fiber sensors, underwater acoustics, biophotonics.I. INTRODUCTION Hydrophones are widely used in aquatic environments for acoustic detection, exploration, and communication [1]–[5].However, the highest resolu– tion optical hydrophones use externally–mounted Fabry–Perot interferometric cavities [1], [2], [4], [6], [9], [10], [18] Intracellular electrical measurements are used in study– ing cell electrophysiology for a variety of applications [19]–[21].Common optical hydrophones include Bragg–gratings [14], fiber–lasers [15], Mach–Zender interferometers [16], and Sagnac interferometers [17].For