China's Navy Extends its Combat Reach
to the Indian Ocean

In early 2014, a Chinese surface action group (SAG) carried out a sophisticated training exercise spanning the South China Sea (SCS), eastern Indian Ocean, and Philippine Sea. The People's Liberation Army (PLA) Navy used the 23-day deployment to improve operational proficiencies for antisubmarine warfare, air defense, electronic warfare, and expeditionary logistics; train to seize disputed islands and reefs in the SCS; enhance its ability to conduct integrated and multi-disciplinary operations; and demonstrate to the Indo-Pacific region that China's combat reach now extends to the eastern Indian Ocean.[1] Although the PLA Navy in the near term likely will not seek to develop the ability to establish sea control or sustain combat operations in the Indian Ocean against a modern navy, PLA Navy operations within weapons range of U.S. bases and operating areas in the region probably will become more frequent as China expands and modernizes its fleet of submarines and surface combatants.

The SAG consisted of the *Changbaishan* YUZHAO-class amphibious transport dock (LPD), the *Wuhan* LUYANG I-class guided-missile destroyer (DDG), and the *Haikou* LUYANG II-class DDG. At approximately 20,000 tons, the YUZHAO LPD is China's largest indigenously-built ship class. During the deployment, the *Changbaishan* embarked China's only operational YUYI air-cushion landing craft (LCUA),[†] three helicopters, and one company of marines. The LUYANG I DDG and LUYANG II DDG are two of China's most capable multirole destroyers. The *Wuhan* and *Haikou* participated in China's first counterpiracy patrol in the Gulf of Aden in 2009 as well China's first- and second-ever joint naval exercises with Russia in 2012 and 2013,[2] signifying Beijing's confidence in these particular ships as well as its desire to use modern, domestically-produced vessels for high-profile missions to highlight the PLA Navy's modernization.
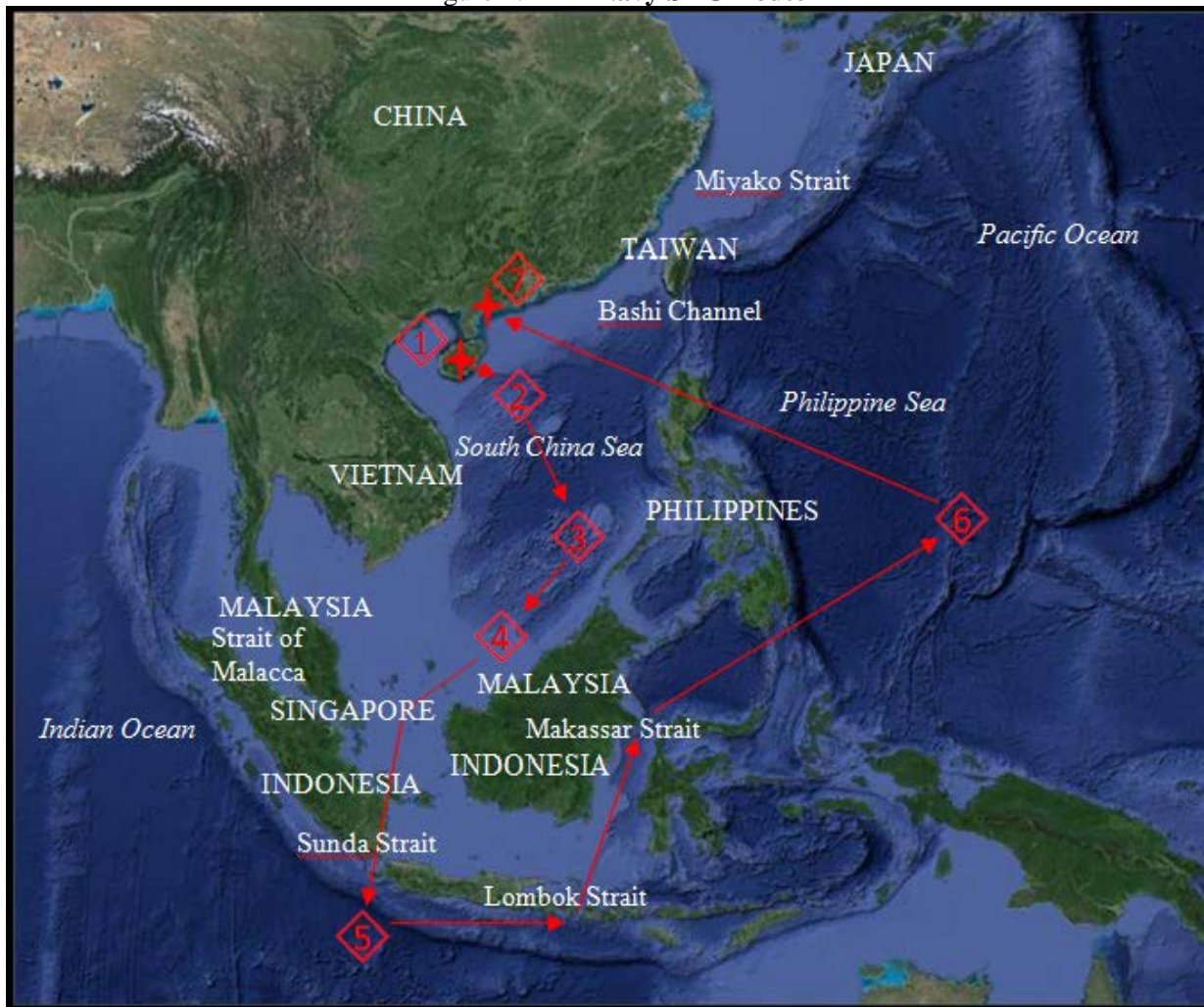
Figure 1: **PLA Navy SAG Composition**

Ship Name	*Class and Type*	*Fleet*[‡]	*Year Commissioned*	*Armament*
Changbaishan	YUZHAO (071) LPD	South Sea	September 2013	4 x LCUA; 15-20 amphibious armored vehicles; 4 x Z-8 helicopters; 500-800 marines
Wuhan	LUYANG I (052B) DDG	South Sea	July 2004	YJ-82/83; SA-N-7; 1 x Ka-28 *Helix* helicopter
Haikou	LUYANG II (052C) DDG	South Sea	July 2005	YJ-62; HHQ-9; 2 x Ka-28 *Helix* helicopters

Sources: U.S.-China Economic and Security Review Commission, *Hearing on PLA Modernization and Its Implications for the United States*, written testimony of Jesse Karotkin, January 10, 2014; International Institute for Strategic Studies, *The Military Balance: 2014* (London, England: Arundel House, February 2014), p. 233; Andrew Erickson and Austin Strange, *No Substitute for Experience: Chinese Antipiracy Operations in the Gulf of Aden* (Newport, RI: China Maritime Studies Institute, November 2013), p. 85; and IHS Aerospace, Defense, and Security, "Analysis: China's Expanding Amphibious Capabilities," October 2013.

[†] The YUYI LCUA – similar in size and configuration to the U.S.-designed landing craft air cushion – can carry approximately 60 tons and has space for one main battle tank. U.S.-China Economic and Security Review Commission, *Hearing on PLA Modernization and Its Implications for the United States*, written testimony of Jesse Karotkin, January 10, 2014; IHS Aerospace, Defense, and Security, "Analysis: China's Expanding Amphibious Capabilities," October 2013.

[‡] The PLA Navy's principal operational and administrative command entities are its three fleets. The North Sea Fleet, headquartered in Qingdao, is responsible for the Yellow Sea and the Bohai. The East Sea Fleet, headquartered in Ningbo, is responsible for the East China Sea, including the Taiwan Strait. The South Sea Fleet, headquartered in Zhanjiang, is responsible for the South China Sea, including the contested Spratly and Paracel Islands.

Figure 2: **PLA Navy SAG Route**

Source: Google Maps, "South China Sea," February 28, 2014. Adapted by the authors. The geographic features on the map and the lines and markings used to indicate the SAG's route are for illustrative purposes only.

Figure 3: **PLA Navy SAG Timeline of Activities**

Route Indicator	Date	Event
◇1	Jan. 20	The SAG departed from a naval base on Hainan Island and then "conducted exercises for the joint submarine-ship breakthrough of 'enemy' blockade zones."
◇2	Jan. 21-22	The SAG patrolled the Paracel Islands, including waters surrounding Woody Island, Duncan Island, Prattle Island, Triton Island, Lincoln Island, and Money Island.
	Jan. 22	Multiple helicopters, one hovercraft, and marines from the *Changbaishan* formed a "vertical assault group" to conduct a "landing training exercise" on an unspecified island in the Paracel Islands.
◇3	Jan. 23-25	The SAG patrolled the Spratly Islands and the SAG commander "[landed] on every reef guarded by China's navy staff." The *Haikou* "conducted maneuvers against submarines under fictitious air threat, and commanded forces guarding reefs to conduct attack-and-defense

		drill."
④	Jan. 26	While in the vicinity of James Shoal, SAG personnel "swore an oath of determination to safeguard the country's sovereignty and maritime interests."
	Jan. 27-29	The SAG passed through the Sunda Strait.
⑤	Jan. 29-Feb. 2	The SAG conducted an exercise between Java and Christmas Island that "involved antipiracy, search and rescue, damage control and combat drills." The *Changbaishan* simulated an electronic warfare attack and drilled against notional "enemy" airplanes and submarines.
	Feb. 2-3	The SAG passed through the Lombok and Makassar straits.
⑥	Feb. 7-8	The SAG conducted "live-fire training" in an unspecified location in the Philippine Sea. The *Dongtinghu* replenishment ship joined the SAG to conduct "logistics support exercises in realistic battle conditions [in order to] inspect comprehensive logistics support capabilities for blue water training." The *Changbaishan* then simulated an attack by "enemy biological and chemical weapons."
⑦	Feb. 11	The SAG returned to Zhanjiang Naval Base after sailing for 23 days.

Source: This timeline is based primarily on official Chinese media reporting. It is approximate and not necessarily indicative of all of the SAG's activities during the deployment.

China Expanding Presence in the Indian Ocean

The SAG deployment marks the first time the PLA Navy has conducted what official Chinese sources refer to as a "combat readiness patrol," or "blue-water training," in the Indian Ocean. Although the PLA Navy has made forays into the region since at least 1985,[3] its presence there has increased considerably over the last five years.

- Since January 2009, the PLA Navy has sustained counterpiracy operations in the Gulf of Aden to protect Chinese commercial shipping interests. The inaugural counterpiracy patrol represented China's first operational deployment of naval forces outside of China's regional waters aside from naval diplomacy.[4]

- In 2012, the PLA Navy for the first time began to deploy maritime intelligence collection ships to the Indian Ocean.[5] These ships likely have equipment enabling them to collect signals and electronic intelligence, map the ocean floor, and gather bathymetric data,[6] suggesting the PLA Navy may be building the foundation for more routine naval operations in the region in the near term.

- Over the last few years, China has played a large role in financing and constructing civilian port infrastructure in the Indian Ocean, including the Port of Colombo in Sri Lanka,[7] the Port of Hambantota in Sri Lanka,[8] and Gwadar Port in Pakistan.[9] Furthermore, PLA Navy counterpiracy task groups have made port calls in at least 12 regional countries for resupply and replenishment and military-to-military engagements.[10] Chinese investments in commercial ports in the Indian Ocean and Chinese naval diplomacy with countries in the region probably will improve the PLA Navy's ability to replenish using regional ports and could lay the groundwork for future logistics hubs in the Indian Ocean.

The PLA Navy's growing operations in the Indian Ocean almost certainly reflect China's desire to improve its ability to combat perceived threats to sea routes vital to its economic development. Most of China's energy and raw material imports travel through the Indian Ocean, including over 80 percent of China's crude oil imports.[11]

- A 2009 book published by a Chinese state-sponsored publishing house underscores the importance of the Indian Ocean to China's maritime development: "As far as China is concerned, the Indian Ocean and the Pacific Ocean are important passageways through which China can connect with other continents of the world. Only by gaining the freedom of mobility in both the Pacific Ocean and the Indian Ocean can China effectively safeguard its own sovereignty, rights and interests and can it really move forward towards the world."[12]

- In 2009, retired PLA Navy admiral Yin Zhuo called for China to establish "relatively stable and permanent" overseas naval bases in response to logistics requirements associated with "fulfilling [China's] international obligations."[13] Ongoing discussions of overseas basing in Chinese press by Chinese scholars and retired military officers suggest Beijing continues to consider the issue.

China also likely intends to use its naval deployments and infrastructure projects in the Indian Ocean for nontraditional security missions, including counterterrorist and counternarcotics operations, noncombatant evacuation, international peacekeeping operations, humanitarian relief operations, and protection of Chinese citizens and commercial enterprises in the region.[14]

Furthermore, China is developing operational concepts and proficiencies for more traditional expeditionary missions for its amphibious force, such as amphibious raids, direct action operations, airfield and port seizures, and seizure/recovery of personnel and materiel. A U.S. think tank affiliated with the U.S. Army recently issued a report exploring the deployment of land-based antiship cruise missiles (ASCMs) to land chokepoints in Asia. The strategy would require regional countries – such as Malaysia, Indonesia, Japan, Taiwan, the Philippines, or South Korea – to acquire systems that could partner with U.S. C4ISR or permit the use of U.S. ASCMs on their territory. These ASCM batteries could allow the United States and its partners to challenge China's maritime freedom of movement in critical sea lanes in the Indian Ocean and SCS. The concept is designed to be a "complementary approach" to AirSea Battle that employs "the same inexpensive … technologies [used in China's antiaccess/area-denial strategy] to significantly raise the cost of a conflict for China and, should deterrence fail, to limit China's ability to inflict damage off the Asian mainland."[15] The SAG's transit near some of these potential ASCM deployment sites as well as its training for amphibious assaults before it reached the Indian Ocean indicate the PLA Navy is able to field adequate assets and combat power to conduct an amphibious raid or air strike against such ASCM batteries, if they are fielded.

The SAG deployment took place in the context of a longstanding China-India rivalry, which extends to the maritime sphere, the two countries' disputed land border, and various foreign policy issues. Despite cooperation efforts and official statements aimed at downplaying the rivalry,[16] Asia's two largest rising powers share a mutual distrust, and each is sensitive to the other operating in its respective area of influence.[17]

- Neither India's Ministry of Defense nor Ministry of External Affairs issued a statement about China's SAG deployment. New Delhi's reticence may have been motivated by a desire not to

upset relations with China ahead of a series of high-level bilateral defense and security meetings in New Delhi in February.[§]

- New Delhi is concerned China's growing investment and activity in and around the Indian Ocean are designed to encircle India militarily.[18] Much of India's naval modernization program appears aimed at ensuring India remains the dominant regional maritime power in the Indian Ocean. Over the next decade, the Indian Navy plans to expand its power projection capabilities with additional aircraft carriers, major surface combatants, diesel and nuclear-powered submarines, fighter aircraft, helicopters, and long-range surveillance aircraft.[19]

New Delhi appears to view its security relationship with the United States as central to its efforts to deter a more robust Chinese naval presence in its traditional area of influence. The United States is India's most frequent partner for security engagements (including military exercises, dialogues, and exchanges)[20] and India is expanding its purchase of U.S. defense items. While impediments to the bilateral security relationship exist, India may seek to strengthen cooperation with the United States to enhance its capabilities vis-à-vis China.

SCS Training Highlights

- Soon after the SAG left port, it reportedly rendezvoused with multiple PLA Navy submarines for "submarine-vessel joint 'enemy' blockade breakout drills" in the SCS.[21] It is unlikely the submarines accompanied the SAG for the duration of the deployment. Official Chinese media coverage indicates increasing submarine involvement in PLA Navy surface deployments since at least 2010,[22] signaling China is seeking to improve its ability to coordinate surface and submarine units at sea.

- From approximately January 21-26, the SAG conducted a two-day patrol of the Paracel Islands followed by a three-day patrol of the Spratly Islands.[23] [**] China likely used these highly visible operations to assert China's SCS claims, deter other countries from challenging its claims, provide the PLA Navy with valuable operational experience in the SCS, and hone China's military options in the event its strategy to consolidate its SCS claims through nonkinetic coercion fails.[24] China has conducted nearly annual surface deployments to the SCS since 2005.[25]

- On January 22, the SAG conducted amphibious assault training for small-island and reef seizures in the Paracel Islands, which included landing marines by shipborne helicopters and LCUA.[26] The PLA Navy's use of YUZHAO LPDs in amphibious assault training since 2008[27] and the ship's range and ability to support over-the-horizon assaults using helicopters and hovercraft suggest it would play a significant role in seizures of SCS islands and reefs.

[§] The 5th Meeting of the Working Mechanism for Consultation and Coordination on India-China Border Affairs was held on February 10; the 17th round of talks between the Special Representatives of India and China on the Boundary Question was held on February 11th; and the 6th India-China Defense and Security Dialogue was held on February 24th.

[**] China, Taiwan, and Vietnam claim all of the Paracel Islands and Spratly Islands. Other partial claimants are the Philippines, Malaysia, and Brunei. China remains the only occupant of the Paracel Islands after the PLA Navy seized all of the islands from then-South Vietnam in 1974. China maintains a military presence on seven reefs in the Spratly Islands – Cuarteron Reef, Fiery Cross Reef, Gaven Reefs, Hugh(es) Reef, Johnson Reef, Mischief Reef, and Subi Reef. Open Source Center, *Chinese Military Presence in Spratly Islands*, July 11 2013. OSC ID: ID: CHO2013071123214548.

- Throughout the SAG deployment, the PLA Navy used "ad hoc" scenarios to train shipboard commanders to react to events as they occurred. These scenarios were designed to enhance tactical commanders' flexibility and responsiveness to changing conditions at sea. [28] Traditionally, PLA Navy tactical commanders during exercises have relied on a predetermined exercise script, strict rules of engagement, or explicit orders from higher echelons to guide their actions. [29]

"Breaking Through" the First Island Chain

The SAG deployment marked the PLA Navy's first known transits through the Sunda, Lombok, and Makassar straits – all international straits with regular flows of maritime shipping, albeit far less than the more economical route via the Straits of Malacca and Singapore. These transits appear to be part of a concerted effort by the PLA Navy since 2013 to demonstrate its ability to "break through" the First Island Chain[††] to operate in China's "distant seas."[‡‡] PLA strategists and academics have long contended the United States uses the First Island Chain to "encircle" or "contain" China and prevent the PLA Navy from operating freely beyond China's immediate periphery. [30]

- In July 2013, following a joint exercise with the Russian Navy, a PLA Navy SAG passed through the La Perouse Strait. The SAG then transited east of Japan in the Pacific Ocean and back around southern Japan through the Miyako Strait before returning to port in Qingdao. Official Chinese press heralded the event as a demonstration of the PLA Navy's ability to "[fulfill] its long-held dream of breaking through the 'first island chain blockade.'"[31]

- From mid-October to early November 2013, the PLA Navy held a large-scale training exercise, known as Maneuver-5, in the Philippine Sea with elements from all three of its fleets. The units from the North Sea Fleet and East Sea Fleet passed through the Miyako Strait to reach the Philippine Sea while the ships from the South Sea Fleet took a route through the Bashi Channel.[32] According to an official at China's Academy of Military Science, "The PLA [Navy] has cut up the whole island chains into multiple sections. … As a geographical mark of trap and blockade, the mark of island chains has disappeared into history."[33]

- For its naval diplomacy efforts and Gulf of Aden counterpiracy deployments, the PLA Navy usually has used the Strait of Malacca to gain access to the Indian Ocean.[34] Although the Strait of Malacca serves as the primary throughway for seaborne trade in Southeast Asia, the broader and deeper Sunda, Lombok, and Makassar straits provide additional access to East Asia for larger shipping vessels.[35]

Select Regional Reactions to the SAG Deployment

Official Chinese media provided extensive coverage of the SAG deployment, including details on its training activities and exercise areas. Since 2013, the PLA Navy has released more information about its activities and capabilities and emphasized publicly that its growing operations in China's distant seas are "normal" for China as it develops its military power.[36] This media campaign almost certainly seeks to

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[††] The First Island Chain refers to a line of islands running from Japan, the Senkaku Islands, Taiwan, and the west coast of Borneo to Vietnam. The Second Island Chain refers to a line of islands that stretches from the Kurile Islands through Japan, the Bonin Islands, the Mariana Islands, the Caroline Islands, and Indonesia.
[‡‡] China usually defines its "near seas" as waters within the Yellow Sea, East China Sea, and SCS. China typically describes its "distant seas" as waters beyond its near seas.

counteract what China perceives as sensational regional media coverage of PLA Navy activities and to shape international reactions to these activities.

Australian and Southeast Asian government officials either issued measured statements about the SAG deployment or did not acknowledge it. However, regional media outlets reported widely on the deployment, with commentaries focusing on how the deployment signals China's intent to expand its naval presence in the Indian Ocean as well as the implications of the SAG's activities at James Shoal for Malaysia.[37] §§

Australia: The Royal Australian Air Force scrambled a maritime surveillance plane to observe the PLA Navy SAG's activities in the maritime approaches to Oceania. Although the exercise occurred in international waters, it was closer to Australia than any previous combat readiness patrol by the PLA Navy.[38] Perhaps for this reason, Australian officials and defense experts devoted more public attention to the exercise than other countries in the region.

- When asked about the significance of China's SAG deployment, Australian Foreign Minister Julie Bishop said, "The United States has long been the single greatest power in the Pacific, in Asia, in fact globally. … But we recognize that there are other countries that are emerging as stronger economies, other countries are building up their militaries. … So we are in a very different world. It's a changing landscape and our foreign policy must be flexible enough and nimble enough to recognize that changing landscape."[39]

- Former Australian official Rory Medcalf, currently of the Lowy Institute, added that China's naval exercise "should focus Australian minds because for decades Australian defense policy has been based on the view that Indonesia is between us and the great powers of East Asia. That's no longer quite the case."[40] He also warned it is "a bit of a wake-up call to [Australian] defense planners to contemplate that in the future they're going to have to expect the Chinese to be able to operate in considerable force in the vicinity of [Australia's] ocean territories."[41]

Malaysia: Malaysian reactions to the deployment centered on the PLA Navy's oath-taking ceremony at James Shoal, in which SAG personnel stood in formation to swear an oath "expressing their firm determination to safeguard the country's territorial sovereignty and maritime rights and interests."[42] Approximately 1,250 miles from the Chinese mainland and 50 miles from East Malaysia, James Shoal lies at the southernmost point of China's claimed territory. China's SAGs and maritime law enforcement patrollers have conducted similar ceremonies at James Shoal since at least 2008.[43] Although the ceremony was largely symbolic, it stirred controversy in Malaysian press.[44]

In the weeks following the oath-taking ceremony at James Shoal, Malaysian officials offered mixed reactions, suggesting they initially had an incomplete understanding of the Chinese SAG's activities and composition. Kuala Lumpur has publicly espoused a nonconfrontational approach to Malaysia's SCS dispute with China, though there is some evidence Malaysia intends to take a more assertive stance on its SCS claims in the future.[45]

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§§ According to one commentary in *The Australian*, the deployment was "a wake-up call to anyone still doubting China's long-term intention to be able to project force in the Indian Ocean." An opinion piece in the *Borneo Post Online* claimed the deployment's activities at James Shoal posed a "direct threat" to Malaysia. Rory Medcalf and C. Raja Mohan, "Sea change of China power," *The Australian*, February 11, 2014. *http://www.theaustralian.com.au/national-affairs/opinion/sea-change-of-china-power/story-e6frgd0x-1226822951219#; Borneo Post Online*, "Loss of James Shoal could wipe out state's EEZ," February 5, 2014. *http://www.theborneopost.com/2014/02/05/loss-of-james-shoal-could-wipe-out-states-eez/*.

- Royal Malaysian Navy chief Admiral Abdul Aziz Jaafar claimed Malaysia had been informed of the exercise – which he inaccurately described as an aircraft carrier exercise that took place northwest of the Spratly Islands – and said, "[there] has been no act of provocation on the part of the Chinese or threat to our sovereignty, as they are conducting their exercise in international waters."[46] Admiral Aziz's comments were used by official Chinese media to defend against criticism that the patrol may have damaged China-Malaysia ties.[47]

- On February 17, Malaysian Foreign Minister Anifah Aman downplayed reports that the oath-taking ceremony at James Shoal constituted Chinese encroachment on Malaysian territory, stating, "I have not got any confirmation on the presence of Chinese vessels or ships in that region. … Nevertheless, any intrusion into our territory will not get a very good response from us."[48]

- The head of the Malaysian Armed Forces, General Zulkifeli Mohd Zin, confirmed the SAG's James Shoal activities on February 20 but stated to press that "[as] long as it was an innocent passage, *** that is okay with us." Regarding the oath-taking ceremony, General Zulkifeli commented, "If they took an oath on the deck, nobody can stop them. It is free passage, what you do on your ship [is your prerogative]." On the same day, Malaysian Defense Minister Hishammuddin Hussein similarly downplayed tensions, stating, "We are not going to war based on media reporting and the fact that people are using these issues to flare up the situation."[49]

Indonesia: An Indonesian National Armed Forces spokesperson remarked positively about the PLA Navy's transit through Indonesia's Sunda and Lombok straits. He said, "It was okay for [the PLA Navy] to pass through our territory, as they were in 'normal mode,' meaning that all of their submarines stayed on the surface and their helicopters remained on the ships' helipads." He claimed China coordinated the SAG's transit with Indonesia and explained Indonesia granted China's request as "a token of … friendship."[50] It is not clear, however, if the spokesperson's comments reflect the official views of other Indonesia officials.[51]

Implications for the United States

While the PLA Navy continues to focus on China's immediate periphery, the recent SAG deployment demonstrates China's intent and ability to operate throughout the Indo-Pacific region. The PLA Navy in the near term likely will not seek to develop the ability to establish sea control or sustain combat operations in the Indian Ocean against a modern navy, such as the U.S. Navy or the Indian Navy. Nevertheless, PLA Navy operations within weapons range of U.S. bases and operating areas in the region probably will become more frequent as China expands and modernizes its fleet of submarines and surface combatants.[52]
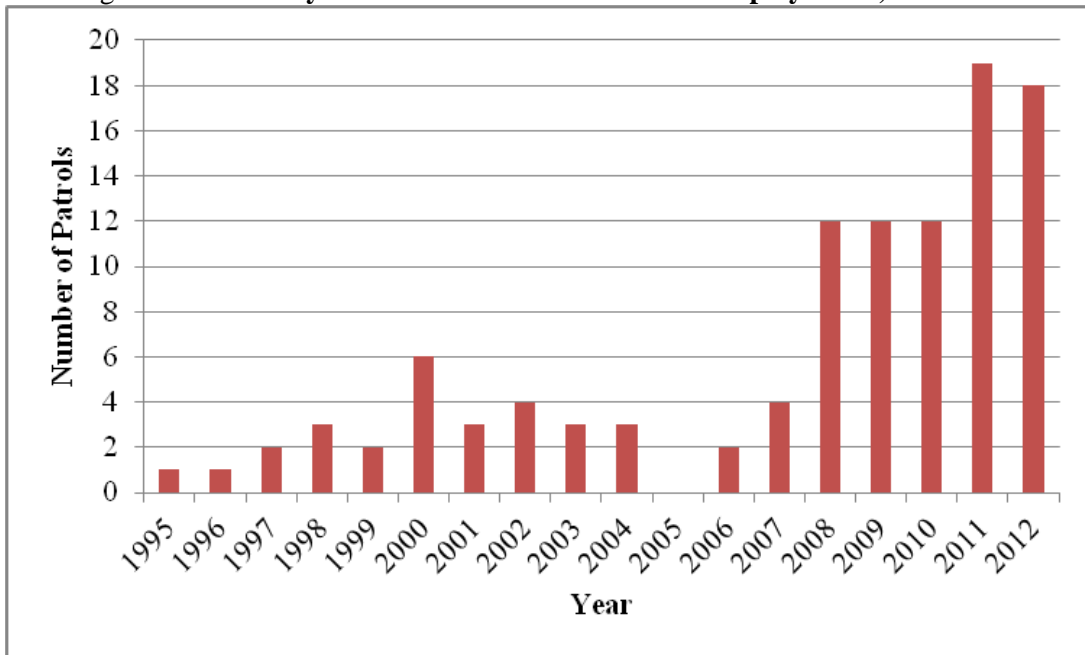
- From 2007-2012, the number of PLA Navy submarine and surface combat readiness patrols increased more than six-fold (see Figures 4-5).[53] The PLA Navy now maintains a near-constant patrol presence beyond China's immediate periphery. This activity appears to be concentrated in the Philippine Sea, an area Beijing judges would be crucial to interdicting U.S. forces in a conflict.[54] According to a senior U.S. Navy official, "the amount of time [PLA Navy SAGs] train in the Philippine seas now rivals that of the United States."[55]

- The PLA Navy over the last decade has implemented comprehensive institutional reforms designed to raise the quality of its personnel. Most important, the PLA Navy has streamlined its

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*** According to UNCLOS, "passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State." *United Nations Convention on the Law of the Sea,* ''Article 19: Meaning of innocent passage.'' http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

recruitment and retention policies and expanded the size and responsibilities of its noncommissioned officer corps. This has reduced the PLA Navy's reliance on volunteer conscripts, which previously had limited the availability of trained sailors for several months per year due to the stringent conscription induction and training cycle.[56] Largely due to this shift, the PLA Navy now is able to achieve higher day-to-day readiness rates, allowing it to conduct short-notice submarine and surface deployments.[57]
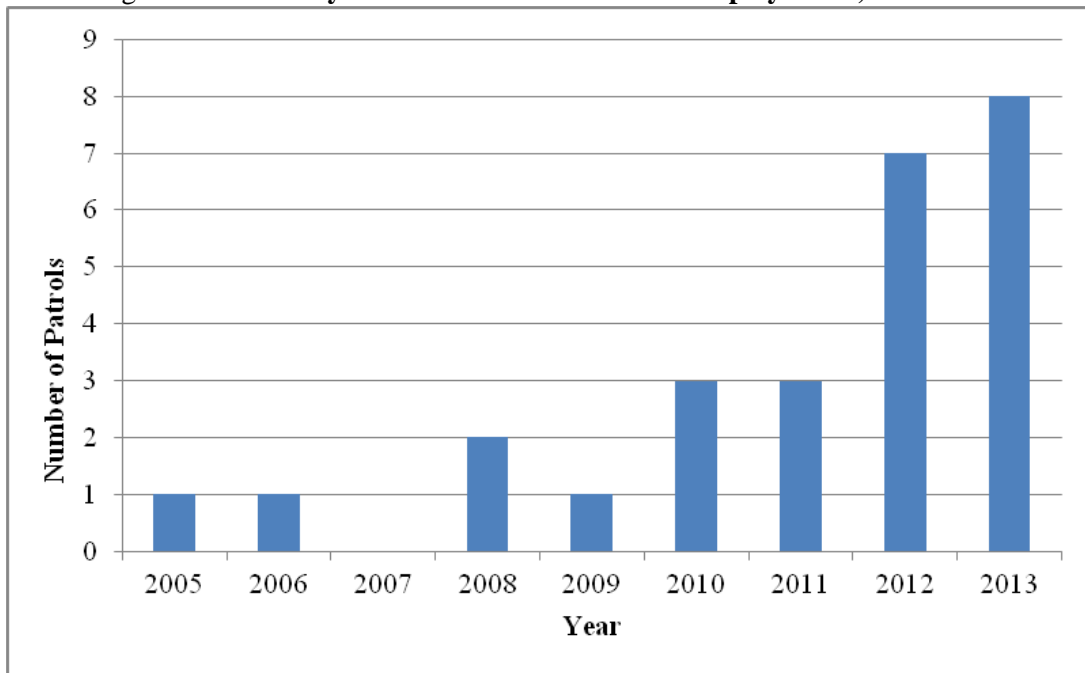
- After launching two SHANG-class nuclear attack submarines (SSNs) in 2002-03, China began building four improved variants of the class in 2012. China also continues production of the YUAN-class conventional attack submarine (SS), most of which include an air-independent power system that allows for extended duration operations. Eight YUAN SS are currently in service and as many as 12 more are expected by 2020. The SHANG SSN and YUAN SS are both equipped for long-distance operations and long-range antisurface warfare.[58] Furthermore, China is pursuing a new class of nuclear submarines – the Type 095 guided-missile attack submarine – and may jointly develop four advanced conventional submarines with Russia.[59] See Figures 6-7 for PLA Navy submarine orders-of-battle from 1990 to 2020.

- In 2012, China resumed construction of the LUYANG II DDG after an eight-year hiatus and launched the new LUYANG III DDG. The PLA Navy currently operates six LUYANG II DDGs[60] and has as many as 10 LUYANG III DDGs in various stages of development.[61] The LUYANG II/III DDGs are armed with long-range antisurface and air defense capabilities, and the LUYANG III eventually will carry the PLA Navy's first land-attack cruise missile.[62] China also continues serial production of the JIANGKAI II guided-missile frigate, which is equipped with medium-range antiship cruise missiles and unlike previous frigate classes can carry medium-range air defense missiles and embark helicopters.[63] The PLA Navy's newest destroyers and frigates are larger than previous ones, allowing them to conduct more diverse missions at longer distances from the Chinese coast. See Figures 8-9 for PLA Navy surface orders-of-battle from 1990 to 2020.

Figure 4: **PLA Navy Submarine Combat Readiness Deployments, 1995-2012**

Source: U.S. naval intelligence data reproduced in Hans Kristensen, "Chinese Nuclear Developments Described (and Omitted) by DOD Report," *FAS Strategic Security Blog*, May 13, 2013. *http://blogs.fas.org/security/2013/05/china2013/*.

Figure 5: **PLA Navy Surface Combat Readiness Deployments, 2005-2013**

Source: This figure reflects the authors' judgments based on information from a variety of sources, including from the U.S. Office of Naval Intelligence, the U.S. Department of Defense, Japan's Ministry of National Defense, Asian media, and official Chinese statements.

Figure 6: **PLA Navy Submarine Orders-of-Battle 1990-2020**

Type	1990	1995	2000	2005	2010	2015	2020
Diesel Attack	88	43	60	51	54	57-62	59-64
Nuclear Attack	4	5	5	6	6	6-8	6-9
Nuclear Ballistic	1	1	1	2	3	3-5	4-5
Total	93	49	66	59	63	66-75	69-78

Sources: Numbers from 1990 to 1995 are based on information from various editions of the International Institute for Strategic Studies' The Military Balance series, reprinted in Anthony H. Cordesman et al., *Chinese Military Modernization and Force Development: A Western Perspective* (Washington, DC: Center for Strategic and International Studies, 2013), pp. 157-163. Numbers from 2000 to 2010 and projections for 2015 and 2020 were provided by the U.S. Office of Naval Intelligence. U.S. Office of Naval Intelligence, *PLA Navy Orders-of-Battle 2000-2020*, written response to request for information provided to the U.S.-China Economic and Security Review Commission, Suitland, MD, June 24, 2013.

Figure 7: **PLA Navy Submarine Orders-of-Battle 1990-2020, Approximate Percent Modern**[†††]

Type	1990	1995	2000	2005	2010	2015	2020
Diesel Attack	0%	0%	7%	40%	50%	70%	75%
Nuclear Attack	0%	0%	0%	33%	33%	70%	100%

Sources: Approximate percentages from 1990 to 1995 are based on information from various editions of the International Institute for Strategic Studies' The Military Balance series, reprinted in Anthony H. Cordesman et al., *Chinese Military Modernization and Force Development: A Western Perspective* (Washington, DC: Center for Strategic and International Studies, 2013), pp. 157-163. Approximate percentages from 2000 to 2010 and projections for 2015 and 2020 were provided by the U.S. Office of Naval Intelligence. U.S. Office of Naval Intelligence, *PLA Navy Orders-of-Battle 2000-2020*, written response to request for information provided to the U.S.-China Economic and Security Review Commission, Suitland, MD, June 24, 2013.

Figure 8: **PLA Navy Surface Orders-of-Battle 1990-2020**[‡‡‡]

Type	1990	1995	2000	2005	2010	2015	2020
Aircraft Carriers	0	0	0	0	0	1	1-2
Destroyers	19	18	21	21	25	28-32	30-34
Frigates	37	37	37	43	49	52-56	54-58
Corvettes	0	0	0	0	0	20-25	24-30
Amphibious Ships	58	50	60	43	55	53-55	50-55
Coastal Patrol (Missile)	215	217	100	51	85	85	85
Total	329	322	218	158	214	239-254	244-264

Sources: Numbers from 1990 to 1995 are based on information from various editions of the International Institute for Strategic Studies' The Military Balance series, reprinted in Anthony H. Cordesman et al., *Chinese Military Modernization and Force Development: A Western Perspective* (Washington, D.C: Center for Strategic and International Studies, 2013), pp. 157-163. Numbers from 2000 to 2010 and projections for 2015 and 2020 were provided by the U.S. Office of Naval Intelligence. U.S. Office of Naval Intelligence, *PLA Navy Orders-of-Battle 2000-2020*, written response to request for information provided to the U.S.-China Economic and Security Review Commission, Suitland, MD, June 24, 2013.

[†††] Submarines considered modern are those able to employ submarine-launched ballistic missiles or antiship cruise missiles. U.S. Office of Naval Intelligence, *PLA Navy Orders-of-Battle 2000-2020*, written response to request for information provided to the U.S.-China Economic and Security Review Commission, Suitland, MD, June 24, 2013.

[‡‡‡] Excludes mine warfare and auxiliary ships with various roles as well as ships subordinate to maritime law enforcement agencies. Including all types and sizes, the PLA Navy currently operates approximately 700 surface ships.

Figure 9: **PLA Navy Surface Orders-of-Battle 1990-2020, Approximate Percent Modern**[§§§]

Type	1990	1995	2000	2005	2010	2015	2020
Destroyers	0%	5%	20%	40%	50%	70%	85%
Frigates	0%	8%	25%	35%	45%	70%	85%

Sources: Approximate percentages from 1990 to 1995 are based on information from various editions of the International Institute for Strategic Studies' The Military Balance series, reprinted in Anthony H. Cordesman et al., *Chinese Military Modernization and Force Development: A Western Perspective* (Washington, D.C: Center for Strategic and International Studies, 2013), pp. 157-163. Approximate percentages from 2000 to 2010 and projections for 2015 and 2020 were provided by the U.S. Office of Naval Intelligence. U.S. Office of Naval Intelligence, *PLA Navy Orders-of-Battle 2000-2020*, written response to request for information provided to the U.S.-China Economic and Security Review Commission, Suitland, MD, June 24, 2013.

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