

THE PEOPLE'S LIBERATION ARMY NAVY: AN EMERGING DRAGON OF THE SEAS

Sabrina Liang

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Professor William A. Joseph

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Asia, where 30% of the global GDP (based on current market in USD) was produced in 2014, is fast-emerging as the 21st century's economic and political nexus.¹ This trend has led regional and international actors to compete over increasing interests – and the People's Republic of China (PRC) is no exception. To secure and protect these interests, Beijing has been developing an anti-access/area denial (A2/AD, or counter-intervention) strategy that would not only deter foreign military movement into PRC-controlled water and air spaces (anti-access), but also disrupt and neutralize them in these areas (area-denial).² Considering Asia's seascape layout, the People's Liberation Army Navy's (PLAN) A2/AD strength has been of particular importance.

Earlier in the PRC's history, military power was primarily continental and heavily based on Mao's strategy of "human wave attacks."³ PRC naval presence was secondary, if not negligible; for example, Mao-era diesel submarines were too noisy and easily detected.⁴ Modest improvements were made post-Mao, such as the introduction of the nuclear submarine; however, a serious lack of software capabilities and inherent technological gaps compared left much of these inutile. In the 1980s, more improvements were made – especially in the PLAN – under Deng Xiaoping's "Four Modernizations." However, one key military campaign *accelerated* China's military development: the U.S.'s Operation Desert Storm (1990-1991).⁵ Here, PLA

¹ The World Bank. 2015. *2015 World Development Indicators: Structure of Output*, 4, accessed December 16, 2015, <http://wdi.worldbank.org/table/4.2#>

² Andrew Krepinevich, Barry Watts, and Robert Work, "Meeting the Anti-Access and Area-Denial Challenge" (Washington, D.C.: Center for Strategic and Budgetary Assessments, May 20, 2003), ii, <http://csbaonline.org/publications/2003/05/a2ad-anti-access-area-denial/>.

³ Matt Johnson, "Think Again: China's Military," *Foreign Policy*, February 12, 2010, <https://foreignpolicy.com/2010/02/11/think-again-chinas-military/>.

⁴ Jeremy Page, "China's Submarines Add Nuclear-Strike Capability, Altering Strategic Balance," *Wall Street Journal*, October 24, 2014, <http://www.wsj.com/articles/chinas-submarine-fleet-adds-nuclear-strike-capability-altering-strategic-balance-undersea-1414164738>.

⁵ Dean Cheng, "The U.S. Needs an Integrated Approach to Counter China's Anti-Access/Area Denial Strategy," *The Heritage Foundation*, accessed December 17, 2015, <http://www.heritage.org/research/reports/2014/07/the-us-needs-an-integrated-approach-to-counter-chinas-anti-accessarea-denial-strategy>.

leader noticed the shift from neutralizing adversaries outright to “paralyzing” its movements first – a much more efficient, technological approach.⁶ Hence, the PLA began to rebuild its military strategy based on A2/AD (or counter-intervention) approaches. With this, the PLAN has undergone numerous A2/AD upgrades since the 1990s – with exceptional improvements made in the recent several years. From overhauling its submarine classes to acquiring powerful anti-ship ballistic and cruise missiles, PLAN has organized a multi-layered approach aimed at forestalling, defending, and engaging adversaries with “increased range, accuracy, and lethality.”⁷ Ultimately, the PLAN’s rising A2/AD regional and global capabilities would help China solidify regional security, sustain its growth and development, increase power projection, and reinforce its domestic political authority.

Perhaps one of PLAN’s most formidable and effectual features is its submarines, which are primarily dedicated towards anti-surface warfare capabilities (i.e. neutralizing enemy surface vessels). Currently, the PLAN has eight submarines classes divided into two categories: the conventional diesel-electric (around 50 models) and the nuclear (5 models).⁸ The PLAN also has four boomers, or nuclear attack submarines (these carry nuclear warheads).⁹ For the diesel-electric submarines, the PLAN has made substantial improvements. In the late 2000s, the PLAN purchased a dozen extremely-quiet, Russian *Kilo*-class submarines.¹⁰ The PLAN itself recently engineered the *Song*- and *Yuan*-class diesel submarines, both capable of launching anti-ship

⁶ Ibid.

⁷ Maj Christopher J. McCarthy, “Anti-Access/Area Denial: The Evolution of Modern Warfare” (Newport, Rhode Island: U.S. Naval War College, 2010), 3, <https://www.usnwc.edu/Lucent/OpenPdf.aspx?id=95>.

⁸ Page, “China’s Submarines Add Nuclear-Strike Capability, Altering Strategic Balance.”

⁹ Ibid.

¹⁰ Dean Cheng, “Taiwan’s Maritime Security: A Critical American Interest,” *The Heritage Foundation*, accessed December 17, 2015, <http://www.heritage.org/research/reports/2014/03/taiwans-maritime-security-a-critical-american-interest>.

cruise missiles (ASCMs).¹¹ The Yuan-class in particular (officially launched in 2006) has an air-independent propulsion (AIP) system that allows it to stay submerged longer like its nuclear counterparts.¹² Since the majority of PLAN submarines are diesel-electric, the *Yuan*-class is a significant upgrade from the noisier *Ming*-class predecessors commissioned in the 1960s.¹³

As for the PLAN's nuclear submarines, numerous upgrades have also been made. In April 2015, the PLAN commissioned three more *Shang*-class attack submarines, to be fitted with the newest YJ-18 ASCMs.¹⁴ The PLAN also has four ballistic missile *Jin*-class submarines, which will carry the JL-2 anti-ballistic missile (SLBM) in the nuclear deterrent and counter-attack capacities.¹⁵ The *Jin* is essentially the PLAN's most modernized sea-based nuclear deterrent to guard against potential nuclear first-strikes and subsequent provocations by rival nuclear nations.¹⁶ Overall, PLAN submarines function as a very effective means of deterrence and engagement for the PRC's current focus on regional defense.

In addition to its submarine upgrades, the PLAN has advanced its anti-ship cruise missile (ASCM) technologies. Its most recent development consists of the placement of YJ-18 ASCMs on the PLAN's submarines and surface combatants. The YJ-18 – which joins earlier models such as the YJ-62 and YJ-83 – has a range of 290 nautical miles (nm), far surpassing the range of its predecessor, the YJ-82. The YJ-18 is capable of “sea-skimming” flight at subsonic speeds to avoid radar detection; by the time it breaks the radar horizon to strike its target within 16-20 nm,

¹¹ Eric Heginbotham et al., “The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017” (Santa Monica, California: RAND Corporation, 2015), 22, http://www.rand.org/content/dam/rand/pubs/research_reports/RR300/RR392/RAND_RR392.pdf.

¹² Ibid.

¹³ “China Submarine Capabilities” (James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies, July 30, 2015), <http://www.nti.org/analysis/articles/china-submarine-capabilities/>.

¹⁴ Ibid.

¹⁵ Heginbotham et al., “The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017,” 29; Greg Torode, “China’s Island Airstrips to Heighten South China Sea Underwater Rivalry,” *Reuters*, September 17, 2015, <http://www.reuters.com/article/us-southchinasea-china-submarines-idUSKCN0RH0DA20150917>.

¹⁶ Heginbotham et al., “The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017,” 29.

it will be at supersonic speed to avoid enemy anti-missile engagement.¹⁷ The YJ-18, with its long-range and technical superiority, is therefore PLAN's most sophisticated ASCM. As such, the YJ-18 can serve as a base model for future variants to refit its guided missile destroyers (DDGs) as well as nuclear-attack and ballistic-missile submarines.¹⁸

In addition to ASCMs, the PLAN also benefits from land-based anti-ship ballistic missiles (ASBM) – more popularly known as “carrier-killers.” The ASBM is revolutionary in terms of its huge distance coverage and dual conventional/nuclear capabilities – the DF-21D, for example, can travel 810+ nm – reaching far into the Western Pacific and Indian Oceans.¹⁹ The DF-26 can travel 1,620+ nm – far enough to reach Guam in the Central Pacific.²⁰ The ASBM, therefore, enhances PLAN's abilities to conduct far seas and Greater Pacific combat.

The PLAN has also been making a number of improvements among its surface forces. In 2012, the PLAN commissioned its first aircraft carrier, the *Liaoning* – a Ukrainian aircraft carrier from the Soviet era refitted by the PLAN.²¹ Although the *Liaoning* will function as a “training carrier,” it sets the precedent for future active aircraft carriers to boost PLAN's carrier strike group (CSG) formations, a key component of any near and far seas operations.²² Other PLAN vessels that have also met higher specifications, such as the *Luyang*-class guided missile

¹⁷ Michael Pilger, “China's New YJ-18 Antiship Cruise Missile: Capabilities and Implications for U.S. Forces in the Western Pacific” (Washington, D.C.: U.S.-China Economic and Security Review Commission, October 28, 2015), <http://origin.www.uscc.gov/sites/default/files/Research/China%E2%80%99s%20New%20YJ-18%20Antiship%20Cruise%20Missile.pdf>.

¹⁸ Ibid.; “The PLA Navy: New Capabilities and Missions for the 21st Century” (Washington, D.C.: U.S. Office of Naval Intelligence, April 2015), 13, http://www.oni.navy.mil/Intelligence_Community/china_media/2015_PLA_NAVY_PUB_Interactive.pdf.

¹⁹ Henry J. Kazianis, “Lifting the Veil on China's ‘Carrier-Killer,’” *The Diplomat*, October 23, 2013, <http://thediplomat.com/2013/10/lifting-the-veil-on-chinas-carrier-killer/>.

²⁰ Andrew S. Erickson, “Chinese Anti-Ship Ballistic Missile (ASBM) Development: Drivers, Trajectories and Strategic Implications” (Washington, D.C.: The Jamestown Foundation, May 2013), http://www.andrewerickson.com/wp-content/uploads/2014/01/China-ASBM_Jamestown_2013.pdf; Pilger, “China's New YJ-18 Antiship Cruise Missile: Capabilities and Implications for U.S. Forces in the Western Pacific,” 7.

²¹ Kyle Mizokami, “The Five Most-Powerful Navies on the Planet,” *The National Interest*, accessed December 14, 2015, <http://www.nationalinterest.org/feature/the-five-most-powerful-navies-the-planet-10610>.

²² U.S. Office of Naval Intelligence, “The PLA Navy: New Capabilities and Missions for the 21st Century,” 20.

destroyers (DDGs) (vital in anti-submarine warfare and mid- to long-range missions) and the amphibious *Yuzhao*-class transport dock ships (LPDs) (vital in rapid troops and weapons transport for near seas amphibious assaults).²³ Additionally, there are the *Jiangkai*-class frigates (now equipped with HHQ-9 surface-to-air missile defense systems), and the *Jiangdao*-class corvettes (perfect for patrolling EEZ waters with its four ASCMs and high maneuverability).²⁴ The DDGs, frigates, and corvettes in particular have seen marked improvements, as they form the bulk of PLAN's regional combat formations and future transition towards open seas engagement.²⁵ The PLAN's construction of a new cruiser class (which would have land, air, sea, and sub-surface missile-strike capabilities) is underway.²⁶

Other key naval upgrades in the past several years include the new *Dragon Eye* radar system (installed on the *Luyang I*- and *II*-class destroyers), the HQ-9 SAM system naval air-defense system (installed on various combatants), the *Luyang-III*'s universal vertical launch system (VLS), and more.²⁷ These combat management systems, along with other C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) measures, provide crucial expeditionary logistics and surveillance sensors for successful PLAN missions.²⁸

²³ Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017," 177-180; U.S. Office of Naval Intelligence, "The PLA Navy: New Capabilities and Missions for the 21st Century," 23.

²⁴ U.S. Office of Naval Intelligence, "The PLA Navy: New Capabilities and Missions for the 21st Century," 24; Cheng, "Taiwan's Maritime Security"; Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017," 177-180.

²⁵ U.S. Office of Naval Intelligence, "The PLA Navy: New Capabilities and Missions for the 21st Century," 43.

²⁶ *Ibid.*, 10.

²⁷ Cheng, "Taiwan's Maritime Security"; U.S. Office of Naval Intelligence, "The PLA Navy: New Capabilities and Missions for the 21st Century"; Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017."

²⁸ U.S. Office of Naval Intelligence, "The PLA Navy: New Capabilities and Missions for the 21st Century," 21-23; Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017," 21-22.

Ideally, PLAN's A2/AD technical capabilities would give China innumerable benefits in advancing its tactical and strategic objectives. Tactically, PLAN's rising capabilities would boost China's regional influence vital to its economic growth, energy supplies, and military security. One area of interest is the East China Sea (ECS), in which China has been in gridlock with Japan over the territorial rights to the Diaoyu/Senkaku Islands. Reportedly rich in oil and natural gas reserves, these islands are also strategically vital to China's maritime security strategy of forming a "first-island chain," which would encompass the Yellow, East, and South China Seas. Not much has happened recently in terms of diplomacy, but for future talks, the PLAN will undoubtedly be a part of the PRC's maritime diplomacy. Should the possibility of a China-Japan clash occur, the PRC could have its various ballistic-missile and nuclear-capable submarines surround Japan and deploys its ASCM-armed surface combatants – before resorting to other measures in the face of U.S. intervention.

In addition to the ECS, the South China Sea (SCS) is also vital to China's geoeconomic and political interests. In the past decade, China has taken significant actions, such as island-building on the Spratly reefs and asserting its nine-dash line proposal, a border which encroaches upon the 200 nautical-mile Economic Exclusive Zones (EEZ) of six Southeast Asia countries.²⁹ To help Beijing in its efforts, PLAN upgrades have been employed in effective posturing measures. In December 2013, the PLAN launched its first nuclear submarine deployment through the region, passing through the Strait of Malacca, a principal trade route in the South China Sea.³⁰ Such measures have stoked concern in its Southeastern neighbors, which are militarily-weaker and lack in size. The PLAN's submarines, surface forces, naval air fighters, and now physical bases (Spratlys) are enough to eliminate thoughts of direct engagement in the

²⁹ Shannon Tiezzi, "Philippine FM: China's 9-Dash Line a 'Berlin Wall of the Sea,'" *The Diplomat*, September 3, 2015, <http://thediplomat.com/2015/12/philippine-fm-chinas-9-dash-line-a-berlin-wall-of-the-sea/>.

³⁰ Page, "China's Submarines Add Nuclear-Strike Capability, Altering Strategic Balance."

SCS, which would be too costly. Clearly, as PLAN continues to modernize, Beijing will grow increasingly confident in securing heavily-used commercial sea lines of communication (SLOCs) and militarily-strategic territories.

Lastly, another key tactical objective is maintaining leverage over Taiwan, both in terms of cross-strait relations and military capabilities. Taiwan connects the ECS and SCS, which makes it a key part of China's first-island chain strategy.³¹ With the PLAN's recent modernizations, the PLA has been able to grow its A2/AD cover over Taiwan without much fear of Taiwan's limited military: the YJ-18 ASCMs, the *Jingdao* corvettes (first response), the *Yuzhao* LPDs (amphibious invasion), and even the PLAN's combat aircraft (bombers and strikers) can easily overpower Taiwan's limited air-sea defenses and strike its vital trading ports.³² In regards to countering U.S. intervention, the PLAN still has a capability gap in terms of anti-submarine warfare and other key systems.³³ However, the PLAN can challenge U.S. forces by augmenting the logistical complexities to operate in such a heavily A2/AD-controlled zone.

All these tactical goals are conducive to achieving China's strategic objective countering of U.S. Asia-Pacific influence, which will be necessary if it wants to dominate its near and far seas. In the future, as PLAN's hard-asset equipment, software systems, and logistical measures become more sophisticated and integrated, Beijing could have a number of military options. Already, the PLAN can conduct far more flexible and thorough air-sea combat with the near-completion of a 3,000-meter airstrip in the Spratly Islands, with two more in pre-construction.³⁴ Although Xi Jinping rejects claims that these airstrips will be "militarized," it is clear that these

³¹ Cheng, "Taiwan's Maritime Security."

³² Ibid.

³³ Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017."

³⁴ Josh Chin and Jeremy Page, "South China Sea: Satellite Images Show China's Continued Island Building," *The Wall Street Journal*, September 16, 2015, <http://blogs.wsj.com/chinarealtime/2015/09/16/south-china-see-satellite-images-show-chinas-continued-island-building/>; Torode, "China's Island Airstrips to Heighten South China Sea Underwater Rivalry."

will be a strategic logistical asset for PLAN in conducting potential missions to forestall, deter, and neutralize future U.S. military movements.³⁵ Beijing can also engage ASBMs if the DF-21D's predicted strike range is true: 2,700 km is well enough to contain U.S. forces China's near seas and Central Pacific; if Beijing wanted to go as far as Guam, it could use the DF-26.³⁶ In addition, PLAN commanders can employ SAGs (surface-action groups) – which are comprised of the LPDs and DDGs – to secure various "chokepoints" (i.e. straits) before U.S. containment measures take hold.³⁷ From there, PLAN can maneuver its various submarines, launch ASCMs and other anti-ballistic missiles, and scramble U.S. command-and-control systems (using methods such as cyberwarfare).³⁸ These are all major ways for China to not only deny American (or American-led) intervention, but to also deter the justifications and motivations for it in the first place (i.e. "mission-kill").³⁹ For now, China's "first island-chain" strategy to counter U.S. Asia-Pacific influence will heavily depend on successful naval A2/AD control over its near seas. Afterwards, Beijing will move forward with its second- and third-island chains, as well as blue-water maritime operations that cover its SLOCs in the Indian Ocean and Persian Gulf.

In the big picture, the CCP's tactical and strategic objectives all point back towards its underlying goal: one-party political control over all areas of domestic development. Militarily, the PLAN's counter-intervention systems and measures would contain *foreign* assistance of any internal separatist movements (remember, domestic unrest is handled by the People's Armed Police). Diplomatically, having a strong PLAN – or PLA in general – would reduce and curtail

³⁵ "Showdown in the South China Sea: How Did We Get Here?," *CNN*, accessed December 15, 2015, <http://www.cnn.com/2015/10/28/asia/china-south-china-sea-disputes-explainer/index.html>.

³⁶ Henry J. Kazianis, "China's New Anti-Ship Missile: A Pacific Nightmare for the US?," *East Asia Forum*, September 29, 2011, <http://www.eastasiaforum.org/2011/09/29/chinas-new-anti-ship-missile-a-pacific-nightmare-for-the-us/>.

³⁷ Heginbotham et al., "The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996-2017," 2.

³⁸ *Ibid.*, 4.

³⁹ Cheng, "The U.S. Needs an Integrated Approach to Counter China's Anti-Access/Area Denial Strategy."

foreign diplomatic intervention into domestic political affairs. This is important in the long-run because the CCP must be in full control over what and how reforms occur. In any case, the CCP's rising military power will affect how it addresses future internal and external political issues; after all, the CCP leadership has not forgotten Mao Zedong's words that "the Party commands the gun, and the gun must never command the Party."⁴⁰

In the final analysis, the People's Liberation Army Navy is no longer a slow, antiquated colossus – it is swiftly becoming a streamlined, multi-functional global force with which to be reckoned. The PRC's military leaders may still explicitly label the PLAN as a "self-defense force," but it is clear that as the PLAN solidifies its mainly defensive near seas capabilities, it will build its "open seas protection" capabilities as well, in which we may see more offensive developments.⁴¹ With this, it would be no overstatement to say that as PLAN continues to modernize, the Chinese government will continue to gain leverage in furthering its expanding interests, doing so through means that the global community will increasingly find hard to ignore.

⁴⁰Robert Ash, *China's Integration in Asia: Economic Security and Strategic Issues* (Routledge, 2013); Mao Zedong, "Problems of War and Strategy," in *Selected Works of Mao Tse-tung: Volume II* (1938), accessed December 17, 2015, https://www.marxists.org/reference/archive/mao/selected-works/volume-2/mswv2_08.htm.

⁴¹Edward Wong, "China Expands Naval Power to Waters U.S. Dominates," *The New York Times*, April 23, 2010, <http://www.nytimes.com/2010/04/24/world/asia/24navy.html>; "China's Military Strategy," White Paper (Beijing, PRC: The State Council Information Office of the People's Republic of China, May 2015), http://www.chinadaily.com.cn/china/2015-05/26/content_20820628.htm.

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