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WHITE PAPER

**“WAR WITHOUT GUN SMOKE”
USING NON-LETHAL WEAPONS
TO COUNTER
CHINA’S ASYMMETRIC MARITIME
ANTI-ACCESS/AREA DENIAL**



JOINT STAFF J-8 FORCE PROTECTION DIVISION

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Executive Summary

To counter Chinese gray-zone actions, the Joint Force must change its mindset toward non-lethal weapons (NLWs) and leverage them in the United States Indo-Pacific Command's (USINDOPACOM) area of responsibility (AOR) against the subset of gray-zone operations conducted by the People's Armed Forces Maritime Militia (PAFMM). The People's Republic of China (PRC) relies on PAFMM to challenge international norms that create dilemmas for the Joint Force, undermine allied and partner confidence in U.S. resolve, and allow China to incrementally expand positional advantage to contest, and if necessary, strike U.S. vital interests first in the Western Pacific; what Chinese sources call "War Without Gun Smoke."

The *2018 National Defense Strategy* (NDS) designated lethality its primary line of effort. But throughout the South and East China Seas (SCS/ECS) PRC irregular maritime forces are advancing Beijing's objectives by avoiding armed conflict and creating effective control in the region by advancing anti-access/area denial (A2/AD) capabilities to curtail U.S. power projection. Allies and partners seek more assertive approaches to counter this asymmetric threat while Joint Force lethality is ineffective and unsuitable for addressing the threat.

The *2021 Interim National Security Strategic Guidance* (INSSG) directed capability development to better compete and deter gray zone actions. With the focus on integrated deterrence and Joint Doctrine's recognition of the importance of the competition continuum, Service Chiefs have presented ideas, strategies, and concepts to confront gray zone malign behavior and shape adversary perceptions of control by using undefined non-lethal capabilities.

The Joint Force is not presently equipped to effectively counter the threat, but a framework is in place to do so. The Department of Defense (DoD) Non-Lethal Weapons Program is well established with a long-standing DoD policy directive designating NLWs as a means for deterrence and expanding options for commanders. The Joint Requirements Oversight Council (JROC) validated requirements for NLW capabilities. And there is a Joint Non-lethal Weapons Program (JNLWP) directorate with systems to counter asymmetric gray-zone threats available for acquisition and in various phases of research and development.

But the Joint Force undervalues NLWs; myopically viewing them as a capability for law enforcement and security forces. When, in fact, the JNLWP has armaments that engage at greater ranges and with more versatility than commonly thought. Capabilities with potential beyond force protection.

This paper proposes joint forces, along with allies and partners, use available and maturing NLW capabilities as part of a campaign below armed conflict to target PAFMM A2/AD activities in the USINDOPACOM AOR. Through overt and clandestine ways NLWs will deny Chinese maritime sovereignty operations against our vital interests and retain positional and information advantage by suppressing PAFMM forces. The desired operational and strategic outcomes seek to deter future operations by exploiting friction within Chinese command and control (C2) systems and dissuading militia participation by demoralizing PAFMM crews and straining the PRC's PAFMM funding.

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For the Joint Force to compete, counter and deter malign gray zone actions threatening U.S. interests in the USINDOPACOM AOR this paper recommends a Doctrine, Organization, Training, materiel, Leadership and education, Personnel, Facilities, and Policy (DOTmLPF-P) Change Recommendation (DCR). The DCR maximizes the DoD Non-Lethal Weapons Program, reinvigorates NLWs in Joint Force design, and ensures a framework and authorities for assertive NLW use in competition, crisis, and conflict. With JROC endorsement of the white paper a Community of Interest can be initiated to review Department efforts and a methodology for reports to the JROC will be instantiated.

**War Without Gun Smoke:
Using Non-Lethal Weapons to Counter China's Asymmetric Maritime A2/AD**

"We will develop capabilities to better compete and deter gray zone actions."¹

-2021 Interim National Security Strategic Guidance

Purpose. This paper seeks to change the current lethality focused mindset by pivoting attention toward the importance of non-lethal capabilities to ensure the joint forces retain the advantage, gain the initiative, and dominate across the *competition continuum*.² Our adversaries are outpacing us in this regard, using asymmetric non-lethal capabilities to set A2/AD conditions to achieve their strategic objectives and threaten U.S. vital interests while rendering our lethal capabilities unsuitable or sub-optimal for response.

Non-lethal weapons (NLWs) are a weapon of choice to counter this trend, especially against "gray zone" activities and during armed conflict when military and informational efficacy of NLWs outweighs that of lethality. The paper highlights the applicability of DoD NLW technologies as a capability to counter PRC A2/AD capabilities; especially irregular forces employed in malign maritime actions during competition below armed conflict.

Central Idea. The PRC consistently challenges international norms and exploits rules of engagement (ROE) with gray zone actions that create dilemmas for the Joint Force, undermine allied and partner confidence in U.S. resolve, and allow China to incrementally expand positional advantage to contest, and if necessary, strike U.S. vital interests first.³ It is a "War Without Gun Smoke" (一场没有硝烟的战争).⁴ As part of integrated deterrence the Joint Force must employ NLWs as part of a campaign below armed conflict, delivering a level of force to compel, limit, interdict, or challenge adversaries when presence is insufficient but lethal force is unsuitable.

Figure 1 conceptualizes this dilemma. Within the *competition continuum* there lies a range of effects the Joint Force aims to achieve against adversaries without escalating to lethal effects; usually by, with, and through allies, partners and other agencies. NLWs fill the capability gap in the intermediate space between the presence of "Force in Being" and decision to apply "Lethal Force."⁵ NLWs expand options for commanders by removing the binary "no win" choice of conceding the competition space or disproportionate response.

¹ 2021 Interim National Security Strategic Guidance, (The White House: Washington, March 2021), pg. 14, at <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>.

² Joint Doctrine Note 1-19, "Competition Continuum," June 3, 2019, pp. 4-5.

³ David Knoll, Kevin Pollpeter, and Sam Plapinger, "China's Irregular Approach to War: The Myth of a Purely Conventional Future Fight," (The Modern War Institute: West Point, April 27, 2021), at <https://mwi.usma.edu/chinas-irregular-approach-to-war-the-myth-of-a-purely-conventional-future-fight/>.

⁴ Andrew Erikson, "The South China Sea's Third Force: Understanding and Countering China's Maritime Militia," House Armed Services Committee Seapower and Projection Forces Subcommittee Hearing, (U.S. Congress: Washington, September 21, 2016), pg.1, at <https://docs.house.gov/meetings/AS/AS28/20160921/105309/HHRG-114-AS28-Wstate-EriksonPhDA-20160921.pdf>.

⁵ The Commandant of the Marine Corps, As the DoD Executive Agent for NLWs, introduced the term Intermediate Force Capabilities (IFCs) in 2020 to drive a dialogue and change perceptions about NLWs' potential. IFCs is the conceptual synergistic use of NLWs and other non-lethal means to achieve military and political objectives when

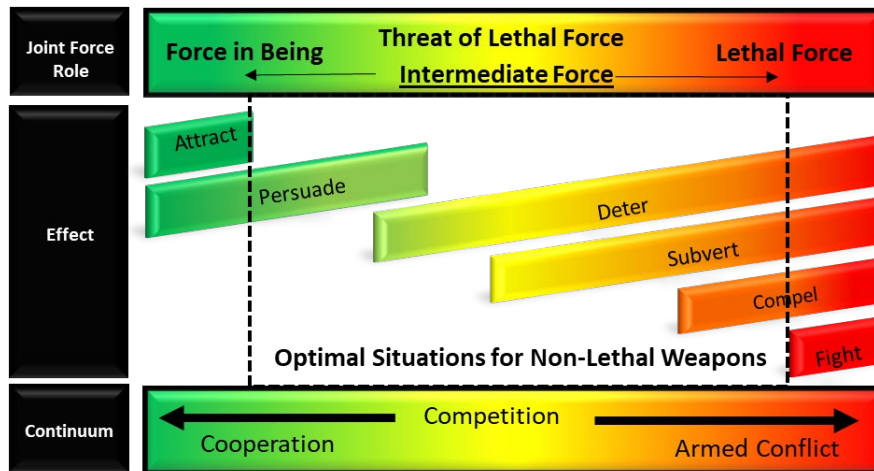


Figure 1. Non-Lethal Weapons Within the Competition Continuum

NLWs immediately, but temporarily impair, disrupt, delay, or neutralize targets across domains to limit adversary freedom of action.⁶ Their strategic value to DoD:

- Prevents miscalculation to better manage strategic escalation
- Creates decision space and time
- Allows U.S., allied and partner forces to better compete and deter
- Enhances information operations and enables information maneuver
- Maintains, gains, or re-gains the initiative

Through creative capability development and Joint Force employment, NLWs:

- Deliver accurate, tailorable, and compelling effects to disable vessels/vehicles, help counter unmanned systems, canalize or repel personnel, and suppress observation
 - Expand freedom of action by creating dilemmas where adversaries must concede or escalate at disadvantage
 - Enable Intelligence, Reconnaissance, and Surveillance (ISR) by probing adversary systems to test reactions and capabilities
 - Reduce adversary propaganda opportunity with proportional, humane, non-attributional effects
 - Overtly communicate intent and redlines or clandestinely deliver effects mitigating attribution
 - Support military deception and irregular operations
 - Improve allied and partner capabilities, through Security Force Assistance (SFA) to credibly and proactively counter PRC disruption to Exclusive Economic Zones (EEZs).

lethal force is not suitable. IFC is a non-doctrinal term. Exploration and discussion of the concept continues in NATO, DoD, and Joint venues. For simplicity this paper uses the doctrinally accepted term “non-lethal weapons.” U.S. Department of Defense Non-lethal Weapons Program, *Intermediate Force Capabilities: Bridging the Gap Between Presence and Lethality*, Executive Agent’s Planning Guidance, March 2020, pp. 1-2, available at https://jnlwp.defense.gov/Portals/50/Documents/Resources/Publications/Government_Reports/DoD%20NLW%20EA%20Planning%20Guidance%20March%202020%20Signature%20Version_cvrcorr_5OCT20.pdf?ver=g-DHd6MZSzcxdjBauikQ%3d%3d.

⁶ Joint Publication 3-09, *Joint Fire Support*, April 10, 2019, page III-13.

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With proper authorities NLWs give a comparative advantage to compete asymmetrically and seize the initiative without triggering armed response. Such a framework denies adversary strategic gains by allowing forward-deployed forces, allies and partners to adopt more assertive postures. Applying non-lethal force imposes costs to provocations and coercion without losing credibility in the information space or creating irreversible escalation.⁷

I. The Dilemma: China's Asymmetric Maritime A2/AD –Winning Without Firing a Shot

“The United States is devoting significant energy to preparing for great power war, but China is waging a maritime insurgency – and could win without firing a shot.”⁸

– Hunter Stires, *“Win Without Fighting,” Proceedings, June 2020*

U.S. strategic guidance emphasizes a secure and free Indo-Pacific as vital to its national security interests. It cites growing PRC military power and aggressive statecraft as threatening the rule of international law and freedom of the seas. Accordingly, the Indo-Pacific is the DoD's priority theater.⁹ The 2018 NDS made increasing Joint Force lethality its priority.¹⁰ Preparedness for war is essential to deterrence, as is modernizing key capabilities for lethal overmatch.¹¹ This approach may avoid conventional war, but it creates a proverbial “Maginot Line” of lethality rendered irrelevant when an adversary, like China, intends to “win without fighting.”¹²

Chinese sources call it “War without Gun Smoke” (一场没有硝烟的战争).¹³ It is a campaign of low-level coercion to assert control of disputed spaces in the region using a steady progression of small, incremental steps in the “gray zone” between peaceful relations and overt hostilities to secure its aims, while remaining below the threshold of armed conflict.¹⁴ Throughout the SCS/ECS the People's Liberation Army (PLA) asserts force in a manner that undermines allied and partner confidence, outmaneuvers Joint Force capabilities, and expands PRC positional advantage to contest, and if necessary, strike U.S. vital interests first.¹⁵

⁷ U.S. Navy, Marine Corps, and Coast Guard Tri-Service Maritime Strategy, *Advantage at Sea: Prevailing with Integrated All-Domain Naval Power*, December 2020, pg. 18, <https://media.defense.gov/2020/Dec/17/2002553481/-1/-1/0/TRISERVICESTRATEGY.PDF/TRISERVICESTRATEGY.PDF>.

⁸ Hunter Stires, “Win Without Fighting,” *Proceedings*, Vol. 146/6/1,408. (U.S. Naval Institute, June 2020) available at <https://www.usni.org/magazines/proceedings/2020/june/win-without-fighting>.

⁹ *The Department of Defense 2019 Indo-Pacific Strategy Report: Preparedness, Partnerships and Promoting a Networked Region*, (Washington D.C.: The Department of Defense, June 1, 2019), pg. i, at <https://media.defense.gov/2019/Jul/01/2002152311/-1/-1/1/DEPARTMENT-OF-DEFENSE-INDO-PACIFIC-STRATEGY-REPORT-2019.PDF>.

¹⁰ *Summary of the 2018 National Defense Strategy (NDS)*, (Washington D.C.: The Department of Defense), pg. 5, at <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.

¹¹ *Ibid*, pp. 5-6.

¹² Stires.

¹³ Erikson, “The South China Sea's Third Force,” pg. 1

¹⁴ Lyle J. Morris, et. al., *Gaining Competitive Advantage in the Gray Zone: Response Options for Coercive Aggression Below the Threshold of Major War*, (Santa Monica: RAND Corporation, 2019), pp. 7-9, at https://www.rand.org/content/dam/rand/pubs/research_reports/RR2900/RR2942/RAND_RR2942.pdf

¹⁵ Ronald O'Rourke, *China's Actions in South and East China Seas: Implications for U.S. Interests—Background and Issues for Congress*, (Washington D.C.: Congressional Research Service, updated January 31, 2019), Summary, at <https://crsreports.congress.gov/product/pdf/R/R42784/87>.

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The PLA is effectively changing the status quo, advancing PRC objectives, and creating dilemmas for the Joint Force by avoiding overt conflict. Only within the last ten years has the U.S. realized, studied and begun to understand PRC intentions to achieve effective control in the SCS/ECS, and how it uses gray zone tactics for a A2/AD military strategy to curtail U.S. power projection in the region by setting terms for access, especially to partner nations.¹⁶

This approach embraces the Chinese concept of “the Three Warfares”; the coordinated use of media/public opinion, psychological, and legal warfare methods to “shape the battlespace by creating a favorable strategic and operational environment prior to hostilities.”¹⁷ The interactive nature of the Three Warfares provides the basis for launching an attack (legal warfare), delegitimizing the adversary (public opinion warfare) and demoralizing the adversary (psychological warfare). This synergy reinforces A2/AD for U.S. access by modifying regional expectations and raising doubts about the legitimacy and credibility of American presence.

As an integrated offensive weapon, the Three Warfares do not conform to our concept of war that emphasizes kinetic exchange. In its ideal application resistance is broken and Chinese national objectives achieved “with little or no actual fighting.”¹⁸

III. The Threat: China’s Maritime Militia – “Little Blue Men”¹⁹

“China’s irregular sea force is one of the most important—yet most under considered—factors affecting U.S. security interests in the South China Sea.”²⁰

– Dr. Andrew Erikson, House Armed Services Committee Hearing, September 21, 2016

As part of a greater national Military-Civil Fusion (MCF) development strategy, China’s irregular forces, especially the People’s Armed Forces Maritime Militia (PAFMM), have a central role enabling the Three Warfares in the Indo-Pacific, and the ECS/SCS in particular; notably by being an asymmetric A2/AD capability at the tactical edge to assert control over disputed territory.²¹ The PAFMM set precedent with the occupation of the Paracels in 1974 and

¹⁶ Michael Green, Kathleen Hicks, and Mark Cancian, *Asia-Pacific Rebalance 2025: Capabilities, Presence, and Partnerships*, (Washington D.C.: Center for Strategic and International Studies, January, 2016), pp. 4-5., at https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/160119_Green_AsiaPacificRebalance2025_Web_0.pdf

¹⁷ Knoll, Pollpeter, and Plapinger.

¹⁸ Doug Livermore, “China’s ‘Three Warfares’ in Theory and Practice in the South China Sea,” *Georgetown Security Studies Review*, (Georgetown University Center for Security Studies: Washington, D.C., March 25, 2018), at <https://georgetownsecuritystudiesreview.org/2018/03/25/chinas-three-warfares-in-theory-and-practice-in-the-south-china-sea/>.

¹⁹ Andrew Erikson, Conor Kennedy, “Directing China’s ‘Little Blue Men’: Uncovering the Maritime Militia Command Structure,” Asia Maritime Transparency Initiative (Center for Strategic and International Studies: Washington D.C., September 11, 2015) at <https://amti.csis.org/directing-chinas-little-blue-men-uncovering-the-maritime-militia-command-structure/>.

²⁰ Erikson, “The South China Sea’s Third Force,” pg. 2.

²¹ Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2020*, (Department of Defense: Washington D.C., 2020), pg. v-vi, at <https://media.defense.gov/2020/Sep/01/2002488689/-1/-1/2020-DOD-CHINA-MILITARY-POWER-REPORT-FINAL.PDF>

Mischief Reef in 1995. Since then, its importance to PRC maritime strategy has increased relative to the PRC’s modernization investments in more advanced systems.²²

China’s reliance on joint military-civilian border management system was well documented in a year 2000 PLA defense white paper.²³ The PLA incrementally moved from a navy-centric to a multiagent approach of maritime law enforcement and militia for tackling disputes in China’s near seas, so it could focus on Taiwan preparations. PAFMM became central to force design.

Even when President Xi Jinping downsized the PLA to modernize it, he prioritized investment in PAFMM (Figure 2). In 2013 Xi personally initiated a nationwide thrust for PAFMM to be “a genuine third arm of China’s ‘PLA-law enforcement-militia joint defense’ maritime sovereignty defense strategy.” This development prompted the U.S. Congress to require the DoD to assess the security implications of the transforming Chinese maritime command structure in the SCS/ECS in the *Fiscal Year 2020 National Defense Authorization Act* (FY20 NDAA).²⁴

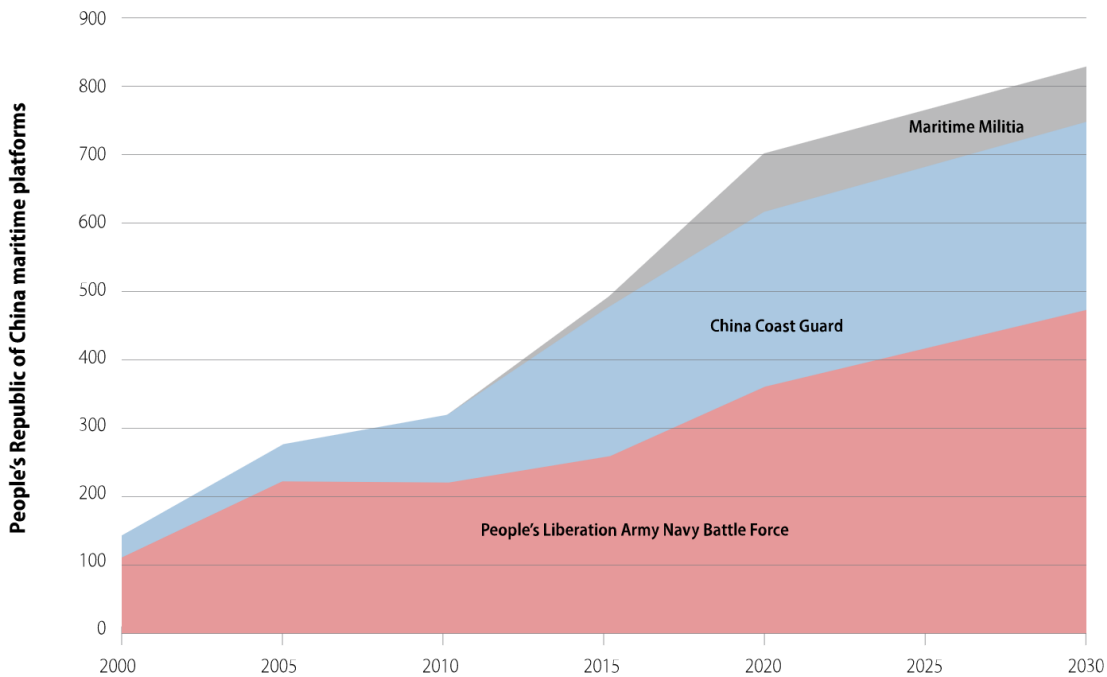


Figure 2. Growth of China’s Maritime Forces since 2000²⁵

²² Derek Grossman and Logan Ma, “A Short History of China’s Fishing Militia and What it May Tell Us,” *Maritime Issues*, April 6, 2020, at <http://www.maritimeissues.com/history/a-short-history-of-chinas-fishing-militia-and-what-it-may-tell-us.html>.

²³ Shuxian Luo, Jonathan Panter, “China’s Maritime Militias and Fishing Fleets: A Primer for Operational Staffs and Tactical Leaders,” *Military Review* Vol. 101, No.1,(Army University Press: Ft. Leavenworth, January-February 2021), pg. 10, at <https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-21/Panter-Maritime-Militia-1.pdf>.

²⁴ House Armed Services Committee, “FY2020 NDAA Summary,” pg. 12, available at <https://armedservices.house.gov/cache/files/f/5/f50b2a93-79aa-42a0-a1aa-d1c490011bae/3552B8ED0CB74FB28CC88F434EFB306A.fy20-ndaa-conference-summary-final.pdf>

²⁵ Tri-Service Maritime Strategy, *Advantage at Sea*, pg. 4 (sourced by the Office of Naval Intelligence).

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PAFMM significant capabilities and strengths: The PAFMM is separate from the Peoples Liberation Army Navy (PLAN) and the China Coast Guard (CCG), though it receives its training from them both. The PAFMM is composed of citizens working in the marine economy called upon to conduct tasks like border patrol, surveillance and reconnaissance, maritime transport, search and rescue, and auxiliary support of wartime operations.²⁶

PAFMM consists of professional militia vessels and part-time fishing boats recruited by subsidy programs. Ships generally measure 35 to 55 meters or more. Professional ships include explicitly military features, but even subsidized boats have steel hulls for ramming. As of November 21, 2021, the Asia Maritime Transparency Initiative (AMTI) identifies 120 PAFMM vessels, another 53 likely, and substantial auxiliaries.²⁷ PAFMM's formidable attributes include:

Low detection signature. The large number of militia-affiliated vessels dispersed amongst the congestion of the SCS, plus their minimal electronic emissions and radar cross-sections makes identification difficult and enables infiltration.²⁸

Disruptive swarm tactics. PAFMM fishing vessels are cheap, numerous, and use their low signature to converge to easily outnumber warships. In high numbers they pose both a safety hazard and asymmetric threat. Even in small numbers, they enhance A2/AD capability and PLAN freedom of action by inhibiting friendly towed arrays and flight operations.²⁹

Reconnaissance support. PAFMM vessels are widely fielded with satellite communication terminals and shortwave radio for beyond line-of-sight communications. This permits "communication with the People's Armed Forces Department, whose purpose is to assist with the reconnaissance function."³⁰ However, the lack of onboard advanced sensors restricts PAFMM to reconnaissance by visual identification techniques.³¹

"First mover" asset. In open or clandestine military operations, PAFMM will be closely integrated with other PLA irregular and conventional forces to enhance A2/AD. Their paramilitary nature allows the PLA to position and shape conditions for a first mover advantage at the outset of hostilities.³² Chinese writers discuss a number of wartime missions for the PAFMM such as ISR, counter-ISR, mine-laying, sabotage, anti-aircraft, raiding, and electronic warfare (EW).³³ Furthermore, while new U.S. warfighting concepts emphasize distributed

²⁶ Andrew Erikson, "Fact Sheet: The People's Armed Forces Maritime Militia," *China Analysis from Original Sources*, April 29, 2019, at <https://www.andrewerickson.com/2019/04/fact-sheet-chinas-maritime-militia/>

²⁷ Gregory Poling, Tabitha Grace Mallory, and Harrison Pr  tat, "Pulling Back the Curtain on China's Maritime Militia" (Center for Advanced Defense Studies: Washington D.C., November 2021), pp. 50-60, available at https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/211118_Poling_Maritime_Militia.pdf?Y5iaJ4NT8eITSLAKTr.TWxtDHuLlq7wR.

²⁸ Luo and Panter, "China's Maritime Militias and Fishing Fleets", pp. 16-17.

²⁹ Ibid.

³⁰ Ibid, 17.

³¹ Ibid.

³² Elsa Kania, "Minds at War: China's Pursuit of Military Advantage through Cognitive Science and Biotechnology," *PRISM*, Vol. 8, No. 3, (National Defense University: Washington D.C., January 2020) pg. 84, at https://ndupress.ndu.edu/Portals/68/Documents/prism/prism_8-3/prism_8-3_Kania_82-101.pdf.

³³ Knoll, Pollpeter, and Plapinger.

operations, PAFMM offers an ideal asset to find and strike small units dispersed in third-party territory.³⁴ The combined effects will rapidly expand Chinese A2/AD and cripple Joint Force options before a crisis turns kinetic. If PAFMM is not neutralized prior to hostilities, the U.S. risks fighting at disadvantage and losing the initiative, perhaps decisively.

Deniability. A core strength. PAFMM vessels “harass and intimidate foreign civilian craft and warships while leaving the PRC room to deescalate by denying its affiliation with these activities.”³⁵ PAFMM forces’ ever shifting civilian-military status means they often combine commercial activities during paramilitary “maritime rights” operations in disputed areas. This lessens chances of diplomatic or military ramifications. Weaker nations hesitate to avoid provoking a PRC response. Stronger powers might not confront vessels if they cannot identify affiliation. Either way, unchallenged PAFMM activities strengthen PRC maritime claims.³⁶

IV. So What? – “A Force to be Reckoned in the Years to Come”

“You could drive three aircraft carriers into the East China Sea, it’s not going to deter [China’s] coast guard or the maritime militia that is scaring away a fishing fleet.”³⁷

– Gen. David Berger, Commandant of the Marine Corps, September 1, 2021

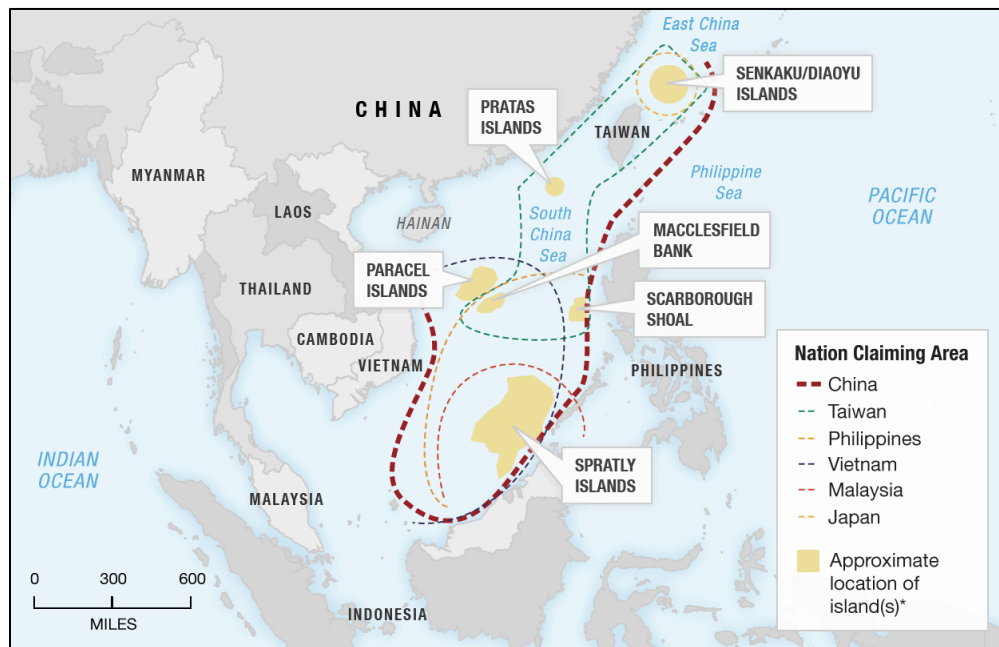


Figure 3. Territorial Claims in the South and East China Seas³⁸

³⁴ Ibid.

³⁵ Luo and Panter, 12.

³⁶ Ibid, 16.

³⁷ Justin Katz, “US Should Pursue ‘Deterrence By Detection,’ Says Marine Corps Commandant,” *Breaking Defense*, September 01, 2021, available at <https://breakingdefense.com/2021/09/us-should-pursue-deterrence-by-detection-says-marine-corps-commandant/>.

³⁸ Scott Neuman, and Anthony Kuhn, “Beijing Reportedly Installs Communications Jamming Equipment In South China Sea,” *NPR: The Two-Way*, (April 10, 2018), (Map by Stephanie d’Otreppe) accessed at

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China's ECS/SCS maritime sovereignty activities challenged vital U.S. regional interests over two decades. PRC efforts to regulate and restrict foreign militaries in its EEZ is a central source of friction as it is counter to international freedom of navigation norms. The PRC seeks to erode U.S. alliances, especially with Japan and the Philippines, by pressuring territorial disputes in the Senkaku and Spratly Islands, respectively, where the U.S. refrains from recognizing any claims (Figure 3).³⁹ Finally, they expand PRC power projection and A2/AD in the western Pacific.

The number of incidents where PLAN, CCG, and PAFMM harass U.S., allied, and partner vessels is well documented and growing. The 2009 *USNS Impeccable* incident by multiple Chinese vessels generally marks the moment these activities alarmed U.S. leadership. Five Chinese vessels "shadowed and aggressively maneuvered in dangerously close proximity," one coming within 25 feet.⁴⁰ The *Impeccable's* crew resorted to fire hoses to repel it with no effect.

Then USPACOM Commander, Admiral Robert Willard, subsequently warned the Senate Armed Services Committee in 2010 that the China's "evolving military capabilities . . . appear designed to challenge U.S. freedom of action in the region or exercise aggression or coercion of its neighbors, including U.S. treaty allies and partners."⁴¹ The aggression increased and became bolder. PAFMM enabled the 2016 completion of artificial island outposts in the Spratly Islands, allowing placement of air defenses, jamming capabilities, and military airstrips to reinforce A2/AD.⁴² Among other incidents, a Chinese fishing boat rammed and sank a Philippine fishing boat near a disputed reef in June 2019. And throughout 2020 and 2021 PAFMM participated alongside CCG multiple times to disrupt Malaysian and Vietnamese oil and gas development.⁴³

In 2020, DoD reported the Spratly outposts "allow China to maintain a more flexible and persistent military and paramilitary presence in the area," which "improves China's ability to detect and challenge activities by rival claimants or third parties and widens the range of response options available to China."⁴⁴ AMTI reported on November 21, 2021 "that roughly 300 militia vessels are operating in the Spratly Islands on any given day."⁴⁵

Now, there is a growing confluence among U.S. allies and partners to confront Chinese maritime sovereignty operations more assertively. Japan is stepping up to defend its claims and administrative control of the Senkakus after 88 PRC naval incursions into Japanese territorial

<https://www.npr.org/sections/thetwo-way/2018/04/10/601075294/beijing-reportedly-installs-communications-jamming-equipment-in-south-china-sea>

³⁹ Kimie Hara, "Okinawa, Taiwan, and the Senkaku/Diaoyu Islands in United States–Japan–China Relations," *The Asia-Pacific Journal*, Vol. 13, Issue 28, No 2, Article ID 4341, (July 13, 2015), pg. 2, at <https://apjif.org/2015/13/28/Kimie-Hara/4341.html>.

⁴⁰ Commander Jonathan Odom (U.S. Navy), "The True 'Lies' Of The Impeccable Incident: What Really Happened, Who Disregarded International Law, And Why Every Nation (Outside Of China) Should Be Concerned," *Journal of National Security, Law & Policy*, May 2010, pp. 5, 13-14, available at <https://jnslp.com/wp-content/uploads/2010/06/the-true-lies-of-the-impeccable-incident-odom-msujil-may-2010.pdf>.

⁴¹ Ibid, pg. 39.

⁴² Poling, Mallory, Prétat, pp. 5-7.

⁴³ Ibid, pp. 8-9.

⁴⁴ Congressional Research Service, "China Primer: South China Sea Disputes," *In Focus*, Issue 10607, Version 8 Updated, February 2, 2021, pg. 2, available at <https://crsreports.congress.gov/product/pdf/IF/IF10607>.

⁴⁵ Poling, Mallory, Prétat, pg. 9.

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waters around the islands between January and August 2021.⁴⁶ The response included Japanese military exercises to defend the island and combined U.S./Japanese exercises near them.⁴⁷ Defense Minister Nobuo Kishi declared, “the government of Japan is resolutely defending our territory with the greater number of Japanese coast guard vessels than that of China.”⁴⁸

America’s global security partners expanded naval activity in the SCS. France, India, and Germany sent assets to the region in 2021. A U.K. carrier strike group transited the SCS enroute to a joint exercise with Southeast Asian countries prompting “Wu Shicun, president of the Ministry of Foreign Affairs-affiliated National Institute for the South China Sea, [to suggest] firing warning shots at the British ships.”⁴⁹

In Southeast Asia, Chinese provocations, A2/AD expansion, and the use of maritime forces in unprofessional and escalatory ways to disrupt EEZs, is eliciting opposition from the nations surrounding the SCS.⁵⁰ Vietnam organized a maritime militia and is building its own artificial islands in the Spratlys with defenses capable of striking Chinese bases.⁵¹ Indonesia, along with other Indo-Pacific countries, is strengthening ties with the U.S.⁵² For example, the Indonesian Coast Guard will operate a new maritime training center at the entrance of the Malacca Straits “alongside U.S. agencies, including USINDOPACOM.”⁵³

Notably, the Philippines seeks “a more confrontational approach to China.”⁵⁴ On numerous occasions in 2021 China deployed 200-300 fishing vessels, identified as PAFMM, to violate the Philippines’ EEZ. China denied the presence (and existence) of maritime militia calling such speculation an “unnecessary irritation” though there was no commercial rationale for the presence of so many vessels.⁵⁵ PLAN fast attack craft prevented access to features the Philippines administers. CCG boats reportedly shadowed, blocked, conducted dangerous maneuvers and radio challenges against the Philippines Coast Guard near Scarborough Shoal.

⁴⁶ Meera Suresh, “‘Extremely Serious’ Incursion: China Sends Flotilla Armed With Cannons To Japan’s Senkaku Islands,” *International Business Times*, September 17, 2021, available at <https://www.ibtimes.com/extremely-serious-incursion-china-sends-flotilla-armed-cannons-japans-senkaku-islands-3298090>.

⁴⁷ Aparna Shandilya, “Japan Holds Military Drills To Prepare For Takeover Of Senkaku Islands Amid Chinese Threat,” *RepublicWorld.com*, December 28, 2021, available at <https://www.republicworld.com/world-news/rest-of-the-world-news/japan-holds-military-drills-to-prepare-for-takeover-of-senkaku-islands-amid-chinese-threat.html>.

⁴⁸ Brad Lenden and Blake Essig, “Japan’s Defense Minister Draws Red Line in Island Dispute with China,” *CNN*, September 16, 2021, available at <https://www.cnn.com/2021/09/15/asia/japan-defense-minister-kishi-china-interview-intl-hnk-ml/index.html>.

⁴⁹ U.S.-China Economic and Security Review Commission, *Annual Report to Congress*, (Government Publishing Office: Washington, November 17,2021) pp. 318-319, available at https://www.uscc.gov/sites/default/files/2021-11/2021_Annual_Report_to_Congress.pdf.

⁵⁰ Morris, et. al., pp. 92-93, 136-137.

⁵¹ U.S.-China Economic and Security Review Commission, pg. 318.

⁵² *Ibid*, pg. 310.

⁵³ *Ibid*, pg. 318

⁵⁴ *Ibid*, pg.317

⁵⁵ Bernadette Tamayo, “Chinese Embassy Denies Militia in [West Philippine Sea],” *Manila Times*, March 23, 2021, available at <https://www.manilatimes.net/2021/03/23/news/national/chinese-embassy-denies-militia-in-wps/854387/>.

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China's psychological operations prompted Philippines President Duterte to reverse softening policies toward the PRC and threaten to invoke the U.S.-Philippines Mutual Defense Treaty.⁵⁶ However, the treaty only applies against an *armed* attack against Philippine armed forces or public vessels.⁵⁷ As a result Duterte publicly asserted China intends "to show the Filipino that no matter how many times we go back there, nothing will happen because we are not in possession of the sea, it's with them."⁵⁸

By leveraging the civilian maritime arm of its law enforcement capabilities China has impeded U.S. and partner routine operations and actively disrupted partner economic activities to provoke a response to reinforce messages of U.S. "aggression" or exploit inaction to promote Chinese "legitimacy" by state-owned media news outlets.⁵⁹ Ultimately, Chinese domination over, or control of, its near-seas region complicates U.S. ability to:

- Intervene militarily in a crisis or conflict between China and Taiwan
 - Fulfill obligations under defense treaties with Japan, the Philippines and South Korea
 - Operate U.S. forces in the Western Pacific for various purposes, including maintaining regional stability, conducting engagement and partnership-building operations, responding to crises, and executing war plans; and
 - Prevent the emergence of China as a regional hegemon in its part of Eurasia.⁶⁰
- RAND Senior Defense Analyst, Derek Grossman, summarizes, "if history is a good indication of what to expect in the future, then Beijing is likely to double down on the PAFMM in virtually any scenario imaginable. That means it should be a force to be reckoned in the years to come."⁶¹

V. The Challenge: "To Better Compete and Deter Gray Zone Actions"

"Warfare has taken on a new cast as we approach the end of the 20th Century. The all-out frontal attack is no longer feasible. But the contest between nations continues and the use of force to achieve political ends has not gone out of style. Now and in the future attacks against developed nations will be to suppress and attenuate, rather than obliterate" ⁶²

- Peter Black, "Soft Kill" as cited in the *Joint Concept for Information Advantage 2021*

To meet this challenge more of the same is not enough. This section links the shifting strategic direction set by the White House to emerging Service efforts. Since gray zone activities in competition are designed to circumvent traditional U.S. military power, the U.S. approach to deterring China's asymmetric maritime A2/AD has been reactive, relying on detecting,

⁵⁶ CNN Philippines Staff, "Duterte Invokes Military Pact with US Amid South China Sea Dispute," CNN, July 17, 2019, available at <https://www.cnnphilippines.com/news/2019/7/17/Duterte-Philippines-US-Mutual-Defense-Treaty-South-China-Sea.html>.

⁵⁷ Congressional Research Service, "China Primer: South China Sea Disputes," pg. 2.

⁵⁸ U.S.-China Economic and Security Review Commission, pg. 318.

⁵⁹ Stefan Halper, et. al., *China: The Three Warfares*, (Department of Defense: Washington, D.C., May 2013), pp.27-29, 33, accessed at https://www.iwp.edu/wp-content/uploads/2019/05/201810171_HalperChinaThreeWarfares.pdf.

⁶⁰ Congressional Research Service, *U.S.-China Strategic Competition in South and East China Seas: Background and Issues for Congress*, updated January 22, 2022, pg. 3, at <https://crsreports.congress.gov/product/pdf/R/R42784>

⁶¹ Grossman and Ma.

⁶² Peter Black, "Soft Kill", *WIRED*, March 1, 1993, as cited in *Joint Concept for Information Advantage*, 2021, available at <https://www.wired.com/1993/03/1-3-softkill/>.

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documenting, and exposing operations via open-source media then addressing them through diplomacy and legal action. But military capabilities remain an essential part of U.S. response options.⁶³ It is in the competitive space the Joint Force must adapt its mindset, innovate and creatively mix traditional and irregular combat power with proactive, dynamic, and unorthodox nonlethal approaches.

The INSSG calls for setting clear priorities within the defense budget, shifting emphasis from unneeded legacy platforms and weapons systems to free up resources for investments in the cutting-edge technologies and capabilities that will determine our military and national security advantage in the future, including the development of capabilities to better compete and deter gray zone actions.⁶⁴ The NDS Irregular Warfare (IW) Annex acknowledges that China gains a strategic advantage in this “gray zone by acting below the threshold for which the Joint Force would normally respond to traditional warfare.”⁶⁵ Service concepts such as Multi-Domain Operations (MDO), Dynamic Basing and Expeditionary Advanced Base Operations (EABO) increase expeditionary flexibility, resilience and presence so the DoD can project power in both conflict and competition. But “to control the tempo of adversarial competition, the Department must manage escalation dynamics and dictate the character, scope, intensity, and terms of this competition to our adversaries.”⁶⁶

The Commandant of the Marine Corps, the Chief of Naval Operations, and Commandant of the Coast Guard published a Tri-Service Maritime Strategy in December 2021. *Advantage At Sea* designates the maritime domain as particularly vulnerable to gray zone behavior because incremental gains accumulate into long-term A2/AD advantages. It emphasizes countering China’s multilayered fleet’s coercive actions; directing “forward-deployed naval forces accept calculated tactical risks and adopt a more assertive posture in our day-to-day operations.”⁶⁷

The Army’s March 2021 Chief of Staff Paper, “The Army in Military Competition,” described a framework for how the Army contributes to military competition, recognizing a requirement for nonlethal options. The paper calls for implementation of “low- to mid-cost capabilities” for competitive action against the adversary to achieve U.S. objectives and set conditions for follow-on actions.⁶⁸ Additionally, in conjunction with other agencies and the Joint Force, the Army helps allies and partners build capacity with enablers to “resist and withstand subversion” and reduce their vulnerability to adversary gray zone operations. The outcome

⁶³ LTG David Barno, USA (Ret) and Dr. Nora Bensahel, “Fighting and Winning in the ‘Gray Zone,’” *War on the Rocks*, May 15, 2015, available at <https://warontherocks.com/2015/05/fighting-and-winning-in-the-gray-zone/>.

⁶⁴ *2021 Interim National Security Strategic Guidance*, pg. 14.

⁶⁵ Department of Defense, *Summary of the Irregular Warfare Annex to the National Defense Strategy*, Washington 2020, pg. 6, available at <https://media.defense.gov/2020/Oct/02/2002510472/-1/-1/0/Irregular-Warfare-Annex-to-the-National-Defense-Strategy-Summary.PDF>.

⁶⁶ *Summary of the Irregular Warfare Annex*, pg.7.

⁶⁷ *Advantage at Sea*, pg. 9.

⁶⁸ Headquarters, Department of the Army, “The Army in Military Competition: Chief of Staff of the Army Paper #2,” March 1, 2021, pp. ii, 15-16, available at <https://api.army.mil/e2/c/downloads/2021/03/29/bf6c30e6/csa-paper-2-the-army-in-military-competition.pdf>.

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reduces “the effectiveness of the adversary’s means of competition and diminish its capabilities, methods, and approaches.”⁶⁹

In December 2021 the U.S. Marine Corps released “A Concept for Stand-in Forces.” Aligned with the *Joint Warfighting Concept*, Stand-in Forces (SIF) provide a low-signature, persistent forward presence to win the maritime reconnaissance and counter-reconnaissance battle and deny enemy freedom of action at sea, when directed. An essential task of SIF is to deter, detect, expose, and counter nonlethal coercive behavior and other malign activities. “To counter coercive behavior or malign activities directly, SIF can perform nonlethal maneuver to gain threatening or coercive position of advantage.”⁷⁰ This includes application of undefined nonlethal means to disrupt adversaries.⁷¹

These strategies and concepts seek creative ways to counter asymmetric approaches below armed conflict. Implementing capabilities and force design to do so requires an intellectual paradigm shift. Emphasis on overwhelming lethality has failed to prevent consistent military gains by PAFMM and other Chinese asymmetric maritime A2/AD activities. While the DoD prepares to deter war, China’s maritime insurgency is creating a *fiat accompli* if not challenged by innovative concepts and calculated experimentation. Innovations that enable the Joint Force, in conjunction with interagency, multinational and other interorganizational partners to assertively maneuver and engage PRC maritime coercion with non-lethal fires. The operational construct of the DoD NLW Program is ideally suited for this shift.

VI. The Joint Requirement for Non-Lethal Weapons

*“Non-lethal weapons can effectively eliminate the combat capabilities of personnel and equipment without loss of life. The trend that is embodied in these weapons shows that mankind is in the process of overcoming its own extreme thinking, beginning to learn to control the lethal power that it already has but which is increasingly excessive.”*⁷²

– PLA Colonels Qiao Liang and Wang Xiangsui, “Unrestricted Warfare,” 1999

Colonels Qiao and Wang were specifically referring to the future implications of the DoD NLW Program in the above quote when they wrote their notable book.⁷³ Congressionally mandated in the FY96 NDAA, the DoD NLW Program is well established with a long-standing DoD policy directive designating NLWs as a means for deterrence and expanding options for commanders.⁷⁴ The Joint Requirements Oversight Council (JROC) validated Joint Force

⁶⁹ Ibid, pg. 25.

⁷⁰ United States Marine Corps, “A Concept for Stand in Forces,” December 2021, pp. 13-14, available at https://www.hqmc.marines.mil/Portals/142/Users/183/35/4535/211201_A%20Concept%20for%20Stand-In%20Forces.pdf?ver=MFOzu2hs_IWHzIsOAKfZsQ%3d%3d.

⁷¹ Ibid, pg. 11.

⁷² Qiao Liang and Wang Xiangsui, *Unrestricted Warfare*, (Beijing: PLA Literature and Arts Publishing House, February 1999), pg. 28, accessed at <https://www.c4i.org/unrestricted.pdf>.

⁷³ Ibid, Endnote #19, pg. 35

⁷⁴ U.S. Government Accountability Office (GAO), “DOD Needs to Improve Program Management, Policy, and Testing to Enhance Ability to Field Operationally Useful Non-lethal Weapons,” *Defense Management GAO-09-344*, (GAO: Washington, April 21, 2009), pp. 1-2, available at <https://www.gao.gov/assets/gao-09-344.pdf>.

identified needs for NLW capabilities.⁷⁵ The *Joint Non-Lethal Effects Capabilities Based Assessment* (CBA) military problem stated, “the Joint Force Commander, operating in complex environments, lacks sufficient capability to immediately neutralize or incapacitate targets without causing permanent injury, death, or gross physical destruction.”⁷⁶

The Joint Capabilities Boards (JCB) approved the Initial Capabilities Documents (ICDs) for the CBA validated requirements in 2009 and the ICDs were revalidated for currency in 2014. One for *Counter-Personnel Joint Non-Lethal Effects* to temporarily incapacitate or compel personnel. The other for *Counter-Materiel Joint Non-Lethal Effects* to stop vehicles and vessels with minimal risk of permanent injury or death to occupants.

The ICDs supported development of several Service capabilities such as dazzling lasers and acoustic hailing devices. However overall investment approaches in NLW capability were misguided as Joint Force NLW training and equipping consisted primarily of modified commercial-off-the-shelf capabilities for military police, security forces, and law enforcement.⁷⁷ Since then technological advances (especially in directed energy), human effects modeling, and complementary developments in other fields (i.e., unmanned systems and swarming) are expanding NLWs potential beyond its legacy function. It is a new era.

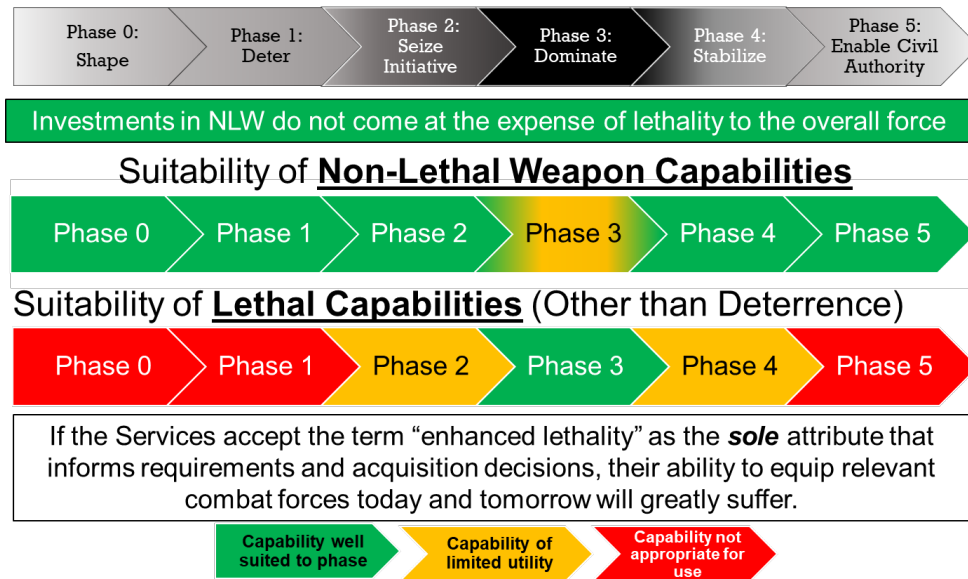


Figure 4. Strategic Utility of NLWs for Joint Operations

⁷⁵ The DoD NLW Program Executive Agent sponsored a Joint Mission Area Analysis / Joint Mission Need Analysis (JMAA/ JMNA) for Requirements Generation. The JROC validated the JMAA/JMNA in 2001, providing a foundation for NLW requirements, including the Joint Mission Need Statement for a Family of Non-Lethal Capabilities. Services created Mission Needs Statements and Operational Requirements Documents for NLWs.

⁷⁶ Joint Non-Lethal Weapons Program, *Joint Non-Lethal Effects Capabilities-Based Assessment Functional Needs Analysis*, December 2007, pg. i.

⁷⁷ Susan LeVine, “Beyond Bean Bags and Rubber Bullets: Intermediate Force Capabilities Across the Competition Continuum,” *Joint Force Quarterly (JFQ) Volume 100, 1st Quarter*, (National Defense University: Washington, 2021), pp. 19-20, available at https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-100/jfq-100_20-25_Levine.pdf?ver=IDUF9faZO7XHwKq6bIVeHA%3D%3D.

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Current investments in lethal capabilities today are not yielding expected results. They are high cost with limited suitability beyond high-end deterrence, bypassed by adversary action, and rendered almost irrelevant by the nature of competition below armed conflict. Investments in emerging NLW systems have high strategic utility because they are suitable for employment in all phases of joint operations – from competition to combat (Figure 4). They particularly provide value as low- to mid-cost capability applicable in every geographical combatant command against threats posed by irregular forces, proxies, and civil disturbances involved in gray zone activities, as well as a hedge for mitigating civilian casualties (CIVCAS) and resolving ambiguous encounters with adversarial military forces. Most of all, NLWs are armaments with versatility for both defensive and offensive use.

- **In Force Protection**, NLWs form part of a layered defense for combat maneuver and logistics forces, interagency assets, bases, joint staging areas, military deception activities, and lines of communications from ISR collection and disruptive incursions of maritime militia and civilian proxies. NLWs also enable measured responses to the probing of our systems in non-attributional ways to conceal and conserve capabilities prioritized for armed conflict.
- **In Force Application**, NLWs provide joint, interagency, allied and partner forces with non-destructive means to mitigate adversary first mover advantage by denying or dislodging adversary assets during Phases 0-1, with minimal risk of casualties, disproportionality, or miscalculation leading to irreversible escalation.
- **NLWs provide a secondary informational advantage** by shaping local, international, and adversary perceptions of U.S. responses to gray zone activities as part of what the Chief of Staff of the Army termed, “the narrative competition.”⁷⁸ Successful NLWs use in competition:
 - Strengthens the Joint Force reputation to deter, and if necessary, win in armed conflict.
 - Builds a record of adding value to allies and partners in cooperation.
 - Acts in accord with national values and international law.

Thus, NLWs are a strategic risk mitigation investment for the Joint Force that complements high-end conflict deterrence. NLW advancements, particularly in directed energy, allow for active measures to counter asymmetric, coercive behavior when presence alone insufficient.⁷⁹

VII. Using NLWs to Counter China’s Asymmetric Maritime A2/AD Capabilities

“Distributed maritime operations is geared to combat...commanding officers need more non-lethal options and training for interactions with Chinese maritime militia and coast guard.”⁸⁰

⁷⁸ HQDA, CSA Paper#2, pg. 3.

⁷⁹ Colonel Wendell Leimbach and Susan LeVine, “Winning the Gray Zone: The Importance of Intermediate Force Capabilities in Implementing the National Defense Strategy,” *National Institute for Public Policy Information Series, Issue No. 468* (National Institute Press: Fairfax, October 23, 2020), pp 1-2, available at <https://breakingdefense.com/2021/09/after-south-china-sea-incidents-us-needs-sustained-pacific-presence-lawmaker-says/>.

⁸⁰ Justin Katz, “After South China Sea Incidents, US Needs ‘Sustained’ Pacific Presence, Lawmaker Says,” *Breaking Defense*, September 13, 2021, available at <https://breakingdefense.com/2021/09/after-south-china-sea-incidents-us-needs-sustained-pacific-presence-lawmaker-says/>.

– Brent Sadler, Heritage Foundation Center for National Defense, September 13, 2021

In 2019, U.S. Chief of Naval Operations, Admiral John Richards, warned his Chinese counterpart that the U.S. Navy would respond to aggressive acts by PAFMM “as though they were part of [China’s] armed forces.”⁸¹ Based on prior programming for NLWs, it seems doubtful the Navy and other components in USINDOPACOM have the adequate range of suitable options to meet this threat. Hence commanders risk using disproportionate or even ineffective lethal force to stop collisions with unarmed PAFMM, and also risk an international incident if they misidentify a vessel or misinterpret its intent; like when the *USNS Rappahannock* opened fire on an Indian fishing vessel in the Persian Gulf.⁸² The end results still achieve PRC information goals to discredit the U.S. as aggressors and strain allied and partner confidence.

Weaknesses and Opportunities: Increased use of NLW in the gray zone will impact the systemic weaknesses of PAFMM operations and disrupt coordination with the PLAN and CCG. Leveraging NLWs as part of a campaign below armed conflict counters asymmetric maritime A2/AD by exacerbating and exploiting frictions within the PLA’s multilayered maritime system.

Command and Control (C2): Strategic, operational, and tactical command and control is inconsistent across provinces and individual vessels due to:

- Wide dispersion at sea and sea state limitations makes control difficult.⁸³
- The lack of an integrated, standardized system for authorities, communication and coordination between militias, CCG, and PLAN theater command systems. PAFMM is not an organizationally united force by design and C2 varies across provincial, local, and ship owner levels. This causes friction where “PLA commanders openly discuss problems of who commands the militia forces, under what circumstances, and with what authorization; who is authorized to review and approve the maritime militia’s participation in what types of maritime rights protection operations; and who is responsible for militia expenditures.”⁸⁴
- PLA concern that PAFMM’s status as “both civilians and soldiers” carries more risks than advantages during encounters with foreign vessels. The same factors giving PAFMM deniability also increases risk of accidents and escalations. “This is a toxic mix...with the core interests at stake, the PRC has a high incentive to employ [PAFMM], but the more frequent its operations, the greater the likelihood of interactions with U.S. vessels that could spin out of control.”⁸⁵
- Inadequate professional training impedes militia ability act coherently as a force “that has systemically conducted deceptive missions in close collaboration with the PLAN and CCG. Achieving high levels of coordination and interoperability will likely ‘take a long time.’”⁸⁶

⁸¹ James Kraska, “China’s Maritime Militia Vessels May Be Military Objectives During Armed Conflict” *The Diplomat*, July 7, 2020, available at <https://thediplomat.com/2020/07/chinas-maritime-militia-vessels-may-be-military-objectives-during-armed-conflict/>.

⁸² Gardiner Harris, “Indian Fisherman Killed by U.S. Sailors in Persian Gulf,” *The New York Times*, July 17, 2012, available at <https://india.blogs.nytimes.com/2012/07/17/indian-fisherman-killed-by-u-s-sailors-in-the-persian-gulf/>.

⁸³ Luo and Panter, “China’s Maritime Militias and Fishing Fleets,” pg. 16.

⁸⁴ Shuxian Luo and Jonathan Panter, “How Organized is China’s Maritime Militia?,” *The Maritime Executive*, April 9, 2021, available at <https://maritime-executive.com/editorials/how-organized-is-china-s-maritime-militia>.

⁸⁵ Luo and Panter, “China’s Maritime Militias and Fishing Fleets,” pg. 16.

⁸⁶ Luo and Panter, “How Organized is China’s Maritime Militia?”

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Combat Power: Militia boats are inherently weak forces for conventional operations.

- Due to their size, they are limited by sea state and lack the propulsion plants required for high-speed maneuver. Slow speeds reduce the ability to maneuver and increase the duration of exposure to layered defense, relying instead on the vessels' low detection signature and deniability to reduce a challenge by lethal systems.⁸⁷

- Vessels are restricted to visually identifying opposing forces due to a lack of advanced sensors and the training to use them. The addition of such electronic-intelligence equipment would weaken the vessel's deniability.⁸⁸

Funding. Budgetary shortfalls complicate the training, administration, deployment, and control of the maritime militia. While subsidized by Beijing, militia participation imposes opportunity-costs and financial strain on provincial and local economies as well as private businesses and individuals who are expected to contribute.

- Funding is inconsistent across units and vessels, and across provinces, which rely on different budgetary channels and have different incentives to secure subsidies.

- Even where funding has been secured in some localities, budget constraints in others suggest that equipment standardization is a long way off.

- Strained budgets also restrict training opportunities, leading to inconsistency in professionalism across the force, raising Chinese risk of accidents and escalations.

- As a result, local authorities lobby for more money to meet Beijing's expectations.

- Notably, marketization erodes individual units' incentives to participate in militia activities that draw away from commercial fishing opportunities. PAFMM mobilization is impeded as participation in maritime sovereignty operations is not considered profitable. In fact, large percentages of Chinese fishermen admit they would quit militia activity without adequate compensation or avoid maritime rights protection operations as fishing is a higher priority.⁸⁹

The issues present the Joint Force opportunities to employ NLWs and impose costs on Chinese maritime A2/AD activities in the SCS/ECS. The High Level Operational View (OV-1) (Figure 5) below depicts a conceptual graphic to exploiting these opportunities.

⁸⁷ Luo and Panter, "China's Maritime Militias and Fishing Fleets," pg. 16.

⁸⁸ Ibid, pg. 17.

⁸⁹ "According to a 2015 article by the director of the political department of the Sansha MSD under the Hainan Provincial Military District, surveys conducted in Hainan localities showed that 42 percent of fishermen prioritized material benefits over their participation in the maritime militia.

"In a 2018 interview with one of this article's authors, sources with firsthand knowledge of Hainan's fishing community noted that each fishing ship participating in maritime rights protection activity received a daily compensation of 500 RMB, a sum "too petty compared to the profits that could be made from a day just fishing at sea, and even more so when compared to the huge profits from giant clam poaching," Luo and Panter, "How Organized is China's Maritime Militia?"



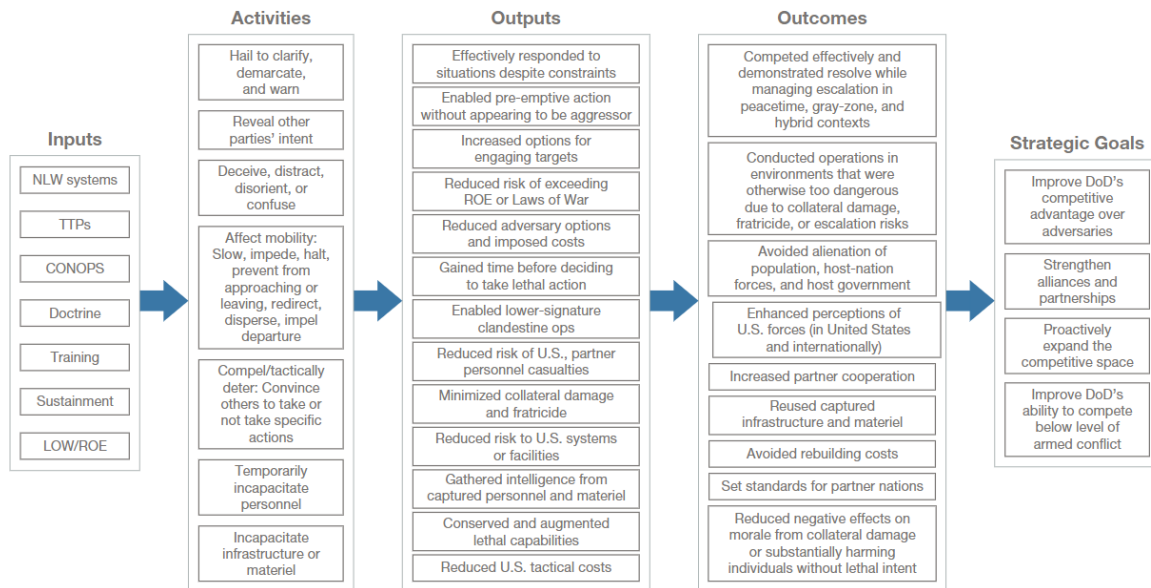
Figure 5. OV-1 for Using NLWs to Counter Asymmetric Maritime A2/AD

Whether overtly or clandestinely, NLWs provide avenues for friendly ISR to probe adversary responses. By injecting non-lethal stimuli, we can gauge the structure of and friction within Chinese maritime C2 channels for exploitation. NLWs support military deception and passive defense by preventing access to sensitive sites and denying observation of decoys. They facilitate Joint Force maneuver when blocked by unarmed/low threat civilian mobs, and they can counter-small unmanned aerial systems (sUAS) when malign actors use them. Through SFA, NLWs boost credibility of allied and partner capabilities to proactively counter Chinese disruption in EEZs. Some of the envisioned ways NLWs do this:

- **Long-range acoustic hailers paired with translation devices** for clear verbal warnings.
- **Optical interrupters or dazzling lasers**, originally for hand-held short-range applications, have longer ranges to deliver visual warnings and provide obscuring glare to personnel, windshields, and optics of approaching vehicles, vessels or unmanned systems.
 - **Nonlethal flash-bang munitions or Non-lethal Laser Induced Plasma Effects (NL LIPE)** provide long duration extended range effects instead of lethal shots across the bow, as well as smaller munitions for dangerously close encounters.
 - **High power microwave directed energy systems** disrupt electronic controls and shut off vessel engines without harming occupants.

- **Millimeter wave directed energy systems/ Active Denial Systems (ADS)** physically, but nonlethally, repel personnel to prevent activities topside, thus inducing withdrawal.
- **Occlusion technology** under development uses dissolvable material to obstruct vessel propellers in a reversible but effective manner to counter small boat threats.
- **Integration** of these technologies with manned or unmanned platforms and autonomous systems and combined, synergistic use with non-lethal/non-kinetic effect such as IO, EW, cyber, and other capabilities compounds effects at scale and range in the area of operations.⁹⁰

The logic model below (Figure 6) published in a recent RAND study provides concrete descriptions of activities and relationships to effectively assess the impact of NLWs when employed in the operations suggested above. In the study, the model and exploratory vignettes make it clear how NLWs contribute to a campaign below armed conflict by explicitly linking NLWs tactical activities to strategic impacts at a DoD-wide level.



NOTES: CONOPS = concept of operations; LOW=Laws of War; ROE = rules of engagement; TTPs = tactics, techniques, and procedures.

Figure 6. Logic Model for Assessing Tactical, Operational, Strategic Impacts of NLWs⁹¹

Desired Operational Outcomes: NLW engagements provide immediate tactical impacts disrupting or denying the success of Chinese “maritime rights protection operations” and suppressing maritime militia ISR. Other objectives include”

- Cause friction to C2 systems between the PLAN, CCG and militias
- Confound PLA ISR networks dependent on maritime militia reporting,
- Demoralize Chinese maritime militia by rendering them ineffective/incapable of accomplishing their mission or conducting commercial operations in friendly EEZs.

⁹⁰ Ibid, pp. 26-30.

⁹¹ Krista Romita Grocholski, Scott Savitz, et. al., *How to Effectively Assess the Impact of Non-Lethal Weapons as Intermediate Force Capabilities*, (RAND Corporation: Santa Monica, 2022), pg. ix, available at https://www.rand.org/pubs/research_reports/RRA654-1.html.

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- Increase allied and partner confidence their enforcement capabilities and U.S. resolve.

Desired Strategic Outcomes: Financing PAFMM is a vulnerability as it competes with other PLA priorities and imposes costs on local industry for a portion of funding. The paradigm created by NLW engagements calls China to respond with three general courses of action (or a hybrid mix) that could prove advantageous to the Joint Force.

- **Reduce or abandon** “maritime rights protection operations.” Divert resources to compete with more symmetrical PLAN capabilities where the U.S. holds advantage or spend time and resources to develop other asymmetrical approaches.
- **Increase funding and incentives** to modernize, train, and equip maritime militia to develop countermeasures. Diverting resources from other PLAN programs. However, the increased operational demands will tension within industry personnel and local economies due to lost commercial opportunities. Furthermore, the addition of more sophisticated equipment, PLAN/CCG oversight, and professional training reduces PAFMM’s core strength of deniability.
- **Increase militarization and escalation** of “maritime rights protection operations.” The PLA may increase the escort presence of CCG/PLAN forces during maritime militia operations. This provides a narrative opportunity to depict China as the aggressor in its territorial disputes, and, again, decreases Chinese deniability.

Due to their large numbers and low detection signature, any approach to weaken PAFMM deniability by identifying, tracking, challenging and exposing PRC state affiliation requires the help of allies and partners.⁹² But ultimately, increased application of NLWs will create dilemmas for our adversaries and impose costs, creating advantages and reinforcing other instruments of national power in showing U.S. resolve against gray zone behavior.

VIII. Illustrative Vignettes – Countering Coercion and “Little Blue Men”

The RAND study cited earlier presents a number of vignettes across all global combatant commands (GCCs) to measure the effectiveness and show applicability of NLWs in a military context. However, the following are illustrative applications of NLW intermediate force capabilities in countering China’s asymmetric maritime A2/AD capabilities in the ECS/SCS.

Bilateral Training with Partner in South China Sea (Phase 0 Operations)

General Description: A U.S. Naval vessel with a Marine Littoral Regiment begins preparations for a bilateral training exercise with a Partner Nation on a disputed island in the SCS. The Chinese government expressed displeasure at previous exercises which were also interrupted with provocative behavior by Chinese civilian “fishing” vessels and small UAS.

Exercise planning includes a Phase 0 Information Operations campaign announcing the U.S. and the Partner Nation are conducting this exercise in accordance with international law and will not tolerate previous tactics used to interfere with similar exercises. The U.S. announces it is prepared to non-lethally counter the fishing vessels without harming the occupants and render

⁹² Luo and Panter, “China’s Maritime Militias and Fishing Fleets,” pg. 17.

any UAS unusable. Should it be necessary, the U.S. and / or its partner are prepared to use a measured set of NLW response options.

Non-Lethal Weapon Capabilities: Potential non-lethal counters to the fishing vessels include long range acoustic hailers connected to translation devices to provide verbal warnings; green dazzling lasers to produce glare on vessel wheelhouses or against onboard personnel to impede their vision; invisible, silent millimeter waves to produce an intolerable heating sensation against onboard personnel; or invisible, silent microwaves to temporarily shut off the vessel engines. Non-lethal Laser Induced Plasma Effects (NL LIPE) can be fired at the vessel at extended ranges. If a vessels risk ramming by moving dangerously close use short range 12-gauge, 40 mm or 81mm flash-bang munitions. To counter the sUAS, non-lethal options include dazzling lasers to obscure sensors, millimeter wave or high-power microwaves to cause system malfunction and / or default return to origination point.

Operational Impact: This vignette represents *overt* use of NLWs as a deterrent to competition below armed concept. It allows the U.S. to be proactive and resolute in conducting the planned partner exercise without being stymied by Chinese proxies. Additionally, by describing the non-lethal nature of the capabilities, it reinforces the moral source of American authority, providing tangible evidence to allies, partners, sympathetic populations, and global media of our just and humanitarian ethic, while also enhancing force protection.

Freedom of Navigation Operations (FONOPS) in South China Sea

General Description: Chinese civilian and flagged Coast Guard vessels operating in the SCS routinely harass a U.S. partner nation's civilian fishing vessels operating in international waters. The partner nation requested the U.S. Navy participate in FONOPS in support of security cooperation. A U.S. Navy vessel is deployed to the region. U.S. ISR assets are also deployed to attempt to better understand Chinese C2 networks and Orders of Battle in the theater.

As expected, maritime militia operating Chinese civilian "fishing" vessels and CCG vessels act provocatively to the partner nation fishing fleet and the U.S. ship. The U.S. vessel makes multiple unsuccessful attempts to communicate with Chinese vessels via bridge-to-bridge radio and internationally recognized sound and light signals to avoid collision and ensure safe and professional transit through international waters.

Non-Lethal Weapon Capabilities: The U.S. Navy vessel engages the wheelhouse of the CCG vessel with a bright green dazzling laser. The bright green dazzling laser provides an unambiguous warning during daylight and darkness at ranges approaching 2,000m. Simultaneously, the Navy vessel engages personnel on the PAFFM vessels with a silent, invisible, heating sensation from an onboard Active Denial System (ADS) forcing them to navigate out of the beam's path. Attempts by the provocative vessels to continue their hostile behavior is met with re-engagements of the ADS beam. Personnel on the fishing vessels are confused by the effect. Several fishing vessels depart the area.

A few fishing vessels continue closer to the Navy vessel, when their outboard engines start cutting off because the Navy vessel employed a high-power microwave directed energy vessel stopper. Due to the silent, invisible nature of the system, personnel on the fishing vessels do not

understand why their engines are malfunctioning. An Acoustic Hailer with a translation device is used to convey a message to the vessel occupants – leave the area or your vessels may become permanently damaged.

Throughout the incident, friendly ISR collection identifies and monitors CCG and militia communications with each other and PLAN authorities, as well as the electromagnetic spectrum. The information gained provides better understanding of Chinese capabilities and intentions in the area, the command structure, and potential friction points in coordination and rules of engagement for future exploitation.

Operational Impact: This vignette represents both *overt* and possibly *clandestine* use of non-lethal weapons in dealing with a complex scenario. It unambiguously challenges a CCG vessel to uphold its professional obligations toward enforcing safe operation of their own craft, and it psychologically demoralizes maritime militia personnel by physically neutralizing their vessels and making them question the level of risk they are willing to take with their commercial livelihood. Additionally, the assertive use of NLWs provided a stimulus for the Chinese to activate systems so U.S. ISR could glean better understanding of the adversary C2 network.

IX. Critical Pathways – What Must Be Done?

“We cannot expect success fighting tomorrow’s conflicts with yesterday’s weapons or equipment.”⁹³

- Summary of the 2018 National Defense Strategy of the United States of America

Joint Force investment in NLWs remains relatively nonexistent to the detriment of succumbing to the growing reality that joint forces are being outmaneuvered by asymmetric A2/AD forces in China’s near seas. The last substantial update to DoD Directive 3000.03E was before DoD realized the effectiveness of gray-zone activities in strategic competition.⁹⁴ There are documented requirements, JROC prioritized capability gaps, and currently available and emerging NLW technologies to develop capabilities and tactics to regain the initiative. Multiple Service strategies and concepts intend to outfit forward forces with non-lethal capabilities to counter malign gray zone activity, but it is unclear what specific actions are underway to mainstream these capabilities in a meaningful and enduring manner.

Recommendation: Implement a DCR to change the Joint Force mindset and incorporate NLWs to a greater extent to counter gray zone behavior. DCR items include:

- Review of DoD NLW Program status and evaluate the inclusion of NLW in Joint and Service concept development, experimentation, and acquisition.
- Assess associated policy and doctrine clarity to provide a framework for NLW application and authorities to counter asymmetric A2/AD capabilities in competition, crisis, and conflict.

⁹³ Summary of the 2018 NDS, pg. 6.

⁹⁴ In 2013, the responsibility oversight changed from USD(P) to USD(AT&L) along with other substantial updates. In 2018, there was an administrative update when AT&L reorganized, and the responsibility changed from AT&L to A&S. “DoD Directive Number 3000.03E April 25, 2013, Incorporating Change 2,” August 31, 2018, available at <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/300003p.pdf?ver=2018-10-24-112944-467>.

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- Maximize the DoD NLW Program by evaluating existing programmatic organizations, structures, and budgeting processes, and explore designating as a DoD special interest program.
- Educate and inform policy leaders and doctrine developers on NLW technologies in order to understand their human effects and remove the “fear of the new.”
- Use NLWs in Joint and Service wargaming, analysis, modeling and simulation to further document their utility and gain understanding
- CCMDs build NLWs in Operations Plans (OPLANs) and in Phase 0 Theater Campaign Plans. Liaisons for the DoD NLW Program are currently positioned to assist in the GCCs.
- Include identified training opportunities with NLWs as part of professional military education (PME) and enhance inclusion in Universal Joint Task List (UJTL) and Mission Essential Task Lists (METL)
- Strengthen collaboration between Joint Force Non-Lethal Effects Communities to identify gaps, redundancies, and opportunities for combining complementary effects as a force multiplier
- Continue to experiment and explore the Intermediate Force Capability (IFC) concept in Joint Doctrine development, and with allies such as the North Atlantic Treaty Organization (NATO) Systems Analysis Study (SAS-151) effort.⁹⁵

X. Conclusion

“In circumstances of increasingly intense global military competition, only innovators win.”⁹⁶

- Xi Jinping, Chinese Communist Party General Secretary, Xinhua, September 15, 2017

China is engaged in a campaign of low-level coercion to assert control of disputed spaces in the USINDOPACOM area of responsibility and using a steady progression of small, incremental steps below the threshold of armed conflict to secure its aims. While the DoD understandably prioritizes closing gaps and increasing readiness to deter near-peer, high-end conflict, the hesitancy to assertively confront and counter Chinese coercive and subversive activities is reinforcing PLA behavior and may not give national leaders the range of options they need to achieve national objectives without resorting to armed conflict.

As part of integrated deterrence within the competition continuum, the Joint Force has options to conduct campaigns below armed conflict when presence is insufficient. The Joint Force must employ NLWs, to deliver force strong enough to counter the asymmetric A2/AD effects of Chinese maritime militia by compelling their withdrawal. Aligned with the *INSSG*, the *Capstone Concept for Joint Operations (Joint Vision 2030)* and the *Joint Warfighting Concept*, NLWs expand Joint Force maneuver space and flatten the curve of adversary combat power generation, by restricting and potentially reversing the positional, and psychological advantages enjoyed by the PRC from their prior gray zone actions.

⁹⁵ In 2019 the NATO Military Committee (MC) endorsed development of an Intermediate Force Capability Concept to integrate active means (NLWs, cyber, EW, IO and other appropriate means) to deliver effects beyond presence but below the lethal force. The draft is due by end of 2021. NATO Modelling & Simulation Center of Excellence, “Wargame Interactive Scenario Digital Overlay Model (WISDOM) in Rome – Cecchignola,” November 5, 2021, <https://www.mscoe.org/wargame-interactive-scenario-digital-overlay-model-wisdom-in-rome-cecchignola/>.

⁹⁶ Kania, pg. 83.

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The NLW construct within the DoD's Non-Lethal Weapon's Program provides a framework to aid Joint Force creation of ways to act assertively in the gray zone and dissuade adversary operations there. NLWs impose costs, deny success, and create dilemmas for the adversary to concede or divert resources and escalate at a disadvantage. Simply put, NLWs enable the DoD to accomplish strategic objectives when adversaries attempt to circumvent Joint Force lethality.

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ACRONYMS

A2/AD	Anti-access/ Area Denial
ADS	Active Denial System
AMTI	Asia Maritime Transparency Initiative
AOR	Area of Responsibility
C2	Command and Control
CBA	Capabilities Based Assessment
CCMD	Combatant Command
CCG	China Coast Guard
CIVCAS	Civilian Casualties
DCR	DOTmLPF-P Change Recommendation
DoD	Department of Defense
DOTmLPF-P	Doctrine, Organization, Training, materiel, Leadership and education, Personnel, Facilities, and Policy
EABO	Expeditionary Advanced Base Operations
ECS	East China Sea
EEZ	Exclusive Economic Zone
EW	Electronic Warfare
FONOP	Freedom of Navigation Operation
FY	Fiscal Year
GCC	Geographic Combatant Command
ICD	Initial Capabilities Document
IFC	Intermediate Force Capability
INSSG	Interim National Security Strategic Guidance
IO	Information Operations
ISR	Intelligence, Reconnaissance, and Surveillance

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IW	Irregular Warfare
JCB	Joint Capabilities Board
JCD	Joint Capabilities Document
JIFCO	Joint Intermediate Force Capabilities Office
JNLWP	Joint Non-Lethal Weapons Program
JROC	Joint Requirements Oversight Council
MCF	Military-Civil Fusion
METL	Mission Essential Task List
MDO	Multi-Domain Operations
NATO	North Atlantic Treaty Organization
NDAA	National Defense Authorization Act
NDS	National Defense Strategy
NL LIPE	Non-lethal Laser Induced Plasma Effects
NLW	Non-Lethal Weapon
OPLAN	Operations Plan
OV-1	High Level Operational View
PACOM	Pacific Command (obsolete)
PAFMM	People's Armed Forces Maritime Militia
PLA	People's Liberation Army
PLAN	People's Liberation Army Navy
PME	Professional Military Education
PRC	People's Republic of China
SAS	System Analysis and Studies
SCS	South China Sea
SFA	Security Force Assistance

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SIF	Stand-in Forces
sUAS	small Unmanned Aerial System
UAS	Unmanned Aerial System
UJTL	Universal Joint Task List
U.K.	United Kingdom
U.S.	United States
USINDOPACOM	United States Indo-Pacific Command
USNS	United States Naval Ship