


Reassessing the biodiversity of the Indian River Lagoon

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The Indian River Lagoon (IRL), a unique, highly diverse, shallow-water estuary of national significance, stretches along 156 miles, ~40% of Florida's east coast. The IRL's annual economic value to Florida is estimated to be ~\$7.6 billion (ECFRPC and TCRPC 2016). Urbanization, excessive freshwater releases, degradation of water quality, contaminant loading, loss of habitat, harmful algal blooms, decline of fisheries, and emerging diseases in marine mammals and other biota are increasingly important issues in the IRL (Sigua et al. 2000, Sime 2005, Reif et al. 2006, Taylor 2012, Philips et al. 2015, Lapointe et al. 2015, Breininger et al. 2017), as they are throughout the world's estuaries and coastal waters.

In 1994, an Ad Hoc Committee established by the Indian River Lagoon National Estuary Program (IRLNEP) convened a conference on Biodiversity of the Indian River Lagoon in response to the lack of management planning on this topic. The goal of that two-day conference was to assemble and synthesize information on the status of biodiversity in the Lagoon. That synthesis contributed to management recommendations for inclusion in IRLNEP's initial Comprehensive Conservation

13-14, 2020) at Harbor Branch Oceanographic Institute (HBOI) in Fort Pierce, Florida. The program and abstracts for all presentations are at <http://www.indianriverlagoon.org/symposium.html>.

As pressing as it was to address IRL biodiversity in 1995, the need to do so in 2020 was even greater. In those 25 years, the stressors on the IRL ecosystem accelerated with the rapid population growth on Florida's central east coast. Most conspicuously, since 2011, there have been unprecedented microalgal blooms at both ends of the Lagoon (Phlips et al. 2015, Kramer et al. 2018). Of particular concern is that some of the most intense blooms since 2011 have been species that have not been previously recorded from the Lagoon (i.e., the Texas brown tide organism *Aureoumbra lagunensis* and pico-cyanobacteria). Consequences of these blooms have been substantial, including catastrophic loss of seagrass and fish kills (Phlips et al. 2015, Adams et al. 2019). These events have galvanized public interest leading to some proactive measures (e.g., fertilizer bans throughout the Lagoon, significant citizen-driven restoration efforts in Brevard County). Yet

- What are appropriate indicators and targets to baseline and monitor biodiversity in the IRL?
- What are we managing to? We cannot manage back to the past. Can we develop a future desired state for the IRL?
- If biodiversity is the desired long-term outcome, how do we plan and implement a comprehensive management and stewardship approach that safeguards genetic diversity, species, communities, habitats, and ecosystems?

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