



Edited by Jennifer Sills

Dams threaten rare Mekong dolphins

R. STONE'S IN DEPTH News story "Dam-building threatens Mekong fisheries" (2 December, p. 1084) explains why the scores of dams planned for the Mekong River are likely to have major impacts on eight of the world's largest freshwater fishes, all of which are already at risk of extinction. Stone does not mention the impacts on a critically endangered freshwater population of dolphins, *Orcaella brevirostris*, estimated to number only 85 individuals in 2010 (1). Although once widespread in the Mekong system, this dolphin's range in the river is now restricted to an area spanning from the main stem from Khone Falls (Pha Phen Falls) near the Laos-Cambodia border to about 200 km downstream in Cambodia.

Dams change the flow and seasonal dynamics of water and sediments that structure both upstream and downstream environments. The net effect is a reduction of the ecological niches available for freshwater biodiversity, including large mobile predators such as the Mekong's dolphins. The proposed dams would block movements of migratory fish and, if built downstream of Khone Falls, fragment the precariously small dolphin population. Local knowledge suggests that the Don Sahong dam under construction in Laos is already affecting the population (2), and the Lower Sesan 2 dam currently being built in Cambodia will have major impacts on dolphin habitat downstream. The proposed Sambor Dam in the Mekong's main stem in Cambodia would also eliminate

habitat and divide the dolphins into two smaller, isolated populations, thereby strongly compromising their chances of survival. These dams threaten to put additional stresses on this rare freshwater dolphin population, which already include incidental fishing mortality, vessel interactions, and historical hunting—a toxic mix that contributed to the recent extinction of China's endemic Yangtze River dolphin, or baiji, *Lipotes vexillifer* (3).

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Photos belong in the taxonomic Code

THE 2015 PUBLICATION of a photography-based description of a new fly species (1) kicked off a debate in the scientific community: Must a new species description

The rare Irrawaddy dolphin (*Orcaella brevirostris*) lives in an ever-shrinking area of the Mekong River.

include a specimen deposited in a museum, or is a photograph sufficient (2–6)? A large group of taxonomists advocate including at least one specimen (2, 4, 6), based on an interpretation of the *International Code of Zoological Nomenclature* (7). Meanwhile, a growing number of scientists argue that, in special circumstances, some taxa can be described without preserved specimens (1, 5). So far, the debate has focused on taxonomical groups for which it is easy to justify requiring a preserved specimen. It is important to consider that for some species, traditional preservation techniques are ineffective.

In the case of soft-bodied meiofaunal animals (small invertebrates that live in marine and freshwater sediments, such as gastrotrichs), specimens deteriorate and most of their diagnostic characteristics vanish soon after preservation. Depositing sharp photographs and movies instead, as has been done in some of the recent records, is informative and long-lasting, allowing a timeless and correct identification of meiofaunal taxa (8, 9). However, the *Code* does not state that movies or photographs can serve as the primary identification for such organisms.

While the current debate focuses on the interpretation of the *Code* itself, biological diversity is being neglected. In a world where new technologies and information exchange are on the rise, scientists should be open to discussing the standard practices in taxonomy and whether they are adequate for diverse biological groups. We suggest a revision of the *Code* to allow museum deposits of good-quality photographs or movies as primary types for meiofaunal organisms whose material types will be inevitably lost. This change would allow valid species descriptions within these groups without violating the *Code*.

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