Objectives

1) To evaluate the performance and sea keeping characteristics of a hydrofoil equipped vessel under a variety of foil configurations, sea conditions, propulsion states and loads.

2) To perform a detailed comparison between a hydrofoil equipped vessel and an identical hull without hydrofoils (under the same conditions).

3) To demonstrate a working knowledge of fluid mechanics, naval architecture, hydrodynamics and the design process.

4) To provide Florida Institute of Technology with a fully upgradeable test bed for future hydrofoil designs.

5) To create future student interest in the Ocean Engineering program at Florida Institute of Technology, by demonstrating the results of applied learning, undergraduate design and fabrication.

Design Outline

Propulsion: 20-30 HP Outboard
Hull: Reinforced Aluminum Launch
Foil Type: Dual Surface Piercing
Foil Arrangement: Non-Split Canard

Design Speed: 30 knots = 55.5 km/h
Design Weight: 650 lb = 295 kg (Including Operator and Gear)
Sensor Package: Accelerometer, GPS
Completion Date: July 2006

Hydrofoil Characteristics vs. Bare Hull

Improved Sea Keeping, Maximum Speed, Fuel Efficiency and Acceleration.
Design Team

Justin Eickmeier
Team Leader
Major: Ocean Engineering, Junior
Focus: Naval Architecture and Submersible Systems

Mirela Dalanaj
Specialization: Design/Drafting
Major: Ocean Engineering, Junior
Focus: Naval Architecture and Small Craft Design

Jason Gray
Specialization: Design/Fluid Mechanics
Major: Ocean Engineering, Junior
Focus: Naval Architecture and High Speed Small Craft

Matt Kotecki
Specialization: Design/Materials
Major: Ocean Engineering, Senior
Focus: Naval Architecture, Yacht Design, Sport Fishing Vessels

Materials, Funding and Sponsorship

The initial stage of this design project has been funded by the Florida Institute of Technology’s Department of Marine and Environmental Science. This funding is sufficient to cover operating and design costs; however, the cost of materials and parts will greatly exceed the provided sum.

As a design team composed of full time students, we are reaching out to members of the engineering and marine community for support.

If you have any questions regarding our project or you are interested in supporting our efforts, please feel free to contact our team leader or supervising professor at your convenience.

Thank You,

OCE Hydrofoil Team

Department of Marine and Environmental Science

Contact Information

Team Leader
Justin Eickmeier
(321)-514-8832
jeickmei@fit.edu
307 West University Blvd
Melbourne, FL
32901

Supervising Professor
Dr. Stephen Wood
College of Engineering
Ocean Engineering Program
(321)-674-7244
swood@fit.edu
150 West University Blvd
Melbourne, FL
32901