



Indian River Lagoon Study

*with Dr. Kevin Cooper
Director of Applied Research and
Entrepreneurial Activities,
Indian River State College*

**Tuesday
February 17, 2015
12:30 to 1:30 p.m.**

Sign up today!

**Online or to Alexina Alonso
at aalonso@fiu.edu**

For more information contact
the Office of Engagement
at 305-348-7752

Meeting Room Link

<https://connect.fiu.edu/lssffebbruary2015/>

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Purpose: To develop novel optical techniques utilizing drones to characterize water quality within the lagoon

Background: Unfortunately due to a wide spectrum of debatable topics, the water quality in the Indian River Lagoon (IRL), has eroded to critical levels affecting all aspects of the lagoon. This crisis has garnished a lot of local, state, and national attention and a slew of solutions have been proposed. Major organizations such as the Army Corp of Engineers have proposed rerouting the over flow of Lake Okeechobee and St. Johns River and South Florida Water Management propose dredging solutions. However, there is agreement among all the organizations that there is a lack of data to truly understand and monitor the problem. To help with the lack of monitoring and data, the 2014 Florida Legislature approved over \$4M in funding to place discrete real time sensors in the lagoon. Specifically, this funding went to Florida Atlantic University's Harbor Branch Oceanographic Institute and the Ocean Research & Conservation Association (ORCA).

These projects will place close to 100 discrete sensors at strategic spots in the lagoon for real time water quality analysis. Using these sensors, scientific studies will help us find and understand sources to our pollution issues.

However, this is not enough data. Methods need to be developed for real time large-scale analysis of the lagoon in conjunction with these discrete proven sensors.

Description of Work: Indian River State College proposes a project to overcome this challenge. Specifically, this project focuses on developing, testing and deploying a drone based camera sensor that will be able to scan hundreds of miles of the lagoon at one time and record water pollutants levels. This novel technique will overcome many of the challenges of discrete sensors.

A recent article by the Department of Remote Sensing and Photogrammetry from the Geodesy Military University in Warsaw Poland, a leader in camera based sensors, outlined the various proven usage of cameras in large-scale water pollution detection.

IRSC will build off this work to develop optical techniques to study nitrate levels, phosphate levels, temperatures, algae blooms, and turbidity in the lagoon. Nitrate and phosphate levels of the lagoon are two of the most disruptive pollutants and directly relate to fertilizer run off. By studying them, IRSC will be able to understand large-scale effects of fertilizer on lagoon health.

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