



Conference Abstract

# DNA-based monitoring for assessing the effect of invasive species on aquatic communities in the Amazon basin of Ecuador

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## Abstract

Ecuador is well-known as one of the most biodiverse countries, but this species richness is being threatened by invasive alien species. The early detection of these invasive species is crucial for their fast and successful eradication and for limiting their effects on aquatic communities. Therefore, a Belgian VLIR-UOS project was started that aims at the development of a fast detection method to monitor the Ecuadorian Amazon river basin for the presence of invasive fishes, macroinvertebrates and amphibians. An (e)DNA field lab, equipped with miniaturized and portable DNA-processing equipment, such as centrifuges, thermal cyclers, and electrophoresis equipment (MiniPCR), was developed. In the next phase, the Nanopore Next-Generation sequencing (NGS) technique (MinION) will be

optimized to enable the eDNA-based biomonitoring of tropical aquatic environments in the field. The fast detection of invasive species may help to prevent their further spread and perhaps even facilitate their eradication, and will promote more effective actions for the conservation of aquatic ecosystems.

Furthermore, new DNA-sequences of amphibians, macroinvertebrates, and fishes are being incorporated into the newly developed Ecuadorian DNA database. We also focus on building and strengthening the capacities of staff and students (Ecuadorian as well as Belgian) through theses, practical courses, field work, trainings and internships.

## **Keywords**

DNA-based biomonitoring, Ecuadorian Amazon River Basin, a field lab, MinION, Invasive species.

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