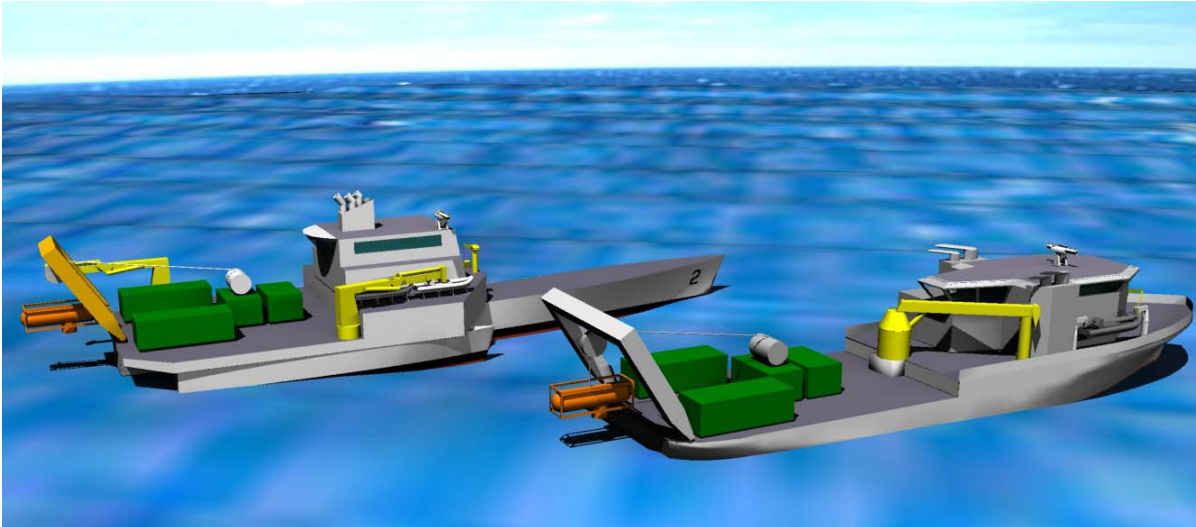


T-ATS(X) Tug and Salvage Replacement Ship Concept Design

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As the useful service life of the Safeguard Class Salvage and Rescue Ship (T-ARS) and Powhatan Class Fleet Ocean Tug (T-ATF) comes to an end, a single, combined towing and salvage ship is being considered as a replacement (T-ATS(X)). An assessment by the United States Fleet Forces Command and the Center for Naval Analyses suggests the procurement of 7-9 additional ships with an initial delivery date of 2019 at a rate of one ship per year to sustain the nation's current salvage and towing capabilities. Both new design and commercial procurement options are being considered.

To meet this challenge, four students enrolled in the 2N Program at the Massachusetts Institute of Technology developed two competing designs to fulfill the T-ATS(X) mission. Employing both traditional and modern age concepts, monohull and trimaran variants were optimized based on cost and mission effectiveness. Technical analyses conducted include: structural integrity, intact and damaged stability, powering, arrangements and seakeeping. Both qualitative and quantitative assessments of risk, cost and effectiveness were also considered. A direct comparison between the two designs revealed the monohull variant as the more favorable ship, meeting or exceeding all Initial Capabilities Document threshold requirements. The low technological risk of a traditional hull form proved to be the dominant factor in selecting the monohull over the trimaran.

T-ATS(X) GENERAL CHARACTERISTICS		
	TRIMARAN	MONOHULL
LBP (FT)	263	230
Beam (FT)	93	61
Draft (FT)	15.6	16.7
Displacement (LT)	3021	4041
Sustained Speed (KTS)	20	18
Endurance Speed (KTS)	10	10
Endurance Range (KTS)	12000	12000
Manning	60	60
Bollard Pull (LT)	175	152
Lead Ship Cost (\$M)	347	373