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Agenda Item 4.1

REVIEW OF MIGRATORY FRESHWATER FISH

(Produced by Dr. Zeb Hogan, Scientific Councillor for Fish)

Executive Summary

1. Growing evidence shows that freshwater fish species are among the most imperiled in the world (Dudgeon *et al.* 2006, Abell *et al.* 2007, Revenga *et al.* 2005). Recent reviews suggest that 40% of North American freshwater fish and 50% of European freshwater fish are threatened. The situation for migratory freshwater fish may be even worse: one recent study of North Atlantic diadromous fishes showed that “all species had suffered population extirpations” and many species are classified as endangered (Limburg and Waldman 2009).
2. This decline of freshwater biodiversity has led to a call for the international community to consider “all reasonable interventions” to halt biodiversity loss (Abell *et al.* 2007, Dudgeon *et al.* 2007). The need to study and protect freshwater fish has never been more urgent. And while the causes of this biodiversity loss (habitat fragmentation and degradation, flow alteration, overharvest, pollution, and invasive species) are well known, the discussion about – and action toward – protecting freshwater fish, especially migratory freshwater fish, has barely begun (Abell *et al.* 2007).
3. The Secretariat of the Convention on Migratory Species, recognizing the need for action, called upon parties to strengthen measures to protect migratory freshwater fish. As a first step in the process, the secretariat requested a review of the conservation status of migratory freshwater fish to determine which species would benefit from listing on the Appendices of the Convention on Migratory Species.
4. Dr. Zeb Hogan, the CMS Scientific Councilor for Fish, was asked to prepare a review of the conservation status of migratory freshwater fish to determine which species qualify for listing on the CMS Appendices according to their status and conservation needs. This report (Annex I), modeled after the December 2007 Review of Migratory Chondrichthyan Fishes, summarizes the results of the review.
5. The first steps of this assessment were to 1) determine the number of threatened freshwater fish species and 2) determine the number of migratory freshwater fish species. Those lists were then integrated to develop a list of threatened, migratory freshwater fish. Of approximately 15,000 species of freshwater fish, 3,146 have been assessed by IUCN and 1,116

are considered threatened (with an additional 102 extinct and 677 Near Threatened or Data Deficient). Of those 1,116 threatened species, 223 occur in more than one country, making them potential candidates for CMS listing depending on migratory status. Based on data from Fishbase (which lists 1182 species of migratory freshwater fish) and IUCN, thirty-two (32) species meet all criteria: migratory, transboundary freshwater fish unfavorable conservation status. An additional ca 20 species were added to this list based on information from other sources including CMS scientific councilors, the Global Registry of Migratory Species (GROMS), and published primary research.

6. The assessment includes three databases (threatened freshwater fish, migratory freshwater fish, and threatened migratory freshwater fish) as well as an overview of freshwater fish distribution and a review of issues relevant to fish conservation. The databases have been compiled using Microsoft Excel and the integrated database includes ca 50 species of migratory freshwater fish. The data fields in the spread sheet include order, family, genus, species, migratory pattern, IUCN conservation status, and details on the IUCN Red List threat category. More detailed information has been prepared for species which might benefit from CMS listing – some at species, some at genus, and others at family level.

7. It should be noted that knowledge of freshwater biodiversity, especially in Africa, Asia, and South America, is incomplete. Over one hundred new species of freshwater fish are described each year (Lundberg et al. 2000) and of all freshwater fish species only 20% (3000 out of a total of approximately 15000) have been assessed by IUCN. Detailed data on freshwater fish migrations is even scarcer. As a consequence, this review should be considered a work in progress. As more information on the conservation status and migratory behavior of freshwater fish becomes available the database must be updated, with the objective of presenting the most comprehensive data and species lists available at the 10th Meeting of the CMS Conference of Parties in 2011.

Action requested:

- Scientific Council members are invited to consider the preliminary review in Annex I.