

COULD THE BRAZILIAN NAVY PRIORITIZE SUBMARINES TO BE EFFECTIVE IN
PRESERVING TERRITORIAL INTEGRITY?

LEANDRO GOMES MENDES

Commander, Brazilian Navy

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History and Future

In this post-Cold War Era, the reductions in defense budgets are common around the world. In Brazil, it is not different. Some thoughts contribute to this, like the successful negotiations in the past about boundaries and the peaceful mentality that permeates the country. Besides that, there is some overestimated belief in diplomacy and trade dependence, idealized as being enough to solve or even avoid the conflicts. Another mistake is that it is possible to count on allies as a primary solution for military capabilities' gaps, which could decrease military budget demands. These combined factors brought the difficulty of having the Navy we need. Even after both World Wars, investments in the Armed Forces oscillate as a whole, maybe due to a false thought that there is no threat to the country's interests. It demands to prioritize the right assets to avoid a well balanced but inefficient Navy in protecting the territory.

Due to the normal and expected restrictions in the budget of our days, arises the doubt of the current funding for submarines. It can create some impression of lack of interest in developing other sectors, like the surface fleet, bringing to the question: Could the Brazilian Navy prioritize submarines to be effective in preserving territorial integrity? The affirmative answer is based in the supporting pillars arguments to this thesis: First, in the vast capacity that submarines can employ in denying the sea, but remembering that sometimes there will be the necessity to control the sea with other assets; second, giving opportunity to develop technology and base industry to all assets, to get the capacity to control the sea or at least dispute it, soon; and third, that priority permit to redistribute resources focusing in the new threats, domains, and energy sources. Some will say that it is a dangerous path, being the country unable to react or act as we wish, in the necessary moment that we cannot foresee. But keeping at least some surface assets for security and training skills, it will be done better than ever, bringing sustainability and turning "the Navy that we have" in "that one we need."

Effectiveness in denying the use of sea

It is paramount to define the kind of strategic posture that will be adopted to plan accordingly. The priority between offensive or defense must be analyzed in the roots of the theories. After, it is required to define the best assets to apply the theory and that can make it more efficient, channeling the valuable and scarce resources to the right aim. And, always important, it is paramount to keep in mind the gaps that this priority will let behind, to fill these gaps as soon as possible.

The defensive needs to be the priority rather than the offensive when you cannot proceed both. The huge number of tasks at sea can put leaders in a crossroads. Vego states that objectives and success for the navies depend on sea control or in its ability to deny it to the enemy¹. Till explains that sea denial can be the strategy of the weakest and that it can be effective². Thus, sea denial can be some alternative if you are not able to and if you need to defy someone else's control of the sea. Clausewitz reinforces that "defense is the stronger form of fighting rather than the attack"³ and that "attack requires a superiority of one's force."⁴ Vego carries on stating that the attack itself cannot exist without defense⁵. So, even for the stronger or the weaker, sea denial must be a priority to think in some other following steps. And specially for the weaker, its only way. Due to this, it is more attractive being prepared for sea denial than control the sea, in the trial to keep the *status quo*, if you cannot carry out both in the same level of priority.

Sea denial can achieve success, being a threat even to stronger navies. Lautenschlager quotes some characteristics from the submarine – as "stealth, surprise, and high probability of

¹ Milan Vego. "Introduction to Naval Warfare." Newport, RI: Naval War College, January 2011, 17.

² Geoffrey Till, *Seapower: A Guide for the Twenty-First Century* (New York: Routledge, 2013), 152.

³ Carl Von Clausewitz, *On War*. Edited and translated by Michael Howard and Peter Paret (New York/London: Everyman's Library/Alfred A. Knopf, 1993), 94-95. Quoted in Milan Vego. "Maritime Strategy and Sea Control," Routledge, 2016, 7.

⁴ Ibid.

⁵ Vego. "Introduction to Naval Warfare," 18.

destroying the target in the first shot”.⁶ It provides a great capacity to its owner. If submarines are not able to destroy enemy assets, at least it will cause lots of friction and tension. The Royal Navy was “primarily for anti-submarine warfare”⁷, as Hime explains. And they could not destroy neither find it along with all the conflict, even having “fired an astonishing 200 torpedoes at false contacts over five weeks,”⁸ cites LC Vandenengel. All of this caution was extremely fair because while they were hunting, they were being hunted as well. They did not know at that time, but the Argentines could have destroyed one of the two British aircraft carriers. As Friedman admits, “Hermes was saved by a fluke: part of the torpedo fire control system onboard the Argentinian submarine had been misinstalled.”⁹ Due to Argentine’s bad maintenance, the British could carry on their air operations at sea. Hime quotes that RADM Woodward, the Senior Task Group Commander, knew that if he lost that carrier, the war was over¹⁰. So, if it wasn’t for that fluke, Argentina could have won that war, against one of the only three “second-level navies”, considering that there was only one in the first level,¹¹ at that time, according to Coutau Bégarré. So, submarines are really strong in deny the sea and can effectively provide the necessary protection at seas to some country under threat. If only one is dangerous, how about more?

But if it is demanded to retake some part of the territory previously lost, this would demand some other assets, with the capacity to control or, at least, dispute the sea control. Another time that the British almost lost one carrier was just before of this same war when the British Defense Minister intended to sell the HMS Invincible – actually he did it, selling to Australia, but canceled the agreement after the outbreak of the war – and the amphibious fleet as well relying

⁶ Karl Lautenschlager. "The Submarine in Naval Warfare, 1901-2001." *International Security* 11, no. 3 (Winter 1986-1987), 97, www.jstor.org/stable/2538886.

⁷ Douglas N. Hime. "The 1982 Falklands-Malvinas Case Study." Newport, RI: Naval War College, 2010; 17

⁸ Lieutenant Commander Jeff Vandenengel, "Fighting Along a Knife Edge in the Falklands," *Proceedings* vol. 145, no. 12 (December 2019): 1,402, accessed May 9, 2020, <https://www.usni.org/magazines/proceedings/2019/december/fighting-along-knife-edge-falklands>.

⁹ Norman Friedman, *The Falklands War in Retrospect – Hard lessons from a small war*, Defense Media Network, April 2, 2015, <https://www.defensemedianetwork.com/stories/the-falklands-30-years-later/>.

¹⁰ Hime, "The 1982 Falklands-Malvinas Case Study," 25

¹¹ Hervé Coutau-Bégarré. *Tratado de Estratégia [Strategy Treatise]*, ed. and trans. NWC Editorial Team 2010 (Rio de Janeiro: SDM/EGN, 2010), 483

only on nuclear submarines and military alliances¹², according to Friedman. That author carries on explaining that it was the newest one of the two light aircraft carriers. Things could have been so different, due to the possible lack of assets to contest Argentina in Power projection against ground forces. The assets have their own specific capacities and it is required different assets to different tasks and domains. Lautenschlager says that submarines cannot replace one surface fleet, but work together in different functions, due to the variety of missions that they can be employed¹³. Of course, we can prioritize, but we cannot choose between one or the other. It is dangerous, and can be harmful, put apart other tasks to prioritize one sector.

A strategic defensive posture must be the support pillar to protect Brazilian territory. It has to be based on sea denial. And the Navy can apply submarines on its large coast, considering the necessity to prioritize, according to the budget. Of course, its effectiveness in denying the use of the sea cannot guarantee the accomplishment of all missions demanded by the national interest and even the suitability of assets to ensure air superiority. Neither can provide, at least, the ability to dispute the control of the sea. The creativity of this expected balance is a thin line to walk across. Maybe the answers to this can be outside the force: in the industry and development sector.

Technology and base industries: independency to exert full sovereignty

No matter the preference in the warfare for denying or control the sea, it demands a good base industry, technology, and priorities to these sectors. And when priorities become other sectors weaker, it can provide shortcuts to make them recover fast. Technology is so important to avoid dependence and the risk of having the country's sovereignty in the hands of other country's willingness to cooperate. Besides that, the base industry can increase the capacity of a country for the sake of preparation, and even in the reaction, to a war. And there must be a clear allocation of

¹² Norman Friedman, The Falklands War in Retrospect – Hard lessons from a small war," Defense Media Network, April 2, 2015, <https://www.defensemedianetwork.com/stories/the-falklands-30-years-later/>.

¹³ Lautenschlager, "The Submarine in Naval Warfare, 1901-2001," 97.

priorities, without postponements. Technology, base industry, and priorities can be the shortcut to change the Navy capacity.

Money and time in technological research can be tough to provide, but it can make a difference in the hardest moments, preventing military dependence. During the Malvinas conflict, it was remarkable the influence of other nations supporting the British Force. According to Hime, French provided information about Exocet missiles and Super Etendards¹⁴ and Weisiger says that even the United States was more inclined to support the British despite the declared neutrality¹⁵. And Hime confirms it saying that they gave intelligence support and lent their base in Ascension Island to the British¹⁶. The aforementioned support, of course, had their reasons but the key factor that can be drawn from this episode is that technology can provide ways to counter an enemy but only if the country has its own technology. It is not desirable to rely too much on the allies, because, at some moment, the interest can drift away from the cooperation.

One of the best ways to translate means and resources in power is by applying the base industry to be able to build its own assets. Some worries permeated the post First World War period in the United States. Between January 1922 and March 1933, the warship construction was less than a half from Japan, giving to the last the desired parity under the Pacific, according to McGrath.¹⁷ He explains that this construction capacity was continuously beneath Japan until 1941, but if they could exploit its full capacity, there was no doubt that this situation would reverse.¹⁸ The author confirms that actually, they did it, building more than 1500 warships from 1940 till 1945, that ultimately defeated Japan, and it could not be possible if was not for the period from 1934 till 1938, with the reinforcement of the shipbuilding industry and restoration of the

¹⁴ Douglas N. Hime. "The 1982 Falklands-Malvinas Case Study." Newport, RI: Naval War College, 2010; 10.

¹⁵ Alex Weisiger, "The Limits on Leaders: The Falklands War and the Franco-Turkish War. In *Logics of War: Explanations for Limited and Unlimited Conflicts*." (Ithaca; London: Cornell University Press, 2013), 181.

¹⁶ Hime, "The 1982 Falklands-Malvinas Case Study," 13-14.

¹⁷ Jamie McGrath, "Peacetime Naval Rearmament, 1933–39: Lessons for Today," *Naval War College Review* 72, No. 2 (2019), Article 7, 3, [https://digital-commons.usnwc.edu/nwc-review/vol72/iss2/7Jamie McGrath](https://digital-commons.usnwc.edu/nwc-review/vol72/iss2/7Jamie%20McGrath).

¹⁸ McGrath, "Peacetime Naval Rearmament", 100.

specialized labor that had migrated to other business.¹⁹ The naval industry can cause great influence in the war because the losses will certainly happen, and the capacity to build and replace becomes a key factor. The base industry is the best demonstration that the National Power goes far beyond the regular military forces and with this sector ready, with at least commercial fleet buildings, it can be warmed up and ready when some call to the duty comes.

The possibilities to apply the technology or to use the base industry regards much in what can be done previously to the conflicts come. It means that the priorities in peace times play a strong role in the victories during wartime. In the same example of the previous paragraph, McGrath states that the U.S. industry was not capable neither to close the gap between the existing fleet and the one established as a limit in a treaty²⁰ between the great powers that time, to avoid war, quoting the numbers of shipbuilding that had decreased from twenty-seven to only seven, since World War I.²¹ If not taken seriously, when the industrial power is required, it can be unable to attend. "Funds for naval research and development were scarce before World War II", according to Mahnken. Despite this situation, he explains that it was developed, the surface-search and fire-control radars. They were tested and installed in all carriers and several other warships for the war, allowing the previous detection of the enemy even at night or bad weather.²² Even in some scarcity of resources, good application of resources can make the difference and can be applied in urgent demands. Therefore, when well planned, priorities to these sectors can make a difference.

Developing its own technology, allied to good base industry, in a good priority plan can make the Navy be able to prioritize sea denial, making it possible being able to quickly provide varied equipment and demanded assets in some urgency. Technology continues to bring

¹⁹ McGrath, "Peacetime Naval Rearmament," 92.

²⁰ The Five-Power (United States, Japan, Great Britain, France, and Italy) Treaty called for a ten-year capital shipbuilding "holiday" and placed restrictions on the size and numbers of future capital ships. McGrath, "Peacetime Naval Rearmament," 85.

²¹ McGrath, "Peacetime Naval Rearmament," 86.

²² Thomas G. Mahnken, "Asymmetric Warfare at Sea: The Naval Battles off Guadalcanal, 1942-1943," *Naval War College Review*: Vol. 64, No. 1 (2011), 99.

alternatives to the forces and set us free to exert real sovereignty, filling some capacity gaps. Investing in the Navy of the future instead of the current one will certainly spend time and money, increasing exposition to other vulnerabilities. But with good planning, it can create a shortcut to reinforce the Navy and to achieve such a capacity that enables us to do all the tasks in a high level of proficiency rather than trying to do everything at some mediocre average level. And some leap of improvement will be accessible with new domains and energy sources that can be explored, like never done before.

The new threats are coming

The evolution does not stop, and other domains and energy sources can contribute in this process, to support the aforementioned technologies and industries, amplifying the power to deny the sea in prioritization and opening windows to explore other possibilities. The use of these domains, like space and cyber, can provide privileged information with a low cost of exposition. Sometimes, the power involved can be as harmful as some bombs. And also, nuclear power propulsion can amplify the capacity of some assets and the deterrence level. This development can make the submarines a priority and increase their capacity, and also do it for other assets, being able to answer to other threats that submarines cannot deal with.

Being aware to use, exploit, and deny new domains can make a difference – sometimes under low cost – in the command and control and the intelligence, for example. At the beginning of World War I, Crowell cites the undersea cables as a secure way of communication. So, the Royal Navy cut the cables at sea and forced the Germans to use the long-range wireless transmitters, as the author explains. And having the technologic capacity to monitor it – he carries on explaining – they achieved precious information to be used, not only in combat but also to influence alliances that could be the key factor to decide the war.²³ In this electromagnetic domain,

²³ Richard M. Crowell, "War in the Information Age: A Primer for Information Operations and Cyberspace Operations in 21st Century Warfare," 5th ed. (Naval War College, January 2019), 3-4.

the great insight is not only to control but to deny its use or, even better, drive the enemy to use in expected ways. Nowadays it can be compared to space satellite communications or cyber environment to transit information and this understanding is of huge importance for the next conflicts. The cyber environment can be employed to get objectives with low exposure.

It is impressive the level of control relied on cyberspace. If some enemy gets access to SCADA²⁴ control, it can jeopardize several elements of our well computerized dependent society, causing chaos and even kinetic damage. Crowell gives us the example of Sayano-Shushenskaya hydroelectric dam, that when suffered an accident in 2009 was remotely controlled 500 miles away and came to explode, accidentally²⁵. It evidences how vulnerable and dangerous it can be if the cyber-security systems from some exposed critical facilities are invaded and it would be so difficult to determine from where this kind of attack came from and even if it regards to some governments or if it is an act from some extremist isolated individual. In a world increasingly demandant on this domain, the weapon systems complexity brings vulnerabilities. Reductions of the ship's crew dependence and its replacement by IT²⁶ provides a good example. The DoD Information network, as a whole, is exposed to external networks, like those from contractors and electrical systems connected on the internet.²⁷ It is easy to conclude that some vulnerabilities are even inside the Force and it is not wise to develop the Navy and neglect these new threats.

Nuclear powered plants for submarines can increase the range of appliances in a much larger area than the conventional one. As Himes reveals according to Middlebrook, the sunk of Belgrano was enough to keep all Argentine assets in the mainland base vicinities till the end of the

²⁴ Supervisory Control and Data Acquisition, a real-time industrial process control system that use computers and software to monitor and control systems from nuclear power plants and electric power grids to railroad switching terminals and drinking water and sewage treatment facilities. Crowell, "War in the Information Age", 7.

²⁵ Crowell, "War in the Information Age", 7-8.

²⁶ Information Technology

²⁷ US Government Accountability Office, Weapons Systems Cyber Security DOD Just Beginning to Grapple with Scale of Vulnerabilities. Report to the Committee on Armed Services, US, Senate. Washington, DC: GAO, October 2018, 13-14.

war.²⁸ Train quotes that “a small force of British nuclear attack submarines” put such a fear in the Argentine Navy that “held Argentine surface navy at bay”.²⁹ Thus, the British could apply two submarines in that remote theater and to stay in the area for an undetermined time, because they were nuclear powered. And also their maneuvering capabilities, with high cruiser and combat speed to attack,³⁰ according to Lautenschlager was due to this. The nuclear power generation plant for submarines can amplify its capacity of sea denial and even for deterrence, being able to do the same for some surface assets.

It is not possible to keep these environments out of the game, but they can work as the cards hidden up the sleeve when only the best magicians will be able to use this trick. The satellites and the computers can influence communications and cause damage in high proportion while nuclear power propulsion can provide emancipation from some logistical needs and leverage the assets’ capabilities. But, would all of this be sufficient to provide territorial integrity?

Counter Arguments: How about today?

Others will say that giving up about control of the sea and putting all eggs in one basket, even for a little while, can create a situation that even to dispute for this is impossible anymore. In 1804, a famous General could understand about sea control far beyond some good sailors. According to Till, Napoleon had the belief that if his country could control the sea – obviously for limited space (the English Channel) and time (6 hours) – the world would be French.³¹ It lines up with the belief that denying the sea for so long, and overlooking the fight for it, will become in much bigger trouble to exert or even to get the expected level of readiness in the future. Vego replies that the emphasis in defense can create some atrophy in the morale and

²⁸ Martin Middlebrook, *The Fight for the Malvinas* (Viking Press, 1989), 117-118. Quoted in Douglas N. Hime. “The 1982 Falklands-Malvinas Case Study.” Newport, RI: Naval War College, 2010, 24.

²⁹ Harry D. Train II, “An Analysis of the Falkland/Malvinas Islands Campaign,” *Naval War College Review*: Vol. 41, No. 1 (Winter 1988), article 5, 41, <https://digital-commons.usnwc.edu/nwc-review/vol41/iss1/5>.

³⁰ Lautenschlager, “The Submarine in Naval Warfare,” 128.

³¹ Till, *Seapower*, 146.

readiness of the force to obtain some gains by future offensives.³² It is important to maintain the readiness in all tasks, including to control the sea and project power. Thus, the opposing stream to denial prioritization, will state that giving up about disputing for sea control, prioritizing its denial, even for a while, will condemn you to regret it someday.

Rebuttal: The key factor

Priority does not mean exclusivity. But the submarines can really be applied as the backbone of the Brazilian Navy. But the backbone needs other bones to move a vibrant body. In Brazil, the same document that gives priority to the submarines³³ also requires the capacity to project power and to control the sea. The submarines can be effective in some good defense-oriented strategy but, according to Lautenschlager, are not the best assets to perform those other tasks.³⁴ So, the key aspect to prioritize submarines, and do not lose the skills to control the sea, with few surface assets, lay on training.

If some abilities are not required today, it does not mean they will not be in the future. The real world is irreplaceable by simulators. The crews practicing at sea can spread to other sailors their learning, training the trainers, and conserving the doctrine's update, the leader's knowledge, and lessons learned with the practice. The technology could not do much to the Americans during the night, in the Guadalcanal campaign. Mahnken explains that despite the assets and equipment advantages, as the US radars,³⁵ the dark night and bad weather conditions were in favor of the Japanese ability at sea because the crews had trained exhaustively ten months out of the year, developing adjustments in weapons and tactical systems for night-attack units as well.³⁶ According to Mahnken, Japanese technology was headed mainly to optic and lights, with lots of technological

³² Vego, "Introduction to Naval Warfare," 19.

³³ Dilma Rousseff, "Brazilian National Defense Strategy", Brasília (2012): https://www.defesa.gov.br/arquivos/estado_e_defesa/END-PND_Optimized.pdf

³⁴ Lautenschlager, "The Submarine in Naval Warfare," 94.

³⁵ Mahnken, "Asymmetric Warfare at Sea," 99.

³⁶ Mahnken, "Asymmetric Warfare at Sea," 100-101.

shortfalls.³⁷ So, the training can leverage a force that knows its limits and enhance its expectations, spreading knowledge, developing doctrine and permitting overcome other superiors forces, being priorities to submarines possible once provided that minimum requirements to sustain the training of the others fleet sectors.

Conclusion and suggestions

It is highly recommended to prioritize submarines to get a better Navy in the future. They can preserve territorial integrity if the policy and strategy are headed to conserve the territory. The technology and base industry can quickly fill the gaps of some assets, when necessary. And establishing this priority it can provide resources to other areas, coming from other sectors. Hence, the opportunity arises to work other domains and energy sources, as a complement to some unpredictable future that requires suddenly more than that.

For those who will say that it is not acceptable to take the risk of do not be able to control the sea neither for a while, the existing surface warships and its crews, even if few, will be able to act and complete the defense strategy to deny the sea, using offensive and defensive actions, well-trained, and will be able to diffuse all the learning that practice provided. The success will be got with good planning and the next generations will be able to reap the harvest of the current effort instead of accepting what we have. They will be able to manage what we need.

³⁷ Mahnken, "Asymmetric Warfare at Sea," 103.

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