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# IMPACTS OF PLASTIC POLLUTION ON AQUATIC, TERRESTRIAL AND AVIAN SPECIES

*(Prepared by the Secretariat and the Scientific Council)*

Summary:

This document reports on the implementation of Decisions 13.122 to 13.124 - Impacts of Plastic Pollution on Aquatic, Terrestrial and Avian Species, and proposes draft Decisions for adoption.

Rev.1 makes consistent the language in decisions directed to the Scientific Council and standardize the formatting.

# IMPACTS OF PLASTIC POLLUTION ON AQUATIC, TERRESTRIAL AND AVIAN SPECIES

## Background

1. The issue of plastic pollution has been discussed by CMS Parties for many years, with an initial focus on marine debris. CMS COP12 adopted Resolution 12.20 *Management of Marine Debris*, which sought to address knowledge gaps in the management of marine debris, highlight commercial marine vessel best practice, and encourage industry action, public awareness and education campaigns. It also called on Parties to collaborate and adopt necessary policy interventions.

2. In 2020, CMS COP13 adopted Decisions 13.122 to 13.125 - *Impacts of Plastic Pollution on Aquatic, Terrestrial and Avian Species*:

**Decision 13.123 directed to the Scientific Council**

The Scientific Council is requested, subject to the availability of resources, to:

*a) develop a concise report summarizing the status of knowledge on the impact of plastic pollution on CMS-listed species that inhabit in terrestrial and freshwater ecosystems, and submit the report to the Conference of the Parties at its 14th meeting, as well as a summary of existing guidance on measures to address such threats;*

*b) based on the report to be developed under paragraph 13.123 (a), recommend possible next steps for addressing this threat to CMS-listed species;*

*c) collaborate with other scientific mechanisms such as those under the International Whaling Commission, the United Nations Environment Programme and other multilateral environmental agreements to exchange available scientific and other relevant data and information related to the prevention and reduction of the impact of plastics on migratory species, including the report developed under paragraphs (a) and (b).*

**Decision 13.124 directed to the Secretariat**

The Secretariat shall:

*a) strengthen cooperation and work with the United Nations Environment Programme to ensure that the process established under UNEA Resolution 4/6 will contribute to the efforts under Resolution 12.20 Management of Marine Debris to address the impact of marine debris and plastic pollution more broadly on migratory species, in particular by supporting the ad hoc open-ended expert group to identify existing and potential response options;*

b) *subject to the availability of resources, support the work of the Scientific Council pursuant to Decision 13.123*.

## Implementation of Decisions 13.123 a) and b), and 13.124 b)

3. The CMS Secretariat collaborated with the UNEP Regional Office for Asia and the Pacific to develop and implement a project funded by the Government of Japan, which contributed to the implementation of Decision 13.123.

4. The project, “Promotion of Action against Marine Plastic Litter in Asia and the Pacific (CounterMEASURE II)” was a U.S.$5.7-million project aiming at generating, sharing and disseminating scientific knowledge on plastic pollution in the Mekong, Ganges and selected rivers in Sri Lanka and Myanmar to inform policy and decision-making

processes at the local,national, regional and global level. The project had three key results:

Key Result 1: Knowledge on plastic pollution in the Mekong, Ganges and selected Sri Lanka and Myanmar rivers generated to inform policy and decision-making processes.

Key Result 2: Knowledge on plastic pollution in the Mekong, Ganges and selected rivers in Sri Lanka and Myanmar is managed, shared and disseminated.

Key Result 3: National, regional and global policies, alliances and financial mechanisms are informed and influenced by the science on plastic pollution in rivers through best practices demonstrated from the Mekong and Ganges rivers examples. [Para 3. UNEP/CMS/ScC-SC5/Doc.6.4.4]

5. The CMS Secretariat led the Migratory Species Focal Area of CounterMEASURE II, thereby contributing towards the achievement of all three key results. The Secretariat worked with a number of implementing partners to:

   a. Produce a report summarizing the current knowledge on the impact of plastic pollution on migratory species in freshwater and terrestrial ecosystems, with a focus on Asia and the Pacific region (National Oceanography Centre (United Kingdom)).

   b. Assess the level of risk posed by exposure to plastic in the migratory species that occur in the Mekong and Ganges River Basin (Commonwealth Scientific and Industrial Research Organization (Australia).

   c. Conduct research on the scope and impact of plastic pollution in Mekong and Ganges River fauna with a focus on migratory species of freshwater fish (Mekong River Commission Secretariat).

   d. Prepare a monitoring protocol on the impact of plastics on fauna living in the Mekong River Basin (Mekong River Commission Secretariat).

   e. Conduct outreach activities to raise awareness on plastic pollution and its impact on migratory species in the Mekong and Ganges River Basins.

6. Reports received from the implementing partners were evaluated by a Scientific Advisory Group, established to review all outputs from the project. [Para 4. UNEP/CMS/ScC-SC5/Doc.6.4.4]

7. A report was produced entitled *Impacts of Plastic Pollution on Freshwater Aquatic, Terrestrial and Avian Migratory Species in the Asia and Pacific Region*. The Executive Summary and Conclusions can be found in Annex I below, while the full report is contained in UNEP/CMS/COP14/Inf.30.4.5.

8. No further extra-budgetary resources were available to implement Decision 13.123 (a) for regions other than the Asia-Pacific region.

9. An additional report was published by the CMS Secretariat in 2021: *Assessment of plastic hotspots in the Lower Mekong and Ganga River Basins. Priority intervention areas for preventing, combating and removal of plastic in areas important for migratory species. A methodology and risk analysis*.

10. The Secretariat also engaged in a number of outreach activities to highlight the impacts of plastic pollution on migratory species in the Asia-Pacific region: The Secretariat contributed to the COUNTERMEASURE II webpage and numerous communication and outreach materials published on the project website. It produced an online Factsheet on the two published reports, which can be found on the CMS website. Furthermore, the Secretariat participated in a side event at the 5th session of the United Nations Environment Assembly (UNEA-5), as well as conferences, webinars and other events organized by the UNEP Regional Office for Asia and the Pacific addressing plastic pollution in region.

Negotiations for a legally binding global treaty on plastics

11. In March 2022, at the resumption of the 5th session of the United Nations Environment Assembly (UNEA-5.2) a Resolution (UNEP/EA.5/Res.14) was adopted that called for the negotiation of a legally binding global instrument towards ending plastic pollution. An International Negotiating Committee was set up, and the first negotiation session (INC-1) was held in late 2022. INC-2 took place from 29 May to 2 June 2023 in Paris, France.

12. It is important that the new instrument addresses plastic pollution in all ecosystems, not only the marine environment, and that it takes into account impacts on migratory species – such as entanglement – when considering policy options. Plastic alternatives, for example, may still pose the risk of entanglement. Accordingly, the development of this new treaty provides an important opportunity to address the impacts of plastic pollution on migratory species, including recommendations in CMS Resolution 12.20 *Management of Marine Debris*.

'Ghost gear' and fish aggregating devices

13. Items originating from fisheries are a major plastic-related threat for migratory marine species. These include abandoned, lost or otherwise discarded fishing gear (ALDFG), often called 'ghost gear', as well as items purposefully introduced into the marine environment, such as fish aggregating devices (FADs)[1].

14. Resolution 12.20 contains relevant provisions urging Parties to take action on these issues. Regarding ALDFG, it is worth noting that, since the Resolution was adopted, the Global Ghost Gear Initiative, which Parties are encouraged to engage with, has made very significant progress in addressing this problem and expanding the partnership. This multi-stakeholder partnership includes governments, intergovernmental organizations, industry, non-governmental organizations and academic institutions among its members. Key resources include two Best Practice Framework documents, one addressing the management of fishing gear, the other the management of aquaculture gear.

15. FADs are mentioned only once in Resolution 12.20, inviting Parties to MARPOL[2] Annex V to review and improve, if required, provisions regarding the applicability to fishing vessels and deliberate abandonment of FADs and other types of fishing gear that contain plastics. UNEP/CMS/COP14/Doc.27.1.2 *Fish Aggregating Devices* provides deeper insights into the magnitude of the problem and the impacts on migratory marine species.

1 Man-made devices used to attract ocean-going pelagic fish.
2 International Convention for the Prevention of Pollution from Ships

Recommended actions

16. The Conference of the Parties is recommended to:

a) Take note of the Executive Summary and Conclusions of the report, *Impacts of Plastic Pollution on Freshwater Aquatic, Terrestrial and Avian Migratory Species in the Asia and Pacific Region,* contained in Annex 1 of this document;

b) Adopt the draft Decisions contained in Annex 2 of this document;

c) Delete Decisions 13.123 – 13.125

**ANNEX 1**

# IMPACTS OF PLASTIC POLLUTION ON FRESHWATER AQUATIC, TERRESTRIAL AND AVIAN MIGRATORY SPECIES IN THE ASIA AND PACIFIC REGION

*Executive Summary*

1. Plastic pollution is widespread globally. Plastic is inexpensive and widely available, meaning that is commonly used and often carelessly discarded. However, the characteristics of plastics: strong and durable, means that plastics discarded into the environment have the capacity to persist for decades or hundreds of years. Plastic pollution is a particular problem in the region of Asia and the Pacific (hereafter 'the region of interest'), where plastic production and consumption has been increasing, waste management infrastructure is often insufficient, and environmental education is not universal. The two case study rivers within this study, the Mekong and the Ganges, sit among the most polluted rivers globally. Combined, they have an estimated contribution of over 200,000 tonnes of plastic to oceans annually.

2. Across ecosystems in general, and including many species listed in the CMS appendices I and II, there is ample evidence of animal interactions with plastics in the environment, including nest building, entanglement and ingestion. At different levels, these interactions all have the capacity to alter animal behaviours, health, and in some cases, survival.

3. While not all species have been found to interact with plastics, in some cases this lack of evidence is likely due to insufficient research and available information, rather than a real lack of interactions. This is particularly the case for infrequently observed animals such as Snow Leopards, Gobi Bears (also known as Himalayan Brown Bears) and Mekong Giant Catfish (to name only a few). Where evidence is not available for a species in the region of interest, data can sometimes be found for the same species in another region. In this case, inferences can be made as to likely behaviours and traits of the species that would lead to similar interactions in the region of interest, especially given the likely scenario of heavy pollution in this region. Alternatively, where data on certain species are not available, related or comparable species can give an indication of likely interactions and effects.

4. Of the species considered in the region of interest, some are particularly vulnerable to the effects of plastic pollution. For example, the Ganges River Dolphin and the Irrawaddy Dolphin are both endangered, and both susceptible to entanglement in discarded fishing gear, leading often to entanglement and drowning. For mammals in general, the greatest amount of evidence for plastic interactions and ingestion are found for aquatic, rather than terrestrial mammals. Over 80% of the species in Appendices I and II in the region of interest are birds, with a correspondingly large amount of evidence available for bird interactions with plastics. Despite plenty of reports of direct harm or mortality as a result of plastic entanglement or ingestion across a wide range of aquatic and terrestrial species, as yet there is little evidence available on long-term population-level impacts resulting from plastic pollution alone.

5. It is important to note that plastic pollution is not the only issue negatively affecting species in the region of interest. Other factors leading to declines in health, survival and populations as a whole can result from engineering projects (such as hydropower dams, leading to population fragmentation and habitat destruction), overfishing, water abstraction, domestic and industrial pollution, and climate change. Even if plastic

pollution is not the most significant of these stressors, it can add an additional stress to already vulnerable populations.

6. Community engagement and education are key to reducing day-to-day plastic use and improper disposal, in addition to debris-collection campaigns. A number of grassroots community initiatives are already making a difference through education and clean-up operations throughout the Mekong and Ganges River basins. However, real change must come from the top down, and government and industry action towards reducing the volume of plastic that enters the stream of commerce and becomes waste, more effective waste management, recycling, and designing products for a more circular economy will be among the most effective solutions to plastic pollution in the environment.

*Conclusions*

7. Plastic pollution is a well-known global issue, particularly prevalent in the region of interest, comprising Asia and the Pacific. This has led to numerous interactions of animals with plastics, leading from nest construction to entanglement and ingestion. These interactions can have severe effects on individuals including injury, starvation and death. Animals listed within CMS Appendices I and II may be particularly vulnerable to habitat disturbance and pollution in general, due to special habitat requirements, the need for undisturbed and connected migratory routes and, often, limited population numbers (especially Appendix I species). Plastic pollution is therefore adding to this growing list of stressors.

8. Within the region of interest, discarded fishing gear (including nets, ropes and lines) poses a particular threat, with entanglement a particularly widely-reported problem. This is especially the case for aquatic species, but also by terrestrial and avian species who encounter these discarded materials on land. Greater incentives therefore need to be introduced for retaining and repairing fishing gear that may be intentionally discarded, while also attempting to recover accidentally lost or discarded fishing gear from the environment where possible.

9. The potential for plastics to cause harm is a result of a combination of species sensitivity, susceptibility to ingestion, and exposure. Due to the ubiquitous nature of plastics and the wide ranges of migratory species, it is likely that migratory species will encounter and interact with plastics at some point throughout their migration. Whether they will then ingest these plastics depends on feeding habits. While negative effects on individuals as a result of plastic pollution have been observed on multiple occasions, population-level impacts are less prominent and long-term implications are not clear. Where species are Critically Endangered and a small number die as a result of plastic contact, this may still be a significant proportion of the population, thus plastic is significantly detrimental. Where populations are larger, populations are stable and/or interactions are infrequent, negative impacts of plastics on the population as a whole are less likely. It should be noted, however, that plastic pollution is likely to increase in coming years, leading to more frequent exposure of species to plastics at increasing environmental concentrations. It is therefore not yet possible to say whether plastics are causing (or will cause in the future) ecological failures in the region of interest. Continued research will help to identify hotspots and key sources of plastics which can be targeted for reduction and mitigation strategies, in addition to the hazard posed to different species.

10. With respect to reducing possible harm from plastics, particular conservation attention should be paid to species which are known to be especially vulnerable to harm caused by plastic pollution as a result of ingestion or entanglement. This includes a number of Critically Endangered species, which are already under severe pressure, and for which

plastics may pose an unacceptable additional threat. These conservation efforts should involve addressing plastic pollution in selected habitats in which target species live, through development of local wildlife reserves, clean-up efforts, and local governmental or societal initiatives surrounding waste management and collection. Importantly, efforts should be made to prevent the loss of plastic materials to the environment, both in these unique habitats and globally, including education programmes to inform citizens, thus encouraging reuse and proper disposal of plastics.

11. Industry and government both have a significant role to play in controlling the plastic pollution issue. Industry have a responsibility to ensure their products are developed and designed in such a way that they minimize plastics and can be effectively reused and recycled in the countries and locations in which they will be sold. This requires an innovative approach to product design, which is currently lacking across many consumer goods. In many instances, government policies and regulations will be the only option to enact industrial and behavioural change, for example bans, taxes or controls on the manufacture or sale of specific items. However, as evidenced in the case of Bangladesh banning plastic bags, active government enforcement is then essential to ensure that such policies are adhered to.

12. It is clear that a single approach alone will not be sufficient to prevent plastic waste reaching the environment, or to reduce the amount that is already there. Coordinated action and collaboration is therefore essential between local communities, academics, industry, governments and NGOs to tackle the issue from a range of different angles and perspectives.

**ANNEX 2**

DRAFT DECISIONS

**IMPACTS OF PLASTIC POLLUTION ON AQUATIC, TERRESTRIAL AND AVIAN SPECIES**

***Directed to Parties***

14.AA Parties are encouraged to:

a) Fully support the negotiations for a legally binding treaty on plastic pollution currently ongoing in response to UNEP/EA.5/Res.14 *End plastic pollution: Towards an international legally binding instrument* by raising issues of importance to migratory species, taking into account relevant provisions of CMS Resolution 12.20 *Management of Marine Debris* and the recommendations of the report, *Impacts of Plastic Pollution on Freshwater Aquatic, Terrestrial and Avian Migratory Species in the Asia and Pacific Region*;

b) Disseminate the findings of the report, *Impacts of Plastic Pollution on Freshwater Aquatic, Terrestrial and Avian Migratory Species in the Asia and Pacific Region,* within their Governments and among other stakeholders, and take steps to address the conclusions;

c) Engage with the Global Ghost Gear Initiative, in line with the recommendation contained in Resolution 12.20;

d) Encourage further research by academia, research organizations and other relevant stakeholders on the impact of plastic pollution, including microplastics, on marine, freshwater and terrestrial CMS-listed species.

***Directed to Parties, intergovernmental and non-governmental organizations***

14.BB Parties, intergovernmental and non-governmental organizations are encouraged to identify and mobilize financial resources to support activities and initiatives towards combating and removing accumulated marine debris in areas of high importance for migratory species on the basis of the precautionary principle.

***Directed to the Scientific Council***

14.CC The Scientific Council is requested, subject to the availability of resources, to:

a) Noting the work undertaken already with respect to the Asia Pacific region, develop a concise report summarizing the status of knowledge on the impact of plastic pollution on CMS-listed species that inhabit terrestrial and freshwater ecosystems in other regions, along with recommendations to address such threats, and submit the report to the Conference of the Parties at its 15th meeting;

b) Collaborate with other scientific mechanisms such as those under the International Whaling Commission, the United Nations Environment

Programme and other multilateral environmental agreements to exchange available scientific and other relevant data and information related to the prevention and reduction of the impact of plastics on migratory species, including the report developed under paragraphs (a) and (b).

***Directed to the Secretariat***

14.DD The Secretariat shall:

a) Subject to the availability of resources, support the work of the Scientific Council pursuant to Decision 14.CC;

b) Report to the Conference of the Parties at its 15th meeting on the progress in implementing this decision.