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**AQUATIC WILD MEAT**

**AND ACTION PLAN TO ADDRESS AQUATIC WILD MEAT HARVESTS IN WEST AFRICA**

*(Prepared by the Scientific Council and its Aquatic Wild Meat Working Group  
and the Secretariat)*

Summary:

This document reports on progress to implement Decisions 13.64-13.65 and contains a draft Resolution including an Action Plan and draft Decisions for adoption. [It has been revised by the Sessional Committee of the Scientific Council at its 6th session in July 2023.](#)

## AQUATIC WILD MEAT AND ACTION PLAN TO ADDRESS AQUATIC WILD MEAT HARVESTS IN WEST AFRICA

### Background

1. Across many parts of the world, aquatic wild animals, including aquatic mammals, marine turtles, crocodiles, sharks and rays, are hunted or taken opportunistically, and the meat, body parts and/or eggs are consumed for local subsistence or used for traditional purposes. This type of consumption is widespread, in some places has been sustained for millennia, and has been an important source of nutrition, income and cultural identity for some communities. Yet, aquatic wild animals are being increasingly exploited due to a variety of drivers, in some cases resulting in illegal and/or unsustainable exploitation of CMS-listed species. Many of these drivers are common to increased exploitation of terrestrial and avian CMS-listed species, discussed further in [UNEP/CMS/COP14/Doc.30.1.3 Terrestrial and Avian Wild Meat](#). The wider issue of illegal and unsustainable intentional take is discussed in [UNEP/CMS/COP14/Doc.30.1.1 Priorities for Addressing Illegal and Unsustainable Intentional Take](#).
2. [Resolution 12.15 Aquatic Wild Meat](#) was adopted in 2017, reflecting the Parties' concern that the harvest of aquatic wild meat may be detrimental to the immediate survival of certain species and may be one of a number of pressures impacting an even greater number of species, many of them listed on the CMS Appendices. The Resolution established a thematic Working Group dealing with aquatic wild meat, to provide expert advice to CMS Parties, and to recommend actions for Parties, non-Party Range States and other stakeholders, including intergovernmental and non-governmental organizations.
3. COP13 adopted the following two Decisions on this issue:  

*13.64 Decision directed to the Scientific Council*

*The Aquatic Wild Meat Working Group of the Scientific Council should, subject to the availability of resources:*

  - a) *work with the Bycatch Working Group to develop an analysis of the extent of instances where bycatch transitions to aquatic wild meat harvest and report on this for the Scientific Council to provide clear recommendations to the 14<sup>th</sup> meeting of the Conference of the Parties (COP14).*
  - b) *undertake the following tasks over the course of the intersessional period and report to the Scientific Council with clear recommendations for CMS Parties for CMS COP14, ensuring that perspectives of species conservation, human health and sustainable livelihoods are taken into account:*
    - i. *incorporate CMS Appendix I-listed Sharks and Rays into all relevant activities of the working group;*
    - ii. *continue discussions to establish an online knowledge base as a repository of papers (journal articles, meeting documents etc.) and other information related to aquatic wild meat;*
    - iii. *serve as an expert resource for CMS Parties, the Scientific Council and the Secretariat to contribute to the bushmeat/wild meat discussions within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Biological Diversity (CBD), the International Whaling Commission (IWC) and the Collaborative Partnership on Sustainable Wildlife Management (CPW), or when international coordination and cooperation about aquatic wild meat is required;*
    - iv. *explore opportunities for greater engagement with the work of the CPW;*

- v. *develop a criterion for considering if some Appendix II-listed sharks and rays should be included within the scope of the Working Group;*
- vi. *share information with the IWC and participate in future Small Cetacean Subcommittee meetings with a focus on aquatic wild meat;*
- vii. *provide support to the Abidjan Aquatic Wildlife Partnership, where the development of the Action Plan to Combat Trade, Direct Consumption, Illegal Logging, and Other Uses of Endangered, Threatened or Protected Coastal and Marine Species overlaps with the conservation of CMS-listed species in the western African region;*
- viii. *collect and present information about seabird harvests as aquatic wild meat;*
- ix. *develop a sub-regional aquatic Wild Meat action plan for the Gulf of Guinea for consideration by Range State Parties in the region; and develop regional, sub-regional or national actions plans for Range State Parties that request assistance.*

#### 13.65 Decision directed to the Secretariat

*The Secretariat shall:*

- a) *subject to the availability of resources, continue to liaise with the Collaborative Partnership on Sustainable Wildlife Management (CPW) to promote the inclusion of aquatic wild meat in their work;*
- b) *with the assistance of the Working Group, work with the Abidjan Convention Secretariat to ensure synergies between the work of both Conventions on Aquatic Wild meat, in the implementation of CMS COP13 and Abidjan Convention COP13 decisions.*

#### Activities to implement Decision 13.64: Aquatic Wild Meat Working Group

4. The Aquatic Wild Meat Working Group (AWMWG), reporting to the Scientific Council, has addressed most of the tasks assigned to them in Decision 13.64, including building the CMS knowledge base related to aquatic wild meat, supporting the aquatic wild meat discussions of other fora including the Convention on Biological Diversity (CBD), the International Whaling Commission (IWC) and the Abidjan Aquatic Wildlife Partnership, and supporting Range State Parties to develop a West African Aquatic Wild Meat Action Plan. Please refer to Annex 1 for their report, which explains in detail the status of activities.

#### Activities to implement Decision 13.64 b) ix.: Action Plan to Address Aquatic Wild Meat Harvests in West Africa

5. As requested in Decision 13.64 b) ix., the AWMWG has started developing an Action Plan to Address Aquatic Wild Meat Harvests in West Africa. Following consultations with Range State Parties and other local stakeholders, it is proposed that this Action Plan would cover 15 Range States (Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo).
6. A draft of the Action Plan is presented in Annex 3. A consultation process led by CMS partner organization, OceanCare, is under way at the time of writing, involving a series of short online meetings, with interpretation and smaller working group sessions to focus on specific details on behalf of the wider group. This process will enable West African Range States to share experiences about aquatic wild meat harvests and drivers, and to negotiate the substantive detail of the Action Plan. A final one-day in-person workshop, conducted in French and English, is foreseen, to gather national focal points from the West African CMS Parties to finalize the Action Plan, resulting in a revised version for presentation at CMS COP14 for formal adoption.

Activities to implement Decision 13.64 b) ii.: Open access journal papers and recommendations of the Scientific Community

7. In the literature, there has been limited focus on the exploitation of aquatic non-fish animals for food and other purposes. Understanding the scope and potential threat of aquatic wild meat exploitation is an important first step towards appropriate inclusion on the international policy and conservation management agenda. Sharing this information with conservation management agencies was the main driver for Decision 13.64 b) ii.
8. After extended discussion about the development of an online knowledge base, and the recognition that management of the knowledge base over time would become a resource issue, several members of the AWMWG instead worked on a publication on the *Widespread use of migratory megafauna for aquatic wild meat in the tropics and subtropics*, which was published as an open access resource in *Frontiers of Marine Science* in 2022 and is available [here](#).
9. The review directly links to the work of the AWMWG and serves to update information and build confidence through the peer-review process, with conservation management agencies specifically in mind. The review finds that consumption of CMS-listed aquatic megafauna is widespread in coastal regions, although to varying degrees, and that some species are likely to be at risk from overexploitation, particularly riverine megafauna. However, the impact of harvests for aquatic wild meat on the conservation status of source populations can seldom be quantified with any scientific certainty.
10. The *Frontiers* paper identifies a number of recommendations for research, which cover the human dimensions of aquatic wild meat use, including socio-cultural aspects of harvesting aquatic wild meat and the role of taboo systems, to provide insights or management measures that can be respectful of the cultural practices of indigenous peoples and local communities (IPLC); the drivers of the harvest and consumption of aquatic wild meat; and the nutritional roles aquatic wild meat provides, the strengths and weaknesses of alternatives, and the health risks from both.
11. A need for increased quantitative assessments of consumption and trade in aquatic wild meat was identified to better understand demand and trade pathways, as well as increased research into the sustainability of harvests, and the population parameters and science-based management strategies needed to overcome problems, especially in the face of climate change impacts on habitats.
12. Where bycatch is a known problem, designing and testing fishing methods that minimize and ultimately eliminate bycatch mortality should be a priority. Related to this, more research into the use of aquatic wild meat as bait for other commercial fisheries and the possibility of using alternative more sustainable baits is required.
13. A reassessment of the migratory nature of crocodylians (Genera: *Gavialis*, *Crocodylus*, *Mecistops*, *Caiman*, *Melanosuchus*) and freshwater chelonians was recommended, evaluating the potential relevance of CMS to their conservation and management, including whether or not they fit the criteria for inclusion in CMS. Research of migration routes for aquatic megafauna is recommended with a view to better understanding the role of immigration and emigration in populations being used for aquatic wild meat.
14. In terms of policy and action, the paper recommends increased efforts to assess the efficacy of existing legislation with regard to specific aquatic wild meat uses, and the degree to which enforcement capacity alone can address unsustainable uses. Where required, new legislation should be passed to protect species being used unsustainably, with training and capacity-building to ensure enforcement and management staff can

perform tasks efficiently.

15. Another recommendation concerns the implementation of environmental education programmes to raise awareness of the importance and benefits of migratory megafauna, as well as of the laws concerning them. Governments should also investigate whether sustainable tourism can be implemented as a source of income for local communities, in areas where aquatic wild meat harvests and trade are unsustainable.
16. Coordination between CMS and CITES was also recommended for improved regulation and sustainable management of the trade in aquatic wild meat species, where appropriate. At national level, governments were encouraged to establish networks of appropriate experts to foster collaborative efforts to develop regional action plans for reducing unsustainable aquatic wild meat uses.
17. Three other open access journal papers, that are linked to the work of the AWMWG, have been submitted to journals this year (and may be available by October 2023). These three papers focus on pressure and ethnozoology of sea turtle harvest in Benin, and the sociological considerations and forms of use of African manatee in the Ouémé Valley in southern Benin (Decision 13.64, b) ii & iii).

#### Activities to implement Decision 13.65

18. The Secretariat raised the issue of including aquatic wild meat in the work of the Collaborative Partnership on Sustainable Wildlife Management (CPW) at the partners' meeting on 2 July 2022 in Bonn. The matter was discussed extensively and the CPW, at its Strategic Meeting on 26 February 2023 in Dublin, endorsed the following in its Note on Scope of the partnership: "*While the original focus of CPW is on terrestrial vertebrate wildlife in all biomes and geographic areas, it is recognized that, as relevant and necessary, the Partnership may address the broader issues of sustainable use of wild species, beyond terrestrial vertebrate wildlife.*"
19. The CMS Secretariat and consultants engaged with the Abidjan Convention Secretariat, in webinars and side events at international fora. While there is limited staff capacity in either of the Secretariats, both work to ensure synergies between the work of both Conventions on aquatic wild meat are maintained, and keep each other informed of progress.

#### Discussion and analysis

20. Given the concerning levels of use of CMS-listed species for aquatic wild meat, and the fact that CMS is the only global Convention addressing this issue, there is a clear need for work on this threat to continue.
21. The draft Action Plan to Address Aquatic Wild Meat Harvests in West Africa, developed by the AWMWG and undergoing an extensive consultation process in the run-up to COP14, will help governments in a region where this is a growing recognition of the need to address this threat in a cohesive, effective manner.
22. Based on the recommendations for further steps outlined in the report of the Aquatic Wild Meat Working Group ([UNEP/CMS/COP14/Inf.30.1.2](#)), Decisions are proposed outlining the next steps required to advance this work.

Recommended actions

23. The Conference of the Parties is recommended to:
- a) note the Report contained in Annex 1 of this document;
  - b) adopt the draft Resolution contained in Annex 2 of this document, including the Action Plan to Address Aquatic Wild Meat Harvests in West Africa that is annexed to the Resolution (Annex 3);
  - c) adopt the draft Decisions as contained in Annex 4 of this document;
  - d) delete Decisions 13.64 and 13.65.

## REPORT OF THE AQUATIC WILD MEAT WORKING GROUP

### AQUATIC WILD MEAT WORKING GROUP REPORT ON IMPLEMENTATION OF DECISION 13.64

#### Background

1. Across most of the world, aquatic wild animals are hunted or taken opportunistically, and the meat, body parts, and/or eggs are consumed for local subsistence or used for traditional purposes. This type of consumption is widespread, in some places has been sustained for millennia, and has been an important source of nutrition, income, and cultural identity to some communities. Yet, food security pressure in some instances, and economic opportunities to exploit wildlife at higher levels in others, have led to unsustainable exploitation of some CMS-listed species.
2. Resolution 12.15 Aquatic Wild Meat was adopted in 2017 reflecting the Parties' concern that the harvest of aquatic wild meat may be detrimental to the immediate survival of certain species and may be one of a number of pressures impacting an even greater number of species, many of them listed on the CMS Appendices. The Resolution established a thematic Working Group dealing with aquatic wild meat (the Aquatic Wild Meat Working Group, AWM WG), to provide expert advice to the CMS Parties, and to recommend actions for Parties, non-Party Range States and other stakeholders, including intergovernmental and non-governmental organisations.
3. Decision 13.64 directs the Working Group to address specific areas.

#### 13.64

*Decision directed to: Scientific Council*

*The Aquatic Wild Meat Working Group of the Scientific Council should, subject to the availability of resources:*

*a) work with the Bycatch Working Group to develop an analysis of the extent of instances where bycatch transitions to aquatic wild meat harvest and report on this for the Scientific Council to provide clear recommendations to the 14th meeting of the Conference of the Parties (COP14).*

*b) undertake the following tasks over the course of the intersessional period and report to the Scientific Council with clear recommendations for CMS Parties for CMS COP14, ensuring that perspectives of species conservation, human health and sustainable livelihoods are taken into account:*

*i. incorporate CMS Appendix I-listed Sharks and Rays into all relevant activities of the working group;*

*ii. continue discussions to establish an online knowledge base as a repository of papers (journal articles, meeting documents etc.) and other information related to aquatic wild meat;*

*iii. serve as an expert resource for CMS Parties, the Scientific Council and the Secretariat to contribute to the bushmeat/wild meat discussions within the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Biological Diversity (CBD), the International Whaling Commission (IWC) and the Collaborative Partnership on Sustainable Wildlife Management (CPW), or when international coordination and cooperation about aquatic wild meat is required;*

*iv. explore opportunities for greater engagement with the work of the CPW;*

*v. develop a criterion for considering if some Appendix II-listed sharks and rays should be included within the scope of the Working Group;*

*vi. share information with the IWC and participate in future Small Cetacean Subcommittee meetings with a focus on aquatic wild meat;*

*vii. provide support to the Abidjan Aquatic Wildlife Partnership, where the development of the Action Plan to Combat Trade, Direct Consumption, Illegal Logging, and Other Uses of Endangered,*

*Threatened or Protected Coastal and Marine Species overlaps with the conservation of CMS-listed species in the western African region;*

*viii. collect and present information about seabird harvests as aquatic wild meat;*

*ix. develop a sub-regional aquatic Wild Meat action plan for the Gulf of Guinea for consideration by Range State Parties in the region; and develop regional, sub-regional or national actions plans for Range State Parties that request assistance.*

## **Progress Against the Decision 13.64 Work Programme**

4. In pursuit of this work, the Aquatic Wild Meat Working Group (AWM WG) membership has grown steadily since formation, with 30 expert and Party members now involved.
5. The AWM WG has been steadily working to the Decision 13.64 work programme, making strong headway in some areas, and needing more time in others.

### Discussion to establish an online knowledge base as a repository of papers

6. In the literature, there has been limited focus on the exploitation of aquatic non-fish animals for food and other purposes, and what research is being done is often not visible to conservation management agencies. The proposal to explore establishing an online knowledge base for research papers was the main driver behind Decision 13.64, b, ii.
7. After extended discussion about the development of an online knowledge base, and the recognition that management of any system put in place would, over time and with the changing of WG membership, become a resource management issue, a shift in focus took place within the WG. Several WG members worked on a consolidated paper, *Widespread use of migratory megafauna for aquatic wild meat in the tropics and subtropics*, that was published open access in *Frontiers of Marine Science* in 2022. While this paper was not formally a product of the WG and did not go through the Scientific Council process, it did withstand a blind peer review of other scientists and its function was to provide information, not formalise decisions. Given the AWM WG's volunteer expert membership, we believe periodically publishing such papers is an effective path to pursuing Decision 13.64, b, ii and providing useful information to Parties.
8. *Widespread use of migratory megafauna for aquatic wild meat in the tropics and subtropics* consciously links to the work of the AWM WG and serves to update information and with conservation management agencies specifically in mind, building confidence in the presented information through the peer-review process.
9. The paper finds that consumption of CMS-listed aquatic megafauna is widespread in coastal regions, although to varying degrees, and that some species are likely to be at risk from over exploitation, particularly riverine megafauna. However, the impact of harvests for aquatic wild meat on the conservation status of source populations can seldom be quantified with any scientific certainty.
10. The paper identifies the following recommendations for research:
  - a) Studies of the human dimensions of aquatic wild meat use, which are critical for designing effective conservation and management programmes that favour sustainable over unsustainable uses, including;
    - i. contemporary and historical socio-cultural aspects of harvesting and consuming aquatic wild meat, including the role of taboos systems, to provide insights or management measures that can be respectful of [the cultural practices of Indigenous Peoples and Local Communities];
    - ii. the drivers of the harvest and consumption of aquatic wild meat; and
    - iii. the nutritional roles aquatic wild meat provides, the strengths and weaknesses of alternatives, and the health risks from both.



- b) Increased quantitative assessments of consumption and trade in aquatic wild meat to better understand demand and trade pathways;
- c) Increased research into the ecological sustainability of current harvests, and the population parameters, processes, and science-based management strategies needed to overcome problems, especially in the face of climate change impacts on habitats;
- d) Where bycatch is a known problem, to design and test fishing methods to minimise and ultimately eliminate bycatch mortality;
- e) Increased research into the use of aquatic wild meat as bait for other commercial fisheries and the possibility of using alternative baits that can be derived sustainably;
- f) Reassessment of the migratory nature of crocodylians (Genera: *Gavialis*, *Crocodylus*, *Mecistops*, *Caiman*, *Melanosuchus*) and freshwater chelonians and the relevance of CMS to their conservation and management, including whether or not they fit the criteria for inclusion in the Appendices; and,
- g) Research of migration routes for aquatic megafauna with a view to better understanding the role of immigration and emigration in populations being used for aquatic wild meat. (Decision 13.64, b, ii & iii)

11. In terms of policy and action, it recommends:

- a) Increased efforts to assess the efficacy of existing legislation with regard to specific aquatic wild meat uses, and the degree to which enforcement capacity alone can address unsustainable uses;
- b) New legislation to protect species being used unsustainably, with training and capacity building to ensure enforcement and management staff can perform tasks efficiently;
- c) Implementation of environmental education programmes to raise awareness of the importance and benefits of migratory megafauna, and laws concerning them;
- d) Investigating whether sustainable tourism can be implemented as a source of income for local communities, in areas where aquatic wild meat harvests and trade are unsustainable;
- e) Coordination between CMS and CITES for improved regulation and sustainable management of the trade in aquatic wild meat species, where appropriate; and,
- f) Encouraging the establishment of networks of appropriate experts to foster collaborative efforts to develop regional action plans for reducing unsustainable aquatic wild meat uses. (Decision 13.64, b, ii & iii)

12. Three other open access journal papers, that consciously link to the work of the AWM WG, have been submitted to journals this year (and may be available by the COP). These three papers focus on pressure and ethnozoology of sea turtle harvest in Benin, and the sociological considerations and forms of use of African manatee in the Ouémé Valley in southern Benin (Decision 13.64, b, ii & iii).

Providing support to the Abidjan Aquatic Wildlife Partnership and supporting the development of a sub-regional aquatic West African Aquatic Wild Meat Action Plan

- 13. The AWM WG has worked closely with the Government of Benin, the Secretariat of the Abidjan Convention (and Abidjan Aquatic Wildlife Partnership), and NGOs to progress a Western African regional workshop to contribute to the aims Abidjan Aquatic Wildlife Partnership (Decision 13.64, b, vi) and the development of a Wild Meat Action Plan for West Africa. (Decision 13.64, b, ix). The Benin Environment and Education Society (BEES) and OceanCare have invested in regional research to underpin this proposed workshop. (Decision 13.64, b, vi and ix).
- 14. Continuing in our role to 'serve as an expert resource for CMS Parties' (Decision 13.64, b, iii and viii) and 'develop a sub-regional aquatic Wild Meat action plan' members of the AWM WG

have consolidated the science of Aquatic Wild Meat in West Africa (Appendices 2a and 2b, this document) and supported CMS Party Range States with a draft action plan structure to address aquatic wild meat in West Africa. Key members will continue to support CMS Focal Points to elaborate and finalise an action plan that reflects the region's needs.

#### Sharing information with other fora

15. Members of the AWM WG have participated in the International Whaling Commission (IWC) Small Cetacean Subcommittee meetings when there was a focus on aquatic wild meat and the two Working Groups have consciously sought to align their terminology and forward priorities to complement each other's work programmes. (Decision 13.64, b, iii). A brief report of the latest IWC deliberations is provided as Appendix 3 (this document).
16. Members of the AWM WG have provided overarching comment on the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Review of the second order draft of the chapters and the first order draft of the Summary for Policymakers (SPM) of the sustainable use of wild species assessment (Decision 13.64, b, iii). This input reflected CMS documents adopted to date.
17. As work progresses, there is merit in the AWM WG extending collaboration to include COMFAUNA (Wildlife Management Community in the Amazon and Latin America) and their CIMFAUNA (International Congress on Wildlife Management in Latin America) conference; the Sustainable Wildlife Management (SWM) Programme; and the WILDMEAT Project run. Members of our WG are engaged in these foras and our contribution could bring value.
18. The AWM WG has remained available to provide input to the Collaborative Partnership on Sustainable Wildlife Management (CPW).

#### Presenting information about seabird harvests as aquatic wild meat

19. Seabirds are the most threatened groups of birds. A recent review of threats to all seabird species found hunting and trapping, including egg and chick collection to be the fourth biggest threat after invasive species, fisheries, and climate impacts; impacting 27 percent of all seabird species. Unsustainable harvest (both legal and illegal take) was found to be the second major land-based threat in terms of number of species affected. However, despite the potential impact on wild populations, unsustainable harvest as a threat to seabirds globally has not been comprehensively reviewed. Details of the nature and severity of this threat to seabirds are poorly understood, and consequently little has been done to address unsustainable harvest of seabirds. A brief summary is provided as Appendix 1 (this document).
20. Working with the Birdlife family, the AWM WG will seek to present a more detailed analysis of the extent and impact of seabird harvesting for aquatic wild meat, and will present this information to a forthcoming meeting

#### Analysis of the extent of instances where bycatch transitions to aquatic wild meat harvest

21. As reported to SC5, the AWM WG has been unable to progress this proposed analysis of the extent of instances where bycatch transitions to aquatic wild meat harvest (Decision 13.64, a) because the WG member prepared to take it on is no longer available. The Chair has investigated options for progressing this, but nothing has surfaced to date. The issue remains pertinent, but without dedicated funding won't be easily progressed.

## Sharks and Rays

22. Incorporating CMS Appendix I-listed Sharks and Rays into all relevant activities of the working group is now a matter of course, as the need arises. Developing a criterion for considering if some Appendix II-listed sharks and rays has not been progressed and should be carried forward into the new work programme.

### **Proposed forward work programme**

23. When we review the work we've done and the emerging directions before the AWM WG we believe our focus in the coming triennium should be for better networking, bring the issues of aquatic wild meat to the attention of the food security dialogues, and facilitating consideration of the AWM harvest of appendix II-listed shark species, seabirds, crocodylians and freshwater chelonians.
24. Noting the incomplete work from the previous triennium and the proposals from the Frontiers article, *Widespread use of migratory megafauna for aquatic wild meat in the tropics and subtropics*, the following tasks are proposed for the WG's forward work programme:
- a) Serve as an expert resource for CMS Parties, the Scientific Council and the Secretariat to contribute to aquatic wild meat discussions within international science and policy fora, or when international coordination and cooperation about aquatic wild meat is required, including the development of regional, sub-regional or national actions plans for Range State Parties that request assistance. Specifically:
    - i. share information with the IWC Small Cetacean Subcommittee meetings when there is a focus on aquatic wild meat;
    - ii. continue to provide advice to the CMS Secretariat to input to the CPW;
    - iii. collaborate with COMFAUNA, CIMFAUNA, the SWM Programme, and the WILDMEAT Project;
    - iv. support efforts for coordination between CMS and CITES for improved regulation and sustainable management of the trade in aquatic wild meat species;
  - b) Develop a criterion for considering if some Appendix II-listed sharks and rays should be included within the scope of the Working Group;
  - c) Collect and present information about seabird harvests as aquatic wild meat;
  - d) Support the relevant IUCN Specialist Groups to present a case to the Scientific Council for the assessment of the migratory nature of crocodylians (Genera: *Gavialis*, *Crocodylus*, *Mecistops*, *Caiman*, *Melanosuchus*) and freshwater chelonians and the relevance of CMS to their conservation and management, including whether or not they fit the criteria for inclusion in the Appendices;
  - e) Support, as capacity allows:
    - i. studies of the human dimensions of aquatic wild meat use, which are critical for designing effective conservation and management programmes that favour sustainable over unsustainable uses, including:
      - contemporary and historical socio-cultural aspects of harvesting and consuming aquatic wild meat, including the role of taboos systems, to provide insights or management measures that can be respectful of the cultural practices of Indigenous Peoples and Local Communities
      - the drivers of the harvest and consumption of aquatic wild meat;
      - the nutritional roles aquatic wild meat provides, the strengths and weaknesses of alternatives, and the health risks from both.
    - ii. increased quantitative assessments of consumption and trade in aquatic wild meat to better understand demand and trade pathways;
    - iii. increased efforts to assess the efficacy of existing legislation with regard to specific

- aquatic wild meat uses, and the degree to which enforcement capacity alone can address unsustainable aquatic wild meat harvests;
- iv. implementation of environmental education programmes to raise awareness of the importance and benefits of migratory megafauna, and laws concerning them;
- f) Encouraging the establishment of networks of appropriate experts to foster collaborative efforts to develop regional action plans for reducing unsustainable aquatic wild meat harvests.

## Appendix 1: Seabird harvests as aquatic wild meat

1. Seabirds are the most threatened groups of birds (Croxall et al. 2012). A recent review of threats to all seabird species found hunting and trapping, including egg and chick collection to be the fourth-biggest threat after invasive species, fisheries, and climate impacts; impacting 27% of all seabird species (n=97; Dias et al. 2019). Unsustainable harvest (both legal and illegal take) was found to be the second major land-based threat in terms of number of species affected. However, despite the potential impact on wild populations, unsustainable harvest as a threat to seabirds globally has not been comprehensively reviewed. Details of the nature and severity of this threat to seabirds are poorly understood, and consequently little has been done to address unsustainable harvest of seabirds.
2. Seabird harvest can take place at colonies (e.g., Gaston & Robertson 2010; Merkel et al. 2014; Phillips et al. 2016; Mondreti et al. 2018) where seabirds and their eggs are more accessible. There are also records of direct take of seabirds at sea (Bugoni et al. 2008; Alfaro-Shigueto et al. 2016; Frederiksen et al. 2016; Reid et al. 2021), which is separate to the incidental take, or bycatch, of seabirds in fisheries.
3. While some management measures are in place in certain locations (e.g., egg harvest limits; Feare et al. 2007), there is no comprehensive body of evidence from which to make broader management or policy recommendations for addressing overharvest or illegal hunting. Hunting of terrestrial bird species, and more broadly the over-exploitation of terrestrial ecosystems are much better quantified (Cowlshaw et al. 2005; van Vliet et al. 2015).

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## Appendix 2a: A Draft Action Plan to Address Aquatic Wild Meat Harvests in West Africa

1. Across most of West Africa aquatic wild animals are hunted or taken opportunistically, and the meat, body parts, and/or eggs are consumed for local subsistence, used for traditional purposes, or traded for income. Wild meat, including aquatic wild meat consumption is widespread, in some places some wild meat harvests have been sustained for millennia, serving as an important source of nutrition, income, and cultural identity to some communities. Yet, food security pressure in some instances, and economic opportunities to exploit wildlife at higher levels in others, have led to unsustainable exploitation of some CMS-listed species.
2. This [Draft] Action Plan to Address Aquatic Wild Meat in West Africa seeks to focus policy and science attention to these harvests across the region, and where possible take steps towards sustainable management of the activities. In some cases, this will require significant changes in community behaviour. In other cases, communities can provide direction for forward management that both respect local traditions and sustains important aquatic species and their habitats.
3. The [Draft] Action Plan is segmented into four themes:
  - a) Reflecting on known science and identifying scientific gaps
  - b) Understanding drivers and pressures (distant water fleets, internal migrations, ecosystem decline) and forming solutions
  - c) Understanding the intersection between fisheries and environment (domestic and international) and creating stronger linkages
  - d) Fostering community-driven solutions and building laws and enforcement where needed
4. The [Draft] Action Plan [will be/has been] developed through a series of four online workshops addressing each theme and a final face-to-face workshop to build consensus on the whole.
5. [The following straw-man of the Action Plan has been developed by members of the Aquatic Wild Meat Working Group to support CMS Party Range States through these action plan negotiations.]

### Vision

To make tangible progress towards the sustainable management of aquatic wild meat harvesting across West Africa and to secure the conservation status of all impacted CMS-listed species.

### Theme 1: Reflecting on known science and identifying scientific gaps

[insert summary of this theme, as one short paragraph, once the action plan is negotiated and finalised]

**5 year theme goal: To make known science readily available to range states across West Africa and foster the collection of information to fill the scientific knowledge gaps**

Action	Activities	Responsibility	Time frame	Resources needed
1. Consolidate known science impact to CMS-listed species	1.1. Create one-page scientific briefings of known science, by country, with links to published material and in the appropriate language for each country.	[TBA]	2024	Research and writing time
	1.2. Create one-page scientific briefings available to all action plan range states.	CMS Secretariat	2024	Internal Secretariat time

Action	Activities	Responsibility	Time frame	Resources needed
2. Identify and address gaps in scientific knowledge	2.1. Assess the known science against known species distribution in each range state and identify scientific knowledge gaps.	West African Focal Points	2024-2026	Internal agency time
	2.2. Identify and approach key scientific institutions to promote their Action Plan support by conducting key research projects on pressing information gaps such as: a) socio-cultural aspects of harvesting and consuming aquatic wild meat, including the role of taboos systems; b) nutritional roles aquatic wild meat provides; c) quantitative assessments of consumption and trade in aquatic wild meat to better understand demand and trade pathways; d) ecological sustainability of current harvests, and the population parameters, processes, and science-based management strategies needed to overcome problems, especially in the face of climate change impacts on habitats; e) the design and testing of fishing methods to minimise and ultimately eliminate bycatch mortality; f) use of aquatic wild meat as bait for other commercial fisheries and the possibility of using alternative baits that can be derived sustainably; and g) migration routes for aquatic megafauna with a view to better understanding the role of immigration and emigration in populations being used for aquatic wild meat.	CMS Aquatic Wild Meat Working Group	2024	Internal Aquatic Wild Meat Working Group time
	2.3. Encourage the establishment of a network of appropriate experts within the CMS Aquatic Wild Meat Working Group to support Range States with the delivery of the Action Plan.	CMS Aquatic Wild Meat Working Group	2024-2029	Internal Aquatic Wild Meat Working Group time



Theme 2: Understanding drivers and pressures for aquatic wild meat harvest

[insert summary of this theme, as one short paragraph, once the action plan is negotiated and finalised]

5 year theme goal: **To develop a deeper understand of the drivers and pressures for aquatic wild meat harvest to better inform solutions**

Action	Activities	Responsibility	Time frame	Resources needed
3. Better understand the root causes for AWM over exploitation in the region	3.1. Create one page summary of the importance of aquatic wild meat as a local food source in the region with species preferences for some countries	[TBA]	2025	Research and writing time
	3.2. Research and publish the relationship between supply, demand, and the benefit of aquatic illegal wild meat harvesting	AWM WG	2025	Research and writing time
	3.3. Research and publish a better understanding of illegal, unreported and unregulated (IUU) fishing in the region by distant water fleets in relation with food security	AWM WG	2025	Research and writing time
	3.4. Create a one-page summary on the vulnerability of the region aquatic ecosystems to the impacts of climate change and biodiversity loss	[TBA]	2025	Research and writing time
4. Better understand the social, political and institutional drivers for illegal AWM harvesting in the region	4.1. Create a one-page summary, per country, of the socio-ecological systems across the region with focus on traditional wildlife management and governance	[TBA]	2024	Research and writing time
	4.2. Create a one-page summary of the demographic trends as consequence of human population growth and internal human migrations	[TBA]	2024	Research and writing time
5. Disseminate core information to policy makers, fisheries agencies, and wildlife managers across the region	5.1 Gather the summary and published information generated as part of actions 1, 2, 3, and 4, and translate and distribute it across the region	[TBA]	2025	Research and writing time

Theme 3: Understanding the intersection between fisheries and environment (domestic and international) and creating stronger linkages

[insert summary of this theme, as one short paragraph, once the action plan is negotiated and finalised]

5 year theme goal: **To develop a deeper understand of the region’s importance in the world, address the inconsistencies of management, and the opportunities for synergies and better management**

Action	Activities	Responsibility	Time frame	Resources needed
6. Assess the region potential to address global biodiversity loss	6.1. Drawing on the information provided in actions 1 and 5, research further and create a three-page summary of the richness of the region biodiversity and fish stocks, the importance of both elements for food security and economic stability, and the role West African’s aquatic ecosystems play in a broader ecological context	[TBA]	2026	Research and writing time
	6.2. Create a one-page summary of different regional agencies with focus on environment (ECOWAS, AU, ADB, FAO etc) and identify inconsistencies	[TBA]	2026	Research and writing time
	6.3. Create a one-page summary of the regional and domestic agencies opportunity to better address illegal AWM harvesting	[TBA]	2026	Research and writing time
7. Understand the capacity of Multilateral Environmental Agreement (MEA) to combat illegal AWM harvesting	7.1. Create a one-page summary of the mandate of CITES, CMS and the AbC and the roles of Parties and observers	[TBA]	2026	Research and writing time
8. Expand the action plan to reflect the intersections and opportunities	8.1. Meet as a region, electronically, to explore the opportunities for synergies between agencies and expand the action plan accordingly	West African Focal Points	2027	Internal agency time + internal access

Theme 4: Fostering community-driven solutions and building laws and enforcement where needed  
 [insert summary of this theme, as one short paragraph, once the action plan is negotiated and finalised]

**5 year theme goal: To foster community-driven solutions, while also building laws and enforcement capacity where needed**

Action	Activities	Responsibility	Time frame	Resources needed
8. Foster community-driven solutions	8.1. Seek examples of community-driven species conservation and appropriate aquatic wild meat management from across the region	West African Focal Points	2027	Internal agency time + internal access
	8.2. Meet with these communities to find common learnings and solutions that can be applied elsewhere	West African Focal Points	2027	Internal agency time + internal access
	8.3. Repackage the information generated in actions 1, 5, and 6, and translate into appropriate local languages	West African Focal Points	2027	Internal agency time + internal access
	8.4. Develop an intentional programme to disseminate these common learnings to other communities, fostering the wider uptake of community-driven solutions	West African Focal Points	2027	Internal agency time + internal access
9. Increase the level of political commitment to prevent, combat, and eradicate illegal AWM harvesting	9.1. Establish and carry out a comprehensive AWM anti-poaching strategy within each country and as a region	West African Focal Points	2027	Internal agency time + internal access
	9.2. develop a regional plan and strengthen national institutional capacity for efficient and effective enforcement and monitoring of illegal AWM harvesting	West African Focal Points	2027	Internal agency time + internal access
	9.3. Increase protected areas in the region with involvement of local communities	West African Focal Points	2027	Internal agency time + internal access
10. Launch a comprehensive education and communication programme to effectively engage communities in anti-poaching efforts at local and regional levels	10.1. Increase capacity, information, advocacy and public awareness of different community groups at local level	West African Focal Points	2027	Internal agency time + internal access
	10.2. [insert]			
	10.3. [insert]			

## Appendix 2b: Consolidating the Science of Aquatic Wild Meat in West Africa

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Ingram, D.J., Prideaux, M., Hodgins, N., Frisch-Nwakanma, H., Avila, I., Collins, T., Cosentino, M., Keith-Diagne, L., Marsh, H., Shirley, M., Van Waerebeek, K., Djondo, M.K., Fukuda, Y., Glaus, K.B.J., Jabado, R.W., Lang, J.W., Luber, S., Manolis, C., Webb, G.J.W., Porter, L. (2022) *Widespread use of migratory megafauna for aquatic wild meat in the tropics and subtropics*. *Frontiers in Marine Science*, 9, 837447.

1. Globally, especially in the tropics and subtropics, wild animals are captured or taken opportunistically and the meat, body parts, and/or eggs are consumed as food or used for traditional remedies, cultural purposes, and religious ceremonies ([Alves and Albuquerque, 2017](#); [Ingram et al., 2021](#)). Increasingly, products are sold locally, nationally, regionally, and internationally, providing income to many communities ([Coad et al., 2019](#); [Ingram, 2020](#)). When harvests of wildlife are unsustainable, they cause population declines and pose a threat to species' survival ([McCauley et al., 2015](#); [Benítez-López et al., 2017](#); [He et al., 2017](#); [Ripple et al., 2019](#)). Over the past few decades, a vast literature has amassed on the harvest of wild-caught fish and terrestrial animals, which includes quantitative studies of the magnitude and spatial extent of harvests in some regions, sustainability assessments, the human dimensions of wildlife use, and the impact of overexploitation on ecosystems ([Worm et al., 2009](#); [Lynch et al., 2016](#); [Coad et al., 2019](#); [Dobson et al., 2019](#); [Ingram et al., 2021](#)). While the commercial targeting of some taxa has raised serious international concerns (e.g., whaling), there has been limited focus on the exploitation of most freshwater and marine (hereafter “aquatic”) non-fish animals used for food and other purposes.
2. For both terrestrial and aquatic wildlife, the terminology used to discuss harvest (also called “takes” in the wildlife management literature, and “catches” in the fisheries literature), consumption, and trade has changed over the past few decades. In 2000, and largely focussing on terrestrial species, the International Union for Conservation of Nature (IUCN) adopted the term “wild meat” to describe the “meat and other products derived from wild animals for human consumption,” whether legal or illegal, to harmonise terminology across regions ([Mainka and Trivedi, 2002](#)). In 2017, both the International Whaling Commission (IWC) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS) adopted the term “aquatic wild meat,” defined as “products obtained through all forms of take, including unregulated, legal, or illegal hunts as well as deliberate or opportunistic catches from stranded (dead or alive) and/or bycaught (also known as incidental catch) individuals” to similarly harmonise this issue for aquatic non-fish species ([CMS, 2017a,b](#); [IWC, 2018](#)).
3. The consumption of aquatic animals is widespread, and is an important source of nutrition, income, and cultural identity for many communities ([Robards and Reeves, 2011](#)). Harvest levels may be high or low, but many are unregulated and unmanaged. Growing human populations, improved animal hunting and capture methods, expanded market access, and an escalating demand for animal-sourced proteins, has increased exploitation levels and, in some areas for at least some species, unsustainable harvests are now evident ([Milner-Gulland et al., 2003](#); [Cawthorn and Hoffman, 2015](#); [Coad et al., 2019](#)). Overarching guidance regarding aquatic wild meat in international policy remains limited for most species. Understanding the scope and potential threat of overexploitation of aquatic wild meat species is an important first step toward developing effective international and domestic policy.

4. The CMS has provided some guidance on the use of *migratory species*, defined in the Convention text as “the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.” CMS provides a way for countries to cooperate to ensure species’ migrations can still continue without barriers, and to address issues such as habitat destruction and exploitation. In 2017, the CMS Scientific Council established an Aquatic Wild Meat Working Group to focus on the exploitation of aquatic animals ([CMS, 2017b](#)).

## Aquatic Wild Meat Harvest of CMS-listed Species in West and Central Africa

### Cetaceans

5. There is evidence of the use of cetaceans in most countries in tropical Africa, with meat and other body parts used for human consumption, shark bait, traditional medicine, and other purposes ([Van Waerebeek et al., 2003](#); [Clapham and Van Waerebeek, 2007](#); [Weir et al., 2010](#); [Robards and Reeves, 2011](#); [Weir and Pierce, 2012](#); [Cosentino and Fisher, 2016](#)). Dolphins are both intentionally hunted and landed as bycatch in artisanal gillnets, drift gillnets, beach seines, and other fishing gear.
6. The available data from West and Central Africa are limited, but recent records indicate small cetaceans are consumed as food in Benin ([Sohou et al., 2013](#)), Cameroon ([Ayissi et al., 2011, 2014](#)), Guinea (especially Atlantic humpback dolphin, *Sousa teuszii*, and common bottlenose dolphin; [Van Waerebeek et al., 2003, 2017](#); [Bamy et al., 2021](#)), Guinea-Bissau ([Leeney et al., 2015](#)), Nigeria ([Uwagbae and Van Waerebeek, 2010](#); [Van Waerebeek et al., 2017](#)), Republic of the Congo ([Collins et al., 2010, 2019](#)), Democratic Republic of the Congo ([Collins et al., 2019](#)), São Tomé and Príncipe ([Nuno et al., 2023](#)), Senegal and The Gambia ([Maigret, 1994](#); [Murphy et al., 1997](#); [Van Waerebeek et al., 2000, 2003](#); [Leeney et al., 2015](#); [Keith-Diagne et al., 2017](#)), and Togo ([Segniagbeto et al., 2014](#)). Historically whaling was important on the Cape Verde Islands ([Brito et al., 2016](#)), and some consumption of cetacean meat remains. However, while a recent review ([Segniagbeto et al., 2019](#)) indicates instances of consumption of pilot whales and stranded melon-headed whales, and use of teeth for manufacture of local jewellery, there are no signs of any systematic utilisation on the Cape Verde Islands. This conclusion coincides with [Hazevoet et al. \(2010\)](#) who stated that only few bycatches or purposeful catches had come to their attention. Recent evidence also suggests that opportunistic harvest of whales occurs on Annobón (Equatorial Guinea), although rarely, and includes large cetaceans (preferentially calves), such as humpback whales ([Fielding and Barrientos, 2021](#)), and São Tomé and Príncipe ([Brito et al., 2010](#); [Nuno et al., 2023](#)). In Ghana at least 16 cetacean species are used as aquatic wild meat and, in some years, more than one thousand individuals are landed ([Ofori-Danson et al., 2003](#); [Van Waerebeek et al., 2009, 2014](#); [Debrah et al., 2010](#)). In some countries, including Ghana, as demand increased for dolphin meat, for human consumption or shark bait, bycatch gradually transformed into targeted harvesting ([Ofori-Danson et al., 2003](#)). Ghanaian artisanal fishers, operating in Togolese coastal waters, are thought to promote trade and consumption of cetacean meat ([Segniagbeto et al., 2014](#)). Smoked cetacean meat from coastal Togo is traded far from the coast as wild meat in northern Togo, Burkina Faso, Niger, and Mali ([Segniagbeto et al., 2014](#)). In the western most countries, The Gambia and Senegal, dolphin meat and oil is also used in traditional remedies ([Madge, 1998](#); [Leeney et al., 2015](#)). It is likely that cetaceans are consumed throughout the Gulf of Guinea, despite the lack of specific records ([Clapham and Van Waerebeek, 2007](#); [Collins et al., 2010](#); [Robards and Reeves, 2011](#); [Van Waerebeek et al., 2017](#)). The Atlantic humpback dolphin is considered disproportionately impacted by wild meat harvest, because of its small population size ([IWC, 2019](#)), inshore habitat use, and high vulnerability to capture in small-scale coastal fisheries ([Van Waerebeek et al., 2017](#); [Bamy et al., 2021](#)).

## Sirenians

7. African manatees (*Trichechus senegalensis*), distributed exclusively in West and Central Africa, are legally protected in all 21 countries in which they occur. Domestic trade for food, traditional medicine, and other purposes has been recorded historically and continues to some degree in all countries ([Reeves et al., 1988](#); [Powell, 1996](#); [Akoi, 2004](#); [Dodman et al., 2008](#); [Keith Diagne, 2014, 2015](#); [Bachand et al., 2015](#); [Mayaka et al., 2015, 2019](#); [Kamla, 2019](#)). In the past, manatee hunting was conducted by specialised hunters, but more recently also by fishers and generalist hunters. Consumption of bycaught animals also occurs widely in both coastal and inland regions, largely driven by poverty ([Dodman et al., 2008](#); [Bachand et al., 2015](#); [Keith Diagne, 2015](#); [Kamla, 2019](#)). Manatee meat is also sold in markets and restaurants in urban centres, which has increased its commercial value ([Thibault and Blaney, 2003](#); [Fa et al., 2006](#); [Mvele and Arrowood, 2013](#)). Recent surveys show that manatees are used for predominantly for food, but also traditional medicine and medico-magical purposes in the Ouémé Delta wetlands in Benin ([Djondo et al., In Review](#); [Djondo et al., In Review](#)).

## Chelonians

8. Marine turtles are also harvested to different degrees for food and traditional remedies along the West and Central African coast, including The Gambia, Gabon, Guinea-Bissau, Sierra Leone, Ghana, Togo, Mauritania, Benin, Cape Verde, Senegal, Côte d'Ivoire, Guinea, and the Republic of Congo ([CMS, 2000](#); [Thibault and Blaney, 2003](#); [Bal et al., 2007](#); [Freytey et al., 2007](#); [Catry et al., 2009](#); [Hancock et al., 2017](#); [Djondo et al., In Review](#)). Marine turtle exploitation (both illegal, and legal for Urekan people permitted with a quota) is particularly intensive on Bioko Island, Equatorial Guinea (*Lepidochelys olivacea*, *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*), with products sold at local and urban markets ([Tomás et al., 2010](#)), São Tomé and Príncipe (*C. mydas*, *L. olivacea*; [Veríssimo et al., 2020](#)), and Senegal ([McGovern et al., 2021](#)). For example, in São Tomé and Príncipe, 25% of rural and 32% of urban respondents in a survey had consumed marine turtle meat in the past year ([Veríssimo et al., 2020](#)). Catch of marine turtles in Nigeria is estimated to be in the thousands of individuals annually, and high numbers of turtle eggs are harvested ([Lewison and Moore, 2012](#)). Reductions in turtle exploitation in Bioko Island occurred in years when beach patrols were implemented, but this requires consistent funding ([Tomás et al., 2010](#)).

## Chondrichthyans (sharks, rays, and chimaeras)

9. There has been insufficient time to formally review the harvest of Chondrichthyans in West and Central Africa, but harvest is likely considerable and an assessment should be prioritised.

## **Human Dimensions and Drivers of Aquatic Wild Meat Use**

10. The drivers of aquatic wild meat consumption and trade are varied and changing. For some IPLCs, consumption of aquatic wild meat may have high socio-cultural significance ([Delisle et al., 2018](#)), and is a right bestowed under UNDRIP. Food is an important driver of low-level aquatic wild meat harvests in many places yet its nutritional contribution relative to alternatives is rarely quantified ([Olmedo and Farnés, 2004](#)). Increasing market access and integration into cash-based economies changes the dynamics of aquatic wild meat consumption and trade in some areas, and as such the gradient between subsistence use and commercial trade becomes hazy ([Frazier, 1980](#); [Ingram et al., 2021](#)). Subsistence and commercial uses merge insensibly in many of the examples of human consumption reviewed here.
11. The dynamics of aquatic wild meat harvests, use, and trade may change in response to climate change influences on food security and habitats. Declines of fish stocks and terrestrial wild meat may increase dependence on aquatic megafauna in coastal communities with few alternatives, for example cetaceans in West Africa ([Leeney et al., 2015](#); [Van Waerebeek et al., 2017](#)). Fisheries catch potential is predicted to decline over the 21st century under all emissions scenarios, especially in the tropics ([Bindoff et al., 2019](#)), and livelihoods and food



security of communities currently dependent on marine resources are predicted to be adversely affected. An interaction between declining fish stocks and use of terrestrial wild meat has occurred in West Africa ([Brashares et al., 2004](#); [Rowcliffe et al., 2005](#)), hence increased monitoring of the extent of aquatic wild meat use in local contexts could be important.

### Potential Implications for Human Health

12. Most research investigating the human health impacts of consuming wildlife deal with terrestrial wild meat, but some apply to aquatic wild meat. Food and nutrition, often provided to people in relative poverty by wild meat, is fundamental to their health and well-being, and a basic right (Article 25) within the UN Universal Declaration of Human Rights. However, there are clearly health risks associated with wild meat that are context-specific, and include zoonotic pathogens (viruses, bacteria, parasites) and excessive human consumption of heavy metals and pollutants. Recorded Emerging Infectious Disease (EIDs) events, which can influence economies and public health, nationally and internationally, were 60.3% zoonoses ([Jones et al., 2008](#)), with 71.8% originating in terrestrial wildlife, and increasing over time ([Jones et al., 2008](#)). Ebola virus disease ([Greatorex et al., 2016](#)), Avian Influenza A ([Poovorawan et al., 2013](#)), and Middle East Respiratory Syndrome (MERS) ([Cauchemez et al., 2014](#)) are all examples. None of these have been attributed to aquatic wild meat, but they exist side-by-side in many cultures.
13. Fundamental hygiene is a risk factor with all meat consumption, wild or domestic. The consumption of raw or undercooked pinniped or cetacean meat has resulted in bacterial (e.g., salmonellosis and botulism) and parasite (trichinellosis and toxoplasmosis) infections in people ([Bender et al., 1972](#); [Tryland, 2000](#); [McLaughlin et al., 2004](#); [Van Bresseem et al., 2009](#); [Tryland et al., 2014](#)). Reptile meat and eggs, if not subject to inspection and hygienic treatment, can cause bacterial (*Salmonella* spp., *Vibrio* spp.) and potentially parasite infections (Spirometra, Trichinella, Gnathostoma, pentastomids) and biotoxin problems ([Magnino et al., 2009](#); [Cantlay et al., 2017](#)). Heavy metals and pollutants in some chelonian life stages ([Frías-Espéricueta et al., 2006](#)), cetaceans ([Fielding and Evans, 2014](#)), and sirenians ([Marsh et al., 2002, 2011](#)) exceed international food safety standards, and a growing list of bacterial, viral, and fungal agents in marine mammals ([Waltzek et al., 2012](#)) could be problematic. Viable substitutes for wild meat, if they can be afforded, also have a multitude of health risk implications ([Tomley and Shirley, 2009](#)), and clearly further research is needed.
14. The use of aquatic wild meat has definitive health risks that exceed those of substitute meat. Strategies for reducing aquatic wild meat use and consumption may be possible through partnerships between local people, governments, public health professions, veterinarians, and other wildlife managers and ecologists.

### Conservation Concerns

15. Given that the extent of use relative to the size and trends (increasing, decreasing or stable) in the wild source population and rates of immigration and emigration are seldom known accurately, the impact of harvests for aquatic wild meat on the conservation status of source populations can seldom be quantified with any scientific certainty. For example, the harvest of migratory small cetaceans for aquatic wild meat in the Gulf of Guinea, in particular Atlantic humpback dolphin, which meet IUCN Red List criteria for Critically Endangered ([Collins et al., 2017](#)), are assumed to be threatening despite limited information on harvest levels, population size, trends and distribution.
16. For depleted sirenian populations, even a modest harvest for human consumption may constrain the rate of recovery of populations, which are highly sensitive to changes in adult survival ([Marsh et al., 2011](#)). Most local populations cannot withstand human-induced mortality. In Senegal, The Gambia, Nigeria, Cameroon, and Democratic Republic of the Congo, more than 1,000 manatees have been killed by illegal hunting, bycatch, dams and watercraft between 2017 and 2019 ([Keith-Diagne et al., 2019](#)). Aquatic wild meat is a major

motivation for this loss, impacting negatively on most populations.

17. Risks to riverine megafauna from harvest may be particularly high, even if opportunistic, because the risks are compounded by unique threats to riverine species, such as dams, intensive fishing, and pollution where human population density is high ([He et al., 2017](#)). African manatees are considered sensitive to any harvest given low reproductive output and generally small local population sizes, making their use for aquatic wild meat potentially problematic. Riverine megafauna may suffer from a lack of management and research as they are seen as neither terrestrial species nor fish, and the case for increased research and management of riverine and freshwater megafauna is a strong one.
18. Finally, the use of aquatic megafauna for aquatic wild meat is likely to be far more widespread in terms of frequency and species than reported here, especially amongst IPLCs. Monitoring and reporting are limited, and because many of the species are protected by national law, or are charismatic, their use is secretive. The trans-boundary nature of harvests and associated trade of these oceanic, coastal, and riverine species requires international attention and cooperation to be increased. Despite the wisdom of adopting a precautionary approach in the absence of quantitative data on harvest levels, population sizes, and trends for most species used for aquatic wild meat, the case for researching in more depth the harvests that do appear sustainable is a strong one. There is a fundamental difference between assembling information on isolated population dynamics, and studying “dynamic populations” – how populations compensate to sustain uses ([Webb, 2015](#)). CMS has taken an early step, agreeing to progress the development of a sub-regional Aquatic Wild Meat Action Plan for West Africa for consideration by CMS COP14 (Decision 13.64, COP13; [CMS, 2020](#)).

## Conclusion

19. Aquatic wild meat use has been vastly under-researched, despite its critical importance to the conservation, welfare, and sustainable management of aquatic megafauna. The use of aquatic wild meat, especially by IPLCs, has often fallen between the cracks of conservation and fisheries management agencies. Aquatic wild meat is clearly an issue of concern that needs to be addressed openly and transparently, as an important step toward achieving sustainability for both conservation and the many communities across West Africa who depend on it.



### Appendix 3: Update from the IWC Scientific Committee 2023

1. At the 2023 Scientific Committee Meeting of the International Whaling Commission (SC69A) several updates were provided on the use of cetaceans as aquatic wildmeat. Evidence of the hunting and consumption of river dolphins (*Inia geoffrensis*) in the Orinoquia and the hunting and commercialisation of dolphin parts in Ecuador was presented. The first case appears to be a consequence of the COVID-19 pandemic as dolphin blubber was speculated as being a cure for respiratory ailments. Previously, the use of Amazon River dolphin products has been reported for traditional and medicinal purposes as well as bait in the Amazon, Tocantins and Orinoco basins, however, these were occasional reports whereas blubber use for respiratory ailments appears to be occurring consistently.
2. During the period between 2021 and 2023, directed captures of the Orinoco dolphin (*Inia geoffrensis*) were reported in different areas of Venezuela and Colombia and the consumption of dolphin meat was confirmed to be continuing in Bolivar State, Venezuela. The Scientific Committee made several recommendations to tackle these threats for river dolphins. These include;
  - a) developing awareness and environmental education workshops to discourage the hunting and use of dolphins;
  - b) conducting a socioeconomic analysis of the human populations that are making use of dolphin meat to understand the reasons why;
  - c) determining abundance estimates and population trends to determine the impacts to dolphins due to illegal hunting in the Orinoquia.

DRAFT RESOLUTION

**ACTION PLAN TO ADDRESS AQUATIC WILD MEAT HARVESTS IN WEST AFRICA**

*Aware* that across most of West Africa, aquatic wild animals, including marine mammals, marine turtles, crocodiles, and Appendix I-listed sharks and rays, are hunted or taken opportunistically, and the meat, body parts and/or eggs are consumed for local subsistence, used for traditional purposes, or as a source of income,

*Concerned* that, even though some wild meat harvests have been sustained for millennia, serving as an important source of nutrition, income and cultural identity for some communities, exploitation of wildlife at higher levels has led to unsustainable and/or illegal exploitation of some CMS-listed species,

*Recalling* Resolution 12.15 *Aquatic Wild Meat*, which recommends increased cooperation between Parties, non-Party Range States and other stakeholders, including nongovernmental organizations, to increase collaboration and information-sharing to better understand and monitor aquatic wild meat harvests, and to increase scientific knowledge and understanding of the impacts of subsistence use of CMS-listed species as aquatic wild meat on the survival and regeneration of these species, in the context of growing human populations and pressures on wildlife resources and ecosystems,

*Further recalling* the request to the Aquatic Wild Meat Working Group of the Scientific Council to develop a sub-regional aquatic Wild Meat Action Plan for the Gulf of Guinea for consideration by Range State Parties in the region, and *thanking* the Aquatic Wild Meat Working Group for addressing this mandate,

*Recognizing* the support of OceanCare in the implementation of COP mandates related to aquatic wild meat, including leadership on the dialogue process with Range State governments to finalize this Action Plan,

*Noting* the linkages between the Action Plan and other CMS instruments in the region, in particular the Memorandum of Understanding concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, the Memorandum of Understanding concerning the Conservation of the Manatee and Small Cetaceans of Western Africa and Macaronesia, and the Single Species Action Plan for the Atlantic Humpback Dolphin (*Sousa teuszii*),

*Further noting* the link to the work of the Convention on terrestrial and avian wild meat, and to the broader issues of unsustainable and illegal exploitation of CMS species,

*Affirming* the need to address the threat posed to CMS-listed species from use as aquatic wild meat in close collaboration with the Convention for the Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention),

*The Conference of the Parties to the  
Convention on the Conservation of Migratory Species of Wild Animals*

1. *Adopts* the Action Plan to Address Aquatic Wild Meat Harvests in West Africa contained in Annex [...] with the goal of making tangible progress towards the sustainable management of aquatic wild meat harvesting across West Africa and securing the conservation status of all impacted CMS-listed species;
2. *Urges* Parties and *invites* non-Party Range States to implement its relevant provisions;
3. *Calls on* Parties to strive for active collaboration between governmental and non-governmental stakeholders within each range country to maximize the effective use of resources and expertise, to ensure that the results of research and awareness-raising activities can support the design and implementation of effective policy and management;
4. *Further calls on* Parties and other stakeholders to facilitate regional collaboration between stakeholders across the area of application of the Action Plan to ensure that knowledge and experience gained in one country can be used to most effectively implement conservation action in another;
5. *Encourages* Parties and non-Party States to provide technical and/or financial support to activities outlined in the Action Plan;
6. *Invites* other relevant intergovernmental frameworks, in particular the Convention for the Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) and the African Union to take into account the provisions of the Action Plan in the consideration of their activities and to support implementation of relevant Action Plan activities that fall within their mandate, as appropriate;
7. *Instructs* the Secretariat to bring the Action Plan to the attention of all Range States and relevant intergovernmental organizations, and to monitor the implementation of the Action Plan.

## **ANNEX 3**

### **ACTION PLAN TO ADDRESS AQUATIC WILD MEAT HARVESTS IN WEST AFRICA**

NB: The Action Plan to Address Aquatic Wild Meat Harvests in West Africa is presented as a separate file [here](#).

## ANNEX 4

## DRAFT DECISIONS

## AQUATIC WILD MEAT

***Directed to Parties***

- 14.AA Parties are requested to provide technical and capacity-building support to Range States of the Action Plan to Address Aquatic Wild Meat Harvests in West Africa for the implementation of activities outlined in the Action Plan, as well as support as required to the activities of the Aquatic Wild Meat Working Group.

***Directed to the Scientific Council, through its Aquatic Wild Meat Working Group of the Scientific Council***

- 14.BB The Scientific Council, through its Aquatic Wild Meat Working Group, shall:

~~Serve as an expert resource for CMS Parties, the Scientific Council and the Secretariat to contribute to aquatic wild meat discussions within international science and policy fora, or when international coordination and cooperation on aquatic wild meat is required, including the development of regional, sub-regional or national actions plans for Range State Parties that request assistance. Specifically:~~

- ~~i. share information with the International Whaling Commission and participate in future Small Cetacean Subcommittee meetings with a focus on aquatic wild meat;~~
  - ~~ii. continue to provide advice to the CMS Secretariat to input to the Collaborative Partnership on Sustainable Wildlife Management;~~
  - ~~iii. extend collaboration to include COMFAUNA, CIMFAUNA, the Sustainable Wildlife Management (SWM) Programme, and the WILDMEAT Project;~~
  - ~~iv. support efforts for coordination between CMS and CITES for improved regulation and sustainable management of trade in aquatic wild meat species;~~
  - ~~v. continue to publish consolidated papers about aquatic wild meat harvests, and draw these to the attention of the Scientific Council;~~
- a) Develop criteria for considering if some Appendix II-listed sharks and rays should be included within the scope of the Working Group;
  - b) Collect and present information about seabird harvests as aquatic wild meat in collaboration with the Task Forces on illegal take established by Resolution 11.16 (Rev.COP13);
  - c) Collaborate with the relevant IUCN Specialist Groups to present a case to the Scientific Council for the assessment of the migratory nature of crocodylians (Genera: Gavialis, Crocodylus, Mecistops, Caiman, Melanosuchus) and freshwater chelonians and the relevance of CMS to their conservation and management, including whether or not they may fit the criteria for inclusion in the Appendices;

- d) Support, as capacity allows:
- i. studies of the human dimensions of aquatic wild meat use, which are critical for designing effective conservation and management programmes that favour sustainable over unsustainable uses, including:
    - contemporary and historical socio-cultural aspects of harvesting and consuming aquatic wild meat, including the role of taboos systems, to provide insights or management measures that can be respectful of the cultural practices of indigenous peoples and local communities;
    - the drivers of the harvest and consumption of aquatic wild meat;
    - the nutritional roles aquatic wild meat provides, the strengths and weaknesses of alternatives, and the health risks from both;
  - ii. increased quantitative assessments of consumption and trade in aquatic wild meat to better understand demand and trade pathways;
  - iii. increased efforts to assess the efficacy of existing legislation with regard to specific aquatic wild meat uses, and the degree to which enforcement capacity alone can address unsustainable aquatic wild meat harvests;
  - iv. implementation of environmental education programmes to raise awareness of the importance and benefits of migratory megafauna, and laws concerning them;
- e) Encourage the establishment of networks of appropriate experts to foster collaborative efforts to develop regional action plans for reducing unsustainable aquatic wild meat harvests;
- f) Ensure dissemination of information on its work on aquatic wild meat and the resulting recommendations by
- i. sharing information with the International Whaling Commission and participate in future Small Cetacean Subcommittee meetings with a focus on aquatic wild meat;
  - ii. continuing to provide advice to the CMS Secretariat to input to the Collaborative Partnership on Sustainable Wildlife Management;
  - iii. extending collaboration to include COMFAUNA, CIMFAUNA, the Sustainable Wildlife Management (SWM) Programme, and the WILDMEAT Project;
  - iv. supporting efforts for coordination between CMS and CITES for improved regulation and sustainable management of trade in aquatic wild meat species;
  - v. publishing consolidated papers in their individual expert capacity about aquatic wild meat harvests, and drawing these to the attention of the Scientific Council.

~~e)–~~

~~f) Report to the Scientific Council at the 7<sup>th</sup> and 8<sup>th</sup> meetings of its Sessional Committee on the progress in implementing this Decision.~~

### **Directed to the Scientific Council**

14.CC The Scientific Council shall:

- a) Consider the ~~report and~~ recommendations of the Aquatic Wild Meat Working Group submitted to the 7<sup>th</sup> meeting of the Sessional Committee and address

any matters requiring broader Scientific Council attention;

- b) Consider the ~~report and~~ recommendations of the Aquatic Wild Meat Working Group submitted to the 8<sup>th</sup> meeting of the Sessional Committee, and provide advice to the 15<sup>th</sup> meeting of the Conference of the Parties.

***Directed to the Secretariat***

14.DD The Secretariat shall:

- a) Consult with the Aquatic Wild Meat Working Group of the Scientific Council regarding information that should be shared with other international fora, such as the CPW and CITES;
- b) Support the work of the Aquatic Wild Meat Working Group.

## ACTION PLAN TO ADDRESS AQUATIC WILD MEAT HARVESTS IN WEST AFRICA

### ***Directed to Parties***

- 14.EE Parties that are Range States to the Action Plan to Address Aquatic Wild Meat Harvests in West Africa are requested to:
- a) As a matter of priority, address actions marked for immediate implementation, and those for delivery by 2025 and 2026;
  - b) Set up the structures required, for example through the formation of national working groups, to ensure active collaboration between stakeholders within each range country to maximize the effective use of resources and expertise;
  - c) Provide a brief report on the implementation of the Action Plan in time for the last meeting of the Sessional Committee before the 15<sup>th</sup> meeting of the Conference of the Parties (COP15) using a template provided by the Secretariat.

### ***Directed to the Scientific Council, through its Aquatic Wild Meat Working Group of the Scientific Council***

- 14.FF The Scientific Council, through its Aquatic Wild Meat Working Group shall:
- a) Support the Secretariat in the development of a simple reporting template designed to gather basic information on the implementation of the Action Plan;
  - b) Review information provided by Parties on the implementation of the Action Plan and prepare a brief summary and analysis;
  - c) Make recommendations on the further implementation of the Action Plan ~~to~~at the last meeting of the Sessional Committee of the Scientific Council prior to COP15.

### ***Directed to the Scientific Council***

- 14.GG The Scientific Council shall:
- a) Consider the information provided by Parties on the implementation of the Action Plan, as well as the summary and analysis and the resulting recommendations of the Aquatic Wild Meat Working Group;
  - b) Provide guidance on the further implementation of the Action Plan to COP15.

### ***Directed to the Secretariat***

- 14.HH The Secretariat shall develop a simple reporting form in collaboration with the Scientific Council, through its Aquatic Wild Meat Working Group, enabling assessment of progress in the implementation of the Action Plan, and disseminate this to Parties that are Range States to the Action Plan to enable reporting sufficiently in advance of the last meeting of the Sessional Committee of the Scientific Council prior to COP15.