



Ghodaghodi Municipality
10900, Sukhad, NEPAL
Tel: +977-091-403055
Fax: +977-091-403205
E-mail: info@riverdolphintrust.org
URL: www.riverdolphintrust.org

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PRESS RELEASE

Maintaining ecological flows is key to protect remaining river dolphins in Nepal, shows new study

Conservation of endangered wildlife while also meeting the development needs of people is highly challenging. It becomes an even more daunting task where decisions have to be made about regulating human development needs for enhancing the ecological conditions that affect the ability of species to survive. Endangered species such as the South Asian River Dolphin in the human-dominated floodplain river systems of South Asia (the Ganga, Indus, Brahmaputra & their tributaries), have to constantly adapt to survive in rivers from which diversion and abstraction of water to irrigate agricultural lands is a need for millions of farmers. Not only that, thousands of fisher folk depend on these rivers for fisheries and share space with river dolphins. As water scarcity and flow allocations to multiple sectors (agriculture, fisheries, conservation) become pressing concerns, ecological studies need to try and understand how interactions between declining river flows and resulting changes in anthropogenic risk (e.g., from fishing) affects riverine species such as dolphins.

In a recent study¹, published in the journal *Biological Conservation*, (online publication on 11 Nov. 2016) researchers at the River Dolphin Trust in Kailali, Nepal, in collaboration with conservation scientists and government officials have addressed the question how decline in river depth caused by irrigation withdrawals led to aggravating the impacts of fisheries on the small river dolphin population in the Karnali River of Nepal. In the paper titled “Irrigation demands aggravate fishing threats to river dolphins in Nepal”, the researchers focused their investigation on the population-level responses of river dolphins to natural flood-induced change in river habitat availability (water depth) and resulting exposure to fishing threats such as accidental entanglement and bycatch mortality. Importantly, this paper is based on collaborative research by eight authors led by Gopal Khanal of the River Dolphin Trust (RDT), and including Dipendra Nath of the RDT, Dr. Maheshwar Dhakal and Ramchandra Kandel of the Department of National Parks and Wildlife Conservation (Nepal), Dr. Keshav Dutt Awasthi of Tribhuvan University - Nepal, Naresh Subedi of the National Trust for Nature Conservation (Nepal), Dr.



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Kulbushansingh Suryawanshi of the Snow Leopard Trust, and Nachiket Kelkar of the IUCN Cetacean Specialist Group.

Based on an integrated analysis of long-term hydrological data (2000-2015) and ground surveys of river dolphins, fishing pressure, and river water depths, the authors of the paper found that in the Karnali river, water abstraction for irrigation during the low water dry season (Nov-Apr) since 2012 aggravated fishing bycatch risk for dolphins, leading to population reduction from 11 to 6 dolphins from 2012 to 2015, and also causing upstream loss of individual dolphins. The authors found that fishing intensity particularly affected dolphin presence negatively at lower depths, as they became more vulnerable to bycatch in these areas.

This is the first study to empirically demonstrate how water abstraction even at a local scale, and even if no dams exist on some rivers such as the Karnali, can affect riverine species in Nepal. Although the Karnali river in Nepalese part is not dammed yet, Government of Nepal has plans to build hydropower projects in the Karnali river, upstream of Chisapani, that will directly affect the current dolphin distribution and habitat. The paper makes a relevant contribution towards conservation planning in this area by identifying mechanisms through which even currently localized and community-based irrigation practices may seriously reduce river flows for ecological and fisheries needs in the Karnali River today. The paper recommends prioritizing action towards securing ecological flows through scenario building exercises for efficiently meeting the needs of agricultural/fisheries production systems and the conservation of endangered biodiversity. The authors believe that urgent attention towards a policy for adaptive management and estimation of ecological flow regimes will be key to averting river dolphin extinction in Nepal's rivers.

Reference:

1. Khanal, G., Suryawanshi, R.K., Awasthi, K.D., Dhakal, M., Subedi, N., Nath, D., Kandel, C.R., & Kelkar, N. 2016. Irrigation demands aggravate fishing threats to river dolphins in Nepal. *Biological Conservation*, DOI: <http://dx.doi.org/10.1016/j.biocon.2016.10.026>

For media contact:

Khanal.joshiipur@gmail.com
+91-9632648370