed fishermen reported in 2013.

The Working Group on Monitoring and Control has provided meaningful recommendations to deal with these shortcomings, and we look forward to Greenland taking these forward this year.

In view of the mounting crisis in survival of wild Atlantic salmon throughout the North Atlantic, the NGOs urge all Parties to develop emergency action plans that strictly follow the fisheries management guidelines to which all Parties have agreed. The NGOs believe that there should be absolutely no harvest of salmon from populations that are not meeting at least minimum conservation limits and fisheries should only target populations that are known to be

meeting these minimum limits. We completely support the principle that there should be fairness and balance to all -a fish saved from one MSF should not be threatened by another MSF when it returns to its home waters. The time to act is now.

Inter-sessional Meeting of the West Greenland Commission 24-25 February 2015

List of Participants

Canada

Richard Nadeau Carl McLean Calvyn Wenghofer

Denmark (in respect of the Faroe Islands and Greenland)

Emanuel Rosing Katrine Kærgaard Mads Nedergaard Rasmus Nygaard Erik Wulff

European Union

Francesca Arena Ciaran Byrne Cathal Gallagher Marc Owen Ted Potter (Chairman) Stamatis Varsamos

USA

Daniel Morris Kim Blankenbeker Rebecca Dorsey Rory Saunders Tim Sheehan

NGO

Paul Knight

Secretariat

Peter Hutchinson

WGCIS(15)4

Agenda

- 1. Opening of the Meeting
- 2. Adoption of the Agenda
- 3. Nomination of a Rapporteur
- 4. Objectives of the Meeting
- 5. Report on the internal consumption salmon fishery at West Greenland in 2014
- 6. Report of the Commission's *Ad hoc* Working Group on Monitoring and Control
- 7. Presentation of a Draft Plan for enhanced monitoring and management of the salmon fishery at West Greenland from 2015
- 8. The Six Tenets of Effective Management of an Atlantic Salmon Fishery
- 9. Future regulatory measures for the West Greenland salmon fishery
- 10. Other Business
- 11. Report of the Meeting
- 12. Close of the Meeting

WGCIS(15)7

The Salmon Fishery in Greenland 2014

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Not to be cited without prior reference to the author

Summary

The fishery for Atlantic salmon in Greenland waters started around 1960 and peaked in the early seventies at a catch of more than 2,000 tonnes a year. The fishery was quota regulated from 1972, but due to declining stocks, in June 1998 NASCO agreed that no commercial fishery for salmon should be allowed, but that the catch at West Greenland should be restricted to 'that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tones'. Since then export of salmon from Greenland has been banned by law. Since 1997 it has also been mandatory to report private catches of salmon. From 2002 to 2011, licensed fishermen were only allowed to sell salmon to institutions, local markets and restaurants. However, in 2012 landing to factories producing for the Greenlandic home market was re-opened and a 35 tonne quota was set by Greenland. The export ban, however, persists. An unlicensed fishery for private consumption has always been allowed. Uncertainty with regard to unreported catch is related to private use and catch sold at markets and institutions. Factory landings can be expected to be fairly precise. Unreported catch has traditionally been estimated at 10 tonnes/yr. In 2014 the catch in the fishery was 58 tonnes of which 35 tonnes was landed to factories. At the end of February 2015, a phone survey was carried out of all licensed fishermen, and in all 201 fishermen were reached. The data are currently being analyzed.

Introduction

In Greenland, the only known spawning population of Atlantic salmon, *Salmo salar*, is located in the Kapisillit (Greenlandic for salmon) river in the inner part of the Nuuk fjord, in West Greenland (Nielsen, J., 1961). Other rivers that could potentially hold a salmon population exist, but in general the rivers of Greenland are short, steep and cold (Jonas R.F., 1974). Electrofishing in the Kapisillit¹ river in 2011 performed by a team of scientists from GINR² and DTU³, revealed several year-classes of smolt, but no quantitative investigations have been performed (unpublished). Although persistent, the contribution of the small Kapisillit population to the salmon fishery around Greenland must be regarded as insignificant compared to the larger quantities of Atlantic salmon that migrates to Greenland throughout the year, but abundance seems to peak in the autumn from August to October. In West Greenland the northern distribution varies from year to year, but salmon can be found as far north as the Upernavik district around 72° N.

¹ Kapisillit – means Salmon in Greenlandic.

² GINR – Greenland Institute of Natural Resources

³ DTUaqua – National Institute of Aquatic Resources, Denmark.

The gillnet and driftnet fishery for Atlantic salmon in Greenland waters began in 1960-62 and peaked in the early seventies at a catch level of more than 2,000 tonnes a year (Jensen, J.M., 1990). The fishery was quota regulated from 1972, but due to declining stocks in June 1998, NASCO⁴ agreed that no commercial fishery for salmon should be allowed, but that the catch at West Greenland should be restricted to 'that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tonnes'. Since then export of salmon from Greenland has been banned. A commercial 'non-export' quota was set in the years after, but in 2002 KNAPK⁵ and NASF⁶ agreed to ban the purchase of salmon to factories and instead NASF provided funding to seek alternatives to the salmon fishery. From 2002 to 2011, only selling of salmon to hotels, institutions and local markets by licensed fishermen, and an unlicensed fishery for private consumption, was allowed. However, since 2012 licensed fishermen were allowed to land to factories and a 35 tonne quota was set by the Greenland authorities. In 2014, the factory quota was reduced to 30 tonnes, but unfortunately exceeded by 5 tonnes due to a new producer that had not previously been involved in fish products, and was unaware of the reporting requirements. However, the export ban persists and salmon products produced in Greenland can only be sold within Greenland. With the closure of the commercial fishery, catch statistics have been influenced by uncertainty in the level of unreported catch in the subsistence fishery (fishery for private consumption and direct sales from fisherman to consumer). Per tradition unreported catch has been estimated to be 10 metric tonnes reflecting a lack of data and recognition that some unreported catches occurs.

In 2012, a new Executive Order was issued specifying the rules for the fishery. The main changes were updates to reporting practices. In general, the technical and gear regulations have changed little throughout time. Only hook, fixed gillnets and driftnets are allowed to target salmon directly and minimum mesh size has been 140 mm stretched at least since 1985. Licensed fishermen are allowed to use up to 20 gillnets at a time, and everybody else can use one net only. All nets must be tended regularly and marked with name and contact information. Nets are the preferred gear in Greenland and very little rod and reel fishery in saltwater takes place. However, a recreational fishery directly targeting salmon seems to be slowly evolving amongst a small number of residents in Nuuk and Qaqortoq. The fishing season has varied from year to year, but in general the season has started sometime in August and continued until the quota was met or until a specified date later in the season. In most recent years the season has been from August 1 to October 31. At the end of February 2015, a phone survey was conducted by GFLK, of all licensed fishermen, and in all 201 fishermen were reached. The survey asked questions about the 2014 and 2013 catches, but also involvement in the fishery, by-catch of salmon outside the season, sales, opinion about the development of the stock and management and more. The data are currently being analyzed.

Materials and methods

There are several ways that catches of Atlantic salmon are reported to the Greenland authorities. Salmon is the only species that must be reported by people fishing for their own households. Salmon landed to fish factories are reported to the authorities (GFLK⁷) by the factory once a week, along with other species landed. Factories also report effort data, fishing location, names, dates and more, besides purchased amounts. Licensed fishermen are also obligated to report their catches directly to the license office. Salmon sold directly to consumers

⁴ NASCO - The North Atlantic Salmon Conservation Organization

⁵ KNAPK - Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat (fishermen and hunters association).

⁶ NASF - the North Atlantic Salmon Fund.

⁷ GFLK - Greenland Fisheries License Control Authority.

or caught for personal consumption must be reported directly to the authorities (GFLK) by the person conducting the fishery. The two sources of statistics were compiled and screened for errors, missing values and duplicate values. Factory landing reports and the direct catch reports provided by fishermen were used to collate information on the city or settlement and identify whether the fishermen had a license or not.

In 2014, 73 were identified as already reported by the factories (same fisherman, date and catch) and the duplicate reports were omitted from the analysis. An estimated weight was added to reports only containing a number of salmon caught (3.25 kg/salmon). The factory landings only contain a total weight and in this case the number of salmon was estimated via the 2012 mean weight. (3.25 kg gutted weight/salmon in 2012). Since 2005 it has been mandatory to report gutted weights, and data has been converted to whole weight by means of a conversion factor of 1.11.

Results

Catches of Atlantic salmon decreased until the closure of the commercial export fishery in 1998, but the subsistence fishery catches have increased since then (Table 1 and 2, Figure 1 and 2). Both the number of issued licenses and returned catch reports have increased since the beginning of the subsistence fishery (Table 3 and 6). The commercial fishery is at present concentrated around the larger cities where it is possible to sell the catches and in settlements (Table 4). The private fishery takes place in both the larger cities and the smaller settlements along the coast (Table 4). As in previous years, a large fraction of the catches reported as for private consumption was reported by licensed fishermen, who legally could have sold the catches (Table 5).

Discussion

Salmon has historically been reported to occur in large numbers along the West coast of Greenland in periods with warm climatic conditions. However, the commercial fishery began in the 1960s and increased dramatically from almost nothing in 1959 (Mattox, W.G., 1973) to more than 2,600 tonnes by 1971. Catches thereafter decreased gradually and have remained below 100 tonnes since 1992. With the export ban of 1997 and the closure of the commercial fishery in 2002, catches have been restricted to internal consumption within Greenland. Since the majority of the catches during the past two decades have been direct sales between fishermen and public, some caution should be given when interpreting the total catches. Unreported catch is likely to stem exclusively from this type of direct sales, whereas factory landings seem more reliable in terms of unreported catch, since they rely on a regular and tested system used for all fish species. The increase in reported catches in the earlier part of the last decade may therefore be a result of a decrease in the "unreported" catches. The "unreported" fishery has per tradition been estimated at 10 tonnes due to lack of data. For 2014, 73 reports were identified in both factory landing reports to GFLK and direct fishermen reports to GFLK. The identification of double reporting is not always straight forward, and in a few instances involves a subjective estimate of the report itself. In most cases double reports are identified when a landing of the same amount on the same day is reported by a fisherman direct and for the fisherman by the factory. In general cases of doubt, both the factory report and direct report are accepted, but this may lead to an overestimate of the total catch.

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Year	Norway	Faroes	Sweden	Denmark	Greenland ¹	Total	Quota ²
1960	-	-	-	-	60	60	-
1961	-	-	-	-	127	127	-
1962	-	-	-	-	244	244	-
1963	-	-	-	-	466	466	-
1964	-	-	-	-	1539	1539	-
1965	_3	36	-	-	825	861	-
1966	32	87	-	-	1251	1370	-
1967	78	155	-	85	1283	1601	-
1968	138	134	4	272	579	1127	-
1969	250	215	30	355	1360	2210	-
1970	270	259	8	358	1244	2146 ⁴	-
1971	340	255	-	645	1449	2689	-
1972	158	144	-	401	1410	2113	1100
1973	200	171	-	385	1585	2341	1100
1974	140	110	-	505	1162	1917	1191
1975	217	260	-	382	1171	2030	1191
1976	-	-	-	-	1175	1175	1191
1977	-	-	-	-	1420	1420	1191
1978	-	-	-	-	984	984	1191
1979	-	-	-	-	1395	1395	1191
1980	-	-	-	-	1194	1194	1191
1981	-	-	-	-	1264	1264	1265 ⁶
1982	-	-	-	-	1077	1077	1253 ⁶
1983	-	-	-	-	310	310	1191
1984	-	-	-	-	297	297	870
1985	-	-	-	-	864	864	852
1986	-	-	-	-	960	960	909
1987	-	-	-	-	966	966	935
1988	-	-	-	-	893	893	_7
1989	-	-	-	-	337	337	_7
1990	-	-	-	-	274	274	_7
1991	-	-	-	-	472	472	840
1992	-	-	-	-	237	237	-
1993	-	-	-	-	0^{5}	0^{5}	-
1994	-	-	-	-	0^{5}	0^{5}	-
1995	-	-	-	-	83	83	77
1996	-	-	-	-	92	92	174 ⁸
1997	-	-	-	-	58	58	57 ⁹
1998	-	-	-	-	11	11	20^{10}
1999	-	-	-	-	19	19	20^{10}
2000	-	-	-	-	21	21	20^{10}

 Table 1.
 Catches of Atlantic salmon (tonnes) in West Greenland by nation.

		_	~ .		~1		
Year	Norway	Faroes	Sweden	Denmark	Greenland	Total	Quota ²
2001	-	-	-	-	43	43	114
2002	-	-	-	-	9	9	0^{11}
2003	-	-	-	-	9	9	0^{11}
2004	-	-	-	-	15	15	0^{11}
2005	-	-	-	-	15	15	0^{11}
2006	-	-	-	-	22	22	0^{11}
2007	-	-	-	-	25	25	0^{11}
2008	-	-	-	-	26	26	0^{11}
2009	-	-	-	-	26	26	0^{11}
2010	-	-	-	-	40	40	0^{11}
2011	-	-	-	-	28	28	0^{11}
2012	-	-	-	-	33	33	3512
2013	-	-	-	-	47	47	3512
2014	-	-	-	-	58	58	3012

Table 1. Continued.

¹ For Greenland vessels: all catches up to 1968 were taken with set gillnets only; after 1968, the catches were taken with set gillnets and drift nets. All non-Greenland catches 1969-75 were taken with drift nets.

² Quota figures apply for the Greenland fishery only.

³ Figures not available, but catch is known to be less than Faroese catch.

⁴ Including 7t caught on longline by one of two Greenland vessels in the Labrador Sea early in 1970.

⁵ The fishery was suspended.

⁶ Quota corresponding to specific opening dates of the fishery.

⁷ Quota for 1988-90 was 2,520t with an opening date of 1 August and annual catches not to exceed the annual average (840t) by more than 10%. Quota adjusted to 900t in 1989 and 924t in 1990 for later opening dates.

⁸ Set by the Greenland authorities.

⁹ Private (non commercial) catches must also be reported after 1997.

¹⁰ Fishery restricted to catches used for internal consumption in Greenland.

¹¹ KNAPK / NASF agreement forbidding landing to the fish factories, but sale to markets, hotels, institutions and fishery for private use allowed.

¹² Factory quota. Production restricted to the Greenlandic market. Export ban persisting.

YEAR	Catch in tonnes per division						NAFO	ICES	Greenland	
	1A	1 B	1C	1D	1E	1 F	NK	Total	Total	Total
1960							60	60		60
1961							127	127		127
1962							244	244		244
1963	1	172	180	68	45			466		466
1964	21	326	564	182	339	107		1539		1539
1965	19	234	274	86	202	10	36	861		861
1966	17	223	321	207	353	130	87	1338		1338
1967	2	205	382	228	336	125	236	1514		1514
1968	1	90	241	125	70	34	272	833		833
1969	41	396	245	234	370		867	2153		2153
1970	58	239	122	123	496	207	862	2107		2107
1971	144	355	724	302	410	159	560	2654		2654
1972	117	136	190	374	385	118	703	2023		2023
1973	220	271	262	440	619	329	200	2341		2341
1974	44	175	202	298	395	88	645	1917		1917
1975	147	168	212	220	352	185	112	2030		2030
1975	147	302	212	224	182	28	772	1175		1175
1970	201	393	336	223	237		-	1420	6	1426
1978	81	349	245	186	113	10	-	984	8	992
1979	120	343	524	213	164	31	-	1395	+	1395
1980	52	275	404	231	158	74	-	1194	+	1194
1981	105	403	348	203	153	32	20	1264	+	1264
1982	111	330	239	136	167	76	18	1077	+	1077
1983	14	77	93	41	55	30	-	310	+	310
1984	33	116	64	4	43	32	5	297	+	297
1985	85	124	198	207	147	103	-	864	7	871
1986	46	73	128	203	233	277	-	960	19	979
1987	48	114	229	205	261	109	-	966	+	966
1988	24	100	213	191	198	167	-	893	4	897
1989	9	28	81	73	75	71	-	337	-	337
1990	4	20	132	54	16	48	-	274	-	274
1991	12	36	120	38	108	158	-	472	4	476
1992	-	4	23	5	75	130	-	237	5	242
1993	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-
1995	0	10	28	17	22	5	-	83	2	85
1996	0	0	50	8	23	10	-	92	0	92
1997	1	5	15	4	16	17	-	58	1	59
1998	1	2	2	4	1	2	-	11	0	11
1999	0	2	3	9	2	2	-	19	0	19
2000	0	0	1	7	0	13	-	21	0	21

Table 2.Catches of Atlantic salmon in tonnes by division all nations.

Table 2. Continued

YEAR	Ca	atch in	tonne	s per d	livision	NAFO	ICES	Greenland		
	1A	1 B	1C	1D	1E	1F	NK	Area 1	XIV	Total
2001	0	1	4	5	3	28	-	43	0	43
2002	0	0	2	4	1	2	-	9	0	9
2003	1	0	2	1	1	5	-	9	0	9
2004	3	1	4	2	3	2	-	15	0	15
2005	1	3	2	1	3	5	-	15	0	15
2006	6	2	3	4	2	4	-	22	0	22
2007	2	5	6	4	5	2	-	25	0	25
2008	4.9	2.2	10.0	1.6	2.5	5.0	0	26	0	26
2009	0.2	6.2	7.1	3.0	4.3	4.8	0	25.5	0.8	26
2010	17.3	4.6	2.4	2.7	6.8	4.3	0	37.9	1.7	40
2011	1.8	3.7	5.3	8.0	4.0	4.6	0	27.4	0.1	28
2012	5.4	0.8	15.0	4.6	4.0	3.0	0	32.6	0.5	33
2013	3.1	2.4	17.9	13.4	6.4	3.8	0	47.0	0.0	47
2014	3.6	2.8	13.8	19.1	15.0	3.4	0	57.8	0.1	58
Table 3.Number of people (licensed and unlicensed) reporting catches of Atlantic
salmon in Greenland fishery and total number of issued licenses and presented
in NAFO/ICES divisions. Reports received by fish plants prior to 1997 and to
the License Office from 1998 to present.

YEAR	Nu	umber of	fisherme	en repor	ting per o	division			Issued	Reporting
	1A	1B	1C	1D	1E	1F	ICES	1NK	Licenses	Total
1987	78	67	74		99	233		28		579
1988	63	46	43	53	78	227		6		516
1989	30	41	98	46	46	131		1		393
1990	32	15	46	52	54	155		8		362
1991	53	39	100	41	54	123		0		410
1992	3	9	73	9	36	82		0		212
1993										
1994										
1995	0	17	52	21	24	31		0		145
1996	1	8	74	15	23	42		0		163
1997	0	16	50	7	2	6		0		80
1998	16	5	8	7	3	30		0		69
1999	3	8	24	18	21	29		0		102
2000	1	1	5	12	2	25		0		43
2001	2	7	13	15	6	37		0	452	76
2002	1	1	9	13	9	8		0	479	41
2003	11	1	4	4	12	10		0	150	42
2004	20	2	8	4	20	12		0	155	66
2005	11	7	17	5	17	18		0	185	75
2006	43	14	17	20	17	30		0	159	141
2007	29	12	26	10	33	22		0	260	132
2008	44	8	41	10	16	24	0	0	260	143
2009	19	11	35	15	25	31	9	0	294	145
2010	86	17	19	16	30	27	13	0	309	208
2011	25	9	20	15	20	23	5	0	234	117
2012	35	9	32	8	16	16	6	0	279	122
2013	28	8	21	19	7	11	1	0	228	95
2014	21	8	40	20	10	14	1	0	321	114

Table 4.Reported landings by cities (bold) or settlements in kg whole weight of Atlantic
salmon in Greenland in 2013. 1AUpv is fjords around Upernavik, 1A-Uum is
the Uummannaq fjord and 1A-Dis is the Disko bay.

NAFO	Landing site	Number of		Commercial	Private	Factory	Total	
/ICES		Fishermen	Reports	Salmon	(kg)	(kg)	(kg)	(kg)
1A Upv	Aappilattoq							
1A Upv	Kangersuatsiaq	4	23	115	178	219	0	397
1A Upv	Upernavik							
1A Upv	Upernavik Kujalleq	1	10	41	42	61	0	103
1A Uum	Illorsuit							
1A Uum	Ikerasak							
1A Uum	niagornat							
1A Uum	Qaarsut							
1A Uum	Uummannaq							
1A Dis	Aasiaat	4	16	50	128	39	0	167
1A Dis	Akunnaaq	1	1	6	17	0	0	17
1A Dis	Ikamiut	2	4	21	73	0	0	73
1A Dis	Ilimanaq							
1A Dis	Ilulissat	1	2	98	78	249	0	327
1A Dis	kangerluk							
1A Dis	Kitsissuarsuit							
1A Dis	Qasigiannguit							
1A Dis	Qeqertarsuaq	8	32	247	2467	75	0	2542
1B	Attu	1	2	4	50	0	0	50
1B	Kangaatsiaq							
1B	Niaqornaarsuk							
1B	Sisimiut	7	26	629	2028	678	0	2706
1C	Atammik	12	47	667	136	0	2330	2436
1C	Kangaamiut	9	106	944	89	554	2917	3560
1C	Manitsoq	19	77	2155	1849	1502	4415	7766
1C	Napasoq							
1D	Nuuk	13	37	1791	397	2761	2869	6027
1D	Qeqertarsuatsiaat	7	88	3911	188	2961	9947	13096
1E	Arsuk	9	88	3849	1189	189	12569	13947
1E	Ivittuut							
1E	Kangilinnguit							
1E	Paamiut	1	15	455	448	584	0	1032
1F	Alluitsup Paa	1	16	85	142	194	0	336
1F	Eqalugaarsuit							
1F	Nanortalik	3	32	150	123	246	0	369
1F	Narsaq	6	18	556	1624	147	0	1771
1F	Qaqortoq	4	17	252	239	701	0	940
1F	Saarloq							
XIV	Kulusuk							
XIV	Kuumiut	1	12	35	121	23	0	144
XIV	Tasiilaq							
Total		114	669	16061	11606	11183	35047	57836

NAFO	License Number of		Commercial	Private	Factory	Total		
/ICES		Fishermen	Reports	Salmon	(kg)	(kg)	(kg)	(kg)
1A	NO	1	1	27	0	97	0	97
1A	YES	20	87	551	2983	546	0	3529
1A	TOTAL	21	88	578	2983	643	0	3626
1B	NO	0	0	0	0	0	0	0
1 B	YES	8	28	633	2078	678	0	2756
1 B	TOTAL	8	28	633	2078	678	0	2756
1C	NO	5	18	180	573	0	0	573
1C	YES	35	212	3586	1501	2056	9662	13219
1C	TOTAL	40	230	3766	2074	2056	9662	13792
1D	NO	6	10	121	226	263	0	489
1D	YES	14	115	5581	359	5459	12816	18634
1D	TOTAL	20	125	5702	585	5722	12816	19123
1E	NO	1	1	55	214	0	0	214
1E	YES	9	102	4249	1423	773	12569	14765
1E	TOTAL	10	103	4304	1637	773	12569	14979
1F	NO	3	3	69	138	79	0	217
1F	YES	11	80	974	1990	1209	0	3199
1F	TOTAL	14	83	1043	2128	1288	0	3416
XIV	NO	0	0	0	0	0	0	0
XIV	YES	1	12	35	121	23	0	144
XIV	TOTAL	1	12	35	121	23	0	144
ALL	NO	16	33	452	1151	439	0	1590
ALL	YES	98	636	15609	10455	10744	35047	56246
ALL	TOTAL	114	669	16061	11606	11183	35047	57836

Table 5.Reported catches by licensed and unlicensed fishermen in kg whole weight of
Atlantic salmon per division in 2011.

Table 6.	Number of	of licenses	issued by	/ city/sett	lement and year.
			2	2	2

YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Akunnaaq	1	1	1	2	5	5	3	3	4	7
Alluitsup Paa					2	2		1	2	4
Ammassivik					1		1	1	1	
Arsuk		1	2	1	6			7	5	9
Atammik		6	1	8	6	9	11	11	9	18
Attu	2	1		3	2	3		1	3	3
Foalugaarsuit	3	2	3	1	3	3	1	4	3	1
loinniarfik	Ũ	_	Ŭ		Ŭ	Ŭ			2	2
Ikamiut	1	2	4	4	4	5	4	4	6	7
lkerasaarsuk	1	1		1	•	Ŭ	•		Ŭ	1
llimanad	1	4	1	3	4	4	3	2	3	1
Ilulissat	6	7	7	5	8	14	23	17	24	15
Isortog	0	'	,	0	0	14	20	1	27	15
Itillea	1		3	2	3	3	4	י ג	4	
Kangerluk			5	2	5	1	1	5	-	
Kangersuatsiag	1	5	1	1	1	1	1	1	Q	12
Kangaamiut	1	3	10	13	11	10	10	11	16	16
Kangaatsiag	2	5	10	15	11	10	11	7	7	6
Kitoicouorouit	2	2	1	6	6	5	5	2	6	5
Killsissuarsuit	2	2	4	0	0	5	5	3	0	5 1
Kulusuk				3					1	 0
Maniitaag	7	0	16	16	20	20	20	24	4	40
Maniitsoq		8	10	10	30	29	28	34	21	40
Nanortalik	0	0	2	5	3	8	6	5	6	10
Napasoq	2	3	6	4	8	/	6	9	11	11
Narsaq	4	6	8	8	9	8	6	10	11	10
Niaqornat				5		4	3	5	2	1
Niadornaarsuk		40	1	1	10		4.0	4.5	40	40
Nuuk	8	10	9	6	12	11	10	15	13	13
Nuussuaq, Nuuk	1	1	5	4	1	5	5	8	9	13
Naajaat		_	_	-	-			_	1	-
Paamiut	4	2	(3	9	1/	13	(14	9
Qaqortoq	2	3	4	4	6	6	4	12	8	11
Qasigiannguit	9	4	(8	9	11	5	8	13	5
Qassimiut	1		2		1	1				
Qeqertaq		_	-		-	1	_		1	
Qeqertarsuaq	4	6	9	11	9	9	8	13	18	21
Qeqertarsuatsiaat	2	3	5	7	6	4		10	10	9
Qaarsut						2	2	1	1	
Saqqaq								1	1	
Sarfannguit	1			1	3	3	1	1	1	1
Sermiligaaq				1	3					
Sisimiut	22	3	23	24	22	24	20	19	31	24
Saarloq						1	1	1		
Saattut									2	
Tasiilaq			1			1		3	1	4
Tasiusaq										1
Upernavik		3							2	1
Upernavik Kujalleq	1				1			2	6	2
Uummannaq						1	5	2	5	1
Aappilattoq			1	1	1		2		1	1
Nanortalimmi										
Aappilattoq	1							1	2	2
Upernavimmi										
Aasiaat	2	6	7	16	15	17	13	18	22	11
(blank)	93	73	110	84	84	64	27	12	2	4
Grand Total	185	166	261	262	294	310	243	277	328	321



Figure 1. Map of NAFO divisions, cities and settlements in Greenland.



Figure 2. Catches of Atlantic salmon in Greenland waters, excluding potential unreported catches.

Annex 6

WGCMC(14)14

Report of the West Greenland Commission Ad Hoc Working Group on Monitoring and Control

Hotel Hans Egede, Nuuk, Greenland

28 - 30 October 2014

1. Opening of the Meeting

- 1.1 The Chairman, Mr Richard Nadeau (Canada) opened the meeting and welcomed participants to Greenland. He thanked the representatives of Greenland and the Secretariat for the arrangements made and provided some background to the meeting. He noted that in April, the Commission had held an inter-sessional meeting that had allowed for a very thorough and open exchange on the status and management of multisea-winter (MSW) salmon in the excellent spirit of cooperation that characterises NASCO's work. It is clear that many of the stocks exploited in the salmon fishery at West Greenland are in a critical condition despite the sacrifices made by Greenland over the years and the efforts and investment by States of origin to reduce harvests of MSW salmon and to protect and restore their habitat. He noted that the most recent advice was clear and there were no catch options at West Greenland in 2012, 2013 and 2014. In the absence of any fishing mortality there was only a 6% to 8% chance of simultaneously meeting or exceeding the management objectives of the seven management units in 2012 to 2014. The landings at West Greenland in 2012 and 2013, when factory landings were permitted, were two of the three highest recorded since the fishery was limited to the amount used for internal consumption and there remain uncertainties about the current catch levels in the fishery. He indicated that the Commission had recognised that there may be benefits from the States of origin, particularly Canada and Ireland, sharing experiences with Greenland on the development of approaches to improve the monitoring of landings with a view to ensuring full catch reporting. The main task before the Working Group was to evaluate options to enhance the management, monitoring, control and enforcement systems in the Greenland fishery. He stressed the importance of allowing Greenland adequate time to consider the recommendations and to develop a draft plan for presentation at the Commission's inter-sessional meeting in February 2015 with a view to implementing the plan in time for the 2015 salmon fishery.
- 1.2 A list of participants is contained in Annex 1. Consistent with the Group's Terms of Reference, participation included managers and scientists with experience in developing and implementing monitoring and control programs, scientists involved in the International Sampling Programme at West Greenland and representatives from the Greenland Fisheries License Control Authority (GFLK).

2. Nomination of a Rapporteur

2.1 Dr Cathal Gallagher (European Union) was appointed as Rapporteur for the meeting.

3. Adoption of the Agenda

3.1 The *Ad hoc* Working Group adopted its Agenda, WGCMC(14)4 (Annex 2) after including a new item 5 to allow for presentation of an overview of the NASCO Guidelines for the Management of Salmon Fisheries, CNL(09)43, and consideration of a paper from the US which proposed a number of tenets for effective management of a salmon fishery, WGCMC(14)2.

4. Consideration of the Terms of Reference and Working Methods

- 4.1 At its 2014 Annual Meeting, the West Greenland Commission had agreed to establish the *Ad hoc* Working Group on Monitoring and Control to evaluate the current management of the Atlantic salmon fishery off West Greenland, taking into consideration the NASCO Guidelines for the Management of Salmon Fisheries. The Terms of Reference for the Working Group are contained in document WGC(14)8 and are as follows:
 - 1. Review data on the 2009 2013 (2014 as available) fishery, including identifying the degree to which harvest related information is collected for each component of the Atlantic salmon fishery off West Greenland;
 - 2. Review the management and management systems for each component of the fishery;
 - 3. Review fisheries monitoring and management control methods in use in other countries with particular reference to fisheries with similar components as the Greenland fishery (e.g. Canada and Ireland) and consider novel methods; and
 - 4. Recommend and compare options to enhance the monitoring and management of the Atlantic salmon fishery off West Greenland and ensure more complete implementation of the NASCO Guidelines for Management of Salmon Fisheries. Consideration should be given to legislative tools, feasibility and costs of implementation.
- 4.2 The Working Group noted that the Terms of Reference required that it complete its work and report to the Parties by the end of January 2015 (subsequently changed to 1 January) to allow time for Greenland to develop a draft plan for discussion at an intersessional meeting of the Commission, and thereafter for implementation of the plan to commence in time for the 2015 fishery. The Working Group recognised that it would be desirable to complete its work at the earliest opportunity and, if possible, at its meeting.
- 4.3 At the West Greenland Commission's 2014 Annual Meeting, the Parties had agreed to participation by a representative of the NGOs subject to non-disclosure of information of a confidential nature. The NGO representative had agreed not to disclose any information made available at the meeting, without consent, other than that contained in the report of the meeting and its annexes. The Chairman asked that in presenting information to

the meeting, the Parties should identify any data or other information of a confidential and personal nature.

5. Overview of the NASCO Guidelines for the Management of Salmon Fisheries and Consideration of Possible Tenets for Management of Salmon Fisheries

- 5.1 The Secretary presented an overview of NASCO's agreements relating to the management of salmon fisheries. The presentation is available as document WGCMC(14)5. Under the Strategic Approach for NASCO's 'Next Steps', the goals for the management of salmon fisheries for NASCO and its Parties are to promote the diversity and abundance of salmon stocks and to maintain all stocks above their conservation limits. In support of these goals, NASCO has developed the following guidelines and agreements:
 - the Minimum Standard for Catch Statistics, CNL(93)51;
 - the Agreement on Adoption of a Precautionary Approach, CNL(98)46;
 - the Decision Structure to Aid the Council and Commissions of NASCO and the Relevant Authorities in Implementing the Precautionary Approach to Management of North Atlantic Salmon Fisheries, CNL31.332; and
 - NASCO Guidelines for the Management of Salmon Fisheries, CNL(09)43, hereinafter 'the Guidelines'.
- 5.2 The intention of the Guidelines is to:
 - assist the jurisdictions in making further progress in implementing NASCO's agreements and guidelines;
 - provide a basis for, and an exchange of information on, more consistent approaches to the management of fisheries around the North Atlantic;
 - assist jurisdictions in reporting and the process for reviewing progress in implementing NASCO agreements; and
 - assist in the identification of what additional actions may be required.
- 5.3 NASCO is also seeking to improve 'fairness and balance' in the management of homewater and distant-water fisheries. The Guidelines contain the following ten key elements of management: Decision-making process; Description of the fisheries and the stocks exploited; Powers to control exploitation; Reference points; Achievement of the reference points or other measures of abundance and diversity; Other factors influencing the stock(s); Management actions to control harvest; Mixed-stock fisheries; Socio-economic factors; and Effectiveness of management measures. It is the intention that each of these elements should be applied by all jurisdictions with the goal of protecting the abundance and diversity of salmon stocks.
- 5.4 The representative of the United States tabled a document, WGCMC(14)2 (Annex 3), proposing six tenets for effective management of an Atlantic salmon fishery. This was tabled as a contribution to the Group's task of recommending options for enhancing monitoring and management of the salmon fishery at West Greenland. The presentation

is available as document WGCMC(14)6. The paper considered that the six tenets (known pool of participants; effectively limiting catch; accurate, effective and timely reporting; effective communication of management rules; control and enforcement; and fishery sampling) are consistent with the key elements in the NASCO Guidelines. The paper contained a matrix to allow for the assessment of the management of the salmon fishery at West Greenland against these tenets. The Working Group saw merit in using this matrix as a tool to evaluate the current monitoring and control of the West Greenland salmon fishery with a view to developing recommendations for possible future enhancements (see section 8 below).

6. Presentation and review of data from the 2009 - 2013 (2014 as available) salmon fishing seasons at West Greenland, including the degree to which harvest information was collected

- The data available from the fishery in 2009 2013 are contained in the report of the Ad 6.1 hoc Scientific Working Group that was presented at the 2014 inter-sessional meeting in document WGCIS(14)4. A representative of Denmark (in respect of the Faroe Islands and Greenland) made a presentation including information on the available data on the salmon fishery, WGCMC(14)7. By way of background, it was reported that the Greenland fishery for Atlantic salmon began in earnest in the early 1960s and peaked in the early seventies when catches exceeded 2,000 tonnes a year. The fishery was quota regulated from 1972, but in June 1998, in response to declining stocks, NASCO agreed that the catch at West Greenland should be restricted to 'that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tonnes'. Since then the export of salmon from Greenland has been banned. From 2002 to 2011, only sale of salmon to hotels, institutions and local markets was permitted by licensed fishermen together with an unlicensed fishery for private consumption. In 2012 and 2013, licensed fishermen were allowed by the Government of Greenland to land salmon to factories subject to a 35 tonne quota (reduced to 30 tonnes for 2014). Landings cannot be exported. There is uncertainty about the level of unreported catch in the fishery for private consumption and for sales to open air markets, hotels, institutions etc. Traditionally unreported catch has been estimated by Greenland at 10 tonnes and reported to both NASCO and ICES.
- 6.2 In 2012, a new Executive Order was issued by the Government of Greenland specifying the rules for the fishery. The Executive Order had been translated into English and was made available to the Working Group, WGCMC(14)8 (Annex 4). The main changes from the 2002 regulations were updates to reporting practices. Only rod and line and fixed gillnets and driftnets are allowed to target salmon (140 mm stretched mesh). Licensed fishermen are allowed to use up to 20 gillnets at a time; unlicensed fishermen can use only one net. The nets are 70m in length. All nets must be tended regularly and marked with a name and contact information. While the fishing season has varied, in general the season starts on 1 August and continues until 31 October, although landings to the factories should cease when the factory quota is reached.
- 6.3 A small unlicensed rod and reel fishery takes place in sea water particularly around Nuuk and Qaqortoq in South Greenland. There is also limited rod fishing in the Kapisillit River. Recreational fishing for salmon by tourists and non-residents may occur to a limited extent.

6.4 Both licensed and non-licensed fishermen are obliged to report their catch directly to the GFLK. Salmon landed to fish factories are registered as individual landings and reported to GFLK weekly. As the quota is close to being taken, reporting is required on a daily basis to avoid exceeding the agreed tonnage. Effort data, fishing location, names, dates etc. are reported and uploaded to a central database managed and monitored by the GFLK. Validation of the data and analysis is performed by scientists working at the Greenland Institute of Natural Resources (GINR) and a working document is provided to the ICES Working Group on North Atlantic Salmon (WGNAS). Since the same landings must be reported by both the fishermen and the factories, any inconsistencies are identified by screening for errors, missing and duplicate values.

7. Presentation and review of the salmon fishery management, monitoring and enforcement systems used at West Greenland

- 7.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) tabled a document, WGCMC(14)3 (Annex 5), which provided an introduction to the salmon fishery in Greenland and its social and economic significance and described the management and control measures applying to the fishery. In 2014, the factory quota was reduced to 30 tonnes following discussions in NASCO and the fact that the quota had not been utilised in 2012 and 2013. The 2014 quota was reached by mid-September. In 2014, factories in seven towns and settlements landed salmon compared to four in each of the previous two years. The quota was exceeded by 4 - 5 tonnes in 2014 due to a new buyer who was not aware of the specific management rules because he had not previously purchased salmon direct from the fishermen. Landings to factories have resulted in social and economic benefits for the factories, the fishermen and the communities alike. The added economic value might seem small constituting 2% of the income to the fishermen from all landings but in the small communities in Greenland it is considered to be an important resource. Salmon landings to factories typically constitute a higher proportion of annual income to participating fishermen in smaller communities.
- 7.2 All residents of Greenland can fish for salmon for private consumption but this is restricted to one salmon net only from 1 August - 31 October. A paper providing statistics on the population of Greenland in 2014 was tabled, WGCMC(14)9. The number of unlicensed fishermen participating in the fishery is unknown but in 2013 29 unlicensed fishermen reported catches. Licensed fishermen are limited by the fishing season, a minimum mesh size in gillnets and a limit of 20 salmon nets. In 2013, there were 66 licensed fishermen who reported catch. In order to get a license to fish for salmon, the applicant has to live in Greenland and be a professional fisherman. There is no charge for this licence. In 2014, 319 salmon licences were issued (a small decrease on the number issued in 2013) but not all fishermen utilised their licence as during the season they may have been hunting or fishing for other species. Both licensed and unlicensed fishermen have to report catches to GFLK. GFLK currently employs 14 wildlife officers and 6 fishery officers that patrol all the inshore fishing grounds and report infringements and remove illegal equipment etc. (these are updated figures compared to those contained in document WGCMC(14)3).

- 7.3 When setting a TAC or quota, the Government of Greenland receives biological advice from the Greenland Institute of Natural Resources (GINR), ICES or NAFO. The Ministry of Hunting, Fishing and Agriculture drafts a proposal which is sent to the Fisheries Council comprised of the Greenland Employers' Association and the Greenland Fishermen and Hunters Association (KNAPK). Sustainable Fisheries Greenland, GINR and other Ministries attend as observers. The proposal is finalised and then sent for approval by the Government of Greenland. Then the approved TAC or quota is publicised in a Press Release and through KNAPK, to ensure that it reaches all fishermen. Fishermen can then apply to the Ministry of Fisheries, Hunting and Agriculture for a license to fish. In the case of salmon the license applications are sent to the License Unit, a part of the Fisheries Unit that licenses inshore fisheries. The License Unit has a staff of 4 employees and processes more than 2,000 licenses a year (covering all species).
- 7.4 The fishermen fill out this application form sometimes with assistance from their local municipality office. The application form requests: social security number, name and address, previous license history, proof of Greenland citizenship (minimum of 2 years) and confirmation of ownership of salmon nets and vessel. The criteria to be fulfilled in order to receive a license for salmon are:
 - be a resident of Greenland (Fisheries Law)
 - have held a salmon license in the previous year or be a professional hunter (have a professional hunting license)
 - have a vessel or dinghy
 - own salmon nets
- 7.5 A commercial license authorises the sale of salmon to the internal markets including factories. The license specifies the fishing season, the species to be fished, the license number, the name of the fisherman or vessel and certain conditions for the fishery. The license is made and registered in GFLK's database. Examples of the license application form and a salmon license were made available to the Working Group.
- 7.6 Greenland gave a short presentation of their fishery database system. The system is based on a vessel register, a register of persons and companies, TAC and quota register and a license register. The system includes a complete catch reporting system based on logbook, and landings and sales notes reporting from fishermen, buyers and processors. The system ensures that timely, complete and reliable statistics on catch and fishing effort are collected and maintained according to international standards. Data are validated and crosschecked and made available to scientists and used for statistical analysis etc. Data are subject to national confidentiality requirements. The presentation on the Management, Monitoring and Enforcement Systems for the Salmon Fishery in Greenland is contained in paper WGCMC(14)13.

- 8. Presentation and review of the management, monitoring and enforcement systems used in other countries, particularly those with similar components as the fishery at West Greenland (e.g. Canada and Ireland)
- 8.1 In accordance with the Terms of Reference, presentations were made on the management, monitoring and control of salmon fisheries in Ireland, WGCMC(14)10, and Canada, WGCMC(14)11.
- 8.2 Ireland had moved from a large mixed-stock salmon fishery in the 1990s through a series of management measures to the establishment of a salmon fishery managed on a catchment by catchment basis and only allowing exploitation of stocks exceeding their conservation limits (CLs). In parallel, Ireland's salmon scientists worked to ensure that models were available to predict the status of returning salmon stocks by catchment. Ireland's Independent Standing Scientific Committee on Salmon (SSCS) provides advice each year on the predicted salmon returns by catchment for the year ahead; this information is used to establish any potential surplus/deficit for each river. Based on this advice managers draft and implement legislation to ensure the conservation of salmon stocks. There are sixteen rivers where there is a significant stock of early running multi- sea-winter salmon where specific scientific assessment and advice is given annually. The table below shows the status of rivers in 2013 and 2014.

		Number of	Number of
		Rivers 2014	Rivers 2013
1SW	Open	57	57
1SW	Catch & release	30	15
1SW	Closed	56	71
	Total	143	143

MSW	Open	11	11
MSW	Catch & release	2	2
MSW	Closed	3	3
	Total	16	16

8.3 Upon receipt of salmon management advice, Ireland produces annual legislation to implement control measures for the season ahead. This legislation drives the commercial and angling licencing regime. Significant resources and efforts are spent to conserve and protect salmon rivers and their stocks. Salmon Conservation Funds are generated from the sale of salmon angling and commercial fishing licences. The Salmon Conservation Fund is reinvested to promote the recovery and conservation of salmon stocks. Since 2007 over €3.7m has been generated by this fund with over 140 projects supported, across a diverse range of areas including in-stream works and fish counter installation. Inland Fisheries Ireland (IFI) supports additional measures for salmon habitat restoration though the Environmental Riverine Enhancement Programme (EREP). The EREP programme is a collaborative programme between IFI and the Office of Public Works (OPW) which has spent approximately €2.5m/year for the past 6 years on formerly arterially drained channels to restore and preserve salmonid habitat; approximately 90% of these works directly support salmon production. It is also worth noting that expert IFI staff in each River Basin District support the restoration and development of their local salmon catchments. IFI is tasked with the protection and conservation of Ireland's salmon stocks. The protection element

involves the protection of stocks and the enforcement of salmon conservation legislation. This includes patrolling out to 12 miles at sea using IFI's fleet of 22 rigid inflatable boats and a large patrol vessel; the Irish Air Corp and Navy also support this protection activity. In 2013, IFI spent 19,796 man hours on fisheries patrol work seizing 473 illegal nets (26,000 m). Salmon as a species are protected under the EU Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats of wild fauna and flora and under Ireland's implementation (S.I. No. 94 of 1997 & S.I. 477 of 2011) of this directive. This legislation required Ireland to take measures to maintain or restore salmon habitat and to strive to maintain or restore salmon to favourable conservation status. Ireland is obliged to monitor and report on the status of salmon under this directive, and has just completed a six year reporting cycle. The implementation of the EU's Habitats and Water Framework Directives and the embedding of their principles have supported the conservation of salmon in Ireland. These achievements have only been garnered through the provision of extensive supports and resources from the state and its citizens.

- 8.4 The representative of Canada presented an overview of the salmon management regime with a particular focus on the management of stocks in remote rural areas. There are over 1,000 rivers in Eastern Canada from which around 470 are scheduled for fishing on Atlantic salmon populations. Canada manages this widely distributed resource based on the best available stock status information on a region by region and a river by river basis. Conservation requirements are established for individual rivers based on science. Stock status is assessed based on the proportion of the conservation egg requirement achieved in a given year and the trends in abundance of various life stages. Authorised fisheries are based on a mix between scientific analysis and advice (counting fences in some cases, as well as sampling), and traditional knowledge of those involved in the fishery. There are no commercial fisheries for wild Atlantic salmon. There are only three types of fisheries; Aboriginal Food, Social and Ceremonial (FSC) Fisheries; and bycatch in the Labrador Resident Subsistence Trout Fishery.
- 8.5 Aboriginal access to fish for subsistence purposes is referenced in Canada's Constitution Act. The management measures for these fisheries are negotiated with each group and communal fishing licences are issued to communities by Fisheries and Oceans Canada (DFO). The Aboriginal community/organisation designates its members to fish on the licence. The fisheries are closely monitored by DFO and aboriginal enforcement personnel. Harvest levels are specified in the communal licence. The harvest level is regulated by the carcass tags managed by either DFO or by Aboriginal communities. Harvest limits are decided upon and regulated based on a mix of science-based information, as well as traditional knowledge. Where possible, harvest limits respect the communities' need for Food, Social and Ceremonial purposes. The licences issued stipulate: the location of fishing; the gear type and limit; the season and weekly open times (including annual closures); and an allocation in terms of number or weight of fish that can be taken. The Resident Food Fishery occurs in Lake Melville (off Goose Bay) and in southern Labrador coastal communities. Each resident has the opportunity to apply for a license and execute harvests as per Regulations. This component of the fishery targets sea-run trout and arctic charr. There is no directed harvest of salmon, which are designated as bycatch. All fishing must end when 3 Canadian Aboriginal groups must also adhere to strict salmon are retained. management measures.

8.6 The use of carcass tags to control harvests in the FSC fisheries in Labrador was first implemented in the mid-1990s by the Nunatsiavut Government (formerly Labrador Inuit Association). The tagging program was expanded to the Nunatukavut Community Council (formerly Labrador Metis nation) in 2004. The same year the tagging program was also implemented by the Innu Nation. Since 2004, DFO has issued on a yearly basis approximately 16,000 tags to households in aboriginal communities at an approximate cost of \$4,000 annually. Canada has strictly enforced timelines for fishing, which often include closures during previously advised season openings. When/if any of the below incidences take place, DFO can close a river: warming of waters; low water levels; poor returns (based on counting facilities). In Canada, scientific analysis, coupled with ICES Reports, indicates that wild Atlantic salmon stocks in the Western North Atlantic cannot sustain increasing harvests.

9. Evaluation of options to enhance the management, monitoring and enforcement systems in use in the salmon fishery at West Greenland (including legislative tools, feasibility and costs of implementation) and development of recommendations

9.1 The Working Group adopted a 'traffic light' system to evaluate, using the six tenets in document WGCMC(14)2, the current monitoring and control of the West Greenland salmon fishery with a view to developing recommendations for future enhancements. The evaluation is shown in the table below: green indicates that the principle outlined in the tenet was met by the current management regime (although further improvements might still be possible); amber indicates it was partially met and red indicates it was not met. If viewing the table in black and white, green appears as medium grey, amber as light grey and red as dark grey. Salient comments are provided in the notes to the table. The Working Group modified the table presented by the United States to include columns to account for the fact that licensed fishermen can retain and report catch for private consumption.

		Sectors				
					Unlicensed	
			Licensed fisher	<u>men</u>	<u>fishermen</u>	
Tenet	Description	Factory	Commercial	Private	Private	
1	Known pool of participants	1	2	-	3	
2	Effectively limiting catch	4	5	5	5	
3	Accurate, effective and timely reporting	-	6	6	6	
4	Effective communication of management rules		-	-	-	
5	Control and enforcement	7	8	8	8	
6	Fishery sampling	9	10	-	-	

Notes on table

- 1. Potential pool of participants applies to both fishers and buyers (factories)
- 2. Unlicensed fisher(s) reported a small amount of commercial landings in 2013
- 3. All residents of Greenland are allowed to fish for salmon, however, while likely to be small the actual number is unknown
- 4. The quota was exceeded by 4 5 tonnes in 2014 due to a new buyer who was not aware of the specific management rules because he had not previously purchased salmon direct from the fishermen.
- 5. There are effort restrictions but not harvest restrictions. Greater effort restrictions for private unlicensed fishermen (i.e. reduced number of nets) compared to private licensed and commercial fishers
- 6. Issues with under/non-reporting have previously been documented. Timeliness could be an issue given the lack of in-season reporting.

- 7. There is a low probability of commercial or private fishermen exporting salmon. Exports are subject to a certification scheme and factories would not be granted an export certificate for salmon.
- 8. There is a reporting system in place and management control measures (quotas, seasonal and gear limitations) are generally adhered to. The system is not 100% effective as noted by under-reporting and/or non-reporting of commercial and private catch. Enforcement capabilities are limited due to the large area needed to be covered and available resources.
- 9. 2014 was the first year in which factory samples were requested. Samples were requested to be collected from 4 factories and two factories successfully collected samples although the final number of samples is unknown as they are in transit. The remaining two factories did not collect any samples, partly due to timing of shipping supplies to remote settlements.
- 10. The sampling program is providing adequate information needed for assessment although there certainly is room for improvements (better spatial and/or temporal coverage). However, in the past there was one individual that was preventing access to fish for sampling in Nuuk; this problem was not able to be resolved. In 2014, there were additional issues with fishers preventing samplers access to fish in some communities.
- 9.2 The Working Group had been asked to evaluate options to enhance the management, monitoring and enforcement systems in use in the salmon fishery at West Greenland and to develop recommendations. These recommendations would then be taken into account by Greenland in developing a draft plan for enhancements that will be presented at the inter-sessional meeting of the Commission in 2015. The Working Group considered that the current management regime for factory landings of salmon met the six tenets and recognised that Greenland had made considerable improvements to the management of its fishery over recent years particularly with regard to initiatives to improve communication of the management rules applying to the fishery to its fishermen. The Group recognised that there are a number of areas where there could be improvements particularly with regard to the management rules applying to the commercial and private fisheries. While using the matrix to develop recommendations it became clear that recommendations aimed at addressing a fishery sector and a specific tenet could also address other areas identified for improvement. The Group has developed the following recommendations that should assist Greenland in developing a plan to implement improvements, recognising that it will be a matter for Greenland to decide on the appropriate priorities and timescales with the resources it has available.

Known pool of participants

- 9.3 The Working Group recognised that there is a clear register of the participants involved in the licensed fishery. However, there is no such comprehensive register for the unlicensed fishery for private consumption although there is an annual requirement to report catches. This reporting provides some information on a small number of participants in the unlicensed fishery for private consumption but the actual number of participants is unknown. The Working Group agreed that it is important that the total number of participants in all sectors of the fishery is known to allow efficient communication, development of management plans for the fishery and accurate reports of the catches.
- 9.4 The Working Group recommends that the historical reporting data be analysed in order to collate details of participants that may have fished in recent times to establish a minimal pool of participants in this sector of the fishery. The Working Group also recommends that consideration be given to the introduction of a license or permit to fish for private consumption. This is already the case for the other sectors of the fishery.

Accurate, effective and timely reporting

- 9.5 The Working Group recognises the need to improve the accuracy of reporting in the salmon fishery at West Greenland. Given this, however, recommendations in relation to the future approach to effective and timely reporting would be dependent on the nature of subsequent regulatory measures adopted by NASCO and/or the Government of Greenland and future changes to the fishery management system (see 9.8 below).
- 9.6 The Working Group recognised that for licensed fishermen there is a requirement to report catches by the end of October and that in 2013 328 licences were issued but only 66 licensed fishermen provided reports. The Working Group recommends that consideration be given by Greenland to requesting that those fishermen that did report in 2014 be asked to verify their catches to factories, local markets and for private consumption to allow for a comparison with the reported landings. Furthermore, consideration should be given to conducting a phone survey of the fishermen that did not submit reports to confirm whether or not they fished in 2014 and, if they did so, requesting that a catch report be provided. For non-licensed fishermen, the Working Group noted that in 2013 29 fishermen provided catch reports. The Working Group recommends that Greenland considers contacting past participants in this fishery to verify if they fished in 2014 and if so requesting that a catch report be submitted.

Additional catch reports that arise from further communication from fishermen who did not originally report in 2014 could be informative of past levels of under-reporting.

The Working Group considers that improved reporting would be important when consideration is given to developing appropriate control measures.

Control and enforcement

- 9.7 The Working Group recognised that there is a good level of control and enforcement measures in place for factory landings but that the other components of the fishery are limited to controls on the gear and season and there is no license requirement for one component of the fishery for private consumption. Control and enforcement is more difficult where the participants in the fishery are not known.
- 9.8 Consideration should be given to the introduction of harvest control measures for all sectors of the fishery such as quotas. Carcass tagging as a tool can be used to manage sector specific quotas and to improve accuracy in reporting. In the interim, the Working Group recommends that consideration be given to introducing further control measures for the commercial fishery with appropriate supporting changes to the reporting system. The Working Group recommends that should revision of the licensing scheme occur to include the private consumption fishery, consideration should be given by Greenland to the development of harvest control measures and a modification of the catch reporting scheme. Enhanced harvest control measures and catch reporting in the Greenland fishery will enable the authorities to respond quickly to events in the fishery.

Sampling

- 9.9 The Working Group recognises that through the West Greenland Commission, there is an international sampling programme of biological characteristics of salmon taken in the fishery at West Greenland and in some years enhanced sampling has been undertaken. Samples are obtained from both factory landings and the local markets but not other sectors of the fishery. While the sampling programme generally provides adequate information to support the assessments, there is scope for some improvements to be made in terms of better spatial and/or temporal coverage. In this regard, the Working Group is aware that there have been some problems of access to fish in some communities that have affected the coverage and international perceptions of the fishery.
- 9.10 The Working Group therefore recommends that the Ministry of Fisheries, Hunting and Agriculture considers taking additional actions as follows:
 - to further support the sampling programme including a condition in the license that access to salmon caught be provided to official samplers;
 - that a form of identification be provided to samplers; and
 - that information on the sampling programmes importance and objectives be provided to all participants in the fishery. There may also be merit in advising the fishermen of the findings of the sampling programme.
- 9.11 The Working Group recommends that the other Members of the West Greenland Commission, and possibly all NASCO Parties, should consider completing the matrix to evaluate the management and control systems in place for their fisheries against the six tenets. There would be a need to consider how this might best be achieved in order that the evaluation was consistent with that undertaken for the salmon fishery at West Greenland.

10. Any other business

- 10.1 The Working Group noted the importance of effective and timely communication between Greenland and the other members of the Commission on modifications to the management of the West Greenland salmon fishery in the future.
- 10.2 There was no other business.

11. Presentation of the Working Group's report at the Commission's inter-sessional meeting

11.1 Under its Terms of Reference, WGC(14)8, the Working Group had been requested to present an overview of its findings at the next meeting of the West Greenland Commission following submission of its report. It was agreed that this overview should be presented by the Chairman of the Working Group at the inter-sessional meeting of the West Greenland Commission to be held during 24 - 26 February 2015.

12. Report of the Meeting

12.1 The Working Group agreed a report of its meeting and asked that the Secretary distribute this to the members of the West Greenland Commission once the annexes had been included.

13. Close of meeting

13.1 The Chairman closed the meeting and thanked participants for their contributions.

Annex 1 of WGCMC(14)14

Meeting of the West Greenland Commission Ad Hoc Working Group on Monitoring and Control

Hotel Hans Egede, Nuuk, Greenland

28-30 October 2014

List of Participants

Canada

Mr Richard Nadeau (Chair)

Denmark (in respect of the Faroe Islands and Greenland)

Ms Katrine Kærgaard Mr Rasmus Møller Mr Mads Nedergaard Mr Rasmus Nygaard Mr Erik Wulff

European Union

Dr Cathal Gallagher Dr Niall Ó Maoiléidigh

USA

Mr Tim Sheehan

NGO

Mr David Meerburg

Secretariat

Dr Peter Hutchinson

Annex 2 of WGCMC(14)14

WGCMC(14)4

Meeting of the West Greenland Commission Ad Hoc Working Group on Monitoring and Control Hotel Hans Egede, Nuuk, Greenland 28 - 30 October 2014

Agenda

- 1. Opening of the Meeting
- 2. Nomination of a Rapporteur
- 3. Adoption of the Agenda
- 4. Consideration of the Terms of Reference, WGC(14)8, and Working Methods
- 5. Overview of the NASCO Guidelines for the Management of Salmon Fisheries and Consideration of Possible Tenets for Management of Salmon Fisheries
- 6. Presentation and review of data from the 2009 2013 (2014 as available) salmon fishing seasons at West Greenland, including the degree to which harvest information was collected for the:
 - fishery for private consumption
 - fishery for sale at open air markets etc.
 - fishery for factory landings
 - rod fishery by tourists/non-residents
- 7. Presentation and review of the salmon fishery management, monitoring and enforcement systems used at West Greenland for the:
 - fishery for private consumption
 - fishery for sale at open air markets etc.
 - fishery for factory landings
 - rod fishery by tourists/non-residents
- 8. Presentation and review of the management, monitoring and enforcement systems used in other countries, particularly those with similar components as the fishery at West Greenland (e.g. Canada and Ireland)
- 9. Evaluation of options to enhance the management, monitoring and enforcement systems in use in the salmon fishery at West Greenland (including legislative tools, feasibility and costs of implementation) and development of recommendations
- 10. Any other business
- 11. Presentation of the Working Group's report at the Commission's inter-sessional meeting
- 12. Report of the Meeting
- 13. Close of meeting

Annex 3 of WGCMC(14)14



West Greenland Commission

WGCMC(14)2

The Six Tenets for Effective Management of an Atlantic Salmon Fishery (Tabled by the United States)

WGCMC(14)2

The Six Tenets for Effective Management of an Atlantic Salmon Fishery (Tabled by the United States)

Preamble

The penultimate charge of the West Greenland Commission Ad Hoc Working Group on Monitoring and Control is to recommend options for enhancing the monitoring and management of the Atlantic salmon fishery off of West Greenland. As a first step in carrying out this term of reference, the United States suggests that the Working Group consider what qualities and characteristics an effective fishery management plan would entail. Of course, NASCO Council Document CNL(09)43, "The NASCO Guidelines for the Management of Salmon Fisheries," serves as basic guidance to the Parties for management of wild salmon fisheries subject to their national legislation. Upon reflection of the information about the West Greenland fishery presented at the 2014 West Greenland Commission intersessional meeting and the NASCO annual meeting, the United States drafted the following tenets for effective management, drawing from the NASCO guidelines. The tenets should serve as key points for the members of the working group to reflect upon, relative to any management control and accountability measures under their consideration. Use of the tenets should provide a framework and common language for discussing and assessing the potential effectiveness of any management control and accountability measures brought to the table. The following six tenets of an effective management system are consistent with the 10 key elements of management that are identified in the guidelines.

Effective management control and accountability are needed to provide certainty that potential catch will be constrained to a level below the amount authorized under regulatory measures, and the degree to which each of the six tenets are satisfied may affect the level of certainty the Parties associate with the overall management of the fishery. Any remaining management uncertainty could be a factor as the parties contemplate regulatory measures in the future.

Six Tenets of an Effective Management System:

1) Known pool of participants

It is essential that the entire pool of potential participants in a fishery be known. Knowing this will allow for:

- Developing communication plans with all potential participants with regard to management plans, regulations, in-season modifications, limits and closures; and
- Estimating the maximum fishing effort potential and evaluating the impacts of this effort if activated.

2) Effectively limiting catch

Catch limits must be set prior to the start of the fishery taking into account scientific advice. Catch limits should be determined by evaluating the risk of not meeting agreed upon management objectives under various levels of harvest. Deviation from managing in accordance with scientific advice should only be done in cases of extreme need and should still minimize the potential for adverse effects on the stocks. Tools to effectively

limit catch include harvest restrictions (e.g., quotas), effort restrictions (e.g., gear restrictions, time/area closures, seasonal closures or restrictions, bag limits, etc.) or through a combination of the two. A singular catch limit or user group-specific catch limits can be derived as appropriate. If user group-specific catch limits are employed, then user group-specific risk analyses and consequence of exceeding catch limits must be evaluated.

3) Accurate, effective and timely reporting

Reporting is critical for the responsible management of any fishery. Catch data are the metric by which fishery managers monitor the progression of a fishery and accurate, effective and timely data collection programs are critical tools necessary to support the reporting process. Catch data are needed to make informed management adjustments, such as adjusting bag limits or closing the fishery as needed, to prevent exceeding catch limits. A breakdown in the data collection and reporting process also erodes the quality of the scientific advice for the fishery. Compromised scientific advice may impede the effective management of the resource and reduce or forego future harvest. Data collection and reporting systems need to be tailored to each sector of the fishery, must align temporally with the management needs and must allow for aggregation for total estimates of harvest.

An effective reporting system has three primary qualities:

- <u>Accuracy</u> Data collection programs are an essential tool to accurately estimate catch and effort. Catch estimates can entail counts of individual fish, estimates of total weight or both (preferred). Both fishery-dependent and fishery-independent data collection programs are essential;
- <u>Effectiveness</u> Reporting procedures must effectively transfer required catch information to fishery managers. Required information related to catch and associated fishing activities must be clearly defined and obtainable. Procedures must be in place to allow fishers to submit their catch and related information with a reasonable expenditure of effort; and
- <u>Timeliness</u> Reporting procedures must be developed to mirror management temporal requirements. Catch data must be reported and summarized according to pre-defined schedules to allow management determinations to be made to prevent exceeding catch limits.

4) Effective communication of management rules

Fishery managers need effective tools to communicate quota limits, any in-season management adjustments, and fishery closure information to fishers. Effective methods for communication must be developed for each sector of the fishery and must be designed to effectively communicate with all participants in a timely fashion, regardless of the sector in which they participate.

5) Control and enforcement

To ensure that stakeholders have faith in the effectiveness of any management plan, there must be some level of control and enforcement to ensure fishery data are accurate and reported to fishery managers according to the criteria set forth within the fishery management plans, and to ensure that management controls (quota, seasonal, gear limitations, etc.) are adhered to. These efforts can take many forms. Some examples of different control and enforcement techniques that can be used to demonstrate the robust quality of fishery data and to ensure effective implementation of the fishery management plan include:

- Matching commercial records against reported landings;
- Conducting inspections and sampling in factories, ports, markets, and businesses receiving salmon; and
- Comparing reported landings data against fishery independent sampling or postfishing season surveys, which can also provide a better understanding of fishing patterns.

If issues of non-compliance arise during such checks, governments must have and be willing to take effective legal recourse to address these problems, such as the ability to issue fines, seize catches, or cancel fishing permits. Penalties must be severe enough to act as a deterrent. In addition, identified quota overages may be used as a basis for subsequent quota reductions.

6) Fishery sampling

Fishery-dependent surveys are essential to the effective management of a fishery. Fishery-dependant data collection and sampling programs should be designed to provide unbiased random sampling of harvest by neutral observers and can provide critical inputs for the fishery management and assessment process. These data often represent a truer characterization of the exploited stock complex and provide for greater biological realism within stock assessment models compared to reported harvest rates or data collected only from fish processing centers. Fishery-dependent sampling programs can also provide data to better understand effort and harvest patterns while providing a platform for additional sampling in support of ecological-based investigations into the mechanisms driving stock complex productivity. A more complete understanding of the productivity dynamics of the stock complex can translate into more effective management of the resource. Fishery-independent surveys may be preferred as they may provide a less biased assessment of the exploited stock complex. Unfortunately these programs often require significant resources to support. Matrix to allow for the assessment of the Greenlandic Atlantic salmon fishery management structure against the six tenets of an effective management system outlined above. Cell entries should be restricted to "yes" (the principle outlined within the tenet is met by the current management plan), "no" (the principle outlined within the tenet is not met by the current management plan) or "unknown" (it is unknown if the principle outlined within the tenet is met enet is met by the current management plan). An effective management plan would result in all cell entries being "yes".

			Sectors	
Tenet	Description	Factory	Commercial	Private
1	Known pool of participants			
2	Effectively limiting catch			
3	Accurate, effective and timely reporting			
4	Effective communication of management rules			
5	Control and enforcement			
6	Fishery sampling			

WGCMC(14)8

Government of Greenland Executive Order no. 12 of 1 August 2012 on Salmon Fishing

Published on <u>www.nanoq.gl</u> 2 August 2012

Pursuant to section 5, section 8, section 10, section 10a, subsection (1), section 13, subsection (2), section 23, section 24, subsection (1), section 25, section 26, section 33, subsection (2) and section 34, subsection (3), of Landsting Act no. 18 of 31 October 1996 on fisheries as amended by, *inter alia*, Landsting Act no. 6 of 20 May 1998, Landsting Act no. 5 of 21 May 2002, Landsting Act no. 28 of 18 December 2003, Greenland Parliament Act no. 17 of 3 December 2009 and most recently amended by Greenland Parliament Act no. 5 of 4 June 2012, the following is stipulated:

Scope

Section 1. The Executive Order applies to all fishing for salmon in the Greenland fishing territory west of Cape Farewell in NAFO area 1. Salmon fishing beyond 40 nautical miles from the baseline is prohibited.

(2) Fishing for salmon in the East Greenland fishing areas is subject to the same rules as stipulated in section 5, subsection (1), no. 2), and sections 6, 7, 8, 9, 10 and 12 of the Executive Order. Salmon fishing beyond 12 nautical miles from the baseline is prohibited.

(3) The Executive Order also applies to reporting of the purchase and sale of salmon and reporting of catches from non-commercial salmon fishing.

Definitions

Section 2. In this Executive Order, commercial fishing is defined as fishing activities carried out with a view to selling the catch in part or in full. Only individuals licensed to engage in commercial fishing for salmon are authorised to sell salmon.

(2) In this Executive Order, non-commercial fishing is defined as fishing activities carried out with a view to using the catch for personal consumption.

(3) In this Executive Order, purchase of salmon is defined as the commercial purchase and receipt of salmon directly from individuals licensed to engage in commercial fishing for salmon.

(4) In this Executive Order, a fishing period is defined as the period or one of the part periods in which salmon fishing is permitted.

(5) In this Executive Order, a sub-quota is defined as the share of the total quota that may be fished in a given fishing period.

Conditions for commercial salmon fishing

Section 3. Commercial fishing for salmon is subject to licensing. Licences for commercial fishing are issued by Naalakkersuisut.

(2) Licences may be issued to applicants meeting the following requirements in that they:

- 1) have a permanent affiliation with Greenlandic society in accordance with section 3, subsection (4) of the Greenland Fisheries Act.
- 2) personally own salmon nets and a salmon fishery vessel up to a total length of 12.8 metres (42 feet).
- 3) provide, in their application, information about the number of salmon nets and the type of or label on the nets which the applicant possesses.

(3) Vessels used for shrimp fishing may not be used for commercial salmon fishing.

Implements used for commercial salmon fishing

Section 4. Commercial salmon fishing may only be carried out using hooks or nets with a stretched mesh size of at least 140 mm. Drift nets are allowed, but no more than 20 lengths at any one time.

(2) The mesh size is measured by inserting the fishery inspection authority's measuring instrument attached to a weight of $\frac{1}{2}$ kg loosely in the mesh and letting it fall through the mesh. 20 meshes are measured, parallel to the float line. All meshes must comply with the requirement in subsection (1).

(3) All salmon nets used must be labelled with the owner's name or the vessel's name and port registration letters. The label must be made in water-resistant materials.

(4) Where the weather permits, the salmon net must be tended regularly and sufficiently often to avoid impairing the ability of the fish catch to survive.

(5) Drift nets must be adequately marked with buoys and light.

Regulation of commercial salmon fishing

Section 5. Commercial salmon fishing is performed as:

1) Quota fishing for sale to procurement companies.

2) Non-quota fishing which may only be sold at the local board and to hotels, restaurants, hospitals, educational institutions and other public catering facilities.

Section 6. For fishing in accordance with section 5, subsection (1), no. 1), Naalakkersuisut each year determines the maximum West Greenland quota for salmon with due consideration for international agreements. The quota may be divided into sub-quotas that may each be fished in an individual part period.

(2) Following consultation with KNAPK, Naalakkersuisut determines the start dates of the individual part periods for the commercial salmon fishing. The start dates of the individual part periods will be announced to the individual municipalities, KANUKOKA, KNAPK and in the national press.

(3) Commercial salmon fishing may not be initiated before the date determined for the individual part period and must be discontinued after the expiry of the individual part periods or when the sub-quota has been depleted.

(4) Commercial salmon fishing may only be performed within the determined quota which is stated in kilogrammes of live weight (whole fish).

(5) Catches from commercial salmon fishing may only be subject to purchase or sale outside Greenland with the permission of Naalakkersuisut.

Section 7. When the determined sub-quota is almost fished out, Naalakkersuisut will announce when the commercial fishing for salmon as well as the purchase and sale of catches from this fishing must end.

(2) This announcement will be made to the individual municipalities, KNAPK and KANUKOKA and in the national press.

(3) When the fishing has ceased in accordance with section 6, subsection (3), any form of commercial fishing for salmon is prohibited and so is the purchase and sale of catches from this fishing activity.

Section 8. For fishing in accordance with section 5, subsection (1), no. 2), Naalakkersuisut determines start and end dates for salmon fishing every year.

(2) When the fishing has ceased in accordance with subsection (1), any form of commercial fishing for salmon is prohibited and so is the purchase and sale of catches from this fishing activity.

Reporting of catches from commercial salmon fishing

Section 9. All salmon catches must be reported to the Greenland Fisheries Licence Control Authority (GFLK).

(2) For reports of purchased or sold quantities stated as "with head, gutted" (MHUI) the conversion factor 1.11 is used to calculate the catch in whole fish.

(3) Where a procurement company makes purchases in accordance with section 5, subsection (1), no. 1), the company must submit daily procurement reports in accordance with the applicable executive orders on procurement.

(4) Where sales are effected directly on the board or directly to a buyer outside the board, fishermen licensed for commercial salmon fishing must report their catches. The reporting must be made using Schedule 1 to the Executive Order. Reports must be submitted to GFLK, P.O. box 501, GL-3900 Nuuk, Greenland, Fax (+299) 34 63 60 or by email to <u>gflk@nanoq.gl</u>, no later than after the cessation of fishing or no later than at the end date of the fishing.

Non-commercial salmon fishing

Section 10. Non-commercial fishing for salmon outside the determined quota in accordance with section 5, subsection (1), no. 1), may be performed by Danish citizens residing permanently in Greenland subject to section 8, subsection (1), of the Greenland Fisheries Act. Citizens from other countries than Denmark who have been residing permanently in Greenland for a period of two consecutive years have the same status as Danish citizens.

(2) Non-commercial salmon fishing may only be carried out in the period determined by Naalakkersuisut for non-quota commercial fishing.

(3) For non-commercial fishing for salmon it is allowed to use hook and fishing rod to catch salmon and 1 (one) 2000 knot fixed net with a stretched mesh size of at least 140 mm.

(4) The mesh size is measured by inserting the fishery inspection authority's measuring instrument attached to a weight of $\frac{1}{2}$ kg loosely in the mesh and letting it fall through the mesh. 20 meshes are measured, parallel to the float line. All meshes must comply with the requirement in subsection (1).

(5) All salmon nets must be labelled with the owner's name or the vessel's name. The label must be made in water-resistant materials.

(6) Where the weather permits, the salmon net must be tended regularly and sufficiently often to avoid impairing the ability of the fish catch to survive.

Reporting of catches from non-commercial salmon fishing

Section 11. All salmon catches from non-commercial fishing of salmon must be reported to GFLK.

(2) Catch reports must be made using Schedule 1 to the Executive Order. Reports must be submitted to GFLK, P.O. box 501, GL-3900 Nuuk, Greenland, Fax (+299) 34 63 60 or by email to <u>gflk@nanoq.gl</u>, no later than after the cessation of fishing or no later than at the end date of the fishing.

Paid fishing for salmon

Section 12. Fishing for salmon by tourists is only allowed in accordance with the Government of Greenland Executive Order on paid hunting and fishing.

(2) Paid salmon fishing may only be carried out in the period determined by Naalakkersuisut for non-quota commercial fishing.

(3) Paid salmon fishing may only be carried out with hook and fishing rod.

(4) Salmon caught in pursuance of subsection (1) may not be sold or purchased in or outside Greenland.

Control

Section 13. Vessels comprised by this Executive Order must cooperate with GLFK, Island Command Greenland (GLK), hunting and fishery officers and the police in these institutions' performance of their tasks pursuant to sections 26-31 of the Greenland Fisheries Act.

(2) The vessels must ensure unrestricted access for the employees of GLFK, GLK, the police and the hunting and fishing officers to inspect the vessel.

Measures

Section 14. Violations of section 2, subsection (1), second sentence, section 3, subsection (1), section 4, subsections (1) and (3), section 5, subsection (1), no. 2), section 6, subsections (3), (4) and (5), section 7, subsection (3), section 8, subsection (2), sections 9, 10, 11 and 12 may result in a fine and confiscation of the catch. Violation of sections 4, 10 and 12 may also result in confiscation of the fishing implements employed.

Entry into force

Section 15. This Executive Order shall take effect on 1 August 2012. At the same time, Government of Greenland Executive Order no. 21 of 10 August 2002 on Salmon Fishing is repealed.

Greenland Self-Government, 1 August 2012.

Ane Hansen

/

Jens K. Lyberth

<u>Schedule</u>

Annex 5 of WGCMC(14)14



West Greenland Commission

WGCMC(14)3

Economic and Social Impacts of Salmon Fishery and Landings in Greenland (Tabled by Denmark (in respect of the Faroe Islands and Greenland))

NAALAKKERSUISUT

GOVERNMENT OF GREENLAND



Economic and Social Impacts of Salmon Fishery and Landings in Greenland

Socio-Economic Evaluation Report

Ministry of Fisheries, Hunting and Agriculture

WGCMC(14)3

Economic and Social Impacts of Salmon Fishery and Landings in Greenland

1. Introduction

This report provides information on the current social and economic status of salmon fisheries in Greenland. It is provided to evaluate on the Government of Greenland's decision to open up for factory landings in the salmon fishery in 2012. This decision has been disputed in the West Greenland Commission in the North Atlantic Salmon Conservation Organization (NASCO). Therefore, it is important for the Government of Greenland to analyze the impacts in order to evaluate on the socio-economic benefits of the decision. And at the same time give a strong and well-informed background to support decisions on the salmon fishery in Greenland in the future.

Furthermore, the NASCO Annual Meeting in Saint Malo in June 2014, Greenland agreed to establish a working group within the framework of the West Greenland Commission, that would analysis Greenland's management, control and monitoring on salmon in order to identify areas where improvements could be made. The Government of Greenland is always open to improve, develop and learn from others and further welcomes this opportunity to initiate the members of the West Greenland Commission in the Greenlandic legislation, management and control. This report should thus, also serve as a background paper for the working group by giving a through overview of the conditions in the Greenlandic salmon fishery.

Our aims for this report have been agreed as:

- Give an introduction to the salmon fishery in Greenland, including management and control measures
- Background on the Government of Greenland's decision to allow factory landings in the salmon fishery and the socio-economic impacts for the small settlements where the landings take place
- Overview of the internal distribution of salmon within Greenland, including the products that is produced of the landed salmon to the local market
- The social benefits for the fishermen, the factories and the small settlement in order to analyze whether there have been an impact of the decision

Salmon fishery contributes to the local economies and also have an associated social value for the small settlements. This is further emphasized by the fact that the Fishermen and Hunters Organisation (KNAPK), works for an annulment of the export ban for salmon to ensure better possibilities for the fishermen.

The Ministry of Fisheries, Hunting and Agriculture aims to ensure the social and economic benefits that emerges from a salmon fishery in Greenland and at the same time improve the sustainable use of this resource in order to ensure the social and economic benefits to the local communities in the future. With this in mind, it is important for the Ministry of Fisheries, Hunting and Agriculture to give as detailed as possible an image of the socioeconomic importance, conditions and limitations of the fishermen in Greenland. Therefore, this report have been produced in collaboration with the Institute of Natural Resources, the Fishermen and Hunters organization (KNAPK), Greenland Fisheries License Authority (GFLK), the factories and the supermarkets.

This report provides an overview of the economic and social characteristics associated with salmon fishery in Greenland and is not intended to provide an assessment but give background to analyze the effects of the landing quota and give basis to make a decision on the future management of the salmon fishery.

2. Sources of Information

The report draws on a variety of resources including previous papers made by the Ministry of Fisheries, Hunting and Agriculture about salmon fishery, scientific reports and data from the municipalities. There is very little published information relating to the social and economic impacts of salmon fishery in Greenland. Where possible, local data has been used. Where appropriate, data derived from previous studies have also been used to provide an outline or indication of the social and economic characteristics of the salmon fishery in Greenland.

Evidence has been drawn from the following sources:

a) Executive Orders and Laws of the Government of Greenland

References from executive orders and laws of the Government of Greenland such as the Law of the Parliament (Landsting) no. 18 of 31. October 1996 concerning Fishery and the Government of Greenland Executive Order no. 12 of 1. August 2012 concerning Fishery after Salmon has been used.

b) Research Reports

The research report: The Salmon Fishery in Greenland 2012 – Working Paper 2013/xx by Rasmus Nygaard. The report was presented in the ICES North Atlantic Salmon Working Group in 2013.

c) Statistics Greenland

Some of the information about factory landings in the small settlements has been drawn from Statistics Greenland's publication about Fisheries and Hunting in 2013. http://www.stat.gl/publ/da/FI/201402/pdf/Fiskeri%200g%20fangst%202013.pdf

d) Greenland Fisheries License Authority (GFLK)

The information about landings, factories, fishermen and catches has been retrieved from the databases of the Greenland Fisheries License Authority (GFLK).

e) *Municipalities*

Information about the small settlements including number of inhabitants etc. has been retrieved from the responsible municipalities: *Kommuneqarfik Sermersooq* and *Qeqqata Kommunia*.
f) The Fishermen and Hunters Organisation (KNAPK)

The Fishermen and Hunters Organisation in Greenland (KNAPK) has contributed to this report with information about the fishermen's point of view concerning the salmon fishery.

g) Distributors / Supermarket Chains

The report has drawn on the resources of the distributors and supermarket chains in Greenland in order to get an overview of the quantities that is bought from the factories and distributed around Greenland.

Kalaallit Nunaani Brugseni, an independent part of the supermarket chain Coop, have shops in seven cities and towns in Greenland.

Pilersuisoq, owned by KNI (former Royal Greenlandic Trading Company) have 68 small branches/kiosks that service small settlements or town that do not have a Brugseni or Pissifik (the large supermarket chains). These small shops or kiosk are often the only shop in the small settlements and they sell everything from milk to riffles.

h) Factories

Information about the factories, landings, employees etc. has been received from the factories; Arsuk Food, Kitaa Seafood, Lilleholm Aps and Royal Greenland.

3. The Greenlandic Salmon Fishery

The commercial fishery for Atlantic salmon in Greenlandic waters started around 1960 and peaked in the early 70s with catches of more than 2.000 tons a year. The fishery was quota regulated from 1972, but due to declining stocks, NASCO in June 1998 agreed that no commercial fishery for salmon should be allowed, but that the catch at West Greenland should be restricted to *'that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tonnes'*. Since then export of salmon from Greenland has been banned by law. Since 1997 it has also been mandatory to report private catches of salmon. From 2002 to 2011, licensed fishermen were only allowed to sell salmon to institutions, local markets and restaurants. Unlicensed fishery for private consumption has been always allowed.

In 2012, the Government of Greenland allowed factory landings in order to ensure that all citizens get the opportunity to consume salmon and at the same time ensure the fishermen sales opportunities. The possibility to land salmon entails employment for both small-scale fishermen and employees at the factories. This opportunity can be the difference between closing the factories for longer periods of the time and ensuring the livelihood of fishermen and factory workers. Furthermore, the reporting has become more accurate as the reporting from the factories is regarded as accurate.

The opening of factory landings in 2012 entailed that the factories also have to report the amounts of salmon that is being landed.

When a quota is set in Greenland, the Fisheries Council comprised of the Fishermen and Hunters Organisation (KNAPK) and Greenland Employers Organisation (GA) along with various officials such as the workers union (SIK) and Greenland Institute of Natural Resources. The Ministry of Fisheries, Hunting and Agriculture serves as secretariat to the Fisheries Council. When the hearing of the Fisheries Council has been conducted, the Ministry of Fisheries, Hunting and Agriculture makes a recommendation based on the hearing and the biological advice to the Government of Greenland. The collective government then approves or disapproves the quota. Only when a quota has been approved by the Government of Greenland can it be allocated to the applicants that fulfill the criteria of the concerned fishery.



3.1 River Fishery

Greenland only has one known spawning population Atlantic salmon, *Salmo salar*, located in the Kapisillit River in the inner part of the Nuuk fjord, in West Greenland. Potentially, other rivers could hold a salmon population, but in general the rivers in Greenland are short, steep and cold. Although, the contribution of the contribution of the small Kapisillit population to the salmon fishery around Greenland is persistent, it must be regarded as insignificant.

Some rod and reel fishery exists in the Kapisillit River, but the extent, size and catches is currently unknown. Electrofishing in the river in 2012 however revealed several yearclasses of smolts and the stock is persistent (unpublished)⁸. No CLs or other reference points have been established for the Kapisillit River.

However, the Ministry of Environment and Nature is currently working on a strategy for the protection of biodiversity in Greenland. The Kapisillit salmon will in connection with this strategy stand out as especially conservation demanding and thus, it will be one of the highest priorities in the future conservation work. The main goal is to increase the protection of the river itself and endemic salmon stock from anthropogenic effects. The river is still almost undisturbed. The only known permanent disturbance to the river

⁸ Nygaard, Rasmus; *The Salmon Fishery in Greenland 2012 – Working paper 2013/XX*. International Council for The Exploration of the Sea – North Atlantic Salmon Working Group.

is that it functions as water supply to the local settlement housing around 50 all year citizens. The disturbance involves a wooden structure and a 2.5 km long pipe from one of the lakes to the Kapisillit settlement. As part of the process, the local inhabitants have been heard about their opinion concerning the future of the river, the stock and the surrounding area. The protection plan includes the river, the river mouth, all areas supplying water to the river, the inner part of the fjord from the settlement to the river and surrounding areas. The process for an increased protection plan was started a few years ago and the expectation is a full protection of the area and a new set of rules for the use of the stock and area by 2015.

3.2 Inshore Salmon Fishery

The inshore salmon fishery in Greenland is a mixed-stock fishery with contributions from the North American salmon and European salmon.

The salmon fishery in Greenland is an inshore fishery. Greenland has no salmon fishery beyond 12 nautical miles. The different components in the fishery are the unlicensed fishermen, private people that want to catch salmon for private consumption and licensed fishermen that are professional fishermen, who often have a license for other species as well. These fishermen are mostly small scale fishermen that fish from a dinghy but there are also a few vessels over 6 meters. In 2014, there were 319 licenses for dinghies and vessels over 6 meters in West Greenland.

The salmon fishery is often a supplement for the fishermen or hunters ensuring a stable income throughout the year or to supplement the household outside of the hunting season. The fishermen that fish for salmon also fish for other species. Unlicensed fishery for private consumption has always been allowed. Everybody living in Greenland is allowed to catch salmon for their own consumption.

In accordance with the agreements in NASCO Greenland has no commercial fishery on salmon and an export ban has existed since 1998. In addition to the regulatory measures from NASCO, the Greenlandic fishermen is limited by;

- the fishing season from 1 August 31 October
- a minimum mesh size in gillnets of 70 mm
- and number of nets. The unlicensed fishermen can use 1 salmon net and licensed fishermen can use up to 20 salmon nets. Furthermore, the licensed fishermen are allowed to use driftnets.

Furthermore, criteria that you need to fulfill, in order to be eligible for a license is:

- you need to have permanent association to Greenland⁹
- had a salmon license in the previous year
- own salmon nets and a vessel not longer than 42 feet. Furthermore, it is not allowed to use a vessel used in the inshore shrimp fishery to fish salmon.

⁹ Executive Order on Fisheries: *Landstingslov nr. 18 af 31. oktober 1996 om fiskeri, §3, stk. 4*: " 'permanent association to Greenland' is understood in this law as persons that by purchase of a household, by renting or buying a home or by other arrangements indicates intension to have Greenland as a place of residence.

In the larger towns and cities people mostly fish for their own consumptions because fresh fish is available and it is a good addition to the diet as well as fishing being an enjoyable pastime.

However, in smaller settlements along the coast it is a vital part of people's survival – not being able to buy expensive food and the shortage in food supply, especially in the wintertime makes the supplement that the fish you can catch gives essential. In Northand East Greenland the supply ship is not able to sail through the ice between October and May, thus the shops begins to become empty by February/March – then fishing and hunting is important to the survival.

3.3 Greenland Fisheries License Control Authority (GFLK)

All control and monitoring is carried out by the Greenland Fisheries License Control Authority. The GFLK employs 11 wild life officers and fisheries observers, the fisheries observers control the offshore fishery and the wild life officers control the inshore fishery as well as hunting areas.

Further to the reporting of the fishermen and reports from the factories, GFLK's wild life officers, who covers the entire coast of West Greenland checks up on the fishery and the fishermen regularly during the fishing season. The wild life officers report any irregularities or infringements to the GFLK. GFLK and the Ministry report to the police and if necessary the Ministry of Fishery, Hunting and Agriculture takes legal action.

All catches must be reported to Greenland Fisheries License Control Authority (GFLK), this entails that both licensed and unlicensed fishermen must report their catches to GFLK. The fishermen, licensed or unlicensed must report their catches either when the fishery ceases or closes. The reporting must be in the hands of GFLK at the latest by the fishery's end date i.e. 31 October. The fishermen has to report in a predetermined report schedule that outlines the information that GFLK needs.

The factories report to GFLK every week in line with the reporting of other species and are regarded accurate. GFLK controls the factories and their reporting as well as landings.

After the fishing season has ended the GFLK and the Ministry runs a series of targeted campaigns in order to ensure that the fishermen remove their nets and other equipment. Furthermore, the wild life officers patrol the normal salmon fishing grounds and occasionally identify and remove nets that are not correctly marked with name and contact information or equipment left by the owner by the end of the season.

4. Factory Landings

When the Government of Greenland decided to set a factory quota is was based on socioeconomic considerations – the salmon fishery in Greenland is a small and regulatory very limited fishery but the Government of Greenland has some possibilities within the regulatory framework to ensure the means of subsistence for its population. In 2012, the Government of Greenland decided to set a landing quota for salmon from a socio-economic perspective as some settlements in especially Mid- and South Greenland needed assistance to ensure their livelihood and thus, a factory quota was set in order to provide work all year around in the settlements for both fishermen and factory employees – all within the regulatory framework of NASCO. In 2012 and 2013, a quota for factory landings was set at 35 tons, however, the factory quota ceiling was not met in either 2012 or 2013. In 2014, the factory quota was reduced to 30 tons due to pressure from the West Greenland Commission and the fact that the factory ceiling had not been met the two previous years – in 2014, the factory quota was fully utilized and factory landings of salmon was closed in the middle of September.

The communication of quotas, opening and closing of landings or quota and reminders of reporting is done through the Ministry of Fisheries, Hunting and Agriculture's website, the organisations (KNAPK and GA) and through campaigns in the media; newspapers, radio and TV.

In 2013, four settlement landed salmon to factories; Atammik, Kangaamiut, Qeqertarsuatsiaat and Arsuk. For these small settlements with a few hundred inhabitants it has been a vital to be able to land salmon. In 2014, Atammik, Kangaamiut, Qeqertarsuatsiaat and Arsuk landed salmon again along with a small company in Maniitsoq that produces different salmon products and two factories in Nuuk.

The small settlements were the landings of salmon take place are very limited in their fishery as they do not have a lot of other possibilities. The quota for cod, the most important species in the southern part of Greenland is only 15.000 tons in all of Greenland and therefore it is important that the fishermen as well as the factories has the possibility to fish and land salmon in order to ensure employment all year. The fishermen and factories in the South rely on more mixed fisheries to ensure the means of subsistence. In the North, the fishermen and factories make their livelihood on Greenland Halibut, a very valuable species. However, in the South they rely on e.g. cod, lumpfish roe and salmon for their livelihood, none of which is as valuable as Greenland Halibut and none of which can be caught all year around. Therefore, the Government of Greenland prioritized these areas to ensure the survival of settlements, when they decided to set a landing quota for salmon.



Figure 1. Map over settlements and town, where salmon was landed in 2014

In this chapter, information about the places where landings of salmon have been taking place in 2014 is presented. The chapter outlines general information about the small settlements and cities, where landings has been conducted such as population, factories, infrastructure and landings etc. Firstly, the small settlements will be presented one by one and secondly, the city and town. Then an overview of the landings in the settlements and towns in 2013 and 2014.

4.1 Arsuk

Arsuk is a settlement in the Sermersooq municipality in South-western Greenland. Arsuk is a one of the settlements that land salmon. The population of the settlement is 104 inhabitants¹⁰. The main occupation in the settlement is fishing and hunting. There are 9 fishermen in the settlement that have a license to fish salmon. Those 9 licensed fishermen also have licenses for another species like cod, and lumpfish roe.

The fish factory is called Arsuk Food Aps and there have been registered 12.569 kg landed salmon in 2014 in Arsuk. Arsuk Food Aps also landed Atlantic salmon in 2013. The nearest town in the municipality from Arsuk is Paamiut, the distance between them is about 134 km. The distance to the nearest town makes it harder to get food supply, and therefore self-sufficiency by food and provision is essential for small communities such as Arsuk. Greenland statistic have made an overview of the species landed in Arsuk in 2013, these include Greenland halibut, cod, seal skin, and some land and seamammals like musk-ox and whales etc.

¹⁰ Statistics Greenland - updated in 2014.08.12.

Infrastructural opportunities: Royal Arctic Line A/S is the company that supply the small settlements, the settlements is supplied by ship. Arsuk do not have Heliport and therefore, it is not possible to supply the settlement by air. Royal Arctic Line A/S supply Arsuk every 14 days - most of the year, depending on weather conditions.

4.2 Qeqertarsuatsiaat

Qeqertarsuatsiaat is a settlement in the Sermersooq municipality in South-western Greenland. The population of Qeqertarsuatsiaat is 205 inhabitants¹¹. The main occupation of the settlement is fishing and hunting. There are 9 fishermen in the settlement licensed to fish salmon the 9 fishermen also have licenses for another species like cod, and lumpfish roe. Royal Greenland (the Government owned company) runs the fish factory in Qeqertarsuatsiaat. In 2014, there have been registered 8.205 kg landed salmon in Qeqertarsuatsiaat. There were also landings of salmon in Qeqertarsuatsiaat in 2013.

The nearest towns in the municipality, Nuuk and Paamiut are located approximately 130 km away. Qeqertarsuatsiaat is placed between Nuuk and Paamiut. Qeqertarsuatsiaat has the same limitations concerning distance and supplies as Arsuk and most small settlements in Greenland and therefore self-sufficiency by food and provision is also vital here. The factory in Qeqertarsuatsiaat land several species as do most factories in the small settlement, where possibilities are few and factories and other business have to just to the conditions and therefore, are mixed business. The factory land species like Greenland halibut, cod, sealskin, and some land and seamammals like caribou and some whales etc. from local hunters and fishermen. However, as not all settlements have the size or the conditions to run a factory, the fishermen and hunters often travel far in order to land their catch.

Infrastructural opportunities: Royal Arctic Line A/S supplies the settlement every 10-14 days depending on weather conditions. Qeqertarsuatsiaat does not have heliport and therefore it is not possible to supply the settlement by air. People travel by ship or boat to get to and from the settlement. As this is the premise for most settlements in Greenland, Royal Arctic Line A/S further runs a passenger ship in order to provide travel opportunities for the outposts.

4.3 Atammik

Atammik is a settlement in the Qeqqata municipality in Central-western Greenland. The population of the 204^{12} inhabitants and the main occupation of the settlement is fishing and hunting – this is the main occupation of most settlements in Greenland, depending of the location hunting or fishing is the main occupation. Atammik sets itself apart from other settlements as it is one of the only settlements in Greenland were people move to and the population grows. Reasons for this is the factory and a brand new school. In Atammik, 17 fishermen have a license to fish for salmon in 2014 and these fishermen further have licenses to fish other species such as cod and lumpfish roe – mixed fisheries plays an important part in the inshore fishermen's livelihood as it provides an opportunity to fish all year. Royal Greenland also runs the fish factory in Atammik. In 2014, 2.329 kg landed salmon has been registered in Atammik.

¹¹ Statistics Greenland - updated in 2014.08.12

¹² Statistics Greenland - updated in 2014.08.12

The nearest town in the municipality is Maniitsoq, approximately 80-85 km away. Even though, the distance to nearest town is shorter than it is in Arsuk and Qeqertarsuatsiaat, it is still difficult to get supplies. In Atammik, the factory also land other species such as Greenland halibut, cod, sealskin, and some land and sea-mammals like caribou and whales etc.

Infrastructural opportunities: Royal Arctic Line A/S supply Atammik every 10-14 days, depending on weather conditions. Atammik cannot receive supplies by air as it does not have a heliport.

4.4 Kangaamiut

Kangaamiut, located in Qeqqata municipality in Central-western Greenland with a population of 369¹³ inhabitants is another settlement that lands salmon. Here the main occupation is also fishing and hunting. There settlement has 16 licensed salmon fishers and as the case with the other settlements, these fishermen also have additional licenses to species like cod and Greenland halibut. Royal Greenland also runs the fish factory in Kangaamiut and 2.920 kg landed salmon was registered in 2014 and the factory further land species such as cod, caribou and whales.

The nearest town in the municipality is Maniitsoq, approximately 50-55 km away.

Infrastructural opportunities: Kangaamiut does not have a heliport but Royal Arctic Line A/S supply the settlement by ship every 10-14 days, depending on weather conditions – the weather have enormous impacts on the traffic and infrastructure in Greenland, especially in the small settlements. If the weather is bad due to storms, ice or other, it can delay the supply ship with several days and even some times weeks. The North and East of Greenland, the ice covers the sea for several months each winter and isolates settlements from supplies until Spring – therefore, self-supply and dependence of the natural resources such as fish and marine mammals is vital.



¹³ Statistics Greenland - updated in 2014.08.12

4.5 Nuuk

Nuuk is a city in Sermersooq municipality in South-western Greenland. Nuuk is the capital and biggest city in Greenland with a population of 16.786¹⁴ inhabitants. In Nuuk, 25 fishermen have a license to fish for salmon and these fishermen also have licenses to fish for species such as cod, and Greenland halibut.

Nuuk has 2 fish factories that landed salmon in 2014, Royal Greenland and Kitaa Seafood. Kitaa Seafood landed 3.657 kg salmon in their factory. While, Royal Greenland have landed 262 kg in Nuuk, a reason for the small landings at the Royal Greenland factory in Nuuk can maybe be found in the fact that Royal Greenland collected the salmon from other factories (Qeqertarsuatsiaat, Atammik and Kangaamiut) for further processing. The factories in Nuuk also landed other species such as Greenland halibut, cod, sealskin, and some land and sea-mammals like caribou and whales etc.

Infrastructural opportunities: The cities such as Nuuk have better supply opportunities as it can be supplied both by ship and by air traffic. Royal Arctic Line A/S (a Government owned company) supplies Nuuk and the rest of Greenland by ship as Air Greenland (Government owned company) provides for some supply from/till some towns and settlements at the coast by air.

4.6 Maniitsoq

Maniitsoq is a town in the Qeqqata municipality in Central-western Greenland with a population of 2.569¹⁵ inhabitants. In Maniitsoq, 40 fishermen are licensed to fish for salmon and other species. The fish factory that land salmon in Maniitsoq is Lilleholm Aps. Lilleholm Aps has registered 4.415 kg landed salmon in 2014. Lilleholm Aps employees 5 individuals in salmon season and the company have a wide variety of salmon products such as salmon in curry. Lilleholm Aps have plans to reopening a factory in a settlement called Napasoq with approximately 81 inhabitants, so fishermen in mid-western Greenland have better opportunities for landing their fish. Lilleholm Aps also land other species such as Greenland halibut, cod, seal skin, and land and seamammals like caribou and whales etc.

Infrastructural opportunities: Towns like Maniitsoq have better opportunities concerning supply as it is supplied both by ship and by air traffic. Royal Arctic Line A/S and Air Greenland provides this service respectively by ship and air.

4.7 Landings of Salmon

Figure 2 below shows the landings of salmon in kilograms divided between the settlements and towns were landings has been taking place in 2014.

¹⁴ Statistics Greenland - updated in 2014.08.12

 $^{^{\}rm 15}$ Statistics Greenland - updated in 2014.08.12



Figure 2: Landings of salmon in 2014 in Kilograms

Arsuk, Qeqertarsuatsiaat, Atammik and Kangaamiut also bought salmon from the fishermen to the factories in 2013, however, Atlantic salmon is not the only species that the factories landed in 2013. Figures below shows the total landings of fish in the settlements in 2013. These figures gives a clear picture of the mixed fisheries in the settlements, were fishermen and factories rely on species such as cod, lumpfish roe and Wolffish.



Figure 3: Landings of fish in Arsuk in 2013 in tons



Figure 5: Landings of fish in Kangaamiut in 2013 in tons

Figure 4: Landings of fish in Atammik in 2013 in tons



Figure 6: Landings of fish in Qeqertarsuatsiaat in 2013 in tons

The landings of salmon further create value for the factories and the settlements due to the fact that salmon only can be sold and distributed within Greenland and therefore, processing takes place at the factories. Whereas other species is exported and thereby, often frozen in blocks and then exported, therefore salmon creates more value than many of the other species.

5. Social and Economic Impact

The salmon fishery is socially and economically important for the fishermen and for the communities. For the fishermen it is a vital part of ensuring work all year as most fishermen or hunters use the salmon fishery as a supplement to make ends meet. The possibilities in the areas where salmon is caught is limited as they rely on cod, Greenland halibut and salmon. Greenland halibut is mainly in the northern part of Greenland and the prize is much lower in the south due to lack of competition and the cod TAC is only 15.000 tons for all of the inshore fishery in Greenland, which entails limitations. It is possible to fish for shrimp in the inshore fishery as well – however, if you fish for shrimp you cannot fish for other species. The biggest and most valuable fishery in the south of Greenland is lumpfish roe, however, this fishery is limited to May-June – if the weather allows it late April.

The salmon fishery in Greenland is a small but well established fishery which gives great social and economic benefits to the fishermen that fish salmon. In terms of employment during the whole year and additional income in the fishing season (1 August – 31 October). The landing prices for Atlantic salmon in 2014 has been on an average of 21 DKK per kilogram, Arsuk Food has paid the fishermen 18 DKK per kilogram and Royal Greenland 22 DKK per kilogram. Thus, even though it is a small fishery it is quite valuable for the fishermen compared to e.g. cod with a landing price of around 4 DKK per kilogram.





Figure 9: Payments for landings in Kangaamiut in 2013 in DKK DKK



Figure 10: Payment for landings in Qeqertarsuatsiaat in 2013 in

In 2013, the payment to the fishermen for landings of salmon from the factories in Atammik, Kangaamiut, Qeqertarsuatsiaa, og Arsuk was 506.044 DKK – compared to that the payments to fishermen the same places for other species was 22,6 million DKK, thus, the payment from salmon comprises 2,2 % of payments for all species in the settlements. This might seems as a small revenue, however for small settlements with a few hundred people any addition to the income adds enormous value both socially and economically.

The fishermen feel pride in fishing salmon and are very positive towards the possibilities that the salmon fishery bring. In fact, the fishermen and hunters organisation, KNAPK put pressure on the Ministry of Fisheries, Hunting and Agriculture to end the export ban as the fishermen experience more and more salmon in Greenlandic waters and salmon is an important fishery to the fishermen.

The salmon fishery further have a great social and economic benefit for the local communities where the factories land salmon. When the Government of Greenland set a factory quota for salmon in 2012 it was with the aim of supporting the fishermen and fishing communities in the south. This decision has had a positive impact for several communities, where factories now land salmon. The small settlements has increased their landings and thereby ensured employment for the factory workers to the benefit of the community and it has given the fishermen in the area better possibilities of selling their catch. Which again bring economic value to the fishermen and the communities. Lilleholm Aps in Maniitsoq employs five people and Arsuk Food have two employees. Royal Greenland expects that landings of salmon generate 1.000 hours of work for their employees in Nuuk, Qeqertarsuatsiaat, Atammik and Kangaamiut.

Additionally, it has given a better possibility of distributing salmon to all of Greenland and thereby, giving more Greenlanders the opportunity to eat salmon caught in Greenland, which supports the Government of Greenland's strategy to enhance self-sufficiency in Greenland – bringing social and economic benefits for all. The fact that salmon can be landed have spurred Lilleholm Aps, a relatively new company to develop new products and expanded their business both in Maniitsoq but also to buy and re-open the factory in Napasoq, a small settlement with 81 inhabitants – social and economic benefits directly derived from the salmon fishery.

However, the salmon fishery does not only bring benefits for the fishermen and the communities in general but also bring social and economic benefits to the "recreational" fishermen. Anyone with a have permanent association to Greenland¹⁶ - basically, everybody living in Greenland is allowed to catch salmon for their own consumption. Unlicensed fishery for private consumption has always been allowed and continues to be important for people in the small settlements and people with low income, where self-sufficiency is a vital part of surviving. For people that fish for salmon for more recreational reasons derives pleasure from sailing out to check the nets and the excitement of bringing home freshly caught salmon to the family.

Self-sufficiency is an enormous part of life in Greenland in cities, towns and settlement – people from all stratums of society hunt, fish and gather eggs or plants and berries for their own consumption. It is a vital part of the Greenlandic culture and of the way of life to be

¹⁶ Executive Order on Fisheries: *Landstingslov nr. 18 af 31. oktober 1996 om fiskeri, §3, stk. 4*: " 'permanent association to Greenland' is understood in this law as persons that by purchase of a household, by renting or buying a home or by other arrangements indicates intension to have Greenland as a place of residence.

part of nature and make use of the natural resources from black berries over caribou to salmon -a way of life that many foreigners living in Greenland has taken to heart. It has great social value.

6. Sales and Distribution of Salmon Internally in Greenland

Export of salmon has been banned in Greenland since 1998 through Greenland's obligations in NASCO. Today, the fishery is an internal-use fishery and the salmon that is landed to factories or sold to shops can only be distributed and re-sold in Greenland. The salmon fishery in Greenland is a substance fishery and sale of salmon and salmon products is allowed to provide the population with the opportunity to eat salmon.

Distribution of salmon in Greenland happens in two ways. The factories sell their products to wholesalers or to the supermarkets like Kalaallit Nunaani Brugseni, Pisiffik and Pilersuisoq. Thereafter, the wholesaler can distributed the salmon to other buyers like restaurants, institutions such as schools, retirement homes and nursing homes etc. The supermarkets can distribute salmon from their base to their supermarket outlets all over Greenland.

Lilleholm Aps is an example of this as the company produces various types of salmon products for instance smoked salmon and salmon in curry at the factory in Maniitsoq. Lilleholm Aps sell their products to wholesalers and supermarkets like Pilersuisoq A/S, and Kalaallit Nunaani Brugseni, in turn the wholesalers and supermarkets distribute the products to other parties. The wholesalers can sell the products to institutions and the supermarkets can distribute the salmon products from Lilleholm Aps to their local branches in the coast. This is also the case with Royal Greenland that produces various types of salmon products. However, the supermarkets also buy fresh salmon that they process into salmon steaks or smoked salmon in their delicacy section.

Pilersuisoq A/S that have 66 shop in settlements and smaller towns along the coast bought 1-1½ tonnes salmon from Royal Greenland and Lilleholm Aps to distribute to their shops all over Greenland. Kalaallit Nunaani Brugseni has bought and distributed 4.300 kg salmon to the seven towns, where they have branches. Brugseni bought the 4.300 kg salmon from Royal Greenland and Lilleholm Aps and distributed the products to their branches in Sisimiut, Maniitsoq, Nuuk, Paamiut, Narsaq, Qaqortoq and Nanortalik.



Table 1: Towns and Settlements in Greenland Qaanaaq have 3 settlements Upernavik have 9 settlements Uummannaq have 7 settlements Qegertarsuag have 1 settlement Ilulissat have 4 settlements Qasigiannguit have 0 settlement Aasiaat have 3 settlements Kangaatsiaq have 4 settlements Sisimiut have 3 settlements (incl. Kangerlussuaq) Maniitsoq have 3 settlements Nuuk have 2 settlements Paamiut have 1 settlement Narsaq have 3 settlements (incl. Narsarsuaq) Qagortog have 3 settlements Nanortalik have 5 settlements Tasiilaq have 5 settlements Ittoqqortoormiit have 0 settlement Total: 73 towns and settlements

Pilersuisoq have stores in small towns like Qaanaaq, Upernavik, Uummannaq, Qeqertarsuaq, Qasigiannguit, Aasiaat, Paamiut, Narsaq, Nanortalik, Tasiilaq and Ittoqqortoormiit. And in most settlements. Some small settlements do not have stores from Pilersuisoq – all in all Pilersuisoq covers 66 towns and settlements.

Pisiffik has stores in bigger towns and cities like Ilulissat, Aasiaat, Sisimiut, Maniitsoq, Nuuk and Qaqortoq. Brugseni have branches in Sisimiut, Maniitsoq, Nuuk, Paamiut, Narsaq, Qaqortoq and Nanortalik.

7. Summary and Conclusion

The commercial fishery for Atlantic salmon in Greenlandic waters started around 1960 and peaked in the early 70s with catches of more than 2.000 tons. Since 1998, Greenland has committed to have no commercial fishery for salmon and export has been banned – the fishery for salmon in Greenland should be restricted to substance or internal-use fishery. In 2012, the Government of Greenland set a factory quota of 35 tons after it had been banned to land salmon to factories since 2002. In that period, the fishermen could only sell salmon to institutions, local markets and restaurants. The Government of Greenland allowed factory landings in order to ensure that all citizens would get the opportunity to consume salmon and at the same time ensure the fishermen sales opportunities. In 2014, the factory quota was reduced to 30 tons due to pressure from NASCO and the fact that the quota had not been utilized in 2012 and 2013.

Greenland only have one salmon river, the Kapisillit River (adequately meaning salmon river in Greenlandic), other rivers could potentially hold a salmon population, but in general the rivers in Greenland are short, steep and cold. A plan to conserve Kapisilit River and the

surrounding area as part of a protection strategy for Greenlandic biodiversity is currently underway.

Greenland does not have any offshore (beyond 12 nautical miles) salmon fishery. The inshore fishery is a mixed-stock fishery with contributions from North America and Europe. There are two different components in the inshore Greenlandic salmon fishery; licensed and professional fishermen and unlicensed fishermen fishing for private consumption. Everybody living in Greenland can fish for salmon for private consumption with the limitation of one salmon net and the fishing season from 1 August – 31 October. The licensed fishermen are limited by the fishing season, a minimum mesh size in gillnets and the limit of 20 salmon nets. In order to get a license to fish salmon, the applicant have to live in Greenland and be a professional fisherman. Both Licensed and unlicensed fishermen have to report catches to GFLK.

All control and monitoring is carried out by GFLK, GFLK employs 11 wild life officers that control the inshore fishery and hunting areas. The wild life officers patrol the fishing grounds and report infringements or remove illegal equipment etc. The factories report to GFLK on a weekly basis and the numbers is considered accurate.

In 2014, factories in seven towns and settlements landed salmon; Arsuk Food Aps landed in Arsuk, Royal Greenland in Qeqertarsuatsiaat, Atammik, Kangaamiut and Nuuk, Lilleholm Aps landed in Maniitsoq and Kitaa Seafood landed in Nuuk as well. The fact that landings to factories has been possible has derived some social and economic benefits for the factories, the fishermen and the communities alike.

The salmon fishery has great social economic value for the Greenlandic society and many benefits derive from the salmon fishery such as self-sufficiency and livelihood of the fishermen. Greenland is a small community of approximately 56.000 people spread over more than 2,000,000 km² and therefore, even the smallest fisheries have a great impact – socially and economically. Even though, the Atlantic Salmon fishery is a small fishery the fact that the fishermen can land their catch and get a good prices for the salmon provides great economic benefits to the fishermen and ensures full employment during the year. This entails pride and economic safety for the fishermen and their families. The fishermen can plan the different fisheries during the year to ensure their livelihood. This brings both social and economic benefits for the fishermen themselves and for the Greenlandic society – families that can provide for themselves do not need to receive social benefits. If fishermen do not have quota to fish for the whole year, they receive social benefits for the months or weeks they cannot fish, thus it benefits the society as a whole as well.

The aims of this report has been to give an introduction to the salmon fishery in Greenland, an introduction to conditions of the salmon fishery in Greenland including river fishery and inshore fishery as well as management and control measures were laid out in the first chapter.

A background on the Government of Greenland's decision to set a landing quota and the socio-economic impacts of this decision in the settlements has been illustrated in various chapters. The evaluation is that the impact has been positive, bringing social and economic benefits to the settlements, the factories and the fishermen – as well as the Greenlandic society as a whole. The added economic value might seem small, when the salmon landings only constitute 2 % of the income to the fishermen of all the landings – a 2 % added income in the small communities that Greenland consists of it is of enormous value.

An overview of the internal distribution of salmon within Greenland, including the products that is produced and distributed to the local market has further been delineated in the report and a thorough description of the retailers has been given in order to underline the distribution opportunities in Greenland.

The social benefits for the fishermen, the factories and the small settlements has been outlined and analysed through the entire report and the conclusion must be that the social and economic benefits to the fishermen, the factories and the small settlements has been essential.

The report has given a thorough basis to evaluate the fishery for Atlantic salmon in Greenland, the social and economic benefits and impacts of the fishery and the landing quota set by the Government of Greenland in 2012. It should further provide an important background to NASCO on the fishery for Atlantic salmon in Greenland, the management and control measures and the socio-economic benefits for the population.

Annex 7

WGCIS(15)3

Draft Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery in Greenland

Background

During the 2015 NASCO Annual Meeting, the West Greenland Commission decided to form a working group on monitoring and control that should meet and discuss the measures that Greenland have in place and which measures used in other Member States could be used as inspiration to adjust measures in the salmon fishery in Greenland.

The result a set of recommendations should make the corner stone for a draft plan laid out by the Government of Greenland and discussed at an inter-sessional meeting in the West Greenland Commission as preparations to the Annual Meeting.

The Working Group

The working group on monitoring and control had some very fruitful and open discussions during the meetings 28-30 October 2014 in Nuuk. The Government of Greenland welcomed this opportunity to discuss in detail the management, monitoring and control that is already in place. Greenland has always been transparent and was very happy to join in an open and transparent discussion on how other member states manage, monitor and control their fisheries. As well as further introducing the members in the Greenlandic management, monitoring and control.

The Government of Greenland was especially pleased about the decision to working with the six tenets in the document WGCMC(14)2 and the 'traffic light' system. It gave a very nuanced picture of the efforts that is already in place and where it could be necessary to make adjustments. Greenland strongly supports the recommendation of the working group that all members should make the excise with the tenets and the traffic light in order to give an overview on areas that could be adjusted and further give the other members a nuanced overview of what measures is in place.

A internal working group was established and tasked with going through the Working Groups on Monitoring and Control's recommendations and with these in mind draw up a draft plan for monitoring and control measures that could be implemented in Greenland with the resources available.

Draft Plan

The working group recognized the need to know the pool of participants in order to decide which measures should be adjusted. The Ministry of Fisheries, Hunting and Agriculture has already set this recommendation in motion and is currently making a questionnaire survey by telephone to all the licenses holders in 2014 in cooperation with Greenland Fisheries License Control Authority (GFLK) and Greenland Institute of Natural Resources (GN). Following this, a questionnaire survey is planned for the private fishermen who have reported in the last 1-2 years.

The results of this surveys will lay the basis for the measures that Greenland will implement on the areas of management, monitoring and control.

The Ministry of Fisheries, Hunting and Agriculture is planning to implement the following measures:

- All fishermen should have a license; professional and private alike.
- No reporting equals no license in the following year everybody should report, even if the catch is 0 kilo grams.
- Considerations should be made to adjusting the fishing season.
- It must be incorporated in the license conditions that the fishermen should allow samplers to take samples of their catches upon request.
- Provide information to the fishermen on the sampling program and the findings of the program.

All fishermen should have a license; professional and private alike.

This measure should ensure that the Ministry of Fisheries, Hunting and Agriculture as well as the GFLK knows the pool of participants and give a stronger incitement to report catches, especially for the private fishermen. It will further give the GFLK a very good overview of the participants in the fishery and where they are from, which would assist the Wild Life officers further in their work to control fisheries and hunting.

Implementing this measure will thus, improve the knowledge of the known pool of participants and control and enforcement in the fishery.

No reporting equals no license in the following year – everybody should report, even if the catch is 0 kilo grams.

Implementing the condition in the issuance of licenses that a fisherman, private or professional that have a license should report to GFLK in order to be eligible to get a license in the following year will be a very strong incitement to report for both private and professional fishermen.

Implementing this measure will give a more accurate picture of the actual catches in Greenland and thereby, assist in limiting catches as well as make the reporting more accurate.

Considerations should be made to adjusting the fishing season.

Management wise, the Ministry of Fisheries, Hunting and Agriculture should together with the GFLK and GN consider whether adjustments could be made to the fishing season. The current fishing season is from 1 August – 31. October. An adjustment could be to limit the fishing season further or to make differentiated fishing seasons between the two segments of fishermen. This has been done in the hunting for reindeer (caribou), where private hunters can hunt from 1 August – 10 October and professional hunters can hunt from 1 August – 15 October.

Implementing this measure would limit catches and further assist the Wild Life officers in their control and enforcement of the salmon fishery.

It must be incorporated in the license conditions that the fishermen should allow samplers to take samples of their catches upon request.

Greenland recognizes the importance of the sampling program and thus, in order to assist the samplers with the problems that have occurred in the recent years with obtaining samples, the Ministry of Fisheries, Hunting and Agriculture will incorporate a condition in the licenses that the fishermen should allow the NASCO samplers to take samples of their catches. This will then be applicable to both private and professional fishermen, when licenses for both segments has been introduced.

Implementing this measure will ensure that the NASCO samplers will have less problems with obtaining samples and thus, improved the fishery sampling tenet, especially in the private segment.

Provide information to the fishermen on the sampling program and the findings of the program.

Further to assist the samplers and the sampling program, the Ministry of Fisheries, Hunting and Agriculture will inform the fishermen about the sampling program and the findings of the program. This will be done through the Fishermen and Hunters Organization (KNAPK) member magazine and press releases.

Implementing this measure and by reaching out to the fishermen both through press releases and KNAPKs member magazine it will be possible to reach both segments and thus, further improve the samplers work as well as improving the fishery sampling tenet in the private segment.

Adjusting tenets and timeline

Implementing the chosen measure will improve the following management, monitoring and control tenets; Known pool of participants, Effectively limiting catch, Accurate, effective and timely reporting, Control and enforcement and Fishery sampling. Changing sectors in these tenets from red or yellow to yellow or green. Greenland have chosen not to adjust Effective communication of management rules as the sectors in this tenets were all green. This will entail that the all tenets would consist of only yellow and green sectors – no red sectors.

The measures chosen will be possible to adjust with the resources that the Ministry of Fisheries, Hunting and Agriculture and the GFLK have available. Furthermore, it is the assessment of the Ministry that these measures will be possible to implement within two years. It should be possible to implement most measures before the salmon fishing season 2015. The traffic lights for the different tenets as agreed by the working group:

		Sectors			
			T• 10°1	Unlicensed	
			Licensed fisher	<u>fishermen</u>	
Tenet	Description	Factory	Commercial	Private	Private
1	Known pool of participants				
2	Effectively limiting catch				
3	Accurate, effective and timely reporting				
4	Effective communication of management rules				
5	Control and enforcement				
6	Fishery sampling				

The traffic lights for the different tenets after the implementation of measures suggested by Greenland:

		Sectors				
		Licensed fishermen			Unlicensed <u>fishermen</u>	
Tenet	Description	Factory	Commercial	Private	Private	
1	Known pool of participants					
2	Effectively limiting catch					
3	Accurate, effective and timely reporting					
4	Effective communication of management rules					
5	Control and enforcement					
6	Fishery sampling					

Annex 8

WGCIS(15)5

Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery at West Greenland

Background

At NASCO's 2014 Annual Meeting, the West Greenland Commission established an *Ad hoc* Working Group on Monitoring and Control to, *inter alia*, recommend options to enhance the monitoring and control of the salmon fishery at West Greenland and ensure more complete implementation of the NASCO Guidelines for the Management of Salmon Fisheries, CNL(09)43. The Working Group met in Nuuk, Greenland during 28 - 30 October 2014, and its report is contained in document WGCMC(14)14. The Government of Greenland welcomed this opportunity to discuss in detail the management, monitoring and control that is already in place in Greenland and to review how other Parties monitor and control their fisheries.

In the light of an evaluation of the management, monitoring and control systems in use in the salmon fishery at West Greenland, using six tenets for effective management, the Working Group developed recommendations relating to: known pool of participants; accurate, effective and timely reporting; control and enforcement; and sampling. As previously agreed by the West Greenland Commission, in the light of these recommendations, the Ministry of Fisheries, Hunting and Agriculture developed a Draft Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery in Greenland, WGCIS(15)3. This Draft Plan was considered at an inter-sessional meeting of the West Greenland Commission of NASCO during 24 - 26 February 2015 and agreement was reached on a series of measures that would be implemented prior to the 2015 fishery and other actions to be undertaken by Greenland. It was also agreed in principle that the six tenets would be used to the evaluate fisheries of the Members of the West Greenland Commission that exploit stocks that contribute to the West Greenland fishery.

Actions

In accordance with the recommendations of the *Ad hoc* Working Group on Monitoring and Control, the Ministry of Fisheries, Hunting and Agriculture, in cooperation with Greenland Fisheries License Control Authority (GFLK) and Greenland Institute of Natural Resources (GN), is implementing a telephone questionnaire survey of fishermen who held licences in 2014.

The Ministry of Fisheries, Hunting and Agriculture will take forward proposals to implement measures in advance of the 2015 salmon fishery at West Greenland such that:

- (1) All salmon fishermen will require a licence and will be categorised as either licensed professional fisherman or licensed non-professional fishermen; only licensed professional fishermen will be authorised to sell salmon;
- (2) Only designated fish factories will be authorised to accept landings of salmon, and fishermen should be advised that landing of salmon at non-authorised factories is not permitted. Fish factories will report landings no less frequently than on a weekly basis;

- (3) Supervisors at the large open air markets will report all salmon offered for sale on a weekly basis;
- (4) Reports of all catches, including zero catch reports, will be required within 1 month of the end of the salmon fishing season at which time fishermen may apply for a licence for the following season;
- (5) Failure to report catches as specified in (4) will result in no licence being issued for the following year(s) even in the case of zero catch;
- (6) It will be a condition of the licence that fishermen should allow samplers to take samples of their catches upon request; and
- (7) Information will be provided to fishermen and supervisors at open air markets about the sampling programme and the findings of the programme to date through the members' magazine of the Fishermen and Hunters Organization (KNAPK) and press releases.

Progress in implementing these measures and evaluating their effectiveness will be reported at the meetings of the West Greenland Commission.

In addition, the Ministry of Fisheries, Hunting and Agriculture will undertake the following:

- (1) Provide additional information on the dependency of communities in Greenland on the salmon fishery before the 2015 Annual Meeting;
- (2) Consider delaying the opening date of the fishing season to 1 September for the 2015 fishery;
- (3) Evaluate the costs and benefits of conducting a pilot carcass tagging project in one or more communities in conjunction with other Members of the Commission who may be able to provide information on the application of carcass tagging;
- (4) Review the plan on an annual basis, make recommendations for its further improvement and report the outcomes at the meetings of the West Greenland Commission.

Annex 9

WGCIS(15)8

Framework for a Multi-Annual Regulatory Measure for Fishing for Salmon at West Greenland for 2015, 2016 and 2017

RECOGNISING that in exercising its functions the West Greenland Commission shall take into account the factors detailed in Article 9 of the Convention;

NOTING that at its 2006, 2009 and 2012 Annual Meetings, the West Greenland Commission adopted multi-annual regulatory measures that provided for an internal use fishery and applied for three year periods, subject to the result of application of the Frameworks of Indicators;

TAKING INTO ACCOUNT the comprehensive information presented to the inter-sessional meetings of the Commission in 2014 and 2015 concerning the critical status of many of the Multi-Sea-Winter salmon stocks contributing to the West Greenland fishery and the conservation initiatives taken by both Greenland and States of origin;

NOTING that ICES considers the stock complex at West Greenland to be below conservation limits and, thus, is suffering reduced reproductive capacity and has advised that none of the stated management objectives which would allow a fishery at West Greenland will be met in 2015, 2016 or 2017;

RECOGNISING that an updated Framework of Indicators has been provided by ICES and will be applied in 2016 and 2017 to evaluate if a significant change is signalled by the indicators and, therefore, a reassessment of the ICES advice is warranted;

RECOGNISING the work that Greenland has done to obtain additional information on fishing effort in the salmon fishery and their commitment to further improve the monitoring, control and catch reporting for the fishery as detailed in the Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery at West Greenland, WGCIS(15)5, beginning in 2015;

COMMITTING to continue to cooperate in the design and implementation of a sampling programme in close coordination with the salmon fishery at West Greenland;

THE PARTIES agree that:

- (1) *There will be no export of Atlantic salmon from Greenland;*
- (2) The catch limit for the West Greenland fishery will be xx tonnes or yy salmon;
- (3) The fishery will open on 1 September and close on 31 October or whenever the catch limit is reached, whichever is earlier;
- (4) Any harvest in excess of xx tonnes or yy salmon; in a particular year will result in an equal reduction in the catch limit in the following year; there will be no carry forward into a future year of any under-harvest;

- (5) Efforts will be made to identify and implement temporal or spatial harvest restrictions that would provide increased protection for weaker stocks taking into account information provided by ICES;
- (6) Denmark (in respect of the Faroe Islands and Greenland) will further improve the monitoring, management control and surveillance of its salmon fishery during the period covered by this measure in accordance with the Plan for Implementation of Monitoring and Control Measures in the Salmon Fishery at West Greenland, WGCIS(15)5;
- (7) The West Greenland Commission will review and update the six tenets and apply them to commercial and recreational fisheries of Parties/jurisdictions in North America and Southern Europe; this will be completed in time for the 2016 Annual Meeting;
- (8) Denmark (in respect of the Faroe Islands and Greenland) will inform ICES and NASCO in a timely manner of any modifications to the management of the West Greenland salmon fishery, of the outcome of the 2015, 2016 and 2017 fisheries and of progress with the implementation and effectiveness of its Plan on Monitoring and Control, for annual review by the Commission;
- (9) States of origin will explore opportunities to share experiences with Greenland on monitoring, management control and surveillance in the salmon fishery, including on carcass tagging, through knowledge sharing exchange programmes;
- (10) This regulatory measure will apply to the fishery at West Greenland in 2015. Application of this measure in 2016 and 2017 will be decided annually by the Commission taking into account, *inter alia*, stock status and the results of the application of the Framework of Indicators.

Annex 10

Closing statement made by Canada

Mister Chair, members of the West Greenland Commission, Canada feels the need to make a Closing Statement that aims at recognizing the efforts made by Greenland at contributing to the development of a regulatory measure toward their management of wild salmon fishery here this week, but also at bringing forward the importance for Greenland to recognising the important role they must play in the management and conservation of the wild salmon stocks in the Atlantic northwest.

Canada appreciates the importance of the subsistence salmon fishery for Greenland and the significant sacrifices that Greenland has made over the years in reducing its catches. However, the trend in the last few years has been for an increased harvest beyond what we believe can be sustained by stocks from North American rivers.

Canada and other NASCO parties have also made sacrifices, as well as significant changes to their salmon fishery. Overall harvest levels continue to decline and further reductions are occurring in both subsistence and recreational fisheries as late as in 2014. This is a necessity given lower and lower returns.

As stated earlier, Canada appreciates the efforts made by Greenland in putting forth monitoring and control measures that go a long way to addressing concerns related to Greenland's management of its Atlantic salmon fishery. However, as indicated throughout the meeting, having these measures in place without relating them to a pre-defined harvest level is ultimately pointless.

Canada remains confident that Greenland can come forward with a management approach of its salmon fishery that addresses the expectations of other West Greenland Commission Parties, while continuing to fulfill the subsistence needs of its population. To this extent, Canada reiterates its offer to share with Greenland knowledge and experience in managing subsistence fisheries.

The discussions here this week were encouraging, but came short of establishing the level of confidence Canada was looking for in preparation for the regulatory discussion at the Annual Meeting in June.