Feasibility Study for a Hydrofoil Retrofit of a Catamaran, Part 2
MIDN 1/C C. Graham Tyson
Advisors: William E. Beaver, PE, and Professor Greg White

**Typical HYSUCAT**
- Asymmetrical Hulls
- High Tunnel Height
- Wide Tunnel Width
- High Power

**ERB 41**
- Symmetrical Hulls
- Low Tunnel Height
- Narrower Tunnel Width
- Underpowered

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**Conclusions**
- Current Top Speed of 32 knots
- 40 knots attainable in flat water.
- No performance increase in waves. Tested scale 1 ft and 2 ft regular waves.
- Spray from symmetrical hulls inside tunnel creates non-ideal flow conditions.
- Based on current results, a retrofit is not feasible.

**Relevance to the Navy and Coast Guard**
This concept is obviously highly relevant to the Navy and Coast Guard. A hydrofoil supported catamaran offers greater top speed, fuel efficiency, seakeeping ability and stability. These boats could be utilized as armed patrol and search and rescue craft. It is also feasible to scale this concept up to create a high-speed littoral combatant.

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**Results**
- Available Power derived from full scale trials and top speed, recreated in model testing.
- \( \text{AoA} \ 1 \text{ and } 2 \text{ degrees (red and green) WRT baseline failed due to foil ventilation.} \)
- \( \text{AoA} \ -1 \text{ degree (blue) successful. } 40 \text{ knots possible with current powering.} \)

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**Graph**
- Bare Hull Power Curve
- Available Power
- Model Power (lb-ft/s)
- Ship Speed (kts)
- Data points for 1 degree, 2 degrees, and -1 degree AoA.