



# China's Naval Modernization

June 2010

On June 16, 2010, the Institute for National Strategic Studies (INSS) at the National Defense University hosted *China's Naval Modernization: Cause for Storm Warnings?* The symposium focused on the current state of China's naval modernization and possible U.S. responses to changing power dynamics in the Western Pacific. Participants agreed that China's modernization efforts have significantly improved the People's Liberation Army Navy (PLAN) capabilities and reduced the technical gap between it and other modern navies. Nevertheless, the PLAN still lacks experience and operational knowledge critical to becoming a great naval power. Most analysts predicted that China is likely to expand its out-of-area naval deployments, with most of these focused on international cooperation. Experience gained from these missions is likely to enhance the PLAN's ability to project coercive power within the littoral, as lessons learned abroad are translated into better operational capabilities. The symposium also highlighted challenges raised by improvements in China's antiaccess capabilities, in particular the development of antiship ballistic missiles.

PLAN modernization presents the United States with both opportunities and challenges. Opportunities include the potential contributions that a more capable PLAN can make to humanitarian affairs and disaster relief operations and to protecting sea lines of cooperation (as in current anti-piracy operations in the Gulf of Aden). Several participants emphasized the tension between U.S. spending on current wars in Southwest Asia and the need to invest to prepare for potential future threats. Others highlighted the cumbersome and expensive U.S. naval procurement process and the divergence between a projected reduction in the number of U.S. Navy ships and an expanding number of PLAN advanced

open-ocean vessels. Given the current trajectory, some predicted that in 20 years, a smaller U.S. Navy will continue to be tasked with global missions while also facing larger, more capable, and potentially adversarial regional navies.

Opening speaker VADM Douglas Crowder, USN (Ret.), began the symposium by questioning the emphasis on demanding greater transparency from the People's Liberation Army and laying out several key questions at the heart of current U.S.-China military tensions. He pointed out that while *transparency* has become a buzzword, it is a vague and opaque concept that fails to adequately illustrate U.S. concerns. He argued that the United States should be more transparent about its own concerns and openly challenge the Chinese government with specifics regarding what the United States has observed, rather than an abstract demand for greater transparency.

He highlighted concerns among U.S. allies in East Asia about PLAN modernization. The United States must mitigate perceptions that American debt held by China or emerging Chinese antiaccess capabilities would limit America's response to Chinese aggression. These perceptions raise two questions. First, should the United States publicly state that it opposes any Chinese use of its navy to coerce East Asian nations into ceding sovereignty of the resource-rich South China Sea? Second, would the United States stay engaged in the region and specifically in the South China Sea? These questions underscore the shifting nature of U.S. engagement in East Asia and the mission of the U.S. Navy. The speaker suggested that the primary purpose of the U.S. Navy, based on a strategy of forward deployed, combat credible conventional forces, is to serve as a deterrent to nations seeking to militarily coerce friends and allies into agreements they would not otherwise have been willing to accept.

These remarks highlighted policy debates under way in states across the Asia-Pacific region. In the context of this debate, the symposium sought to assess PLAN modernization and the implications for U.S. interests in the region. The first panel addressed the scope and content of Chinese naval modernization.

Ronald O'Rourke from the Congressional Research Service drew on his report to highlight several key systems and metrics that should be considered when discussing China's naval expansion. First, the only naval system expected to increase in tonnage over current levels is naval aircraft. Second, system improvements are likely to come from improving current systems rather than building new platforms. Third, despite expanding submarine capabilities on average, new indigenous submarines are louder than older Soviet-era models. Fourth, there has been no appreciable increase in amphibious capabilities since 2000. Fifth, the new anti-ship ballistic missile (ASBM), while a formidable system, has several key vulnerabilities. All of these elements present the Chinese with a navy that is sufficient for its modest, current political goals. Near-term goals include winning a military confrontation with Taiwan (which requires the ability to act as an antiaccess force to deter, delay, or reduce the effectiveness of intervening U.S. forces). Long-term goals include asserting and defending China's claims in maritime territorial disputes and China's interpretation of rights in the exclusive economic zone (an interpretation at odds with that of the United States and most other countries), sea lines of cooperation (SLOC) protection, reducing the U.S. role in East Asia, and asserting China as a global power.

O'Rourke briefly surveyed China's naval modernization effort, noting the Office of Naval Intelligence (ONI) August 2009 report projecting that total numbers of PLAN ships will remain relatively stable through 2020 and that numbers of

in operations not related to Taiwan. He discussed China's reported ASBM, discussing that countering it may involve attacking various points of the weapon's kill chain. Despite certain limitations and weaknesses, Chinese leaders may judge PLAN capabilities sufficient for performing certain missions. O'Rourke argued that the U.S.-Chinese military balance in the Pacific influences day-to-day choices made by other Asia-Pacific countries, including whether to align their policies more closely with the United States or China.

O'Rourke also noted some recent steps to reinforce U.S. naval capabilities in the Pacific, and ended with three issues that China's naval modernization poses for U.S. policymakers. The first concerns Chinese military modernization as a priority in Department of Defense (DOD) planning and budgeting. He noted the 2010 Quadrennial Defense Review (QDR) Report's four-page section on deterring and defeating aggression in antiaccess environments and posed some questions for evaluating this section. The second issue concerns potential future U.S. Navy force levels and capabilities in the Pacific, particularly the possibility that the Navy could remain below 300 ships and perhaps drop to a figure closer to 250 ships, even while China's naval capabilities could be growing. He further outlined some options for avoiding or mitigating the consequences of declining Navy force levels, particularly for countering improved Chinese naval forces. The third issue concerns actual or potential Navy acquisition initiatives that might be relevant to countering improved Chinese naval forces, including developing and procuring the Navy Unmanned Combat Air System, procuring strike fighters, procuring the Flight III DDG-51 (which is to be equipped with the new Air and Missile Defense Radar), pursuing options for reversing the currently unfavorable marginal cost-exchange ratio for shooting down antiship cruise missile and ASBMs (including radar-opaque smoke and high-powered lasers), developing the distributed, sensor-intensive (as opposed to platform-intensive) approach to antisubmarine warfare that was reported in 2004-2005, and procuring the antitorpedo torpedo for achieving a hard kill-on-wake homing torpedoes.

Michael Chase of the U.S. Naval War College continued this discussion with an overview of Chinese information technology (IT) and its military applications. In his assessment, the Chinese have most of the pieces in place for advanced military systems. They have made considerable progress in traditional areas of weakness. It is evident, from the leadership and support of both civilians and the military, that there is a conceptual foundation for policy and doctrine. The Chinese believe that information is not just a force multiplier but rather a main source of combat power. As a result, China's command, control, communications, computers, intelligence, surveillance, and reconnaissance

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PLAN aircraft will increase substantially by that date. He provided details on new PLAN submarines, including a graph from the ONI report on detectability relative to Russian submarines. He discussed new PLAN destroyers and frigates, noting that the next step in China's destroyer program is not yet clear and that PLAN programs for aircraft carriers and larger amphibious ships, noting their potential uses

capability has improved dramatically over the past 20 years, aided in large part by the civilian IT sector and a large devotion of economic resources. Despite these advances in systems, it is important to note that Chinese training and personnel development is still lacking, largely due to a lack of operational experience.

Andrew Erickson, also from the Naval War College, continued this analysis of the technological modernization of the PLAN. In his assessment, China is in the process of greatly expanding its space-based assets with more capable satellite systems. As a result of several new satellites, China is gaining the ability to more accurately chart the maritime domain and use precision-guided munitions. This is increasing the confidence of the PLAN in its ability to operate beyond the littoral. Information technology is also having an effect on the most basic levels of the PLA. There has been an observable shift to computerized logistic systems for moving munitions and general stores. This transition requires the PLA either to recruit better educated soldiers or invest in educating its current staff. Furthermore, this new investment in technology is changing the way training for combat is being conducted. Training is becoming more realistic with emphasis on complex informational situations, and there appears to be a heavy reliance on simulations. These factors lead to the conclusion that the PLAN does not currently have the ability to project power beyond the first island chain in any credible way. The PLAN is not up to U.S. capabilities. Nevertheless, the United States should not take this emerging threat lightly. The PLAN has demonstrated an ability to execute unconventional warfare that could threaten the U.S. Navy within the Chinese littoral.

Building on this assessment of basic capabilities and weapon systems, the symposium next considered PLAN modernization and its operational implications for the Chinese government.

Nan Li of Naval War College presented the historical evolution of China's maritime doctrine. He identified three distinct periods of Chinese policy. The first from the 1950s to the 1980s consisted of near-coast defense, the second from the 1980s to the early 2000s focused on near-seas active defense, and the third since the early 2000s has shifted to include far-seas operations. This shift in policy is attributed to a decline of land-based threats, the need to protect the prosperous coastal regions of China, new emerging maritime interests, and the need to gain enough space between the mainland and a possible naval confrontation to allow the PLAN to gain the initiative. This inclusion of far-seas operations is a driving factor and justification for the Chinese aircraft carrier program and will also result in more substantial investments in long-range attack aircraft. Despite the development of these

weapon systems, China still faces considerable constraints. China's continental security requirements include a large legacy cost that has kept the PLAN from investing in any real expeditionary capability until recently. Additionally, the new objectives of sending the navy abroad are unclear, making it hard to galvanize support for the missions. Another obstacle is the political challenge of gaining rights to overseas bases. There is substantial international and domestic opposition to military bases outside of China. Finally, developments in antisubmarine warfare challenge China's ability to effectively protect or interrupt SLOCs. While the world is witnessing a new era for PLAN operations, China is currently facing a large set of constraints. It will take time for China to field an effective force operating beyond its littoral.

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The discussion of Chinese doctrine continued with Thomas Bickford from the Center for Naval Analyses (CNA), who presented the drivers of PLAN modernization. The traditional driver of Chinese security policy was national sovereignty and territorial disputes. Currently, half of all Chinese territorial disputes are in the maritime domain. This traditional driver is augmented by the emergence of maritime trade as an important pillar of the economy. Up to 30 percent of Chinese economic power is derived from the sea. The government in Beijing has relied heavily on economic growth as a legitimizing factor for its power, and as the maritime domain expands in economic importance, the Chinese Communist Party is increasingly concerned with maritime security.

Furthermore, there has been a shift in the perception of security within China. Nontraditional threats such as piracy and terrorism are receiving greater attention. These three drivers are likely to result in routine out of area operations on the part of the PLAN. Most of these missions will likely be military operations other than war and will take place with the purpose of gaining greater political acceptance for a PLAN operating beyond the littoral. As a precursor to greatly expanding its operations abroad, the world is likely to see a rhetorical shift from Beijing, much like the world witnessed on the issue of peacekeeping operations.

Christopher Yung of INSS gave a presentation that charted the course of PLAN out of area deployments from the 1970s to the current Gulf of Aden deployment. The

historical evidence supports Bickford's analysis of the drivers for doctrine. The PLAN thus far has always overprepared for its out of area deployments, often using its most advanced ships and planning the details at the highest levels of the navy. This overplanning illustrates the PLAN's rudimentary ability to operate out of area. There is little evidence to suggest that the PLAN has created a doctrine to deal with the issues of distance, duration, capacity, complexity of coordination, and operating in a hostile environment with long lines of communication. From analysis of other navies, Yung hypothesizes that China is, in the short term, likely to gain temporary access to facilities for ship replenishment and possibly repair, increase the number of underway replenishment ships, and work to improve technical deficiencies discovered during the Gulf of Aden deployment, such as improved food preservation techniques. Given that all of China's out of area operations thus far have been planned at the highest levels of the navy, it is apparent that the Chinese government is aware of the political impacts of out of area deployments. It is also likely that the Chinese will not take political risks abroad with their navy, focusing on cooperation and showing the flag. However, any experience gained by operating out of area makes the PLAN more effective in the littoral.

The symposium moved from doctrine to strategy focusing on China's maritime security and the role of the PLAN, with an emphasis on antiaccess strategy and perspectives of both the military and civilian elites.

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## **China wants to be regionally dominant, counter U.S. and Japanese influence, and achieve recognized great power status**

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Michael McDevitt of CNA argued that the 1996 missile tests and subsequent U.S. response was a real wakeup call for the PLAN because it had conclusive "proof" that in any attack on Taiwan, it would have to deal with the possibility of U.S. naval intervention. As a result, the Chinese military really began to focus on the development of what DOD has elected to term antiaccess (AA) and area-denial (AD) capabilities. These capabilities, from the Chinese perspective, are inherently defensive in that they are intended to keep U.S. forces away. They are also one of the few true joint operations within the PLA, since it involves the PLA Air Force and Second Artillery. The concept is similar to how the Soviets planned to deal with an approaching naval force. It is important to recognize that AA/AD has broader application than simply a Taiwan scenario; it provides China with a capability to defend itself from attack from the sea

for the first time in over 200 years. As a result, it will be a permanent fixture of Chinese defense planning even after the status of Taiwan as a point of contention is resolved. The concept has attracted quite a lot of attention throughout the circle of U.S. security analysts, but it is important to keep in mind that China's AA/AD is still a work in progress: according to open sources, its open ocean surveillance is still not complete, its air-launched cruise missile capabilities lack range, and ABSMs are still in the testing phase. Nonetheless, there is no reason to doubt that over time, the PLA will be able to field a credible AA/AD capability.

It is this reality that has caused DOD to embark on a conceptual counter to AA/AD known as AirSea Battle, which was "announced" in the 2010 QDR. This is significant since being able to credibly argue that the United States cannot be kept at arms length by China's AA/AD force is essential if the United States is to be a reliable security partner for its friends and allies in East Asia. In effect, what is transpiring is a "capabilities competition" in the Western Pacific between China and the United States. China hopes to field a capability that could in times of crises keep the U.S. military away, while the United States is bent on ensuring that it can fulfill its responsibilities as a security partner and a force for regional stability by making certain it cannot be denied access to the Western Pacific. This competition is likely to persist for a long time because it pits diametrically opposed strategies (access versus antiaccess) against one another.

Bernard Cole of the National War College further emphasized the dramatic change experienced by the PLAN after 1996. In addition to the AA/AD strategy, the PLAN undertook a systematic change regarding training and prioritization of missions. PLAN training has become more professional, focusing on personnel development, fleet tactics, and logistics. Furthermore, China is planning for contingencies beyond Taiwan, including potential missions that range from SLOC protection to Japanese, Indian, and South China Sea contingencies. In assessing future capabilities, it is important to understand that China is already a strong naval power that is seeking to expand its capabilities. China wants to be regionally dominant, counter U.S. and Japanese influence, and achieve recognized great power status. Additionally, given the creation of a maritime military industrial complex over the past 30 years, there is domestic pressure to continue appropriations for modernizing the navy. Also, naval nationalism is a crutch for the current regime. Showing weakness in naval confrontations could lead to instability at home. None of these goals can be achieved without expanding its current naval inventory. Despite this projected strategy of building toward becoming a great naval

power, the Chinese are still inexperienced sailors with no combat experience. Despite technological improvements and increased professional training, nothing replaces experience. At this point, no one knows how effective the PLAN might be in combat or near combat situations.

Building upon this discussion of the current state of doctrine, strategy, and capabilities, the symposium concluded with a panel discussing future directions of Chinese maritime power. This discussion focused primarily on the driving forces behind the Chinese aircraft carrier program and underlying question of whether China's efforts to become a naval power make strategic sense.

Robert Ross of Boston College presented many of the arguments from his recent *International Security* article "China's Naval Nationalism: Sources, Prospects, and the

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U.S. Response." He argued that naval nationalism, rather than security interests, is driving China to develop a power projection navy centered on aircraft carriers. Ross dismissed several justifications and missions offered by Chinese advocates of PLAN acquisition of an aircraft carrier, including unification of Taiwan, SLOC protection for energy and trade security, defense of maritime sovereignty, antipiracy, and humanitarian assistance/disaster relief missions. He argued that aircraft carriers are not needed for these missions or that Chinese naval modernization would be unable to provide security against superior U.S. maritime capabilities. Developing carriers for these purposes would be a waste of resources. Moreover, for a continental power such as China that faces severe challenges to maintaining long-term territorial security and domestic security, such secondary maritime interests and threats should not drive military modernization.

After he dismissed as unconvincing these various national security arguments Chinese development of a carrier-based power projection navy, Ross argued that naval nationalism has pushed China to make this suboptimal choice. He cited many of the emotional nationalist arguments driving China's push for maritime power. He further argued that expansive naval modernization path would not only waste resources, but would also undermine China's own security by diverting resources from more pressing needs. It would also compel a vigilant reaction from the U.S. Navy. Following the example of past historical cases of competition between rising continental powers that pursue

naval nationalism and dominant maritime powers, China's development of a carrier-centered navy would lead the dominant maritime power (the United States in this case) to invest additional resources in strengthening its navy to defend maritime superiority.

In response, Phillip Saunders and Michael Glosny of INSS argued that while nationalism plays a role in Beijing's decision to develop an aircraft carrier, a more complete explanation requires a coalitional argument that includes several additional factors. Saunders and Glosny argue that recent changes in China's security environment and the expansion of national interests as a result of economic integration have made maritime threats and interests much more important than Ross admits. They disagreed with the outright dismissal of maritime interests. They argued that a limited power projection capability, which is what most PLA officers have called for, would be consistent with new nontraditional missions, military diplomacy, and defense of interests against other regional actors. Although Ross argued that these missions do not make sense as a justification for a carrier-centered navy, Saunders and Glosny argued that they are much more consistent with the limited naval power projection capability that they believe China is developing. They also argued that although Ross may be correct in how the United States would respond to these new capabilities, a more limited Chinese power projection capability, especially if used in cooperative and constructive ways, might not require the vigilant reaction Ross predicts.

The symposium highlighted several key issues related to China's naval modernization. Speakers agreed that despite rapid technical achievements, China still possesses only a nascent naval force when compared to reigning naval powers. Chinese weapon systems have improved dramatically, but the PLAN is still working through basic operational issues that can only be solved through greater experience. The PLAN is likely to continue to increase the number of out of area operations it conducts, with most focused on international cooperation and building good will abroad.

One of the PLAN's primary goals will be to underscore the Chinese message of peaceful development through deployments such as the new hospital ship to Africa. However, a number of analysts predicted a greater degree of Chinese assertiveness within East Asia as China's naval power grows. Speakers agreed that China is likely to continue to improve its naval power projection capabilities, including deploying one or more aircraft carriers. However, they disagreed about whether this presaged a shift to a carrier-centered Chinese navy. There was also heated debate about whether Chinese efforts to develop naval power projection capabilities were driven primarily by expanding economic and maritime security interests or by nationalism.

China's naval modernization presents both opportunities and challenges for the United States. China's emerging capability for out of area operations presents new opportunities to work collaboratively on humanitarian affairs, disaster relief, and SLOC security. Some described opportunities for the United States and China to build a cooperative maritime relationship. Many speakers focused on the challenges posed by China's naval modernization, and especially by its development of antiaccess and area-denial capabilities. Several panelists raised concerns about the trajectory of U.S. naval modernization, where increasing procurement costs and constrained budgets are likely to produce a reduction in the size of the fleet at a time when China and other developing country navies are expanding capabilities.

*Symposium Rapporteur:* Ross Rustici, with contributions by Phillip C. Saunders and Christopher Yung.

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