**New 3D Printed Tool Can Revolutionize Habitat Monitoring**

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The ability to monitor marine and freshwater habitats rapidly and cost-effectively is critical for detecting invasive species and diseases, tracking animals’ range shifts, and understanding the plants and animals that distinguish healthy versus disturbed ecosystems. Monitoring aquatic species can now be accomplished by sequencing DNA from the environment itself; a method called environmental DNA (eDNA). A new collaboration between students and faculty in the University of Alaska Fairbanks Departments of Fisheries and Mechanical Engineering has led to the design of a novel, cost-effective eDNA passive sampling technology (PESCA) which is ready to be launched for mainstream use. PESCA (Passive eDNA and Sediment Collection Apparatus) is designed and tested to be deployed on a floating line or fixed structure and align with ocean and riverine currents while staying suspended in the water column to maximize eDNA retention. PESCA can accommodate a variety of filter types and sizes and is designed to minimize contamination. Importantly, the device is 3D printable with small-scale or industrial 3D printers at a low cost (~$6/unit for materials). Our aim is to revolutionize community science technology and engagement for rapid and affordable aquatic biodiversity monitoring.