HSBO PRESENTATION
GOTHENBURG 2016

15 GOOD REASONS WHY THE TRIMARANS ARE BETTER

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CHEETAH TRIMARAN

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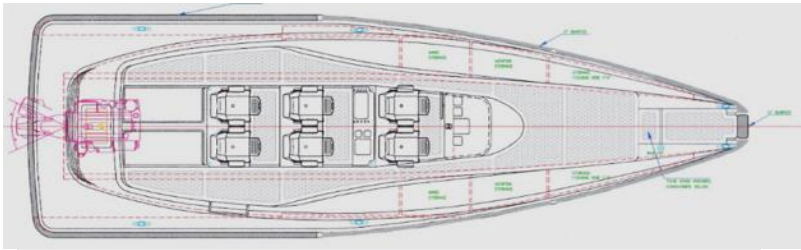
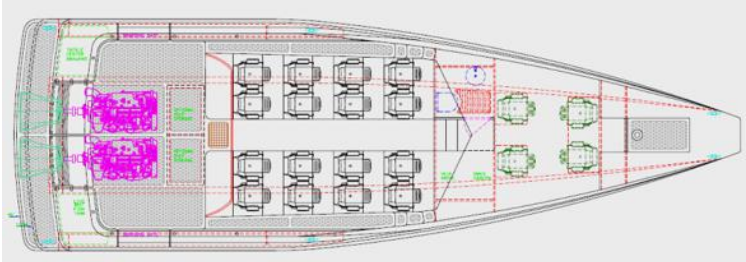
1. HIGHER LIFT TO DRAG RATIO:

- TRIMARAN (3 equal beam hulls) form drag of 48% of an equivalent monohull,
- Form drag 80% of an equivalent wet beam catamaran hull.
- Trimarans are therefore 50% more efficient than monohulls and 21% more efficient than catamarans.

2. PROPULSION:

- Single, Double, Triple engine options
- Less form drag equals less engine power vs equivalent monohull or Catamaran
- Less fuel weight required.
- Equivalent power in monohulls and Catamarans yields higher speeds



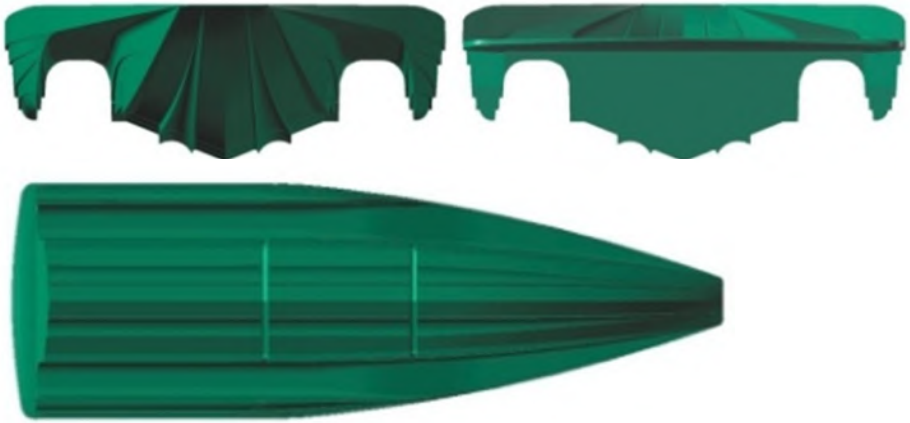


3. AERODYNAMIC LIFT ADVANTAGE:

- Delta (wing) shaped designed lifting body; ground effect produces glide ratio approx 4.5 vs monohull which is less than 1.
- Air entrapment in the hull tunnels becomes aerodynamically significant at higher speeds
- Hull form itself also generates lift.

4. STRUCTURAL REQUIREMENT:

- Increased longitudinal Rigidity with total 6 side walls reduces structural requirements. Reduced Structure adds to reduced weight
- Monocoque hull and deck design become structural elements themselves
- Use of super strong state of the art lightweight carbon / kevlar / titanium epoxy composites reduces structural requirement



5. BETTER RIDE:

- Eliminates Cork Screw motions common in catamarans with 3rd hull
- Narrower hulls can absorb incoming waves more effectively rendering a softer ride.
- By adding steps (6 pads) the trim angle is reduced resulting in a more fuel efficient ride.
- A wider beam gives more lateral support. Roll damping becomes a design anomaly.
- Aerodynamic lift at higher speeds stabilizes the vessel
- No Porpoising

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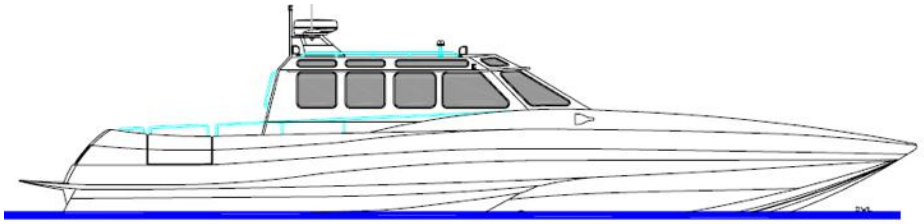
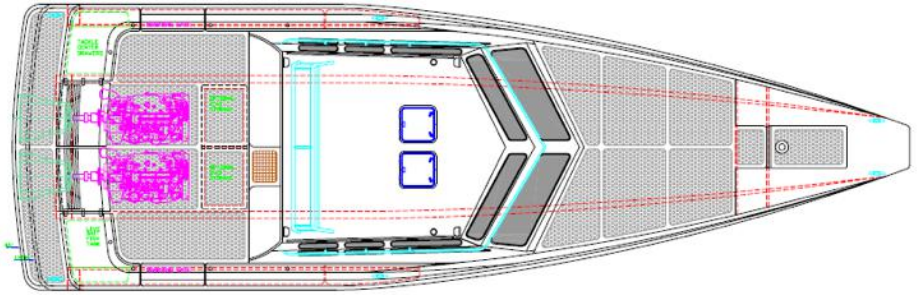
6. LARGER USABLE AREA:

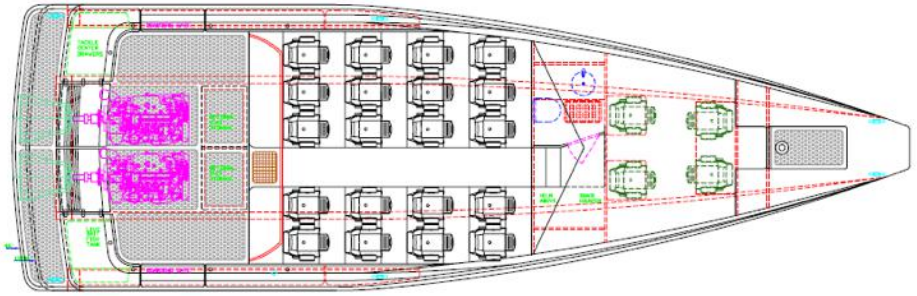
TRIMARANS with wider beams equals larger deck area with streamlined look.





7. IMPROVED CONTROLLABILITY:

The Tri-hull and 6 sides – directional stability is superior with less tail sliding.
Turns are smooth and controlled.

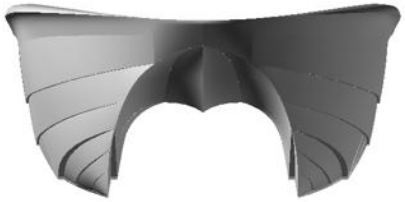


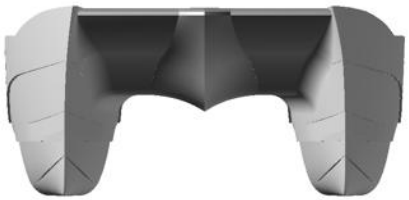
8. HIGHER SEA STATE OPERATION:

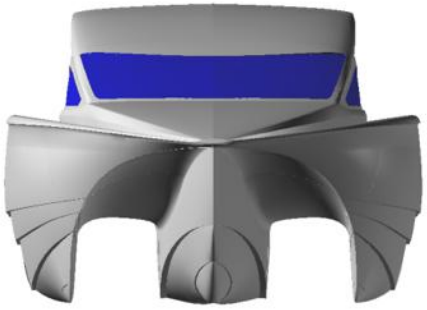
- Skinny triple hulls and sharp bows slice through waves reducing upwards vertical accelerations when compared with of catamarans and monohulls.
- Trimarans can operate more smoothly in higher sea states at higher cruising speeds

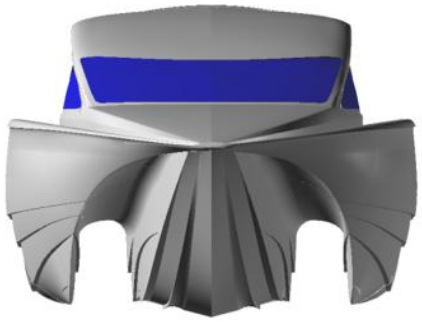
9. REDUCED VERTICAL ACCELERATION (SLAMMING):

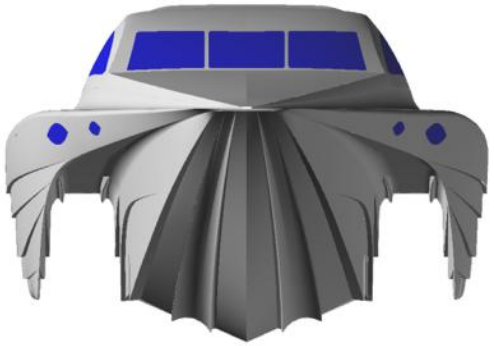
- Waves dissipation occurs in the tunnel spaces between the hulls drastically reducing vertical accelerations and G forces
- Long slender hulls with wider and high tunnel clearances
- Deep Vee design can also decrease slamming











10. UNPARALLELED HIGH SPEED SAFETY:

- The delta shaped configuration of the hull renders a '*mushed*' forward motion like a delta winged aircraft (Space Shuttle)
- Center of Lift of delta close to center of gravity of hull (Catamarans – Center of lift far ahead of Center of gravity – causing boats to flip at high speeds)

11. TRIPLE HULL SAFETY:

- Triple hulls can have 4 to 6 water tight compartments making the boats unsinkable
- Composite reinforced hulls and center hull fuel tanks can render trimaran 'bullet proof'

12. ENVIRONMENTALLY FRIENDLY:

- Trimarans produce lower wakes in general
- Wake dissipation / dampening between side and main hull
- Narrow hulls produce less wakes

13. MULTIPLE BOAT DESIGN & MATHEMATICAL VARIABLES

- 22 distinct variables to play with.
- More ways to optimize results when investigating specific design criteria
- Multiple deck design choices are also available due to the large deck size allowing greater flexibility to plan spaces effectively.

14. BEST OPTION FOR UNMANNED USV BOAT:

- At very high speeds, the delta shaped trimaran is the most stable platform in existence.
- Trim angles variations are reduced due to the lift and LCG positions being close.
- (Mono-hulls react more vigourously in waves; Catamarans have the tendency to flip over its longitudinal axis at very high speeds as do hydroplanes)
- The Trimaran is therefore the best candidate for a USV.

15. WOW FACTOR:

The delta shape renders highly desirable and attractive design characteristics similar to that of a jet fighter aircraft.

NOTE: Carbon / Kevlar / Titanium produces a very stiff hull

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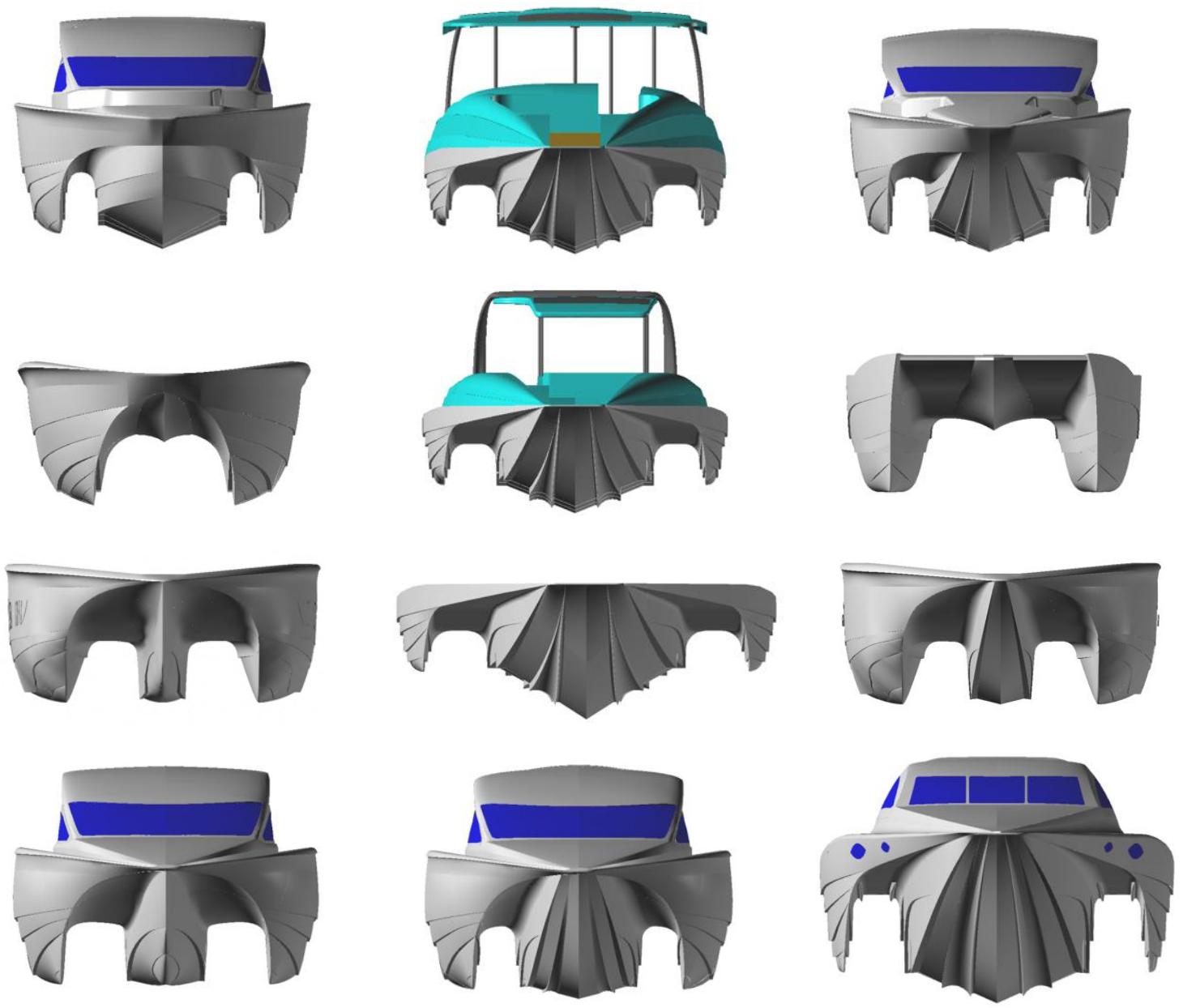

Thank you

Questions?