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Report of Meeting of CRFM Continental Shelf Fisheries Working Group (CRFM-CSWG) on Atlantic Seabob, *Xiphopenaeus kroyeri*, fisheries of Guyana and Suriname, 04 December 2020

CRFM Secretariat, Belize
2020

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04 December 2020

Cover photographs provided by: Dr. Tomas Willems, National Coordinator, REBYC-II LAC, Suriname and Ms. Dawn Maison, Marine Stewardship Council Project Coordinator, Guyana

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LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance
BRD	Bycatch Reduction Device
CCTV	Closed-Circuit Television
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CFRAMP	CARICOM Fisheries Resource Assessment and Management Program
CPUE	Catch-Per-Unit-Effort
CRFM	Caribbean Regional Fisheries Mechanism
CSWG	Continental Shelf Fisheries Working Group
DAS	Days-At-Sea
EEZ	Exclusive Economic Zone
ETP	Endangered, Threatened and Protected
FAC	Fishery Advisory Committee
FAO	Food and Agriculture Organization of the United Nations
FMP	Fisheries Management Plan
HCR	Harvest Control Rule
Ifremer	French Research Institute for Exploitation of the Sea (Institut Français de Recherche pour l'Exploitation de la Mer)
IUU	Illegal, Unreported and Unregulated fishing
MCS	Monitoring, Control and Surveillance
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NBLME	North Brazil Large Marine Ecosystem
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
R&D	Research and Development
SMP	Seabob Management Plan
SWG	Seabob Working Group
TED	Turtle Excluder Device
TRP	Trigger Reference Point
VMS	Vessel Monitoring System
WWF	World Wildlife Fund

TABLE OF CONTENTS

1. OPENING

The Meeting was convened electronically using GoToMeeting facility. The Chairperson, Ms. Susan Singh-Renton, Deputy Executive Director, CRFM Secretariat, welcomed participants as they joined. Some participants experienced technical difficulties in logging onto the meeting, thus delaying the meeting start. The Chairperson apologized for the delayed start, noting that it was necessary to allow time for key participants, particularly from Guyana and Suriname to join the meeting.

2. CALL TO ORDER

The Meeting was called to order at 9:10 a.m., and the Chairperson said an Opening Prayer. The Chairperson again welcomed all to the Meeting, which she said was the second meeting for the CSWG for 2020. The purpose of the meeting was to review and discuss Suriname's and Guyana's progress on implementation of inter-sessional activities; and to continue work towards improving the assessment, improving understanding of the status of the fishery and the status of the resource; and to help in terms of the collaboration between the two countries. It was a pleasure for CRFM to be doing this work with Suriname and Guyana at the countries' requests. Both Guyana and Suriname should also be commended for making use of other available projects, which were all contributing to the same goal of improved management of the very important seabob fisheries. Among the documents circulated for the meeting there was an agenda and a Terms of Reference. With regards to the Terms of Reference, as agreed at the last CSWG meeting, the fisheries management plans (FMPs) for the two countries were expected to contain a Research and Development Plan. The FMPs also looked at policy, legislation, monitoring, control and surveillance (MCS), etc. This Meeting will review the FMPs in general and then give additional attention to the progress made with the R&D plan and the status of implementation of the HCR. The second term of reference was to make recommendations going forward.

3. ADMITTANCE OF PARTICIPANTS

More than twenty persons participated in the meeting. There was representation from the Seabob Working Groups of Suriname and Guyana, government officials, industry personnel and NGO (WWF) representatives from Suriname, Fisheries technical experts from Trinidad and Tobago, NOAA, FAO, Ifremer and CRFM Secretariat were also in attendance. Participants' information is given in Appendix 1.

4. ADMITTANCE OF MEETING DOCUMENTS

The Chairperson advised that the meeting documents included three submitted by Guyana and eight submitted by Suriname, in addition to the Terms of Reference for the Meeting, and the Draft Agenda.

The Draft Agenda was presented and adopted without change. The Agenda is given in Appendix 2.

It was agreed that for Agenda Item 5 the presentations from both countries on the Fisheries Management Plans would be given first, followed by the presentations on the status of implementation of the Harvest Control Rules, and then the presentations on the Research and Development plans.

5. REVIEW THE STATUS OF IMPLEMENTATION OF THE NATIONAL FISHERIES MANAGEMENT PLANS FOR THE ATLANTIC SEABOB FISHERIES OF SURINAME AND GUYANA

5.1 Review of status of implementation of the Suriname's Seabob Fisheries Management Plan

Presentation
Radjes Asraf, Fisheries Department, Suriname, presented this item.

The vision for the seabob fishery as articulated in the Management Plan was "*The Seabob fishery is an ecologically, economically and socially responsible fishery that is managed in compliance with the Marine Stewardship Council (MSC) standard. Continuing MSC certification has the highest priority in the management of the fishery to ensure both sustainability and market access*." This was achieved based on a sustainably managed stock of seabob shrimp and limited impact on the ecosystem and target species; good cooperation with stakeholders, executing agencies as well as public and private sectors partners; and further development of the knowledge base for fishery management, while embracing a precautionary approach. Implementation of this strategy was done through two important instruments: Research and Development (R&D) plan, and Seabob Working Group (SWG). The objectives of the management plan were managed and monitored through the R&D plan. The R&D plan had 19 points, some of which had to be achieved by June 2021 in order to comply with the MSC standard.

The SWG was appointed for one year from 01 October 2019. The working group met every third Thursday of the month and the meetings were usually well attended (80 – 90%). Extra meetings were convened as necessary. With the assistance of WWF, the monthly meetings have been convened using the Zoom platform and approved meeting notes were published on the SWG website. With the guidance of the SWG, the Suriname seabob trawl fishery successfully passed the third annual surveillance audit of the second certification cycle. The Suriname seabob trawl fishery remained certified to the MSC standard and would continue with an unchanged program for future surveillance. The third surveillance audit was conducted in January 2020 by the independent assessment body, Lloyds Register.

In order to maintain MSC certification, the regulations as set out in the Seabob Management Plan had to be followed. These included: mandatory TEDs (Turtle Excluder Devices), which must be installed based on specifications prescribed by NOAA, and BRDs (By-catch Reduction Devices); vessel monitoring system (VMS); Coast Guard for safety at sea; regulations on fishing gear and fishing methods, which were set out as conditions in the yearly license regulations issued (Ministerial Ordinance); all seabob fishers must have a permit to fish; the fishing area for seabob, which remained the same; and the artisanal seabob fishery operated near the river mouth. With regard to VMS, this service was provided by a French-based company, but the seabob fishery was in the process of changing the VMS provider to one with an office in Suriname. Installation of the new devices on the vessels had commenced and was expected to be completed in the first quarter of 2021.

The HCR was finalized in September 2019. On 13 July 2020, implementation of the pilot HCR was discussed in a special meeting of the SWG and it was agreed to extend the pilot implementation phase to the end of September 2020. The Fisheries Management Plan was evaluated by the SWG at least on a yearly basis. The yearly evaluation was based on the quarterly updates of the R&D plan. The updated R&D plan was published on the SWG website on a quarterly basis.

Discussion
It was remarked that the main development with the management plan was some progress with VMS and pilot implementation of the HCR. Regarding implementation of the components related to the MSC, the efforts with VMS and BRDs were noted, and a query was raised about operation of the observer program

and about how monitoring of the regulations was being carried out at present and if there were any issues. Suriname advised that due to the COVID situation it had not been possible to send observers to sea. Two new observers had been recruited and were currently receiving training.

Further information was sought about the inspections of BRDs and also about monitoring of incursions – were vessels, both artisanal vessels and trawlers, staying in their zones; how monitoring was being carried out in the absence of VMS was queried. It was clarified that there was no absence of VMS, the industry was switching providers but the system from the French-based provider was still being used and information regarding vessel position in zones could be obtained. No illegal fishing in the seabob fisheries zones had been recorded for 2020. Inspectors from the Fishery Inspection Unit went out daily to inspect the fishing gear to ensure that the TEDs and BRDs were being used and reports of these inspections were produced. In spite of the COVID-19 situation, inspections still continued since fishing still continued.

It was pointed out that it would be easier to follow the report and to evaluate implementation of the plan if the report was presented in accordance with the headings in the FMP and as a table and it was suggested that this could be done in the future. The common template, such as the one agreed on for the R&D plan, should be used going forward to monitor progress and identify any weaknesses. Delays due to COVID were noted, however, the review of the FMPs took too long; reports should be done more efficiently in order to accommodate meetings and keep moving forward. Weaknesses were continuing and the next audit for certification, which will be face-to-face, was approaching, after which the second assessment would occur. It was therefore important to address these weaknesses.

Clarification was sought on the follow up action in Section 5 (reporting HCR using common formats) of the report of the CSWG Meeting held in April 2020[1], and it was queried if there was any provision for the information being shared at this meeting to be captured in the templates and the completed templates be appended to the report of this Meeting. The meeting agreed that this could be done.

5.2 Review of status of implementation of the Guyana's Seabob Fisheries Management Plan

Presentation

Kadeem Jacobs and Desha Husbands-Spellen of the Fisheries Department, Guyana presented this item.

Guyana's marine fishery sector was guided by the fisheries management plan (FMP), which enabled the Fisheries Department to manage and regulate the utilization of the fisheries resources in a sustainable manner that could benefit all stakeholders. The current Marine Fisheries Management Plan covered the period 2013-2020, while the Seabob Management Plan (SMP) ran from 2015-2020. Guyana was in the process of developing new management plans that would go beyond 2020 with the assistance of a consultant. The first FMP was a draft one developed in 1992 (1992-1996) under CFRAMP. Subsequent iterations of the FMP up to 2013 remained in draft form only. The current management plan, which benefited from reviews by several agencies [Cefas (2017), national multi-stakeholder review (Nov 2018-Jan 2019); and CRFM-CSWG peer review (Aug 2019)] was updated in 2018 and adopted in 2019. The policy and regulations reflected in the FMP were guided by several pieces of legislation such as the Fisheries Act, the Maritime Boundaries Act, Guyana Marine Fisheries Regulation, among others. The area managed was Guyana's EEZ (200 nautical miles), which was part of the North Brazil Large Marine Ecosystem (NBLME).

The FMP planning and decision-making process began with evaluation and updating of the FMP. The updated FMP was subjected to reviews, first by the Fisheries Advisory Committee (FAC) and then by

[1] CRFM 2020. Report of Meeting of CRFM Continental Shelf Fisheries Working Group (CRFM-CSWG) on Atlantic Seabob, *Xiphopenaeus kroyeri*, fisheries of Guyana and Suriname, 29 April 2020. CRFM Fishery Report – 2020/1. 21p. + Appendices

external reviewers. Following the reviews, the FMP was submitted for Minister's approval, prior to implementation and monitoring by the Fisheries Department and other relevant authorities. Cross-cutting elements contained in the FMP included data collection; monitoring, control and surveillance (MCS) and piracy; and, capacity building for all stakeholders.

Under the scope of the National Management Plan, there were fisheries specific management plans, such as the Seabob Management Plan, Penaeid Management Plan, the Red Snapper Management Plan, Shark Management Plan, and an Artisanal Fishery Management Plan. The Artisanal Fishery Management Plan was this year developed separately with assistance from WWF (World Wildlife Fund) and was currently in effect. The various FMPs were implemented by the Fisheries Department in collaboration with several other agencies including the Guyana Defense Force, Coast Guard, Marine Police, Customs, and the Guyana Wildlife Conservation and Management Commission.

The recently concluded review of the Marine Fisheries Management Plan indicated that the plan was partially implemented, with implementation being weakest with respect to the artisanal sector. The Fisheries Department was currently working on addressing this and other weaknesses, with focus on capacity building activities, particularly for staff, some of whom were currently in training, with the aim to better serve all stakeholders adequately. Revision of the plan should be rigorous and should include both short-term and long-term relevant and achievable objectives.

With regard to the Seabob Management Plan, the review showed that it was partially implemented. MSC certification was attained in 2019. Moving forward, special emphasis will be placed on implementation of the Seabob management plan to ensure that MSC certification was retained. One setback was the failure of the vessel monitoring system (VMS) provided by CLS. Efforts were ongoing to identify a new provider that could meet the needs of the industry and also MSC requirements, so that the MSC certification was maintained.

The review recommended that the Fishery Advisory Committee (FAC) should have an explicit mandate with transparent guidelines for selection of its members; the scope of the committee, and its interest and terms of reference should be clearly defined; and documents of the FAC should be made publicly available. Another finding of the review was that the fishers' cooperatives were defunct, and the landing sites were in need of repair. The review recommended resuscitation of the cooperatives and pointed to the urgent need for improved institutional and social capacity in the artisanal sector. In terms of outstanding actions, there was need to develop and enact regulations required to implement the HCR; and establish and enforce sanctions for breaches of the HCR. Having completed review of the FMP that would expire at the end of 2020 with the assistance of a consultant, the new fisheries management plan, management strategy, and seabob management plan were being drafted. Limitations that affected the implementation of the FMP included changes in the responsibilities of staff, COVID-19, and technical limitations.

Discussion

FAO's assistance with the review was acknowledged and it was noted that the review was a general one that provided some important information, but in going forward it would be more useful to report on implementation against the management objectives. The recommendation for a common template for report on status of implementation of the management plan was reiterated.

Based on the presentation, it appeared that the seabob companies in Guyana were using different VMS service providers, and a query was raised as to whether the use of different systems posed any difficulty for monitoring of the vessels. Guyana indicated that the officer responsible for monitoring did not think this was an issue, once the beacon number for each vessel was provided. It was suggested that this should be confirmed. It was later confirmed that the seabob companies agreed to continue using the VMS service provider, CLS, as only a software upgrade was required for the system to become operable again.

5.3 Status of Implementation of new Harvest Control Rule (HCR) for Suriname

Presentation
Ms. Gaushmi Poeran, Fisheries Department, Suriname presented this item.

The various section headings of the document were highlighted. These included: background, definition of the formula, explanation of the HCR, HCR visualized, protocol for HCR implementation, some examples of HCR implementation, pilot implementation, and conclusions and next steps. Under the HCR visualized, two plots of the HCR index were shown; one plot indicated the seabob HCR CPUE in relation to the reference points of the new HCR and the other the seabob effort. The HCR CPUE was calculated as a moving average of the observed CPUE. For 2020 so far, all months except July, the index was below the trigger point. The plot of the effort showed the effective effort of the seabob fleet and the maximum allowable effort according to the new HCR in relation to the maximum effort in line with MSY (HCR maximum) and the maximum proposed by the industry. Based on the graphs, it was clear that low HCR CPUE values caused low allowable effort, with a time lag of two months.

A first evaluation of the HCR pilot implementation was done during a special meeting of the SWG in July 2020. The seabob industry stated that seabob catches for the 6-month period, January – June 2020, were exceptionally poor, causing low CPUEs. Only in June did the catches seemed to have normalized. The seabob companies therefore requested an extension of the pilot implementation period to the end of September 2020. The industry argued that it was confronted with drastically reduced effort quotas in the pilot implementation phase so far, and there had been no opportunity to introduce the proposed gradual reduction in maximum fishing effort, which had been agreed to by the industry (5% instead of 16%); the poor catches experienced in the first half of 2020 did not seem to be fully representative of the fishery and did not allow for proper evaluation of the HCR; and, while the seabob industry was willing to gradually reduce effort in order to sustain higher catches on the long term, a gradual reduction to mitigate social and economic consequences was needed.

The SWG meeting agreed to extend the pilot phase of the HCR to at least the end of September 2020. The July SWG meeting also discussed the following points: efforts to implement the workflow of the new HCR, including timely submission of data, SWG meetings and communication among all stakeholders should be continued; at the end of the pilot phase, an evaluation of the HCR should take place and the SWG should formulate recommendations for adjustment to the HCR if deemed necessary; boats often left the docks in the evening/night and came back in the morning, hence fishing trips were in fact shorter than they seemed when DAS was calculated using the formula [arrival date] – [departure date] + 1, perhaps this could be taken into account in revising the HCR; based on industry experience, it appeared that catches were correlated with rainfall/river outflow and, as such, the SWG agreed to add investigation of this relationship to the R&D plan; pilot implementation should be limited in time and the HCR should be followed strictly in the future, particularly as this also related to the MSC condition that the fishery needed to close; and, if it appeared that the new HCR was inappropriate, this should be documented so support could be sought to adapt the HCR, which will require the involvement of the consultant who designed the HCR. Pilot implementation of the HCR was again evaluated in the SWG October 2020 meeting and it was agreed to further extend the pilot implementation phase to the end of 2020, at the industry's request.

In terms of conclusions and next steps, the HCR was in a pilot implementation phase in which the industry was not yet required to strictly follow the effort quota as calculated by the HCR. It was decided that the initial pilot phase (first half of 2020) was not sufficient to fully evaluate the performance of the new HCR. Low CPUE values have required the use of monthly effort quota. As such, the gradual reduction in effort as agreed in December 2019 had not been in effect as the HCR did not allow maximum effort allocated as quarterly quota. Nevertheless, the average effort for the period January – October 2020 was 354 DAS,

which was slightly above the maximum HCR effort of 346 DAS, but well below the 380 DAS as originally agreed. Moreover, it represented an average 11% reduction compared to the 2018 level.

Despite the effort reduction in 2020, CPUE values in the seabob fishery remained low, indicating that further reductions in effort to allow stock rebuilding were required. The fishery stakeholders should either accept the current HCR and start its strict implementation in the near future; or justify why the current HCR was not acceptable, and work with the stock assessment consultant to make adjustments based on experiences from the pilot implementation in 2020. The CRFM-CSWG had previously made various recommendations to improve and validate the HCR and its implementation. These included the following: to assess the relationship between nominal DAS and the actual days spent fishing using logbook data, potentially along with CCTV and VMS data; any actions or events, whether on purpose or not, that could affect catchability and selectivity should be carefully documented and recorded; performance of the HCR should be evaluated after for one year and adjustment made for practicality purposes as necessary; other assessment methods should be explored for comparison with the results of the current stock assessment; how impacts of Sargassum influx events and climate change on the fishery could be incorporated into management should be considered; and, in order to improve the stock assessment, a local maturity ogive should be established, the value of M should be reviewed, the 'broken shrimp' category should be characterized, and interaction with fishery stakeholders during the assessment process be promoted.

Discussion

Reference was made to a graph in the presentation and clarification was sought on the meanings of *effective effort* and *maximum allowed effort*. It was explained that maximum allowed effort was the calculated monthly effort from the model based on the MSY; and effective effort was the realized/actual effort. There was no uncertainty band around the actual effort, however there was a lot of uncertainty in CPUE and effort and it would be useful to show this for the next assessment. It was pointed out that the HCR was tested for robustness and sensitivity analyses were done, however, based on the explanation *uncertainty* around the CPUE beyond this was needed. It was explained that there should be *uncertainty* for the CPUE, and the monthly effort should also have *uncertainty* calculated. Knowing how close the fishery was to the Trigger Reference Point (TRP) for CPUE also gave an indication of how fast effort should be increased/decreased. The high level of deviation between the effective effort and maximum allowed effort was noted and it was queried whether these two series should not follow more closely. It was indicated that this deviation could be due to exogenous factors. The need for good rapport between the industry and the science was highlighted.

The issues of low catches and not being able to achieve maximum days at sea were noted and whether an HCR evaluation could be done with the available information was queried. It was pointed out that the HCR evaluation would be dependent solely on the CPUE. Reference was also made to a closed season and other factors, such as Sargassum, fishing days, and it was queried if these could be built into the HCR, as well as any additional available data that could inform the evaluation of the HCR and how it could be improved. The stock assessment expert had indicated that there were issues with the measurement of effort and density dependent growth mortality effects, and that there was also uncertainty about the HCR.

The new HCR was piloted from January and it was supposed to be analyzed in June, however there was some delay. The formula for calculating the HCR index was based on 346 days-at-sea (DAS); the industry had agreed to use 380 days, but had actually stayed below 380 days (354 DAS). However, the low effort of 354 DAS did not appear to have had any effect on the HCR index. In 2021 the HCR will be strictly implemented (346 DAS). The 2019 stock assessment report indicated a population decline, and it was remarked that if the CPUE calculation being used was from 2009, then it seemed strange that the warning signs of population decline were missed. Reference was made to a document prepared by Mario Yspol on the limitations of CPUE, and it was noted that most of the basic fishery scientific calculations were based on random search/spread, but this was not the case with the seabob fishery. It was further remarked that the

Suriname seabob fishery started in 1996, with data available from 2000 onwards; hence the fishery had a good series of data for assessment.

Reference was made to the recommendation of the previous CSWG meeting for consideration of an alternative assessment approach and a query raised as to whether persons on the ground thought there were other reasons for low catches. It was explained that the catches seemed to be related to the rainy season in the Amazon. High rainfall increased productivity which led to good catches, but this was not so in the dry season. Environmental conditions were very important, but it was difficult to represent these in the model. It was currently the rainy season and the catches were really good and the sizes of the seabob had also increased. It was also pointed out that the 2-month lag in the model was too long as in the rainy season the fishery picked-up quickly. Rainfall data had been sought from the meteorological office to explore the relationship between rainfall, river outflow and catches. The report should be available by March 2021.

Another concern was about the sizes of the seabob in Suriname; although Guyana had a lower CPUE, the size composition was better. The model did not account for size changes fast enough. The distribution of seabob was patchy and the Markovian effect due to estimating from the nearest neighbor was noted. Even though the population was down, because it was patchily distributed, the fishers knew where to look for the patches and get a high CPUE although the abundance was low. The mathematical tools needed to be used correctly to account for reality.

The Meeting learnt that during the dry season it took 18 to 20 hours to arrive at the fishing ground, and this travelling time when factored in, resulted in low CPUE. In the rainy season when catches were good, it took 6 to 8 hours to the fishing ground. It was pointed out that the log books should reflect this. However, to date the information was not available in the logbooks, but on a separate sheet in the company. Also, whether effort could be interpreted by season, i.e., rainy season and dry season maximum efforts could be considered, as including seasonality could improve the HCR. It was noted that this would need to be discussed with the stock assessment experts.

In terms of developing and implementing the HCR, the protocols for applying the HCR were good; perhaps the pilot could be extended to account for both low catches and high catches while modeling continued. The industry should have been cooperating with the current HCR; however, this was not the case. The need for outreach between the industry and science to improve this situation was reiterated. Also, closer involvement of the stock assessment expert who designed the model was needed. The model was not perfect and the stock assessment expert's involvement was necessary for its improvement. The need for a meeting in early 2021 to review the HCR and determine how cooperation with the industry could be obtained and to agree on a suitable HCR was highlighted. Following some further discussion about the issues impacting the fishery, including the occurrence of seabob in deeper water, closure of the industry in December for approximately three weeks, and the upcoming MSC assessment, it was recommended that a meeting with the stock assessment expert should be convened in early 2021.

Whether there will be a next CSWG meeting before the meeting with the stock assessment expert and whether the uncertainty bands associated with CPUE would be available since this would allow analysis of the empirical CPUE versus the calculated one, was queried. It was indicated that a meeting would be arranged with the stock assessment expert and some technical persons from the CRFM countries. It was observed that the stock assessment expert was aware of the limitations of HCR, and that these issues with the model would require the use of bootstrapping and other complicated mathematical tools, but this was necessary. It was agreed that calculating uncertainty was necessary, and a sensible way forward was needed in order to have a meaningful output. There were issues with data which have prevented improvement of the HCR (Sargassum, intensity of rainfall, seasons, environmental patterns, etc.) and which confound the interpretation of CPUE.

5.4 Status of Implementation of new Harvest Control Rule (HCR) for Guyana

Presentation
Kadeem Jacobs, Fisheries Department, Guyana presented this item.

The Guyana seabob stock was assessed in 2019 and a new HCR proposed for implementation in 2020. The 2019 HCR differed from the previous HCR (2013) in that the 2019 HCR was more reactive as it was calculated on a monthly basis rather than annually; used nominal days +1 rather that standardized days; and, implemented a maximum quarterly effort quota of 5,616 days (1872 days per month), with unused days not allowed to be carried over to the new quarter. For both the 2019 and 2013 HCR, a high HCR index was an indication of a healthy stock and allowed the fishery to operate at maximum effort. If the index fell below the trigger reference point, effort was adjusted proportionally until the index recovered. The total number of days was evenly distributed among the number of vessels operating in the fishery, with an average of 21 days per vessel per month. If a vessel used more than the allotted days in one month, the excess days were deducted from the total allowed days in the new month. Transfer of days between different companies was not permitted.

Upon presentation of the new HCR to the industry, there was some initial resistance to the inclusion of the +1 day in calculating the HCR, however, following explanations about why it was necessary to include the +1, the HCR was accepted by the industry. The proposed protocol for HCR output included: submission of catch and effort data by the seabob companies by the seventh working day of each month; calculation of the HCR by the 22nd of the month; and monthly effort quota available for presentation to the SWG meeting on the last Thursday of each month. Due to the COVID-19 pandemic there was some disruption to these meetings in 2020. There was a closed season for the Guyana seabob fishery, which was extended by two weeks in 2020, due to low catches. Although the catches were generally low for 2020, they were never below the trigger point, hence no adjustments to the HCR were required in 2020.

Discussion
The extent of the closed season was queried. The Meeting was informed that the closed season was from 01 September to the second week of November.

In response to a query as to whether a graph of the HCR as well as the table was available, it was indicated that the graph could be provided later, if required. It was suggested that the graph be provided and also that the calculation of the HCR should be shown similar to Suriname's. The Meeting was advised that the HCR had not yet been implemented with the industry, however, information on the HCR had been shared with the industry, and it was agreed that the Fisheries Department would monitor the catch and effort data from January to December 2020 and present the HCR calculations to the industry. In terms of implementation of the HCR, this would be discussed at the next SWG meeting scheduled for 15 December, after which the implementation strategy would be completed.

A query was raised about the decision taken at the 2019 meeting in Guyana with regard to implementation of the HCR in both countries. By way of response, it was noted that it had been decided that both countries would test the HCR and review it after one year, however, it appeared that countries were behind on this commitment, however Suriname has already started a pilot by implementing the new HCR from January 2020. The Meeting was reminded that a comparison of the HCRs between the two countries had been planned and this was not now possible. It was remarked that it had taken quite a while for countries to agree on implementation of the HCR, which was unfortunate since the industry was able to respond quickly. Given the COVID situation, there may be some justification for the delay in implementation, however, it was necessary for implementation to get under way as soon as possible. It was further pointed out that the issue of the HCR could be revised with the stock assessment expert, however, it was necessary to implement the recommended HCR since it was based on the best available scientific information at the time. The

Meeting was informed that a properly functioning HCR was necessary, not just as an element of sustainable fishery management, but also as a condition for MSC certification. The need for a meeting with the stock assessment expert to review in detail the issues with the HCR was reiterated.

Based on the presentation, it appeared that the Guyana Fisheries Department had the support of the industry for the implementation of the HCR; as such, Guyana was urged to commence testing and monitoring of the HCR in full very soon. For Suriname, the Fisheries Department and the Seabob Working Group should work with the industry, to the extent possible, to fully implement the HCR. The Meeting was again reminded that the HCR was agreed to in 2019 and it should be used since it was based on the best scientific evidence available. The issues raised by industry in relation to the HCR (rainfall, river outflow, Sargassum influxes, interpretation of fishing days, etc.) could possibly be addressed by the stock assessment expert, provided that the requisite data (which the countries should have been working to improve) in relation to these additional factors, could be made available.

The Meeting was informed of genetic research done on the seabob fisheries of Guyana and Suriname, which showed that seabob in Suriname and Guyana were genetically one stock. The 2019 stock assessment had assumed a separate stock hypothesis; perhaps, the genetic research findings could be considered for future assessments. This was acknowledged, and it was further noted that information on selectivity was needed, as different selectivity patterns for the two stocks had been observed. Also, growth and mortality appeared to be different between the two countries. As such, although the stocks may be genetically related, the stocks could still be managed separately. It was pointed out that geographic location was important for defining a stock. If geographic location and biological parameters (growth, mortality, etc.) were known, the stocks could be tested using ANOVA analysis to determine if they were different groups.

5.5 Status of Implementation of Research and Development Plan for Suriname

Presentation
Radjes Asraf, Fisheries Department, Suriname, presented this item.

The Research and Development (R&D) Plan contained 19 proposed items. A brief overview of each item and the motivation for its inclusion in the R&D Plan was given, and a status update (blue font) provided.

- Item 1 - *Estimate seabob removal by IUU fisheries targeting seabob* –This was a high priority item as IUU removal of seabob was a threat to the management of the fishery. Patrol report on Coast Guard at-sea inspection available for first half 2020. No illegal seabob vessels were reported for this period.

- Item 2 - *Report on encounter of ETP species and vulnerable habitats* – This was an MSC recommendation. Recommendation 3 was related to encounters with Endangered, Threatened and Protected (ETP) species on the fishing grounds and the MSC required that any ETP/vulnerable habitats interaction were accurately documented and reported. A consultant was hired to produce the report on ETP species encountered. Logbook data had been entered for the last six months (SAIL) and daily fishing reports for last three years (Heiploeg). The first report was expected in the first quarter of 2021. LVV to work towards continuous monitoring of ETP encounters.

- Item 3 -*Monitor effect of change in fishing gear/practices on CPUE* - Both the MSC and the CRFM CSWG had recommended review of any effects that could have an impact on CPUE. Item 3 dealt specifically with effects of changes in fishing gear/practices on CPUE. No changes in fishing gear or fishing practices had occurred over the last year. M. Yspol had done an analysis of weaknesses of CPUE as abundance indicator that could be taken into account.

- Item 4 - *Monitor effect of environmental conditions on CPUE* - The MSC and the CRFM CSWG recommended review of the effects of recent influxes of Sargassum seaweed on catches in the fishery and also on the CPUE. In the first quarter of 2021, a format will be distributed to seabob captains to monitor the presence of Sargassum; this will be added to ETP record form (floating or at bottom; fresh or decaying). Logbook requirements for the industrial fleets were being updated in the context of the new data collection system of LVV.

- Item 5 - *Local scientific sampling to inform development of a sustainable maturity ogive* – The data currently being used for the maturity curve was collected in Brazil. The CRFM-CSWG explicitly recommended that local maturity data be collected, so that the current data could be validated. The stock assessment expert (P. Medley) recommended that a biologist be hired to conduct the study. This could possibly be done in collaboration with Guyana.

- Item 6 - *Digitalization and analysis of logbook data* - This CRFM-CSWG recommendation was mainly to determine if nominal DAS used in the stock assessment and the HCR was a good reflection of the actual fishing days. Efforts were ongoing and it was expected to have first results in the first quarter of 2021.

- Items 7 and 8 dealt with c*ollection of information on the fishery's impact on primary by-catch species;* and*, collection of information on the fishery's impacts on secondary by-catch species* – These two items were included in the R&D because they were requirements for MSC standard v.2.2. New observers had been hired to conduct work on seabob trawlers as well as finfish trawlers and were currently being trained. Seabob companies also supplied data on landed bycatch as part of monthly catch report.

- Item 9 - *Improve estimates of accidental seabob removal by non-seabob fisheries* – Accidental removal of seabob by non-seabob fisheries presented potential problems for stock assessments and management of the fishery. Ongoing monitoring was required but it did not appear that other fisheries were having a big impact on the seabob fishery. New observers have been hired to conduct work on seabob trawlers as well as finfish trawlers and were currently being trained.

- Item 10 - *Review and evaluate the effort management strategy to comply with the HCR* – This was an important item in the R&D plan as it related to the remaining MSC condition which the seabob fishery had to address and which dictated provision of evidence that the tools in use were appropriate and effective in achieving exploitation levels required under the HCR. Effort management strategy had been updated. HCR was in pilot phase at least until the end of 2020.

- Item 11 - *Bycatch reduction by the use of TEDs and BRDs* – The Suriname seabob fishery currently used TED and BRD devices, which was intended to minimize the impacts of trawling on other fisheries. Trials with modified TEDs and BRDs were conducted in September 2019 and another round of trails was currently ongoing. The report of the trials was expected by June 2021.

- Item 12 - *Compliance and enforcement* required constant effort that was ongoing in relation to Principle 3 of the MSC standard. This was to ensure that the fishery was compliant with the Management Plan, and was the responsibility of all the actors, SWG, seabob companies, Fisheries Department Inspection Unit and the Coast Guard, as well as NOAA, which conducted biennial inspections of all shrimp trawlers. There were ongoing efforts by all parties concerned. The 2020 NOAA inspection of Shrimp trawlers for TED compliance was postponed due to the COVID situation.

- Item 13 - *Roles and responsibilities for provision of future stock assessment advice* –The MSC had commented that it was not clear in the management system who had responsibility for the stock

assessment and how assessments would be funded. The seabob companies and the government will discuss this and should have an agreement by June 2021.

- Item 14 - *Review and evaluation of the HCR* – The new HCR required field testing to rectify potential problems. The evaluation should involve the stock assessment consultant. The new HCR was piloted in 2020 and was under review.

- Item 15 - *Improve catch estimates from artisanal fisheries targeting seabob* – The Statistics and Research Unit of the Fisheries Department will continue to monitor the artisanal catches. The last two stock assessments indicated that the artisanal catches did not have a big influence on the stock assessment outcome. Estimation of the artisanal seabob catch was no longer a priority, as the quantities of artisanal fisheries were negligible compared to industrial fisheries. The artisanal seabob catch was less than 800 tons in total.

- Item 16 - *Conduct morphological sampling of seabob landings* – Sampling has been ongoing by the seabob companies for more than eight years, and there was a fixed protocol in place. Random sampling has been ongoing by all three seabob companies and will be continued; data was collected using a high-accuracy scale.

- Item 17 - *Define size composition of 'broken shrimp' category* – This was a CRFM-CSWG recommendation. It was discussed by the SWG, in collaboration with the industry, and it was agreed that relevant data would be collected from 2021. In 2021 the Fisheries Department will contact the stock assessment expert (Paul Medley) to establish a sampling protocol.

- Item 18 - *Further develop and explore data limited method(s) for stock assessment* – This CRFM-CSWG recommendation mainly related to a validation of the stock assessment results by other stock assessment methods. Data limited method will be updated; possibly a method other than JABBA will be explored.

- Item 19 – *Explore correlation between rainfall/river outflow and CPUE* – CRFM CSWG recommended to assess impact of environmental factors on CPUE. This was also requested by the fishing industry. The Fisheries Department had obtained rainfall data from the meteorological service and a preliminary analysis on the impact of rainfall on CPUE will be done by March 2021.

Discussion

It was observed that, notwithstanding the COVID situation, it appeared that many activities had been pushed back, with reports expected to become available in 2021 or issues to be addressed in 2021, and concern was expressed about these delays. The progress with the hiring of new observers was noted and it was expected that observer data should become available in 2021. Reference was made to Item 3 – which was a MSC and CRFM-CSWG recommendation (assumption of CPUE as a reliable proxy for biomass and possible changes in catchability) and it was pointed out that there had been discussions at the previous CSWG meeting about the use of TEDs and BRDs, and concern was expressed about the status update which indicated no change in fishing gear, as this did not appear to take into account these discussions. Reference was also made to Item 15 and the catch estimates from the artisanal fisheries and it was noted that this too was discussed in the previous CSWG meeting, but based on the update appeared to no longer be a priority for Suriname. These issues could also be raised by the MSC auditors. Stock assessments were costly and time-consuming exercises, hence, the activities which would commence in 2021 should be closely monitored, so that new and improved data could be gathered and made available for the next assessment. Item 14, *review and evaluate the HCR*, was referred and it was noted that some review had been done, but no evaluation and it was suggested that for future reporting careful attention to the wording of the updates

was needed. Also, the R&D matrix should be updated on a quarterly basis and perhaps submitted to the CSWG for review.

On the issue of estimation of artisanal catches, it was explained that a model had been used that predicted seabob catch estimations of 1,000 to 1,100t per year by the artisanal fisheries. However, following review after one year, it was recognized that the model was overestimating the artisanal catches. The stock assessment expert ran simulations using 1,100t of artisanal catches and it was recognized that inclusion of the artisanal catch did not influence the total biomass. The artisanal catch estimation was now between 500 to 600 t per year, hence, estimating the artisanal seabob catches was not considered a high priority any more. That said, monitoring of the artisanal catch was included in the research and development plan.

In terms of commencement of some activities in 2021, it was indicated that there was an official message from MSC that the inspection will be in July 2021, therefore the activities were arranged accordingly. It was also explained that low impact (priority) meant that the issue will be looked at once per year. The explanations were noted, but it was pointed out that work should not only be aligned to an MSC audit, as given there were other commitments such as the need for additional data for the assessment. Efforts should be made to follow the agreed schedule as far as possible.

It was remarked that there was need to put on record the method of evaluation used, as different evaluation methods could be applied to the same situation with different outcomes, which could lead to confusion. The importance of indicating how evaluations were being done was acknowledged and it was suggested that this could be shown in the matrix under "Approach". It was further noted that the research plan served several purposes not only related to MSC, but also for stock assessment. The need to document the methods of evaluation was reiterated and it was suggested that in addition to populating the "Approach" column of the matrix, working papers could be developed that recorded the various methods used, the conclusions drawn and the justification for recommended actions and decisions. Reference had been made to previous work done, so these papers should be appropriately quoted/cited. It was also pointed out that the R&D plans were geared towards making the countries ready for an improved assessment, hence the R&D plan should be reviewed regularly and gaps identified and addressed.

5.6 Status of Implementation of Research and Development Plan for Guyana

Presentation
Desha Husbands-Spellen presented this item.

The R&D plan contained thirteen items. A brief overview of the objective of each item and a status update (blue text) was provided.

1. *To improve reporting and monitoring system of the seabob fishery* –The objective was to devise ways to improve the collection of accurate data and monitoring of ETP and vulnerable species sightings and interactions; strengthen compliance of fisheries with the move on rule; and promote conservation, development and sustainable management of the fisheries resources for the benefit of the present and future generations. Interventions geared at promoting improved data collection, reporting and monitoring systems included Annual Captain's training, distribution of ETP and vulnerable species booklet and species identification posters; an at-sea observer program; awareness programs; species identification training; and monitoring and enforcement programs (mooring site and on-sea inspections of TEDs and BRDs and CCTV inspections). Areas covered in the Captain's training included the MSC conditions: stock assessment, minimizing environmental impacts (data collection, ETP sighting, handling of and fishery management as well as safety and hygiene. The ETP and vulnerable species booklet, which was distributed to the industry in 2019, contained information on all the rays, sharks and turtle species that were encountered during trawling. The purpose of the booklet was to aid

identification of these animals and completion of the log sheets. The species identification posters, which were kept in the Captains' cabin, also assisted with identification of species. There was an on-sea observer program which began in 2018. Observers collected data on discards, ETP and vulnerable species sighting and interactions; assisted captains to fill out log sheets correctly; and advised about the move on rule. Legal and Inspectorate annual reports (2019) (Fisheries Department), ETP and vulnerable species report (2019) were available.

2. *Fish sampling in the inshore industrial fisheries of Guyana* – Requirement for MSC standard (year 1 Action). This was intended to collect a representative sample of the fish assemblage and provide an unbiased measure of the proportional abundance of each species. During the closed season, three sampling activities were carried out and data on discarded and retained species collected.

3. *Analysis of stingray bycatch in the inshore industrial fisheries of Guyana* – To identify the species of rays that commonly occurred in the inshore industrial fisheries; determine the impact on ray populations from industrial trawling; and determine the general status and stock condition of the rays within the inshore zone. Two trips to sample rays had been conducted and a third trip was scheduled to commence on 05 December 2020.

4. *Monitor effect of changes in fishing gear/practices on CPUE* – This was recommended by the CRFM CSWG and the MSC (Recommendation 1) and was intended to provide information on the changes in fishing gear or fishing practices that might affect catchability and selectivity, as any changes in catchability and selectivity which affected the relationship between CPUE and biomass were important to monitor and understand. There were several ongoing projects that were addressing this, including one aimed at conducting a comparison of two BRDs (fisheye and square mesh window); the data had been collected and was being analyzed. Trials with regard to the number and positions of BRDs on the nets were also ongoing. Experiments with TEDs were conducted in 2018.

5. *Monitor effect of environmental conditions on CPUE* – Both the MSC and the CRFM CSWG recommended the monitoring of particular environmental conditions (e.g., Sargassum influxes, etc.) that might affect catchability and selectivity and hence CPUE. The seabob companies have been monitoring the occurrence of Sargassum with each trip since April 2020, and a report was available.

6. *Digitalization and analysis of logbook data* – This was a recommendation of the CRFM CSWG. Digitized logbook data (along with the VMS and CCTV data) could assist in improving understanding of the catch rates, selectivity patterns and CPUE, as well as the spatial fishing patterns in the two countries. Digitizing and analyzing logbook as well as VMS data could also facilitate comparison of effective effort versus nominal DAS. Companies were gathering the data to be shared with the relevant authorities.

7. *Local scientific sampling to inform development of a suitable maturity ogive* – This CRFM CSWG recommendation was intended to help to determine if the 'Castilho' ogive (Castilho et al., 2015) as currently used in the stock assessment was still applicable. This information will benefit stock assessments. Discussions on how to address this were still ongoing. The option of hiring a consultant to guide this work was being considered.

8. *Review and evaluate the seabob Harvest Control rule (HCR)* - The objective of this research activity was to evaluate whether the current HCR was effective in recommending effort quota in line with MSY. The new HCR was not implemented as yet. It was expected that implementation would commence in 2021.

9. *Report on encounter of Endangered, Threatened and Protected (ETP) species and vulnerable habitats* - MSC condition 2. This was intended to identify the main sources/areas/seasons of encounter (bycatch) of ETP species and propose mitigation measures. In terms of reporting, log sheets have been developed and the annual Captain's training was conducted. There were also at-sea observers to collect the required data and assist in promotion of the move on rule. In terms of mitigation measures TEDs and BRDs were being used.

10. *Bycatch reduction by the use of TEDs and RBDs* – The objective of this was to minimize the effect of seabob trawling on populations of (commercial) fish and their fisheries, as stated in the management plan. Trials with modified TED and BRD were conducted in September 2018 and was ongoing. Conduct various research on fishing gear modifications, such as a field study to test the effectiveness of squared-mesh window BRD used in Guyana Seabob Fishery will be done.

11. *Compliance and enforcement* – Monitoring, control and surveillance to ensure management measures are enforced and complied with. During the period under review, the VMS had failed, however, CCTV data was utilized; rigorous mooring site inspections were done; and, an on-sea surveillance trip was conducted.

12. *Define size composition of 'broken shrimp' category* – CRFM-CSWG recommendation. The exact composition of the 'broken shrimp' category should be assessed to determine the shrimp sizes contained within this group. This information will benefit future stock assessments. This will be addressed in 2021.

13. *Further develop and explore data limited method(s) for stock assessment* – CRFM-CSWG recommendation. Alternate method(s) of analysis should be available for comparison to the 2019 stock assessment results, which would serve to broaden understanding and appreciation of the results and possibly support better convergence of ideas and hence results. Alternate data limited methods were being explored.

Discussion

It was remarked that the R&D plan for Guyana, like Suriname's, was quite comprehensive. More information was presented than was included in the status columns and, in some cases, there appeared to be mismatches. In some instances, e.g., the first item, it would be useful to show how the listed reports addressed the activities. Also, in relation to item 4 - *Monitor effect of changes in fishing gear/practices on CPUE*, there appeared to be some misunderstanding about the purpose of this research activity. This activity was meant to record when TEDs and BRDs were introduced, the number of vessels utilizing BRDs and TEDs, and in which areas. The point that more information on the status of activities was given in the verbal presentation than was recorded in the status column was reiterated, and it was suggested that some further thought could be given to improving the reporting and advancing on the activities.

It was noted that the activities in relation ETP reported under the first item: - *To improve reporting and monitoring system of the seabob fishery,* had been conducted in the 2018 and 2019, and whether there were any new activities in 2020 was queried. By way of response, it was indicated that due to the COVID pandemic, most of the meetings were online and the staff were not allowed in office or the field. Staff began returning to office in August, therefore not much had been done in relation to item 1 this year.

It was further queried whether the Species Identification Guides were being used. The Meeting was informed that the guides were being used and there was also observer data from the observer program, which was restarted in September. Prior to the country being closed as a result of the pandemic, a few trial trips were conducted during the first 3 months of 2020.

Under compliance and enforcement, confirmation was sought on whether there were separate inspections from NOAA. It was indicated that inspections were conducted by local inspectors who worked on a daily basis. It was pointed out that this (local inspectors and reports) should be indicated in the plan. It was also suggested that the SWG chairperson should liaise with the previous SWG chairperson to fully understand the research activities and improve the reporting.

Both Suriname and Guyana were commended for their efforts in providing the status updates on the management plans, the HCRs and the research and development plans. Participants were advised that resource persons (WWF, NOAA, CRFM Secretariat), who were part of this meeting, were available to assist Guyana and Suriname with the R&D plans and the HCR, if required.

Conclusions/Follow-up Actions

Management Plans

1. The Meeting received updates on the seabob management plans from both Suriname and Guyana. These were general updates on implementation of the management plans. It was agreed that the information presented, as well as other available information on status of implementation of the FMPs should be captured in a template and the completed templates appended to this report. It was also agreed that the format of the template could be discussed later (via email). A template similar to the one used for the R&D plan could be considered, or the information could be presented in the format of a management performance measurement framework which provided details on the management objectives, the activities, performance indicators, and status.

Harvest Control Rules

2. In addition to the HCR table included in the presentation, Guyana should provide the graph of the HCR and also the calculation of the HCR should be shown similar to Suriname's.

3. There have been efforts by both countries to estimate the index and use it from month to month to track developments in the seabob fisheries, but testing of the HCR was incomplete. It was important to have the industry's cooperation in testing the agreed HCR as early as possible, so that information could be available to inform evaluation of the HCR. In relation to this, it was agreed to convene a meeting with the stock assessment expert (P. Medley) early in 2021 to discuss the issue pertaining to the HCR and the interpretation of CPUE. New data were very important to improve on the performance of the HCR and the interpretation of the CPUE.

4. Guyana was urged to commence testing and monitoring of the HCR in full very soon. For Suriname, the Fisheries Department and the Seabob Working Group should work with the industry, to the extent possible, to fully implement the HCR.

5. The CRFM Secretariat will reach out to the stock assessment expert regarding the meeting and will coordinate with Guyana and Suriname as the meeting will be convened through the CRFM CSWG. Additional technical experts would also be invited to participate in the meeting.

Research and Development Plans

6. There was need for a clear understanding of the research activities (the original intent and the purpose for doing them) and re-examination of the approaches and reporting. Justification for status statements should be provided and reference papers used in support of stated positions should be properly cited.

7. The need to document the methods of evaluation was highlighted and it was suggested that in addition to populating the "Approach" column of the matrix, working papers could be developed that recorded the various methods used, the conclusions drawn and the justification for recommended actions and decisions.

8. Some mismatches were noted, which indicated a misunderstanding of the original intent. Collaboration with individuals involved during the 2019 assessment was recommended.

9. The CRFM-CSWG should receive quarterly updates of the research plan and an update on the HCR status by the end of February.

The Chairperson invited Mario Yspol, who had prepared and submitted two papers titled, "The CPUE limitations as abundance indicator", and "The Evolution of the Seabob Catch Area from Obara 2000-2019" to make a presentation. M. Yspol indicated that he did not have a prepared presentation, but invited the meeting to review the papers and provide any inputs to him.

The Chairperson thanked Mr. Yspol for his intervention and indicated that further discussions could be had on these issues with the stock assessment expert during the meeting in early 2021, perhaps late January or early February, which will give the two countries a little more time to implement the HCR and to address some of the data requests raised in this meeting.

6. NEXT STEPS

The Working Group reiterated the following recommendations for follow-up work.

- A meeting to be convened with the stock assessment expert (P. Medley) in early 2021 to discuss the HCR. The meeting would be a good opportunity to also discuss the issues with CPUE, difference in fishery performance, seasons (impacts of Sargassum on fishing operations), fishing days at sea, and whether there was any flexibility for the HCR to be adjusted to account for more productive months, etc. The time for the meeting will be determined.

- There was need to decide on when a next stock assessment was possible. It had been thought that perhaps in 2021, but this may not be possible as some data will not be collected until 2021. It was noted that for the stock assessment to be best informed, it would be necessary to attend to some of the research items first. The Working Group, the countries and industry were commended for the considerable amount of work that had been completed so far.

- Common templates will be used for the FMP, HCR and R&D plan for the next CSWG meeting which will be similar to this one and which will be held following the meeting with the stock assessment expert.

7. ADJOURNMENT

Reference was made to an article in the press in Guyana that indicated that additional seabob licenses had been issued and feedback was sought from Guyana about possible implications for the seabob stock. The Guyanese colleagues indicated that they were not in a position to discuss the issue at this time, however, they were able to confirm that additional licenses had been issued. It was noted that such a situation could have implications for management of the fishery as well as MSC certification as there was a cap on the number of licenses under the MSC.

It was agreed that CRFM Secretariat would prepare a press release about the Meeting.

There being no further interventions, the Chairperson thanked everyone for their time and attention, and also for their patience and perseverance through several interruptions to internet connectivity. The Chairperson also wished all a happy holiday season. The meeting was adjourned at approximately 3:10 p.m.

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APPENDIX 2: AGENDA

E-Meeting 2 of CRFM Continental Shelf Fisheries Working Group (CRFM CSWG) on Atlantic Seabob, *Xiphopenaeus kroyeri*, fisheries of Guyana and Suriname

4 December 2020

1. Opening
2. Call to order
3. Admittance of participants
4. Admittance of meeting documents
5. Review the status of implementation of the national fisheries management plans for the Atlantic Seabob fisheries of Suriname and Guyana.

   The seabob working groups of Guyana and Suriname are each expected to submit written progress reports and deliver verbal presentations on the implementation of the national fisheries management plans for their national Atlantic seabob fishery. The reports and/or presentations should include, inter alia, information on:

   a) *Status of addressing MSC conditions and recommendations;*
   b) *Status of implementation of the new HCR;*
   c) *Status of implementation of the research plan.*

   The meeting will review and discuss the reports and presentations, and provide technical guidance and recommendations on the way forward
6. Next steps.

   The CSWG chairperson will facilitate a discussion to agree on the next steps, including the scheduling of the next stock assessment.
7. Adjournment.