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When stakeholders speak: co-creating conservation avenues for mangrove-based vector control

In November 2025, a stakeholder meeting was held on the relationship between mangrove forest conservation and malaria, at the Research Institute for Sustainable Development, Dakar, Senegal. Recent research developments were discussed and recommendations co-formulated for preserving healthy mangrove ecosystems to facilitate the natural predation of mosquitoes by fishes as a nature-based solution for human malaria. The participants, based in Senegal and Belgium, included five researchers working in fisheries science, parasitology and vector biology; two policymakers specializing in marine protected areas; one community representative; and four students in animal biology from University Cheikh Anta Diop, Dakar.

Historically, the role of mangrove forests as a breeding ground for malaria vectors motivated their destruction. Although malaria and other diseases transmitted by saltwater-tolerant mosquitoes remain public health threats in tropical and subtropical Africa, the natural predation of disease vectors by fishes may constitute a valuable ecosystem service. Mangrove forests serve as breeding, nursing, feeding and shelter grounds for fishes. When these ecosystems are degraded, the resulting decline in fish threatens to remove this natural biological control.

The meeting focused on how to best synergize research efforts in mangrove conservation and vector predation across disciplines, including vector ecology, epidemiology, fisheries science, parasitology and socio-ecology. Discussions were inspired by presentations from researchers working on the mangrove–malaria relationship, mangrove fisheries and fish pathology, specifically in and around marine protected areas in the Saloum Delta in Senegal.

Participants agreed on the importance of understanding broad-scale associations between mangrove conservation efforts and vector control through natural predation of mosquitoes by fishes. Non-academic participants emphasized the need to translate research results into actionable recommendations for ecosystem, health and fisheries management. A consensus was reached that associations between mangrove conservation, fisheries and malaria need to be tested by monitoring mosquito vectors and their predators in protected areas and by testing vector predation in controlled settings through experimental studies. Participants also discussed the issue of financing basic entomological and fisheries monitoring programmes in the Global South, as funding often relies on resources from high-income countries.

The participants called for further involvement of local communities and community leaders in mangrove and marine conservation. They proposed stakeholder meetings co-organized with conservation and fisheries managers in affected areas, such as the Saloum Delta in Senegal, to communicate research output to workers in the tourism and fisheries sectors. This emphasizes the importance of involving stakeholders in designing and communicating research.

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Hope for the Mekong's rarest megafish

The Critically Endangered Mekong giant salmon carp *Aaptosyax grypus* was thought to be extinct in Cambodia,

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