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Eutrophication, the environmental e ects of excess nitrogen and phosphorous compounds in water, has the most deleterious e ects on water quality and aquatic species. is is characterized by an uncontrollable growth of algae, and the appearance of hypoxia. e annual economic losses due to eutrophication are measured in billions of dollars and a ect a spectrum of economic activities all over the world. Eutrophication has a largely anthropogenic origin created by industrial farming, emissions from wastewater treatment plants, emissions from power plants, and other industrial activities. e largest majority of nutrient removal plants are planar and demand big and expensive construction area. Furthermore, mixing is inadequate due to their rectangular cross section. In this presentation, we describe the economic and operational advantages of a novel multistage vertical bioreactor, with a high nutrien removal e ciency, installation simplicity and easy scale-up. e bioreactor is especially suited for retro tting nutrient removal plants