NARCO-SUBMARINES: THE KEY TO MODERNIZING RESUPPLY STRATEGIES

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As tensions grow in the Taiwan Strait, U.S. President Joe Biden has asserted that the United States would defend Taiwan in the event of a Chinese invasion. The avoidance of engaged conflict would be in both countries' best interests. However, with the PRC's growing military capabilities in areas long-dominate by the U.S., the nation must prepare for this possibility through modernizing resupply strategies. Current resupply strategies to support small units within enemy territory would hinder the U.S. due to inefficient airlift cargo capacity and lethality risks associated with sending manned ships to enemy-dominated territory. This White Paper proposes the development of small, unmanned, inexpensive semisubmersibles modeled after “narcosubs” (customized submarines utilized by drug-smugglers) to resupply U.S. units in the vicinity of Taiwan. The development of these submersibles would eliminate inefficiency, providing the U.S. greater advantage in the event of conflict with China on Taiwanese soil.

PROBLEM STATEMENT

On October 16th, 2022, the 20th National Congress of the Communist Party of China’s opening ceremony was led by the President of the People’s Republic of China, Xi Jinping. In his speech, Xi Jinping asserted that the PRC “will continue to strive for peaceful reunification...but we will never promise to renounce the use of force... This is directed solely at interference by outside forces and the few separatists seeking ‘Taiwan independence.’”¹ The former head of the U.S. Indo-Pacific Command, Adm. Philip S. Davidson stated in 2021 that in China’s ambitions to advance as an international power, the forceful reunification of Taiwan could occur over the next few years. Davidson further emphasized that Taiwan’s values are alike to the U.S. With the intent of defending Taiwan in mind,

“Taiwan's values reflect our own—an open economy with a free and democratic society that respects human rights and the rule of law.”²

U.S. mobilization is needed. However, for the U.S. to effectively do so, current inefficient resupply efforts must be addressed to increase capability and capacity, and ensure the safety of U.S. personnel in combat.

At present, the Marine Corps and the Navy are facing several challenges concerning resupply efficiency and effectiveness. In the context of the PRC invading Taiwan, the two greatest challenges are:

1. Unsuitable resupply capacity and reliability.
2. Lethality risks to manned ships resupplying in enemy territory.

Presently, if forces were to engage in a possible conflict with China far from American soil, their resupply of food, water, fuel, ammunition, and arms would be solely dependent on ships and aircraft. This dependency on these conventional platforms however could lead to heavy casualties.

Resupply via ships poses threats to the survival of these units because the Navy does not possess an adequate fleet size to compete with China and engaging resupply missions in enemy-dominated waters will prove fatal. As of March 2022, the Navy possessed 297 battle force ships. (The CNO's NAVPLAN 2022a and Force Design 2045) To expand this fleet, the U.S. Navy's NAVPLAN 2022a and Force Design 2045 advise the construction of 373 manned ships, along with 150 unmanned ships by 2045, for a total of approximately 523 vessels.³

But while the U.S continues this ship building debate, China continues naval modernization, expecting 420 new ships by 2025 and an additional 40 by 2030. Shipbuilding produces an additional obstacle due to the depleting number of shipbuilding yards. Since the 1960’s 14 shipyards under the U.S. flag have closed, along with an additional 3 shipyards leaving the industry.⁵ Repairing and maintaining current ships, is also a challenge, as aging ships may no longer be fit to withstand combat.

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⁵ MPS Industrial Base Section
“14 U.S. shipyards that constructed ships for the Navy have closed since the 1960’s, and three have left the defense industry...just seven shipyards, owned by four prime contractors, build large Navy warships today.”

For small land-based units deployed in enemy territory, rapid resupply every 2 to 3 days is crucial to survival. Without an adequate number of vessels, the U.S. would be spread thin between ships engaged in combat and resupply. Additionally, when China learns small units are stationed within weapons-range, manned resupply ships will be a priority target. By eliminating these supply ships, the PRC “kills two birds with one stone:” U.S. service personnel manning these ships and on land who will not survive without these supplies.

If ships could not be utilized for resupply in a possible conflict with China, the next logical strategy would be for forces to employ aircraft lifts. While effective, however, aircraft create inefficiency as they pose a greater risk to troops and are unable to carry large bulk cargo. On May 13, 2022, NBC News created a simulated War Game between the U.S. and China. Following three rounds of simulated combat, China was found to have air superiority over the U.S. With this tactical advantage on China’s side, this airlift could likely resupply small units ashore. Additionally, while the Marine Corps and the Navy are making efforts toward integrating unmanned aircraft into combat, aircraft do not possess the equivalent carrying-capacity of ships. This would make aircraft incapable of providing an adequate amount of supplies to small units in combat.

Photo courtesy of Sgt. Hailey Clay⁸

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⁶ MPS Industrial Base Section
With the PRC planning to continue military modernization over the next few years, the U.S. is increasingly at risk of losing its edge in maritime power. If the nation fails to reevaluate current supply strategies, the Marine Corps and the Navy will be highly disadvantaged, which will in turn decide the outcome of a conflict in favor of the PRC.

Narco-submarines, or “narco-sub”, which the Coast Guard calls “white buffalos,” are customized vessels for drug-smugglers that ferry narcotics overseas.⁹ These vessels make narcotrafficker illicit cargo almost undetectable, with only 10% to 15% of narco-sub being halted.

“Only 10 to 15 percent of low-profile vessels are intercepted at all, meaning that known trafficking activity represents just the tip of the iceberg.”¹⁰

According to the Drug Enforcement Administration, 80% of smuggled cocaine is transported via sea routes, with about 30% of this route-shipped cocaine being transported via semi-submersibles and low-profile vessels.¹¹ Other estimates predict that ¼ of U.S.-bound cocaine, worth around $6 billion at a yearly rate, is smuggled via semi-submersibles and low-profile vessels.¹² Without aviation support at shore, or an embarked helicopter, surface vessels only have a 5% probability of detecting a narco-sub.¹³

Narco-submarines fall under three categories:¹⁴

1. Narco Torpedoes
2. Submersibles or (FSV) Fully Submersible Vessels
3. (LPV) Low Profile Vessels or (SPSS) Self-Propelled Semi-Submersibles

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1. **Narco torpedoes** are submersible torpedo-like canisters that require towing by an additional vessel. The canisters can contain as much as 5 tons, traveling 30 meters below sea level. The canister’s speed is close to or on par with their towing vessel. However, the small capacity of narco-torpedoes, as well as their dependency on towing, creates inefficiency.

2. **Submersibles or (FSV) Fully Submersible Vessels** can fully submerge underwater (30 ft below sea level) and are equipped with GPS, advanced radar, and navigational technology. FSVs are invisible to radar. These vessels have a carrying capacity of around 10 tons of narcotics, equivalent to almost $200 million, traveling 2,000 miles at 11 mph. FSV construction however is expensive ($2 million - $4 million), timely, and requires significant expertise.

3. **(LPV) Low Profile Vessels or (SPSS) Self-Propelled Semi-Submersibles** are almost completely submergible with new advancements in technology. LPVs are equipped with water-cooled mufflers, anti-radar equipment, and satellite navigation. Both LPVs and SPSSs cost approximately $1 million, although LPVs have a larger capacity of 10 tons compared to an SPSS’s capacity of 2 tons. LPVs are constructed mostly with fiberglass. Upper lead shields and a stealthy design reduce heat-signature detection. However, both LPVs and SPSSs cannot submerge fully.

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**LOW PROFILE VESSELS**

In addition, the popular low-profile vessels also come in different categories: Categories of LPVs include LPV + very slender (LPV-OM-VSV), LPV with inboard motor (LPV-IM), Hybrid go-fast (LPV-OM), and very slender vessel with inboard motor (LPV-IM-VSV).

1. **LPV + very slender** are increasingly popular among drug-smuggling organizations. Their narrow and long design (55 ft in length, 5 ft in width) allows these vessels to break or even go over waves.

2. **LPV with inboard motors** are the oldest modern LPVs vessels and are not as common today but are still considered relevant. These low-profile vessels barely coast the surface by a few feet. The hull is modeled after a sailing yacht with a small-centered cockpit.

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15 Ramirez, Byron and Robert J. Bunker  
16 Ramirez, Byron and Robert J. Bunker  
17 Ramirez, Byron and Robert J. Bunker  
3. **Hybrid go-fast vessels** can submerge lower underwater. These vessels have a speedboat-style hull, with most of these hulls being modified from power boat hulls. Construction is fast and efficient, but at the expense of stealth.

4. **Very slender vessels with inboard motors** are the rarest. As of 2020, only one of these vessels has been intercepted at sea. A combination of LPV structure, a VPV hull, and inboard motor enhances stealth and reduces payload.

With the PRC’s continued efforts towards modernization and militarization, the U.S. must be prepared if deterrence to avoid this conflict fails. The Marine Corps has proposed through the Expeditionary Advanced Base Operations (EABO) concept that lethality can be further distributed, “by providing land-based options for increasing the number of sensors and shooters beyond the upper limit imposed by the quantity of seagoing platforms available.”²⁰ Through the EABO concept, island bases, when supported, are a “lethal thorn in the enemy’s side.”²¹ However, without a reliable resupply strategy, this would leave the Marine Corps divided rather than distributed, as well as vulnerable to attack and ultimately, defeat.

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¹⁹ Sutton, H. I.  
Force Design 2030 recognizes that to achieve the ideas of the EABO concept, the Marine Corps must work with the Navy to shift toward modernization. The survival of our forces depends on this change.

“We must transform our traditional models for organizing...and equipping the force to meet new desired ends, and do so in full partnership with the Navy.”²³

However, if the modernization of resupply efforts and the enactment of the EABO concept cannot effectively employ the use of ships or aircraft, a new form of resupply must be developed. Surprisingly, the answer is currently right below us, or at least below us at sea. By utilizing “cocaine logistics”²⁴, the Marine Corps and the Navy could use small, low-cost semi-submersibles modeled after LPV narco-sub to resupply small units on land if China invades Taiwan, eliminating resupply inefficiency.

²³ Force Design 2030
THE SOLUTION

The solution to current resupply inefficiency in a potential conflict with China is employing “cocaine logistics” to model small, low-cost, low-profile, and unmanned semi-submersibles after low-profile narco-submarines. Coined first by naval aviator Dylan “Joose” Phillips-Levine, Lt. Cmdrs. Collin Fox, and Capt. Walker D. Mills in their authored work, “War on the Rocks”, cocaine logistics refer to employing narcotraffic practices as a solution to resupply challenges the U.S. may face in the Pacific Ocean. For decades, Narco-traffickers utilized narco-submarines, the majority of which have been successfully able to transport narcotics thousands of miles across sea without detection to not only the U.S., but Europe as well.

“If these vessels can accomplish such a feat to deliver cocaine, what is stopping the Marine Corps and the Navy from utilizing such vessels for combat? To be prepared for fiercely contested waters and areas in the Pacific, this new family of low-profile semi-submersibles must be constructed. These vessels will not solve all U.S. re-supply problems, but with their construction, stealth, and distribution, U.S. supply vulnerability could be reduced, greatly strengthening the efforts of the Navy and the Marine Corps.”


*Photo courtesy of U.S. Southern Command*
Considering what narco-sub, the Navy would look to for inspiration, studying narco-traffickers’ LPV would be advised. Of the four LPVs discussed above, the Navy should study and obtain inspiration from 1) LPV + very slender vessels and 2) LPV with inboard motors.

Hybrid go-fast vessels dive deeper and have a fast construction process. However, these vessels are created at the cost of their stealth. In highly contested waters where supply vessels will be heavily targeted, the LPV semi-submersibles the Navy and Marine Corps would hope to employ must avoid detection at all costs.

Very slender vessels with inboard motors reduce payload and are stealthy. However, due to their rarity, the Navy needs to be able to study numerous LPV narco-sub to ensure expertise on how these vessels avoid detection.

Therefore, LPV + very slender vessels are essential to the study of narco-sub to develop low-profile semi-submersibles for the Navy and Marine Corps due to their popularity among drug-smugglers, as well as their wave-breaking structure.

The waters of the Pacific will be far from calm in the event of a conflict. Therefore, employing the wave-breaking structure of LPV + very slender vessels would be recommended. Additionally, although LPV with inboard motors vessels is less common and older, these semi-submersibles in combination with LPV + very slender vessels are the closest the navy will get to obtain more information on the structure of understanding Very slender vessels with inboard motors.

SMALL, LOW-COST, AND UNMANNED

In developing this new era of semi-submersibles, it is essential that these LPV vessels remain small, low-cost, and unmanned. These semisubmersibles must be small to be suitable for dispersed operations in a contested environment. Despite small size, these small vessels with the capacity of a few tons would allow the transportation and delivery of essential resources to small units based in islands. These semisubmersibles could even be expanded to a larger size for larger base units to supply bulk refuel, small vehicles, and trailers. These larger vehicles could follow the bulkier design of LPV with inboard motors.

These vessels must be cost effective. The average narco LPV costs around $1 million dollars. In the words of strategic policy expert, Colonel James D. “Bullet” McGinley, a low-profile semi-submersible is designed to be expendable and therefore must be as “dirt-cheap as we could get it.” It should be noted that the development of larger low-profile semi-submersibles will cost over $1 million. However, in highly contested waters, these vessels are more durable and have a much higher chance of survival compared to more expensive, manned vessels.

“A larger and more complex vessel would cost much more than the $1 million to $2 million for a traditional low-profile vessel. Even so, they would cost far less and survive far better than the latest proposal for a roughly $100 million manned amphibious vessel.”

Photo courtesy of H. I. Sutton

To achieve economies of scale, these semi-submersibles’ construction should be designated to one shipyard to have “one piece, one place”, or in other words, specialization and materials assigned to one shipyard. A designated shipyard also ensures that a low price will not result in poor quality. Rather, these vessels will be high-quality and can be made in bulk, ensuring efficiency, and preventing resupply strategies from becoming overwhelmed.

Furthermore, if these low-profile semi-submersibles are designed to be unmanned, this will further resupply efficiency because, if needed, these vessels can be disposable. The Navy could recover these vessels following resupply for reuse. However, due to their small size and low-cost, these semi-submersibles could be sunk following resupply to ensure the process is quick, lowering risks to small units involved in unloading the

“Semi-submersible, low-profile vessels would meet Gen. Berger’s call for ‘smaller and less expensive’ intra-theater connectors that are more ‘risk-worthy,’ which is a term of art for expendable and bordering on simply disposable”³⁰

vessels. If intercepted by the enemy, these vessels could be programmed to sink themselves. An even more important feature of these low-profile vessels being unmanned is that there is no risk of resupply involving our people at sea.

DEPLOYMENT

How will these vessels be deployed and launched? This resupply strategy would involve:
1) loading the semi-submersibles,
2) launching the semisubmersibles,
3) unloading the semisubmersibles, and
4) recovering and/or designing the semi-submersibles to be expendable.

1. **Loading** the semi-submersibles would require the vessels to either be deployed from an island within the vessels' traveling radius, or from the Navy's amphibious warfare ships with well decks from which the semi-submersibles could be launched and recovered in closer range to the islands containing small units. This would be a good choice for the mothership platform. The semi-submersible would require a cargo hull for supplies, its capacity ranging from about 4 tons to as high as 20 tons of essential supplies.

2. **Launching** these vessels could either be done from ships or islands within the previously mentioned traveling radius. Launching from islands would require this radius to be expansive enough to encompass the “first island chain”, allowing launches to be performed from Guam, Darwin, and/or Australia. However, if said vessel is traveling 2,000 miles at a speed of 13 knots, the semi-submersible will reach its target after approximately 6.5 days, but at the cost of having no fuel left for return. To resolve this inefficiency, these vessels could be designed with higher fuel capacity without heavily affecting fuel payload, or even be battery-powered, in order to make this round-trip journey. Otherwise, instead of launching these vessels from these islands, the semi-submersibles could be stationed on these islands for ships to pick up and transport across this 2,000 miles radius, deploying the vessels closer to their targets to preserve fuel. Semi-submersibles have several options for deployment, such as expeditionary transfer docks’ floodable decks, a truck carrier with an adapted roll-on/roll-off feature, as well as cranes from naval auxiliaries. These forms of deployment will make targeting by the enemy complicated, while also increasing voyage frequency and decreasing fuel payload.

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3. **Unloading** the semisubmersibles must involve two words: rapid and methodical. To unload, the vessel will have to be beached with the assistance of a surface connector. As the cargo hulls of low-profile semi-submersibles are towards the front of the vessel, supplies must be unloaded quickly. Members of the small units will unload the vessel once it has been beached, allowing for the successful delivery of supplies.

4. **Recovering and/or designing** the vessel to be expendable are the two options for the small units once supplies are successfully acquired. Recovery would involve the vessel leaving the island at high tide. However, if a recovery could result in fatalities, these vessels can be designed to be expendable, such as being able to be sunk, to avoid putting small units at risk. While recovering would be a priority, sinking may occur, similar to World War 2 when hundreds of boast and aircraft were just sunk rather than taken back to the US.

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CONCLUSION

As the PRC grows in dominance as a military power, and a potential threat to Taiwan, the U.S. must address deficiencies in its current resupply capabilities. Two major challenges contribute to resupply inefficiency: unsuitable resupply capacity and reliability, as well as lethality risks to manned ships resupplying in enemy territory. Current resupply efforts that employ aircrafts and ships will leave the U.S. vulnerable to Chinese firepower.

“Narco-subs”, or submarines employed by narcotraffickers, are low-profile and are very rarely detected, transporting millions of dollars of narcotics overseas. Narco-submarines fall under three categories, including Narco Torpedoes, Submersibles or (FSV) Fully Submersible Vessels, and (LPV) Low Profile Vessels or (SPSS) Self-Propelled Semi-Submersibles. However, LPVs are further divided into LPV + very slender (LPV-OM-VSV), LPV with inboard motor (LPV-IM), Hybrid go-fast (LPV-OM), and very slender vessel with inboard motor (LPV-IM-VSV). Narco-subs provide the answer to resupply inefficiency. By modeling low-profile semi-submersibles after narco-subs, these vessels will be able to effectively and rapidly resupply small units stationed on islands in the event of China invading Taiwan. These vessels would more likely take inspiration from LPV-OM-VSVs and LPV-IMs due to their advantages and prevalence. To be successful, these vessels must be small, inexpensive, and unmanned, which is the key to efficiency.

Deployment would be divided into loading, launching, unloading, and either sinking or recovery. To tackle the current deficiencies in resupply efforts, saving thousands of lives, the Marine Corps and the Navy must act now to see through the construction of these vessels.