



Stony Brook University School of Marine and Atmospheric Sciences

Spring 2014 Lecture Series

Friday, April 4, 2014 7:30 p.m.

Duke Lecture Hall – Chancellor's Hall
Southampton Campus



Dr. Christopher Gobler Stony Brook University

“State of the Bays, 2014: Nitrogen loading, estuarine flushing, and the fate of Long Island’s coastal waters”

This talk will first introduce a new organization, The Long Island Coastal Conservation and Research Alliance (LICCRA), whose mission will be to engage in coastal research and monitoring that can be used to protect and restore Long Island coastal ecosystems. Next, this seminar will highlight recent observations and research important for the conservation of these ecosystems. During the past year, there has been growing awareness among the public, the media, politicians, and scientists regarding the negative effects of excessive nitrogen loading on Long Island’s coastal waters. This attention was partly driven by the continuous outbreaks of red tides, brown tides, rust tides, blue green algal blooms, Ulva blooms, and dead zones in Long Island’s estuaries during May through October of 2013. Concurrently, new research findings emerged to make previously unknown links between excessive nitrogen loading and the intensity and toxicity of both marine and freshwater harmful algal blooms. Further, studies demonstrated that prior research on hypoxic zones that are intensified by nitrogen loading have underestimated the true ecological threat these regions pose to marine life since acidification within these systems has been largely ignore. Finally, new evidence is emerging that estuaries in our region that have successfully reduced nitrogen loading are now enjoying improved water quality and fish habitats. Beyond nitrogen loading, 2013 provided a wealth of evidence that enhanced flushing can protect bays against the threats brought about by excessive nitrogen. Investigations of the New Inlet in Great South Bay demonstrated that regions in close proximity to the breach enjoyed lower nitrogen levels, lower summer temperatures, clearer water, and significantly less intense brown tide blooms. Surveys across all of Long Island’s South Shore Estuary Reserve demonstrated that these are universal benefits of ocean flushing. Conversely, an assessment of decadal monitoring data demonstrated that regions with long residence times and high nitrogen loads are prone to intense toxic algal blooms, low oxygen, and turbid waters. Collectively, these findings provide important guidance towards identifying regions of Long Island most in need of nitrogen mitigation to alleviate environmental threats.

Lecture to be preceded by and followed by student posters and refreshments.