Indus river dolphin's declining range

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Indus River dolphins. Credit: Albert Reichert

Removal of river water for irrigation and habitat fragmentation by irrigation dams were shown to be the principal factors contributing to the decline of the Indus river dolphin, according to a study published July 16, 2014 in the open-access journal *PLOS ONE* by Gill Braulik from the Wildlife Conservation Society and University of St. Andrews and colleagues.

Many freshwater marine mammals are endangered due to rapidly

degrading habitat and conservation of these megafauna species depends on maintaining intact habitat. This study used historical range data and information on dolphin presence from fisher interviews to better understand the timing pattern of range decline of the Indus River Dolphin, an endangered freshwater dolphin that inhabits one of the most modified rivers in the world. Additionally, the authors' modeled seven potential explanations of declining range, including date of construction of the nearest dam, dry season river discharge, distance from the edge of the former range and length of river section to identify the factors responsible for the decline.

Results indicate that the historical range of the Indus dolphin has been fragmented into 17 river sections by diversion dams. River dolphins disappeared from ten river sections, still live in six, and are of unknown status in one section. Scientists found that low dry-season river discharge, due to irrigation at diversion dams, was the principal factor that explained the dolphin's range decline and that dolphins were more likely to persist in the core of the former range, likely due to the concentration of water diversions and dams near the range periphery. The authors suggest this study may provide insight in how other river vertebrate populations may respond to planned dams and water developments.

Dr. Braulik added, "This important study shows that it is river habitat fragmentation by dams, and removal of river water for irrigation that has caused the massive range decline of the Indus River freshwater dolphin. This increased understanding of species decline in fragmented river systems is especially important because hundreds of new dams and water developments are planned or are under construction in many of the world's rivers and large losses of aquatic biodiversity can be expected."

More information: Braulik GT, Arshad M, Noureen U, Northridge SP (2014) Habitat Fragmentation and Species Extirpation in Freshwater

Ecosystems; Causes of Range Decline of the Indus River Dolphin (Platanista gangetica minor). PLoS ONE 9(7): e101657. DOI: 10.1371/journal.pone.0101657