



THE NEW NAVY: A NEED FOR AN AGILE, LOW COST, IRREGULAR WARFARE
SURFACE COMBATANT

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Introduction

The Destroyer originated in 1869 during the Spanish American War as a torpedo boat destroyer, stemming from the need to defend large heavy warships from Motor Torpedo Boats. These Destroyers were small (400 tons), fast, and maneuverable. Today the primary warship of the fleet is the Destroyer, and the significant threat comes from small boats. The need for a small boat destroyer is real, relevant, and accomplished through small, fast, and well-armed missile boats. ¹The United States' current Naval Fleet consists of "blue water" multi-mission platforms capable of conducting Strike, Air, Antisubmarine, and Surface Warfare. The Arleigh Burke DDG, for example, is a valuable asset prepared for an open ocean fight against a large conventional force, namely the Cold War Soviet Navy. However, there has been a shift in emphasis, "the U.S. military will continue to contribute to security globally, we will of necessity rebalance toward the Asia-Pacific region."² The fight is no longer in the open, it is in littoral, shallow sea, Anti-area denial environments where the main power projection capability the Navy has, the aircraft carrier, can be threatened and the means to conduct ASUW (Surface Warfare) through aircraft rendered impotent. Due to this current focus, the Navy must develop a small, agile, and well-armed combatant that uses irregular warfare tactics to project U.S. interests throughout the world.

Background

Irregular warfare has become a significant challenge to the U.S. throughout history; the Navy has dealt with it since the Barbary Wars. Irregular warfare is defined as: a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations. IW favors indirect and

¹ Destroyer History Foundation, "Early Destroyers" Aug 2014, <http://destroyerhistory.org/early/>

² Secretary of Defense, "Sustaining U.S Global Leadership: Priorities for the 21st Century Defense." Jan 2012, http://www.defense.gov/news/Defense_Strategic_Guidance.pdf

asymmetric approaches, though it may employ the full range of military and other capabilities, in order to erode an adversary's power, influence, and will.³ While irregular warfare rarely will lead to total victory, it can be used to allow “conventional” forces to gain an advantage that will. There are variations in the concept of irregular warfare, the two key types for this paper being complex and hybrid. Vietnam is a sound example of Complex irregular warfare when insurgency shifted to conventional as the North Vietnamese Army thought it had the advantage. When the advantage of engaging in conventional warfare was lost there was a shift back to an irregular form. In hybrid irregular warfare, regular and irregular forces combine usually for the some strategic goal, an example being Hezbollah where they hold political office, offer social programs, and insurgents are used to act as a second army in Lebanon. Recently, the U.S. has had to combat irregular warfare in Afghanistan and Iraq, additionally in places Somalia, Yemen, and Serbia. In World War II, the Allied forces used and had to contend with irregular units both on land and on the sea.

History

Irregular warfare in naval situations is a rare occurrence today involving state actors; however, nations have had issues with non-state actors, a number of terrorist organizations have exploited maritime attacks including Hamas, Hezbollah, Abu Sayyaf, al Qaeda and the Liberation Tigers of Tamil Eelam (LTTE).⁴ On the seas, the “Sea-Tigers” (LTTE) used small patrol boats to conduct attacks, both suicide and conventional, with larger transports for resupply. The Sri Lankan navy used their small, quick, and offensive naval patrol boats as an effective counter to the Sea Tigers. Many would argue that the combination of political will and strong counterterrorism at sea and on land was what ended the LTTE insurgency. Al Qaeda and

³ U.S. Department of Defense. Irregular Warfare (IW), Joint Operating Concept (JOC). Version 1.0. 17 May 2010. Scan: 5-18.

⁴ F.G. Hoffman, *Hybrid Threats: Neither Omnipotent Nor Unbeatable*, Orbis (2010), doi:10.1016/j.orbis.2010.04.009

its associated groups in Iraq and Afghanistan have engaged the U.S. primarily on land, however, sufficient examples exist, to include: the plot in 2002 in the Strait of Gibraltar; plots to attack merchant shipping; an attempted attack on USS THE SULLIVANS; and the successful attack on the USS COLE.⁵ Additionally, piracy has supported terror and criminal enterprises as a threat to commercial and economic interests of nations throughout the world.

Non-state actors are not the only users of irregular warfare. Throughout history many countries looked to irregular forces as an addition to their conventional forces. In World War II, nearly every country had and used them. They were used by American forces widely in the Pacific theater in many capacities, the evacuation of Gen MacArthur by LTjg Bulkeley from the Philippines⁶, the battle of the Philippines, Leyte Gulf, and many more. American Motor Torpedo Boats (MTB) also served as an intelligence surveillance and reconnaissance (ISR) asset to locate and target submarines for aircraft and surface ships. The Germans depended on the S-boat as an effective way to stay within the size and crewing restrictions of the Versailles Treaty. These S-boats served many purposes; anti-submarine warfare (ASW), ASUW, mining, and submarine net clearing.⁷ These examples show the flexibility and capabilities as an addition to the conventional forces in a Hybrid type form of irregular warfare.

Present

Currently many of what most consider to be adversarial, or rival, countries use small, fast, irregular flotillas of boats; China, Iran, and North Korea to name a few. These nations also employ coastal defense methods such as Cruise or Ballistic missiles, mines, and fixed or mobile artillery. The U.S. has developed smaller ships, the Littoral Combat Ship (LCS) and the Cyclone

⁵ Lorenz, Akiva J. *Al Qaeda's Maritime Threat*. Maritime Terrorism Research Center. April 15, 2007. <http://www.maritimeterrorism.com>.

⁶ Nelson, Curtis L. *Hunters in the Shallows, A History of the PT Boat*. Brassy's Washington, 1998 (pg 1-3)

⁷ Frank, Hans. *German S-boats in Action in the Second World War*. Translated by Geoffrey Brooks. Naval Institute Press, Maryland. 2006. (7-34)

Patrol Craft (PC-1). These ships, while capable, are on the fringes of the U.S. fleet's mindset while adversaries prepare, or have integrated, small irregular warfare type boats and ships. Iran's doctrine applies a hybrid combination of conventional and irregular tactics and weapons to pose a significant anti-access threat to both military and commercial shipping.⁸ Iran uses a variation of a North Korean design and it is probable that Iranian tactics and capabilities closely resemble those used by North Korea. China, the focus on the "Pivot to Asia," has an extensive missile boat inventory. These boats carry a creditable anti-ship missile and stealth technology; they serve as an additional layer for the Chinese "cabbage defense" scheme which is defined as is "a territorial claim and gradually surround the area with multiple layers of security, thus denying access to a rival. The strategy relies on a steady progression of steps to outwit opponents and create new facts on the ground."⁹ As these countries continue to expand and operate worldwide, the U.S. Navy must adapt to these emerging and advancing threats.

Future

The 2005 National Defense Strategy provided guidance on improving U.S. defenses against irregular warfare, *but not on how to fight with it*. Three main aspects frame the future hybrid force: cost/benefit pertains to the money and crewing of the missile boat compared to a Destroyer or Cruiser; the need for an ASCM delivery platform; and the tactics and mindset needed to operate in an Anti-Area Access Denial (A2AD) environment.

With the current state of the U.S. economy forcing the military to do more with less, the U.S. should look to a hybrid force that is a mix of DDG and CVN assets in Open Ocean and non-A2AD environments and missile boats that operate closer to shore and in littoral waters. A cost

⁸ F.G. Hoffman, *Hybrid Threats: Neither Omnipotent Nor Unbeatable*, Orbis (2010), doi:10.1016/j.orbis.2010.04.009

⁹ Chellaney, Brahma. *Creeping China*. <http://www.project-syndicate.org/commentary/brahma-chellaney-picks-apart-china-s--cabbage--strategy-for-securing-hegemony-in-east-asia>

estimate of a domestically built missile boat (built in the U.S. for Egypt) was approximately \$200 million dollars per ship with a forty-man crew.¹⁰ Compare this to the average cost and crew size of the Zumwalt class DDG that, on the low side, will cost two-billion dollars per ship¹¹ and will have a crew of at least 140. By these numbers, the Navy could afford ten missile boats and provide four crews for the cost of one Zumwalt class DDG.

Current U.S. surface warships do not carry a realistic ASCM capability and the Harpoon is an aged system with poor capabilities. While the Arleigh Burke Flt I and Flt II carry the Harpoon ASCM, the newer Arleigh Burke Flt IIA and Flt III do not carry any at all. While some missiles in the U.S. inventory are capable of dual modes (anti-air/anti-ship), the warheads they carry are only a threat to smaller ships. The other means of ASCM delivery is through shipboard helicopters, carrier air, and Air Force air assets. The need for aircraft to conduct ASUW, especially in the South China Sea, is hindered by a robust Chinese A2AD system(s) in the region.

The future ASCM envisioned for the missile boat could carry a small, large-quantity missile such as the Griffin Missile System¹², which will be fired from a multi-missile launcher. This could allow for 20-30 missiles per Missile boat, providing a short range and lethal weapon against smaller combatants. However, in the envisioned battle with a larger adversary, with more conventional DDG/CG/FFG-type ships, a larger, longer range, and more powerful missile would be highly desirable. The LRASM¹³ would provide a more significant punch for the Missile boat; however, it would greatly reduce capacity to six or eight missiles. Additionally,

¹⁰ AMI International. *Egypt's Ambassador III Class Fast Attack Craft (FAC) (Fast Missile Craft - FMC)*. June 2010. <http://www.amiinter.com/samples/egypt/EG1401.html>.

¹¹ New York Times. *General Dynamics to Build New Destroyer*. 17 April 2009. http://www.nytimes.com/2009/04/18/business/18ships.html?_r=0

¹² Raytheon, *Griffin Missile System*, <http://www.raytheon.com/capabilities/products/griffin/>

¹³ DARPA, *Long Range Anti-Ship Missile (LRASM)*, http://www.darpa.mil/Our_Work/TTO/Programs/Long_Range_Anti-Ship_Missile_%28LRASM%29.aspx

this missile would need to have a line of sight engagement capability; the Missile boat crew would need to be able to provide the missile a line of bearing and an estimated range to launch independent of shipboard radar. The missile would need to acquire, track, and hit the target using its own sensors and processors. This would allow the ability to surprise adversaries through a stealthy, undetected approach with a close range engagement and counter-detection through radar. This short-range warfare would be especially important in an Electromagnetic (EM) spectrum denial environment.

A2AD consists of sensors, platforms, and weapons systems operating in conjunction to deny an area to adversaries. China and Iran both have robust ASCM capabilities located on or near the coasts. China has developed the DF-21 and is also testing a hypersonic long-range ballistic missile. China designed these ballistic missile weapon systems to track, target, and destroy aircraft carriers¹⁴ and presumably other large combatants. These systems are able to do so because of the large radar cross-section of these ships. However, it is still unknown if the DF-21 missiles would be capable of targeting a DDG or CG-sized combatant due to its smaller size, these ships would be susceptible to targeting and engagement by ship-launched ASCMs.

Because of its size, a modern missile boat (300-600 ton) would be capable of operating in the region with relative immunity from the long-range A2AD threat. Additionally, these boats could operate in the shallow waters around the various adversary countries with limited detectability. These boats could carry four to eight medium range ASCMs to engage surface threats, carry depth charges or torpedoes for ASW missions, or a mixture of both.

¹⁴Minnick, Wendell, *China Tests Carrier Killer DF-21D Missile; 'Sinks' U.S. Aircraft Carrier*. Jan 30 2013 <http://blogs.defensenews.com/intercepts/2013/01/china-tests-carrier-killer-df-21d-missile-sinks-us-aircraft-carrier/>

Tactics

Weapons alone will not make the missile boat effective; a shift in tactics and doctrine will be required. New missile boats would operate in a similar fashion to the way Motor Torpedo Boats (MTBs) operated in World War II as an irregular force. In WWII, MTBs used the cover of night to engage en masse the Japanese warships, hitting hard with their torpedoes, and then running to the cover of islands and atolls. The prevailing thought in WWII was that motor torpedo boat squadrons based at “strategic points for the defense of important passages, straits and restricted areas, will be effective as striking forces to deliver surprise attacks upon enemy surface units approaching or attempting to pass through areas within the radius of operations, and to deny such areas to the enemy”¹⁵. It would not be difficult to adapt the 1942 way of using torpedo boats to a more current missile boats tactic and its missiles will provide a greater attack range than the torpedoes did in World War II.

A key advantage of the missile boat is its size, and in that regard, its minimal radar cross section. The ability for a group of 8-10 of missile boats to loiter and stalk in the shallow water near the shore will be their most redeeming attribute because they will use the clutter from the land as a way to hide until directed to attack. After receiving the order to attack, the missile boats would move slowly towards their targets using the sea clutter and the presence of coastal traffic to hide their movements. As aforementioned, the need for a line of sight engagement will often be necessary. The missile boats would engage from 20,000-40,000 yds. With a missile (such as the LRASM) traveling at Mach 1, the time between launch and strike would be less than 3 minutes at 40,000 yds. Even if detected at launch, this would severely limit the self-defense response of any targeted ship.

¹⁵ Headquarters of the Commander in Chief, United States Fleet. *Fleet Motor Torpedo Boats Tactical Orders and Doctrine*, July 1942, UNITED STATES GOVERNMENT PRINTING OFFICE (<http://www.hnsa.org/doc/pt/doctrine/index.htm>) [accessed 15 Jan 2013]

Another major step would be the ability to empower boat, or boat group, commanders to operate independently from a higher command. In the era of communication inundation, naval leadership must continuously deny itself the tendency to drive the ships *for* the Commanding Officers, and instead issue parameters and lateral limits as opposed to specific commands. These boats would operate in an Emission Controlled (EMCON) environment to improve the likelihood of remaining undetected; again, this would require trust and dependency on sound decision-making by ship captains and squadron commanders.

While operating in groups, the missile boats would use Network Optional Warfare (NOW) to communicate between one another in order to coordinate attacks. The reduction in the “conventional” communication capability would mean a reduction in communication equipment; this, in turn, would reduce the size and profile of the missile boat as well as the crew size. Some examples would be as simple as semaphore (flags, hand signals, lights), low power voice communication, bullhorns, etc. In the near future, there will be advanced communication techniques such as QR codes/Bar codes and laser communications. QR codes are already prevalent in marketing, resale, and are used to pass information to users via smart devices. All Fleet Commander Guidance would be received via a passive communications path and only burst communications would be transmitted from the missile boat. What must be fully realized is a required paradigm shift away from how ships and shipboard operations are currently conducted in order to ensure successful missile boat employment in the future.

Conclusion

The future of the U.S. Navy (and the military, in general) may lie, in large measure, in its ability to fight—and win—in small, asymmetrical sea battles in the littoral. These conflicts may be against large state adversaries such as Iran, China, and North Korea. However, other

antagonists may include non-state actors with groups such as Al-Qaeda, pirate groups, Hamas, or Hezbollah. The U.S. Navy, has been accused of preparing to fight the last war by creating and maintaining a large conventional force such as the blue-water Navy which was initially constructed to defeat the Soviet threat. In order to have success in the future, the military needs to enter the hybrid realm, the U.S. Navy will ultimately need to realize a shift in how its leaders think—from a centralized to a decentralized leadership. The Navy will have to adjust its current ship building plans and look abroad for ideas on the best platform and missile to use for this emerging force. Finally, the Navy should revisit the tactics of the 1940's; adjust them for use today while keeping current with available technological advantages.

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