



Seaborne Composites Coalition



Office of Force Transformation

The small...

The fast...

and the many....

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Outline



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- Background / Participation to Date
- Development of WolfPAC / SCC
 - Military – Network Centric Warfare
 - Commercial – High Speed, Short Sea Shipping
- Goals of SCC
- Stiletto Operational Surrogate



SCC Background



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- Start Fall 2004
- Workshops in DC
- Key Participants
 - OFT
 - ONR
 - MARAD
 - NSWCCD
 - CCDoT
 - Sourcing Solutions (UK)



Assuring U.S. Security

...OFT's Objectives



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- **The U.S. must have access to remote but populous regions of the globe to guarantee our freedom.**
 - *U.S. Security is not assured by protecting only our Nation's borders.*
Secure strategic access and retain global freedom of action.

Donald H. Rumsfeld, National Defense Strategy, 01 March 2005



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- 1. That security requires development of smaller, faster, more adaptive vessels for highly effective engagement of an allusive adversary.*
- 2. Making these systems work will require a whole new technological and operational Command & Control approach to warfare.*
- 3. Most importantly, To develop these new, reconfigurable vessels and forces requires an industrial base able to produce them.*



Shifting Security Environment

Competing in the “Contested Zones”



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- ***More Complex contingencies, More competitors & Broader mission range***
 - Mixing humanitarian, peacemaking and high intensity combat against...
 - Highly networked societies, hiding in plain sight, and retreating into a...
 - ***“Three Block War” – a complex distributed adaptive operation***
- ***Greater need to deter forward, respond rapidly and operate dispersed***
 - To defeat or avoid anti-access / ambiguous threats requires a...
 - New employment posture, ability to operate interdependently and have the...
 - Capacity to self-organize and rapidly build coalitions
 - ***In order to...Compete in the “Contested Zones” of the littorals & urban areas***

Complexity, Adaptability and Transaction Rates Matter



Wolf PAC / Stiletto



Distributed Adaptive Operations

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- ***Forces operating in a non-contiguous battlespace need a coherent strategy to “control” large numbers of dispersed assets***
 - Distributing those assets geographically, loosely federated by networks increases the complexity of these controlling challenges
 - *Coordinating effects and commanding individual capabilities has always been a challenge for commanders.*
 - *Leveraging information age phenomena is a growing prerequisite*
 - *A concerted effort must be made to understand the behavior and effects of large numbers of maneuvering assets in a networked environment*
 - Wolf PAC as an experimental venue
 - *Serves to resolve some of the tactical & operational networked C2 challenges*
 - Wolf PAC operational experiments
 - *Will use a wide variety of surrogates and investigate whether a new approach to C2 can be engineered practically and advanced operationally for SOCOM*



Wolf PAC / Stiletto

Distributed Adaptive Operations



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- **Stiletto – High Speed Composite fiber Craft**
 - *Designed to explore the scalability of non-mechanical dynamic lift, composite construction technology, high-speed performance for military operations*
 - *Not meant to replace or compete with capital ships of the line – intended to create capital potential in every hull*
- **Electronic Keel – Maritime Data Bus**
 - *Facilitate rapid mission/payload reconfiguration necessary for SOF-like forces to deploy, modify and tailor capabilities to emerging challenges*
- **Command & Control of Autonomous Systems**
 - *Technological and operational means to command & control large numbers of autonomous unmanned Systems (>50)*



Wolf PAC



Distributed Adaptive Operational Experiments

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- ***Operational experiment for Distributed Operations.***
 - Command & Control of networked-enabled forces, geographically dispersed
 - Coordinate with Coherence large numbers of autonomous & semi-autonomous assets and Heterogeneous Sensors
 - Collaborative & co-evolutionary initiative to leverage the contributions of many for coherent national purpose
- ***High numbers of fast, modular, smaller scale surrogates***
 - High numbers of co-evolutionary cycles
- ***Total system approach***
 - Architectural relationships – *rules for how things fit together*

*Provide a venue to develop operational experience with
Distributed Operations*



Increase Learning Rates



Concept to Operational Capability in 18 months

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- *Experiment w/ new materials & hull forms to broaden seaborne capabilities*
 - Reduce crew injury
 - *Improve ride quality*
 - Lower operating costs
 - *Operational & Commercial Viability*
 - Increase high-speed performance and payload fraction
 - Decrease draft / wake & fully characterize performance
 - Explore new methods of production with composite materials
 - Create new analytic tools to validate designs
 - *Fidelity of design to build (useful CFD models)*



National Competitive Advantage

Seaborne Composite Coalition



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- ***Expand the Industrial Base for National Competitive Advantage***
 - Advance National Competitive Strategy for US shipbuilding capabilities.
 - Catalyze public – private partnerships
 - *Between Government, Industry and Academia*
 - *Team with diverse partners ... and leverage advances abroad*
 - ***to create American global competence***



Design & Construction Competencies *Seaborne Composite Coalition*



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- *Develop new competencies for the design and production of modular, lightweight, high-speed vessels*
 - Techniques with Composite Materials
 - Validate Computational Methods to Propel Large Composite Vessels at High Speeds
 - Decrease Power Demands for Increased Performance and Lowered Operating Costs



Stiletto (M-Ship Co)

...Operational Surrogate



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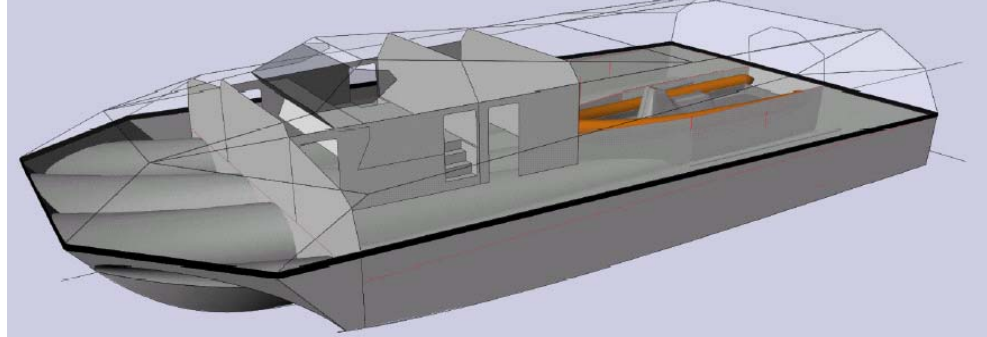
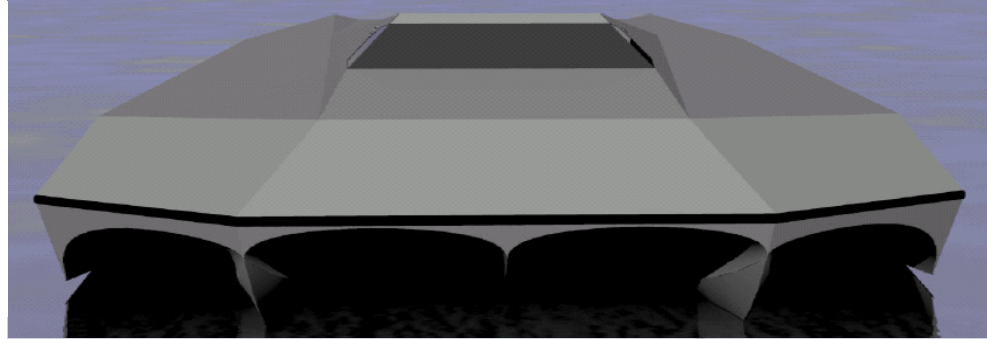
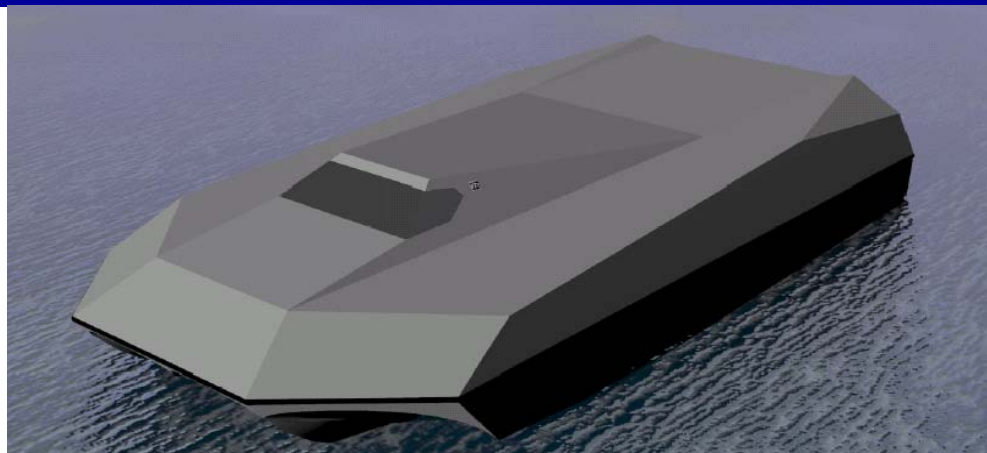
M-80



M SHIP

LOA	80'-0"
Beam	40'-0"
Tunnel Width (4)	5'-0"
Draft (static)	2'-4"
Displacement	67 MT
Payload	15 MT
Fuel Load	10 MT
Classification	ABS
Main Engines	4 x 1650HP C-30 Caterpillars
Surface Piercing Propellers	4
Speed	Max @ full load 50-55 knots
Range @ full load & max speed	500 NM
HP Required (total)	6200hp
Clear Height	15'-0"

Payloads	43% of Displ
11-M RIB or equivalent	
UAVs	
15 personnel	



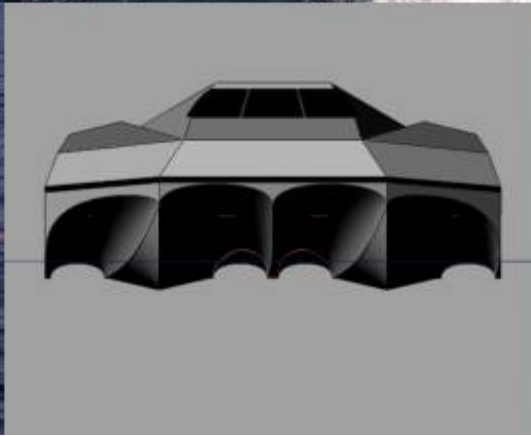


Stiletto (M-Ship Co)

...Low Draft / Wake & Smooth Ride quality



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Stiletto (M-Ship Co)

...Under Construction



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