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A Worse Case Scenario: Guerilla Type War in the Littorals

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"Our Contrary to common belief, most naval actions have taken place not on the open ocean but close to the shores, bordering the open ocean and in adjacent seas.[1] This explains the reality that lands are the source of life and even the states' sovereign rights over the seas is based on the possession of those lands. Moreover, because islands, shores, ports, choke points are objectives of most wars, naval forces tend to secure littorals, narrow seas and ocean approaches of the land. Subsequently, future naval operations will also likely to take place in the littorals. Compared to the open seas, littorals are unique by means of its geographical characteristics and constraints. This paper is focused to define the possible challenges that the navies face, when tasked to control the littorals, today and in the future.

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The U.S. National Military Strategy-2011 states that, “States are developing anti-access and area-denial capabilities and strategies to constrain U.S. and international freedom of action. These states are rapidly acquiring technologies, such as missiles and autonomous and remotely piloted platforms that challenge our (U.S.) ability to project power from the global commons and increase our operational risk.”[2] Although it has been attracting more attention recently, sea-denial is not a new concept and its tools are not limited to new technologies or remote piloted platforms. In fact, weapons that have been used since WWI can be the most challenging threats for contemporary blue water navies in the littorals.

Historical cases like Gallipoli Campaign show that each belligerent has a say in the outcome of a war, in the littorals of its country if not in the open seas. This paper argues that in future naval operations; 1) Undersea threats (mines and submarines), 2) Guided Missiles fired by small-fast boats and shore-based launchers, 3) Increased presence of non-military ships or boats will be the main challenges of obtaining and maintaining sea-control in the littorals (including narrow seas). Finally, the paper draws conclusions; by utilizing these tools (mines, submarines (SSKs), small-fast missile boats and non-military ships and boats) that a weaker belligerent will be able to protract the sea denial period.

Features of Littorals, Narrow Seas and Shallow Seas

Despite some similarities, naval warfare in the littorals has many differences from that of the open sea. While examining the factor "space," naval planners should understand that, oceanographic and hydrographic features, existence of offshore islands, naturally protected bays, weather, distances to important land-based points, and depths are some of the differences that littorals may contain. Also containing heavier maritime and air traffic makes littorals not only different, but also more challenging environment for the stronger belligerent, whose aim is typically the control of the sea. The significance of the space factor in the planning and execution of tactical naval actions and major naval operations in the littorals cannot be overemphasized. Blue-water navies need to pay more attention to the physical features of the littorals if they intend to employ their forces most effectively in such sea areas. Obviously, there is a world of difference between operating in the open and waters much closer to the continental landmass. Enclosed and semi-enclosed seas present especially difficult environments for operations of large surface combatants and nuclear submarines.[3]

Although Prof. Milan Vego explains littorals as “coastline of both the land and near-shore waters” and narrow seas as “enclosed and semi-enclosed seas in which either shore might be controlled by different states," for the purpose of this paper, littorals and narrow seas together will be used to define the maritime areas other than open seas and oceans.

Another term, shallow waters, might be confused with littorals and narrow seas. However, it is more distinctive and a rigid term, which will be used to define the waters less than 200-m depth. The most significant factors directly influencing the employment of one’s surface ships and submarines, and their weapons, in littorals are the water’s depth, the characteristics of the seabed (or sea bottom), the tides, and the water’s transparency.[4]

Obtaining and Maintaining Sea Control in the Littorals

The term “sea control” is simply being used to express the condition that a naval force can operate freely in a limited area within a limited timeframe. Today the main objectives of the substantially powerful contemporary navies’ are “sea control," while before World War I it was "the Command of the Sea." The use of the term “sea control” was a result of a gradual realization that the new technological advances, specifically mines, torpedoes, submarines, and aircraft, made it difficult, even for a stronger navy, to obtain full command of the sea for any extended time over a large part of the theater.[5] Gallipoli Campaign is the best example of this perception shift. Although one or two German submarines were operating in favor of them, the Ottoman Empire naval forces were so modest

that they rarely dared to sail out of Canakkale Strait. Nevertheless, while British and French Forces' unprecedented maritime supremacy allowed them to control the Aegean Sea, a couple of mines hinder them from commanding it. If improved underwater threats were able to convert the naval perception from "command" to "control" in the past, can a new approach of sea denial change it to "disputed"?

As an operational environment, littorals, have all three-dimensional, (subsurface, surface and air) threats simultaneously, heavier than open seas. Mines and submarines, modern coastal defense systems (comprising radar, electronic surveillance systems and anti-surface missiles) high-speed surface combatants, and land-based airplanes; regardless of their technological level, can pose substantial risks to blue water navies. The small size of the battle space and local knowledge of littorals enables the defender on the coast to coordinate and concert these options.[6]

Underwater Threats

All mines, regardless of their design, pose potential threats to the survivability of surface ships and submarines operating in littoral waters shallower than 300 feet.[7] Taking some examples into consideration that the average depth of the North Sea is about 300 ft or in the Persian Gulf water is rarely deeper than 300 ft, contemporary navies' would be more likely to encounter mine threats over the shallow parts of the littorals. Moreover, aimed rising mines, which have an anchor depth of about 3,300 feet, could enlarge the contested area of operation for stronger navies.

During WWI, out of 132 submarines sunk, 89 were lost to mines and out of 166-destroyers, 110 were lost to mines. During WWII, British lost 577 ships (280 of them were warships) while Germany lost 1600 ships to mines.[8] This shows that thousands of mines laid by both sides during WWI and WWII proved itself as an important means of defense. USS Samuel B. Roberts' 96 million in damages, caused by an Iranian contact mine in 1988 shows how efficient and effective the contemporary mines are for the weaker states' navies operating in the littorals.[9]

Underwater threats are not limited to mines. In fact, submarines, supported by their very nature of secrecy and mobility, are also effective means of sea-denial. Surface warship based fleet perception both in WWI and WWII started to change after WWII. German U-boat's successes arguably affected this mindset shift. Today, submarines are becoming more important parts of the contemporary navy. The Turkish Navy has 14 SSK –also started to build 6 AIP submarines[10]- whereas it has 16 frigates.

Contrary to the technological improvements of surface and air radars, the underwater environment, by its very nature, have not let dramatic successes in subsurface detection systems like sonars or sonobuoys. The main limitations of the performance of sonar sets in shallow water, especially those fitted onboard surface ships, are due to the great variations and general unpredictability of the sea's temperature, salinity, surface conditions, tides, currents, sound reflection capability, and absorption caused by the diverse character and configuration of the bottom and background noise.[11] Thus, diesel-electric submarines -having more effective sonar's, being more silent than nuclear submarines and being able to hide in the underwater layers mainly caused by temperature changes in depth- have the upper hand in the littorals. On the other hand, their effectiveness could be challenged in the areas where air supremacy allows helo or MPA operations.

Despite many advantages, one might argue that mines and submarines have their own tactical, operational and even strategic limitations, but they will not be the biggest challenges in the littorals. In order to have effectiveness, littoral states have to lay mines covertly before the war or conflicts starts. The main problem with that is laying mine is an act of war and also may give way to a quick escalation of the situation. Moreover, customary law oblige the states to declare the mine fields right after laying, and clean the area after the war. So with these considerations in mind, one may assert that mines would be used only when a littoral state finds itself on death ground. But it would be naive to expect all the states –or terrorist organizations– to follow the international law of armed conflict. Also, littoral states

may use mines to show their determination and deter the massive enemy forces gathering into its littorals.

Poor of communication features and vulnerability against ASW air assets are some limitations of the submarines. While AIP technology may decrease the vulnerability against ASW air assets by decreasing the snorkel needs, SATCOM systems may improve communication capabilities of submarines in snorkel depth if not operation depth. Despite these weaknesses, submarines will remain useful as a sea denial asset, just like a guerilla in jungle, operating independently and camouflaged perfectly.

Anti-Surface, Anti-Aircraft Guided Missiles (G/M)

Up to the end of the WWII era, the main surface to surface or surface to air weapon of naval warfare was different caliber guns. G/M's became the main sources of fires of the navies' right after WWII. Modern G/M technology allows more than 100 NM firing distances. A shore based anti-surface missile fired from a 15-NM distance gives a surface ship less than 2 minute warning time. Only 1-2 G/M can neutralize a frigate. Although it hasn't been used intensively in major battles so far, G/M's has the potential to change the operational aspects of naval battles by increasing the range and fatality rate and decreasing the warning time for the enemy. G/M will be the game changer of the future maritime conflicts just as the naval aviation was in WWII.

G/M's, not only serve as the primary fires for stronger navies but also a means for sea-denial efforts of a weaker coastal defender. It might not be as cost-efficient as mines but definitely cost effective. INS Eylat, sunk in October 1967 by Egyptian Styx (SSMs) launched practically from within the harbor of Port Said, offers a perfect example of the relative advantage the defender holds. USS Stark, hit by an Iraqi Exocet in the Persian Gulf in 1987, is another example.[12] Small-fast missile boats and mobile shore-based missile launchers, especially in an island-rich maritime environment, can increase the magnitude of "range-fatality-warning time" effect and be highly challenging for the blue water navies, by utilizing their camouflage and surprise nature.

One might assert that, fast-small boats and land-based SSM launchers cannot be considered as a dependable sea denial tool, despite they promise a lot of advantages. Small-fast boats are hardly operational above sea-state 5. Moreover, the lack of air defense measures leave them vulnerable to air attacks. Need for frequent logistic support is also one of the weak features of small-fast boats. Likewise, land-based missile launchers are also vulnerable to not only air attacks, but also special forces covert attacks which may occur before or after the war starts. Despite all these downsides, being comparatively low-cost, operated by less crew, makes small-fast boats and land-based missile launchers suitable for sea denial operations.

Historical Cases

One of the best examples of a successful sea-denial operation was Canakkale Defense. The unorthodox way (Picture-1) of laying the last 26 mines by hand was a tactical action but had a decisive operational and theater-strategic effect. While WWI era Ottoman Navy budget was 1/54 of the British Navy's[13], British naval superiority made them believe in a quick, decisive victory. But a realistic littoral defense changed the faith of the war for the Turks.

Unable to stop the enemy in the Mediterranean, far from their mainland, the Ottomans main means for defense on 18 March 1915 were mine fields and shore artillery. In addition to the strong surface currents complicating the mine sweeping efforts, by anticipating that the enemy warships would have to maneuver inside the widest southern entrance of the Canakkale Strait (Karanlık Liman) during the bombardment of the shore artilleries, the unorthodox way of laying the mines in this area northeast bound caused unexpected and unprecedented losses for the Allied Naval Forces. These mines were the last 26 mines, which were captured from the Russian minefields in the Black Sea. The low-cost mine laying operation cost a lot for the enemy.

Despite British aerial ISR capabilities, gathering the information about the regular mine fields and the securing them with mine sweepers, Allied Operational command British failed to imagine the northeast bound mine line, demonstrating that there is always enough room for creativity of the coastal defense forces.

While the Canakkale War provides a successful practice of sea-denial, cases like Japanese failure in Leyte Gulf Battle and Argentines in Falkland War shows the consequences of ignoring or miscalculating the strength of the enemy and trying to defy it instead of denying. What if Argentine would have laid mines in the AOR more effectively in order just to buy some “time," the time which was vital to an opponent operating through external lines. What if Japan, recognizing its enemy’s capabilities, changed its strategy from sea control to disputing or even denying it? What if Japanese Imperial General Headquarter had come up with a comprehensive synchronized joint -land, air and navy- defensive approach? Although it is hard to answer a “what if” question isolated from other operational factors, sea-denial approach would be more challenging for the stronger opponent. In the Korean War, Rear Admiral Allen E. Smith, lamented after the mining of the Wonsan area by the communist north: "We have lost the command of the sea to a nation without a navy, using pre-World War I weapons, laid by vessels that were utilized at the time of the birth of Christ"[14]

Emerging Trends (Most Likely Scenario)

While post cold war, unsustainable uni-polar world transcending to a world with new global and regional emerging powers, the operating environment is increasingly enabled by technology, which provides the types of capabilities once largely limited to major powers to a broad range of actors.[15] Today it’s easier to build innovative weapon systems with small budgets than it was a decade ago. Also, in the coming years, countries such as China will continue seeking to counter U.S. strengths using anti-access and area-denial (A2/AD) approaches and by employing other new cyber and space control technologies.[16] While technological superiority can somewhat bring success in air and space domain, it is hard to assert the same in surface and subsurface maritime domain.

Following WWII, it was perceived by many of the navies that, large surface ships are not only vulnerable but also expensive. But this perception hasn't deeply affected the tendency to acquire large ships. Russians heavily invested in large surface ships such as the Kirov nuclear battle cruisers and Kiev and Kuznetsov class carriers. But at the same time the Russian Navy, has started to renew its USSR origin old navy with Steregushchy class corvette project. US Navy is investing in DD-100 and LCS projects concurrently. Smaller navies such as Singapore are turning their fast attack craft (FAC) into corvettes. Turkish Navy keeps investing in its frigates, building its own corvettes and small-fast attack boats. Briefly, modern navies can neither relinquish their large dream ships nor operationally required smaller ones. The question is what type of platforms will be more challenging for the navies trying to gain control of the littorals? For the following reasons, it is guided missile suited fast attack crafts or boats.

While fast attack crafts (FAC) comparatively small RCS (Radar Cross Section) decrease their detection distance, having a shallow draft enable them to operate inside a wavy, island and bay rich areas, which make them -more or less- immune to surface threats. Also, their speed and shallow draft provide them almost certain immunity against submarines. Beside these factors, their tonnages are just enough to station the modern weapon systems, such as guided missiles.

Another existing trend is sea mines. It is still a key anti-access/area-denial or even sea-control mean for the regional navies. Since 1958, PRC designs its own indigenous mines.[17] Ongoing research confirms that China is keenly interested in developing and enhancing the effectiveness of deepwater rising mines. They began to develop rocket rising mines in 1981 and produced its first in 1989.[18] It’s not just PRC interested in mines. Today, around a million mines of more than three hundred types are in the inventories of more than sixty navies in the world. More than thirty countries produce mines, and twenty countries export them; highly sophisticated weapons are available in the international arms

trade. Worse, other than proper sea mines, mine-like devices can be fashioned from fifty five-gallon drums, other containers, and even any other floating objects.[19] Also, improved detection systems of modern mines allow the mine laying navies to operate inside their own minefields. Subsequently, mines may be used as a means for not only anti-access but also area-denial and sea control efforts.

Although defense budget cuts are becoming a global trend, most of the states are building up their military capabilities. The increasing number of diesel-electric submarines, especially AIP (Air independent Propulsion) types are creating a more challenging threat environment for surface fleets. Today, countries like; Israel, Sweden, Germany, France, Greece, Pakistan, Russia, Singapore, PRC, South Korea, and Japan have AIP submarines. Turkey has started to build its first AIP out of the initial plan of 6, in Golcuk/Turkey. AIP technology, by reducing the need to "snort," in some ways provides the SSK with some of the stealth advantages to the SSN.[20] Longer endurance time together with its prominent silent nature strengthen the AIP diesel-electric submarines role in sea-denial concept.

“Guerilla Warfare at Sea”-Sea Denial (Most Dangerous Scenario)

Beyond the above mentioned and historically success proved aspects of sea denial, a new approach of defending the littorals may be the worst-case scenario for the stronger navy. China already shows signs of this approach. China’s 2008 defense white paper explicitly mentions that reserve forces are likely to be involved in mine warfare (both laying and sweeping). In December 2004, PRC Navy mobilized six civilian ships and conducted a drill that involved (among other activities) reconnaissance, "mine laying by fishing boats," and non-pier and at-sea supply of naval vessels in battle. July 2006, the PLAN's first-reserve minesweeper squadron, established in Ningbo, Zhejiang Province, in September 2005, conducted a month of training in the East China Sea. Following an "emergency recall order," two hundred PLAN reserve officers and enlisted personnel prepared sixteen requisitioned fishing boats within half a day.[21]

Given the increasing number non-military ships (fishing boats, yachts, M/V etc.) sailing worldwide and the idea of using them as a military asset, modern fleet’s efforts to generate the recognized maritime picture (RMP) is becoming more and more challenging and complicated. Today, it’s not enough to define a contact as a fishing boat; naval assets also need further investigation on whether the contact is a military asset, camouflaged as a fishing boat. Moreover, low tempo, low-visibility contemporary conflicts make operational spaces more complicated. Today, States have a tendency not to declare war while they are engaged in one. During 2014 Crimea Crisis, Russia and Ukraine have an "undeclared" war, resulting in territorial changes in favor of Russia. It is a fair assumption that, during this kind of low density future conflict, defining the boundaries of the AOR will not be as easy as it was before, and moreover, naval and air forces will be struggling with not only enemy forces but also a daily routine civilian traffic.

A maritime version of North Vietnamese “Dau Tranh (Struggle)” may be the worst-case scenario. The people were the weapons of the struggle during the Vietnam War, in this maritime version, any floating or submerged object will replace the people. Fishing boats, Ro-Ro ships, Yachts,' submerged oil barrels, anything a terrorist or guerrilla mind can imagine and use for not only a means to attack the enemy but also acquire target information without being noticed.

Moreover using conventional forces together with maritime Dau Tranh assets might be more challenging even for the strongest contemporary navies. While conventional forces are dragged towards littorals, asymmetric maritime Dau Tranh assets could acquire more targets easily. It is called "Hybrid Warfare": “Any adversary that simultaneously and adaptively employs a fused mix of conventional weapons, irregular tactics, terrorism, and criminal behavior in the battle space to obtain their political objectives.”[22] Hybrid type of war approaches are not new, but what makes today's hybrid war unique is, cheap and easy access to lethal technologies by mass populations. The ability to adapt systems, and in

particular information systems and structures, and strategies often allow hybrid forces to outmaneuver conventional forces.[23]

Balancing Operational Factors in Littorals

Operational factors, time, space and force, should also be considered differently in the littorals than it is in open seas. In the open sea, time and space favor the stronger navies with large maritime units –possibly nuclear-, long durability and capable surveillance radars and systems. In the littorals, a shore state navy can;

- Leverage its knowledge of space.
- Deny easy access to its territories by using unorthodox methods and assets
- Use land-based air assets, fast-small missile boats effectively and efficiently with shorter lines of communication.
- Buy the much-needed time for homeland defense, by laying mines or announcing minefield without laying mines.
- Conduct surprise attacks under camouflage of islands, archipelagos' or protected bays.

While operating in contested littorals, stronger navies should consider trading space in order to protect its forces or not to risk too many of them. Otherwise, the magnitude of the force loss may give way to space loses. A stronger navy may overcome the challenges of leaving more space to a littoral navy, by extending its ability to project power from further offshore.

Conclusion

Contrary to common belief, most naval battles take place in the littorals. Future naval conflicts are also expected to occur in the littorals. Naval planners should keep the unique and challenging features of the littorals in mind. Operational planning and execution in the littorals may be more challenging for the blue-water navies than it is in the open ocean. Taking the lessons from historical cases, underwater threats, fast-small missile boats, will preserve its place as the most challenging threats in the littorals. Ambiguous AOR boundaries together with increasing routine daily naval and air traffic create further challenges to constitute an acceptable MRP and thus difficulties to control the sea.

Considering that it is possible to acquire a mine for as low as $1000, mines are still one of the most cost-effective A2/AD and even sea control tool for the weaker belligerent, causing the stronger side to lose time (sweeping and hunting), force and space. Given the comparatively modest improvement of subsurface detection systems, SSKs, especially the AIP SSKs, will be the other half of underwater threats. What makes underwater threats more challenging than the others is the scientific facts of underwater propagation that creates constraints for long range, accurate detection by sonars or sonobuoys.

Another major challenge that the navies would face when operating in the littorals is the combination of; increasing presence of non-military ships, ambiguous boundaries of battle space and a new approach, which may be called, Maritime Dau Tranh. In this approach, the defending littoral state would use any floating object at hand against its enemy. This guerilla type war at sea would harm the efforts to acquire the RMP and the self-protection of the blue water navy assets.

The open ocean permits large blue water navies to spread out and operate freely, in the littorals, the space factor is in favor of the defending side. With a comprehensive defensive approach of combining land, air and maritime assets, littoral states have the opportunity to leverage the usage of its own shores, islands and bays freely. Moreover, by implementing a Fabian type strategy and using sea-denial means it could wage war.

Recommendations

This paper is prepared to advocate neither sea-denial concept nor control or command of the seas. The main aim of this paper is to put the major challenges in the littorals, so with that, both blue

water and littoral state navies adjust its force structures, doctrines, education, command and control structure and logistics accordingly. Also, there might be some takeaways for the medium size regional navies that can dispute the control of the seas in its littorals against stronger navies and may have to control the regional seas against a weaker navy.

Blue-water navies should either choose to trade space with force and operate further offshore or constitute and use proper force structure compatible with the ones that littorals navies have. Other than this, regional alliances may assist a blue water navy with the kind of assets like SSKs and fast attack boats, which fit littorals.

Littoral navies should use classical sea-denial assets like mines, submarines and fast attack missile boats and also devise creative guerilla tactics using any floatable object at hand to deny a stronger enemy. Medium size navies should prepare their forces to face an enemy who might be weaker, equal or stronger, which would lead them to have a wide range of force structure.

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