



## SENIOR DESIGN PROJECT SYNOPSIS – SPRING 2013

### **ECO-FRIENDLY SHALLOW DRAFT BOAT A PROJECT SPONSORED BY MR. NORMAN WARTMAN**

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#### **Project Description & Objective**

Onyx on the Bay Condominium Association, Inc. is located approximately one mile from a sandy beach in Biscayne Bay along the Intercoastal waterway. The President of the Association approached us with an idea for transporting both residents and tourists directly from the Onyx location to the island by means of a solar powered boat. Such a vessel would both accommodate his desires of making the island more accessible, while ensuring the local/global environment is impacted as little as possible.

#### **Plan of Work and Methodology**

One of the main tasks for this project was locating a manufacturer for full scale construction. As we were the middle men between the manufacturer and the client, consistent correspondence had to be maintained to ensure a clear vision was held throughout. This involved regular meetings, phone calls, e-mails, and a trip up to Tampa to visit with the manufacturer. As a group we worked on the power system that would run the boat, along with performing our own analysis and calculations to ensure the boat design would meet the client's needs. Through division of labor, the calculations were performed, as well as all the research and shopping around for the necessary components of the power system. This research also included literature studies on similar types of boats and technologies already in use. Finally, certain rules and regulations pertaining to the use of the vessel had to be researched and recorded such that no violations would set back the final construction.

#### **Results and Findings**

As for the boat manufacturer, we feel we found the best in Mr. Ralph Brown of Dreamboats Inc., based out of Hudson, FL. We have had regular correspondence with Mr. Brown, reviewing with him the client's desires and coming up with a base design that met the necessary criteria.

The main solar based power constituents include solar panels, batteries, motor, and a charge controller. We wanted to ensure that the optimal system is put in place - one that balances performance, efficiency, life, and of course, cost. The chosen power system was a stand-alone PV-system with battery storage.

#### **Conclusion**

Through the numerous meetings, decisions have been made as to the boat design, layout and power system components. Final details on cost will be made directly between the client and the boat manufacturer. Additionally, such aspects as liability, insurance, proper inspections and licenses are all the responsibility of the client. The expected completion of the boat is by the beginning of summer, 2013.