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China Maritime Report No. 11: Securing China's Lifelines across the Indian Ocean

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Summary

How is China thinking about protecting sea lines of communication (SLOCs) and maritime chokepoints in the Indian Ocean Region (IOR) in times of crisis or conflict? Relying on Chinese policy documents and writings by Chinese security analysts, this report argues that three critical challenges limit the People's Liberation Army Navy's (PLAN's) ability to project power into the region and defend access to SLOCs and chokepoints, particularly in times of crisis: (1) the PLAN's relatively modest presence in the region compared to other powers, (2) its limited air defense and anti-submarine warfare capabilities, and (3) its limited logistics and sustainment infrastructure in the region. To address these challenges, Beijing has already undertaken a series of initiatives, including expanding the capabilities of China's base in Djibouti and leveraging the nation's extensive commercial shipping fleet to provide logistics support. Evidence suggests that the PRC may also be pursuing other policy options as well, such as increasing the number of advanced PLAN assets deployed to the region and establishing additional overseas military facilities.

Introduction

How is China thinking about protecting sea lines of communication (SLOC) and maritime chokepoints in the Indian Ocean Region (IOR) in times of crisis or conflict? To date, much research has examined the People's Liberation Army Navy's (PLAN's) approach to non-traditional security operations in the region, including ongoing counter piracy operations, humanitarian assistance/disaster relief efforts, and non-combatant evacuation operations.¹ However, China's interests in the IOR continue to expand. Economically, China has grown increasingly reliant on crude oil imports from the Middle East, which travel through the IOR, while the region itself has emerged as a critical component of Xi Jinping's "Belt and Road Initiative," which aims to extend influence abroad by leveraging Chinese lending, foreign direct investment (FDI), and technical expertise to construct infrastructure projects worldwide.² Xi himself has visited the IOR at least 18 times since becoming Chinese Communist Party (CCP) General Secretary in fall 2012, including his 2013 trip to Tanzania, his second foreign trip after assuming leadership.³ As China's IOR interests grow, the PLAN must grapple with the issue of maintaining access to regional SLOCs and chokepoints not just in peacetime, but during crisis and conflict, to include possible conflicts with great powers in the region such as India or the United States.

This report seeks to provide insight into that question, examining how the PLAN views SLOC and maritime chokepoint protection in the Indian Ocean in times of crisis or conflict. The report analyzes writings by Chinese security analysts on this issue, focusing in particular on PLAN deficiencies that

¹ For a small sample, see Andrew S. Erickson and Austin M. Strange, *No Substitute for Experience: Chinese Anti-Piracy Operations in the Gulf of Aden*, Naval War College *China Maritime Study* 10 (November 2013); Phillip C. Saunders and Michael Swaine, eds., *The Chinese Navy: Expanding Capabilities, Evolving Roles* (Washington, DC: National Defense University Press, 2011); and Matthew Southerland, "The Chinese Military's Role in Overseas Humanitarian Assistance and Disaster Relief: Contributions and Concerns," U.S.-China Economic and Security Review Commission, July 11, 2019, www.uscc.gov/sites/default/files/Research/USCC%20Staff%20Report_The%20Chinese%20Military%E2%80%99s%20Role%20in%20Overseas%20Humanitarian%20Assistance%20and%20Disaster%20Relief_7.11.19.pdf.

² "Silk Road 'Project of the Century'," *The Standard*, May 15, 2015, <http://www.thestandard.com.hk/section-news.php?id=182837>.

³ "Chinese President Starts State Visit to Tanzania," Website of the Ministry of Foreign Affairs of the People's Republic of China, March 25, 2013, www.mfa.gov.cn/zflt/eng/zt/1/t1024544.htm; "Travel and Appearances for: Xi Jinping," *China Vitae*, (Carnegie Endowment for International Peace), www.chinavitae.com/vip/index.php?mode=events&type=cv&id=303.

could affect SLOC protection operations in the Indian Ocean. The report also examines ongoing PLAN activities in the region to better understand how it may be thinking about resolving those deficiencies, and what activities, if undertaken, could help address them.

China's desire to protect access to Indian Ocean SLOCs and maritime chokepoints is largely a function of the country's growing national interests, which the PLAN has been given responsibility to safeguard. These include ensuring access to supplies of crude oil from the Middle East to protect the nation's energy security, defending China's growing expatriate community in the region, and protecting overseas investments.

Chinese policy documents and writings by Chinese security analysts clearly indicate that the PLAN may one day be called upon to defend those interests. However, while the PLAN's ability to operate in the Indian Ocean has improved considerably, its ability to project power into the region, and defend access to SLOCs and chokepoints in times of crisis, remains limited. Specifically, writings by Chinese security analysts and statements and actions by government and military personnel make it clear that the PLAN is well aware of its (1) relatively modest presence in the region compared to other regional powers, (2) limited air defense and anti-submarine warfare (ASW) capabilities, and (3) logistics and sustainment challenges in the region. However, as the PLAN's capabilities improve, so too will its ability to address these challenges. Understanding how the PLAN might remedy these deficiencies, and therefore what to watch for in the future, will be of value as China's position in the region evolves.

SLOCs and Chokepoints: PRC Strategic Interests in the Indian Ocean Region

Chinese security analysts have long noted the importance of Indian Ocean SLOCs. They are the primary conduits connecting China to critical overseas interests in the Middle East and Europe. These SLOCs are vulnerable to closure at several narrow passages or chokepoints: the Malacca Strait in the east and the Strait of Hormuz, Bab El Mandab, and Suez Canal in the west. China's continued access to Indian Ocean SLOCs, and the maritime chokepoints at both ends, is crucial to maintaining access to energy resources and trade markets and protecting China's growing expatriate community and overseas investments.

First, China's reliance on energy imports originating from the Middle East and traversing the Strait of Hormuz continues to grow. For example, in 2018 China imported roughly 9.3 million barrels of crude oil per day, roughly 10 percent more than in 2017, making China the world's largest crude oil importer for the second year in a row.⁴ Nearly half of China's crude oil imports in 2018 (roughly 44 percent) originated from the Middle East (see **Exhibit 1**).⁵

⁴ 海关统计数据在线查询平台 [Customs Statistical Data Online Inquiry Database], <http://43.248.49.97/>; "China Ends 2018 with 10% Crude Import Growth," *S&P Global Platts*, January 14, 2019, www.spglobal.com/platts/en/market-insights/latest-news/oil/011419-chinas-2018-crude-oil-imports-rise-10-to-928-mil-b-d.

⁵ Ibid.

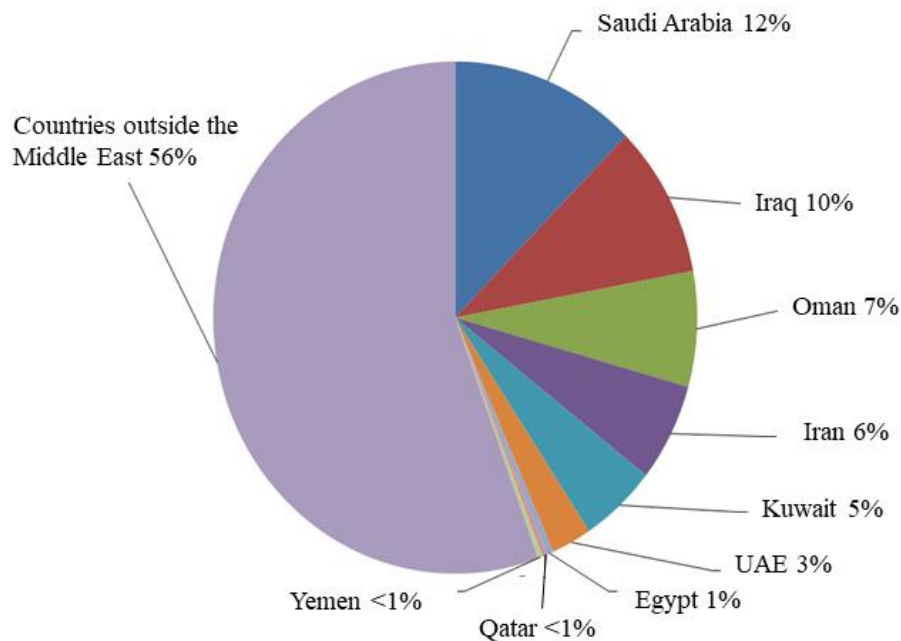


Exhibit 1. China's Crude Oil Imports by Country, 2018

Indian Ocean SLOCs are also some of the primary east-west routes through which Chinese goods travel to Africa and farther afield to Europe. Roughly 20 percent of China's GDP is derived from the export of goods and services, and China now ranks as the world's largest trading nation, with roughly 13 percent of all the world's exports and 10 percent of the world's imports.⁶ Indian Ocean SLOCs also provide the fastest routes through which PLAN ships can reach China's expatriate community and growing investments in the region. Between 2017–18 alone, for example, China invested over \$143 billion in the region, according to the American Enterprise Institute's *China Global Investment Tracker* (see **Exhibit 2**).⁷

⁶ "Country Profiles—China," World Trade Organization—Trade Profiles, 2017, <http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=E&Country=CN>; "Exports of Goods and Services (% of GDP)," World Bank, 2017, <https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS?locations=US&type=points&view=map>. For comparison, roughly 12 percent of U.S. GDP is derived from the export of goods and services.

⁷ American Enterprise Institute, Chinese Global Investment Tracker, <https://www.aei.org/china-global-investment-tracker/?ncid=txtlnkusaolp00000618>. Percentages reflect percentages of PRC FDI per country in the Indian Ocean Region.

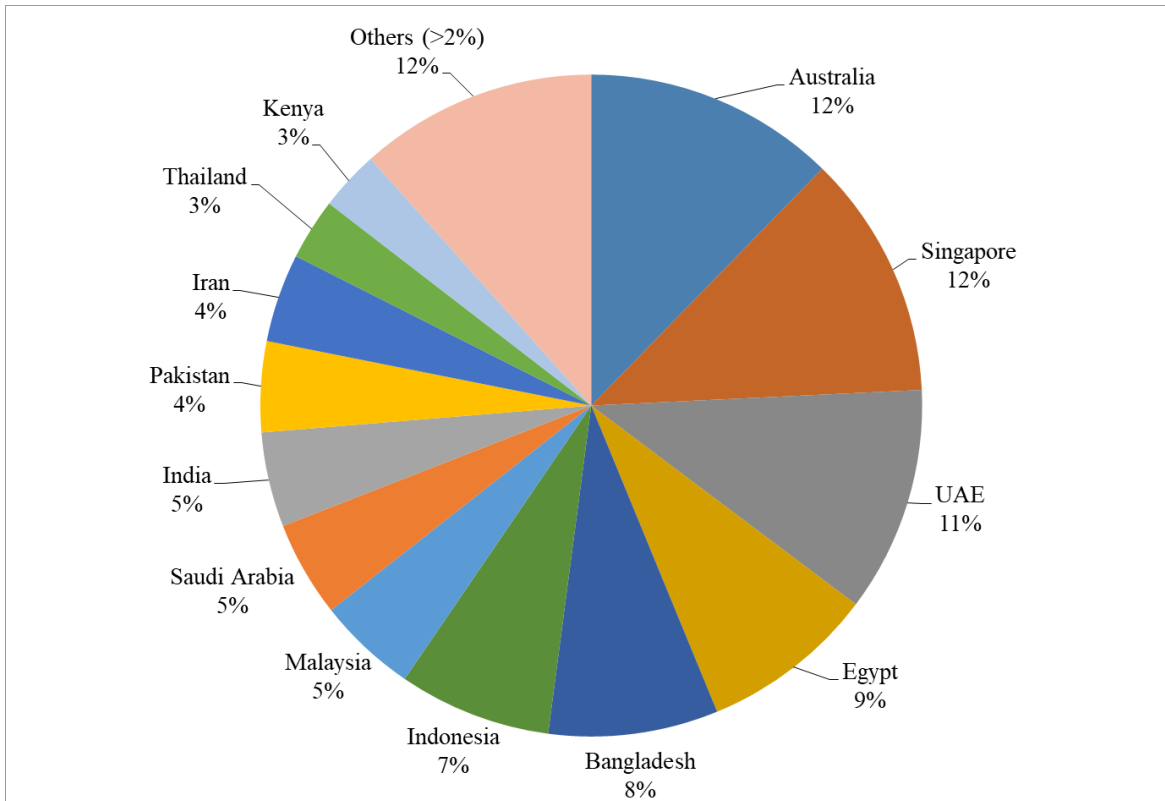


Exhibit 2. Destinations for Chinese Investment in the Indian Ocean Region (2017-2018)

Chinese Thinking about SLOC Protection

As maritime trade grows more critical to Chinese economic development, maintaining access to the sea routes that connect China with markets in the Middle East and onward to Europe and North America becomes a higher priority. To be sure, this issue is not new: the PRC government has been encouraging Chinese businesses to invest abroad since as early as 1999, with the advent of Hu Jintao's "Go Out strategy" (走出去战略).⁸ Five years later, Hu's 2004 "New Historic Missions" speech gave the PLA the task of defending China's overseas interests.⁹ Researchers at the Naval Research Institute, the PLAN's top strategic think tank, argued in 2014 that China's "distant-ocean lifeline" (远洋生命线) is mostly concentrated in the route from the Malacca Strait [extending across] the Indian Ocean to the Middle East and North Africa," and that maintaining China's "seapower" (海权) in the region will be critical.¹⁰ The PLAN's responsibilities for protecting China's overseas interests was further solidified in the 2015 national defense white paper, which stated that "with the

⁸ 更好地实施“走出去”战略 [“Implement the ‘Going Out’ Strategy Even Better”], Central Government of the People's Republic of China, March 15, 2006, www.gov.cn/node_11140/2006-03/15/content_227686.htm.

⁹ Daniel Hartnett, "The PLA's Domestic and Foreign Activities and Orientation," Testimony Before the U.S.-China Economic and Security Review Commission Hearing on China's Military and Security Activities Abroad, March 4, 2009, www.uscc.gov/sites/default/files/3.4.09Hartnett.pdf.

¹⁰ 李剑, 陈文文, 金晶 [Li Jian, Chen Wenwen, and Jin Jing], 印度洋海权格局与中国海权的印度洋扩展 [“Overall Situation of Sea Power in the Indian Ocean and the Expansion in the Indian Ocean of Chinese Sea Powers”] 太平洋学报 [Pacific Journal] 22, no. 5 (2014), pp. 68–75.

growth of China's national interests, its national security is more vulnerable to international and regional turmoil...and the security of overseas interests concerning energy and resources, *strategic sea lines of communication* (SLOCs), as well as institutions, personnel, and assets abroad, has become an imminent issue.” (emphasis added)¹¹

Chinese security analysts highlight the need to be able to defend those interests during a conflict.¹² For example, Senior Captain Liang Fang at the Chinese National Defense University notes that the U.S. Navy's (USN) success has been predicated on the establishment of military facilities around the world—which the author refers to as “strategic islands” (战略岛屿)—allowing the USN to control the world's critical SLOCs and chokepoints. Within the Indian Ocean, Liang notes two locations, Diego Garcia and Bahrain, as particularly important.¹³ Based on this view of the USN's success, Senior Captain Liang advocates deploying China's future carriers to protect SLOC access.¹⁴ Noting the importance of SLOCs to Chinese energy security, Gao Wensheng at Tianjin Normal University argues that the U.S. has “achieved unprecedented maritime hegemony” (史无前例的海洋霸权) through the control of strategic SLOCs. Gao advocates that China establish its own “strategic fulcrum ports” (战略支点港口) to avoid having its energy supplies cut off in future conflicts.¹⁵

Yet if protecting access to Indian Ocean SLOCs and maritime chokepoints during a conflict is China's goal, writings by Chinese security analysts and the record of PLAN activities point to three critical deficiencies, which the service will need to overcome. First, the PLAN has a limited Indian Ocean footprint compared to other regional navies such as India and the United States. Second, it faces air and anti-submarine warfare (ASW) vulnerabilities. Third, the PLAN would likely face logistics and sustainment challenges for its ships during a crisis. Each of these is examined below.

Limited Indian Ocean Presence

For the PLAN to defend its access to Indian Ocean SLOCs and chokepoints during a conflict, it would first have to significantly increase what is currently a modest presence in the region. This point is made by Chinese security analysts who draw a direct line from the PLAN's ability to contest U.S. naval power in the far seas (including the Indian Ocean) to the PLAN's ability to defend China's interests in the near seas.¹⁶ As one professor from China's National University of Defense Technology noted, in order to defend China's near seas interests, the PLAN must “develop coercive,

¹¹ See, for example, China's 2015 defense white paper, Information Office of the State Council of the People's Republic of China, “China's Military Strategy,” Xinhua, May 26, 2015.

¹² For other examples, see Timothy Heath and Andrew S. Erickson, “Is China Pursuing Counter-Intervention?” *The Washington Quarterly* (Fall 2015), pp. 143–56; Joel Wuthnow, *Chinese Perspectives on the Belt and Road Initiative: Strategic Rationales, Risks, and Implications*, China Strategic Perspectives, no. 12 (Washington, DC: National Defense University Press, 2017).

¹³ 梁芳 [Liang Fang], 美国控制海上战略通道的理论与实践与启示 [“The Theory and Practice of U.S. Control of Maritime Strategic Access and Its Implications”], 刊物名字 [Journal of Ocean University of China], no. 5 (2019), pp. 39–46.

¹⁴ 梁芳 [Liang Fang], 今日‘海上丝绸之路’通道风险有多大 [“The Risks of the ‘Maritime Silk Road’ Are Great”], 国防参考 [National Defense Reference], February 11, 2015, http://www.81.cn/2015ChinasRegionalSecurity/2015-02/13/content_6355093.htm.

¹⁵ 高文胜 [Gao Wenshen], 南太平洋能源战略通道的价值、面临的风险及中国的对策 [“The Value of the South Pacific Strategic Energy Channel, the Risks it Faces, and China's Countermeasures”] 世界地理研究 [World Regional Studies], no. 6 (2017), section 4.1.

¹⁶ 胡欣 [Hu Xin], 国家利益扩展与海外战略支撑点建设 [“The Expansion of National Interests and the Building of Overseas Strategic Support Points”], 世界经济与政治论坛 [World Economics and Political Forum], no. 1 (2019), p. 25.

counterstrike, naval maneuver operations” in the far seas in order to “fulfill its far seas protection duties, break[ing] through the island chain, [and] crack[ing] the Malacca dilemma.”¹⁷

At present, however, the PLAN has only a handful of ships deployed to the Indian Ocean at any one time, as well as roughly two submarine deployments annually.¹⁸ Most of these ships are in the region as part of the PLAN’s Gulf of Aden counterpiracy operations. Since 2008, the PLAN has kept on station a three-ship taskforce usually consisting of two warships: a destroyer and frigate or two frigates, and one auxiliary ship.

More recently, PLAN presence in the Indian Ocean, particularly on the eastern end, has increased, as the PLAN has conducted more training operations west of the Malacca Strait. For example, in 2014 the PLAN held its first “two ocean” deployment, with a three-ship taskforce conducting exercises south of Java immediately after conducting an “‘enemy’ blockade area drill” (“敌”封锁区演练).¹⁹ In 2018, a four-ship task force, which included a Type 052D (*Luyang III*) destroyer, a Type 054A (*Jiangkai II*) frigate, an amphibious transport dock, and a replenishment ship, conducted drills in the eastern Indian Ocean before sailing north into the Philippine Sea.²⁰ Such operations provide invaluable training opportunities, while also normalizing China’s presence in the region.²¹

Even with this expanded presence, however, the number of PLAN ships in the Indian Ocean falls well short of other regional surface fleets, such as those of India or the United States. At present, the Indian navy, for example, has six “Aegis-like” modern destroyers, nine modern frigates, the *Vikramaditya* carrier, and numerous older ships and submarines.²² The U.S. Navy is likely to have a carrier strike group in the region as well, including its carrier air wing and associated destroyer squadron.²³

Expanding the PLAN’s Indian Ocean presence would not be impossible. China’s navy is already the largest in the world, with over 300 ships, including over 100 warships and submarines capable of conducting Indian Ocean operations.²⁴ Some estimate that by 2030 the PLAN could have over 400

¹⁷ Ibid.

¹⁸ “PLA Submarines in the Indian Ocean Legitimate: China,” *The Economic Times*, July 12, 2018, <https://m.economictimes.com/news/defence/pla-submarines-in-indian-ocean-legitimate-china/articleshow/53100318.cms>.

¹⁹ 海军南海舰队远海训练编队起航 [“PLAN South Sea Fleet Far Seas Training Formation Sets Sail”] *Central Government Portal of the People’s Republic of China*, January 20, 2014, http://www.gov.cn/jrzq/2014-01/20/content_2571189.htm. For an overview of PLAN far seas training operations, see Ryan D. Martinson, “China’s Far Seas Naval Operations, From the Year of the Snake to the Year of the Pig,” *Center for International Maritime Security (CIMSEC)*, February 18, 2019, <http://cimsec.org/chinas-far-seas-naval-operations-from-the-year-of-the-snake-to-the-year-of-the-pig/39745>.

²⁰ Martinson, “China’s Far Seas Naval Operations”; Sudhi Ranjan Sen, “Flexing Muscles? China Stages Rare Mid-Sea Drills in Eastern Indian Ocean,” *India Today*, February 20, 2018, <https://www.indiatoday.in/india/story/flexing-muscles-china-stages-rare-mid-sea-drills-in-eastern-indian-ocean-1173656-2018-02-20>.

²¹ Li Tang and Chen Guoquan: “In the Far and Wide Ocean, Witness the Jointing Development of PLAN,” *PLA Daily Online*, June 22, 2017, https://www.guancha.cn/military-affairs/2017_06_22_414496.shtml?s=fwckhfbt.

²² “India Navy,” *Jane’s World Navies*, July 3, 2019, <https://ihsmarkit.com/products/janes-world-navies.html>.

²³ As of October 21, 2019, for example, the *Abraham Lincoln* carrier strike group was in the Arabian Sea. See “USNI News Fleet and Marine Tracker: Oct. 21, 2019,” U.S. Naval Institute Website, October 21, 2019, <https://news.usni.org/2019/10/21/usni-news-fleet-and-marine-tracker-oct-21-2019#more-70501>.

²⁴ Ronald O’Rourke, “China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress,” August 30, 2019, pp. 16-17, <https://crsreports.congress.gov/product/pdf/RL/RL33153/224>.

vessels in its fleet, as well as roughly 100 submarines. This would give it more than enough assets to protect China's near seas interests and expand its presence in the Indian Ocean.²⁵ Indeed, some suggest that China is already capable of maintaining about 18 ships on station full-time in the Indian Ocean, given the PLAN's current force posture.²⁶

Chinese security analysts rarely discuss the idea of a PLAN Indian Ocean squadron directly. When the topic does arise, it is often only to refute foreign media reports that suggest the possibility.²⁷ Yet the PLAN is already establishing the capabilities that would allow it to significantly increase Indian Ocean ship deployments in the future. For example, one of the six berths at the Doraleh Multipurpose Port, near the PLA base in Djibouti, is reserved for the PLAN's use.²⁸ China also continues to build pier space on the base itself, which, according to sources cited in the *South China Morning Post*, will allow it to "support a four-ship flotilla at least, including China's new generation Type 901 supply ship."²⁹ While these ships could also be used to support other vessels in the fleet, given their limited numbers, and the fact that they were designed to support the PLAN's future carrier strike groups, expanding facilities in Djibouti to support Type 901s may indicate that the base could also host a PLAN carrier strike group in the future.

Indeed, the size and nature of the facilities being built at Djibouti suggest that the PLAN is establishing the capability to support a carrier strike group from its first overseas base should it so chose. China's current carrier fighter aircraft, the J-15, continues to suffer from multiple challenges operating from China's carriers, including limited range and payload.³⁰ However, the presence of a PLAN carrier strike group off the Bab El Mandeb strait would improve the PLAN's force projection capabilities, while affecting the decision making calculus of countries in the region. Thus, the number, type, and duration of PLAN ships visiting the base will be important to watch when seeking to gauge future Chinese intentions in the region.

Weak Anti-air and Anti-submarine Defense

A second challenge to protecting Indian Ocean SLOCs and maritime chokepoints is the PLAN's limited anti-air and ASW capabilities in the region. When close to home, the PLAN enjoys the

²⁵ James E. Fanell, "Asia Rising: China's Global Naval Strategy and Expanding Force Structure," *Naval War College Review* 72, no. 1 (2019), p. 33.

²⁶ Rear Admiral (ret.) Michael McDevitt, "Is the Past Prologue: PLA Navy Presence in the Indian Ocean?" Paper Presented at the conference *Views of China's Presence in the Indian Ocean Region*, June 17-18, 2019, Hilton Arlington Hotel, Arlington, VA, p. 25.

²⁷ See for example Wendell Minnick, "Experts: Chinese '4th Fleet' Appears Unlikely," *Defense News*, February 6, 2015, www.defensenews.com/naval/2015/02/06/experts-chinese-4th-fleet-appears-unlikely/. See also an opinion piece written anonymously by "a sincere soldier with something to say" (至诚大兵 我有话说) 中国将组第4舰队剑指印度洋? ["Will China Establish a 4th Fleet in the Indian Ocean?"], Sina, February 5, 2015, <http://news.sina.com.cn/zl/mil/blog/2015-02-05/15493169/1295335170/4d353f020102vhc4.shtml>.

²⁸ Erica Downs, Jeffrey Becker and Patrick deGategno, *China's Military Support Facility in Djibouti: The Economic and Security Dimensions of China's First Overseas Base* (Arlington, VA: Center for Naval Analyses, 2017), p. 26; "China Sends Forces to its First Military Base Abroad, in Djibouti," *LA Times*, July 12, 2017, www.latimes.com/world/la-fg-china-military-base-djibouti-20170712-story.html.

²⁹ Minnie Chan, "China Plans to Build Djibouti Facility to Allow Naval Flotilla to Dock at First Overseas Base," *South China Morning Post*, September 27, 2017, www.scmp.com/news/china/diplomacy-defence/article/2112926/china-plans-build-djibouti-facility-allow-naval.

³⁰ China Power, "How Does China's First Aircraft Carrier Stack Up?" CSIS, October 11, 2019, <https://chinapower.csis.org/aircraft-carrier/>.

advantage of operating under the cover of China's shore-based air defense systems and land-based aircraft. PLAN ships are also protected from submarine attacks by the presence of the PLAN's own submarines, as well as land-based ASW aircraft and a host of sensors and other equipment in the near seas. This calculation changes dramatically, however, when operating in the Indian Ocean, as the PLAN would not only be operating without its land-based air and ASW defenses, but would also be operating within range of the land-based airpower of potential adversaries such as India. PLAN ships would also have to deal with the threat of enemy submarine attacks without the benefit of land-based and near seas ASW defenses. According to one Chinese security analyst, in the western Indian Ocean India enjoys "extremely favorable" (天时地利人和) circumstances."³¹

Even just entering the Indian Ocean during a conflict may pose problems for the PLAN, as India has sought to improve its ability to detect PLAN submarines entering the region. In the Northern Indian Ocean, the PLAN would have to contend with India's expanding military presence in the Andaman and Nicobar Islands. In early 2019, the Indian navy upgraded naval air station Shibpur (now INS Kohassa) on North Andaman Island. It already operates out of an air force base at Car Nicobar and a naval air station in Campbell Bay.³² Currently, INS Kohassa is equipped to accommodate helicopter and maritime patrol aircraft, improving India's ability to detect submarines and other assets as they transit the Malacca Strait. The Indian navy also plans to expand the runway to accommodate fighter aircraft.³³

While not a complete solution, one way the PLAN might begin addressing its anti-air and ASW challenges in the Indian Ocean is by deploying more of its advanced warships to the region. The PLAN's Type 052D destroyers, for example, are equipped with a 64-cell vertical launch system and modern long-range anti-air missiles, allowing them to engage multiple air targets simultaneously.³⁴ They can also carry CY-5 series anti-submarine missiles and Yu-7 torpedoes, as well as Harbin Z-9 or Kamov Ka-28 helicopters for improved ASW capabilities.³⁵ To date, however, these ships have rarely been deployed to the region. For example, although the PLAN now has at least 20 such destroyers, between 2014 (when they came into service) and May 2019, none had participated in a Gulf of Aden counterpiracy taskforce (see **Exhibit 3**).

³¹ 何雨 [He Yu], 基于‘21 世纪海上丝绸之路’建设的‘一海两洋’战略研究 [“Strategic Study of ‘One Sea and Two Oceans’ Based on the Construction of ‘Maritime Silk Road in the 21st Century”], 海南热带海洋学院学报 [Journal of Hainan Tropical Ocean University] 25, no. 1 (2018), p. 26.

³² Sanjeev Miglani, “India Navy Set to Open Third Base in Strategic Islands to Counter China,” *Reuters*, January 23, 2019, www.reuters.com/article/us-india-navy-base/india-navy-set-to-open-third-base-in-strategic-islands-to-counter-china-idUSKCN1PH17Y.

³³ “INS Kohassa—A New Bird’s Nest in the Andamans,” Indian Navy Website, January 24, 2019, www.indiannavy.nic.in/content/ins-kohassa-%E2%80%93-new-bird%E2%80%99s-nest-andamans.

³⁴ Rear Admiral (ret.) Michael McDevitt, *Becoming a Great “Maritime Power”: A Chinese Dream* (Arlington, VA: The CNA Corporation, 2016), pp. 42, https://www.cna.org/CNA_files/PDF/IRM-2016-U-013646.pdf.

³⁵ “Luyang-III Class/Type 052D Destroyers,” *Naval Technology*, www.naval-technology.com/projects/luyang-052d-destroyers/.

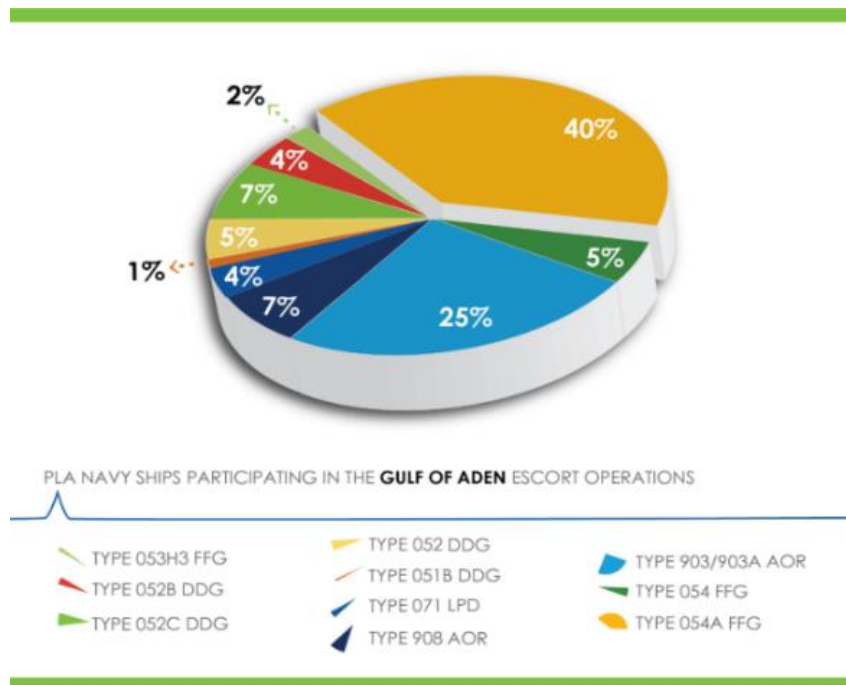


Exhibit 3. PLAN ship types in Gulf of Aden escort operations 2008-2018³⁶

This is starting to change, however. In the summer of 2019, the Type 052D destroyer *Xining* took part in a Gulf of Aden escort operation for the first time, accompanying a Type 054A frigate and a Type 903A replenishment ship.³⁷ To be sure, deploying one Type 052D destroyer as part of a Gulf of Aden taskforce is far from a solution to the PLAN's vulnerabilities in the Indian Ocean; nor is it a clear indication that the PLAN is actually attempting to address this problem in the near term. However, greater numbers and more routine deployments of such ships, which would allow their crews to gain experience operating in the region, may be a first step towards addressing those deficiencies.

The PLA's facilities near the eastern approaches to the Indian Ocean may also help address its anti-air and ASW deficiencies by allowing it to more rapidly deploy ships and aircraft to key chokepoints in greater numbers. For example, in 2015 it was reported that China had completed its second carrier base at Yulin on Hainan island. Yulin is already home to various classes of PLAN submarines, and at least one Chinese academic has argued that the relative proximity of these facilities to the Malacca Strait makes it an obvious location to homeport a carrier in support of the PLAN's SLOC-protection mission, allowing it to defend access to the Indian Ocean more effectively.³⁸

³⁶ Jeffrey Becker, Erica Downs and Ben DeThomas, *China's Presence in the Middle East and Western Indian Ocean: Beyond Belt and Road*, (Arlington, VA: Center for Naval Analyses, February 2019), p. 71.

³⁷ "China's 33rd Naval Escort Fleet Sets Sail for Gulf of Aden," CCTV Video News Agency, August 29, 2019, www.youtube.com/watch?v=ApWZ5XvUVII.

³⁸ See 马尧 [Ma Yao], 航母基地选址要攻防兼顾, 南海何以得天独厚? ["The Aircraft Carrier's Base Location Must Be For Both Attack and Defense, Why is the South China Sea Unique?], *The Paper*, August 3, 2015, https://m.thepaper.cn/newsDetail_forward_1359809; Zachary Keck, "China Builds World's Largest Aircraft Carrier Dock in South China Sea," *The National Interest*, July 31, 2015, <https://nationalinterest.org/blog/the-buzz/china-builds-worlds->

China's military facilities in the South China Sea may also be of value. Since 2013, China has created roughly 3,200 acres of new land through island-building activities in the Spratlys.³⁹ Three in particular—Fiery Cross Reef, Mischief Reef, and Subi Reef—all have hardened shelters with retractable roofs, which appear capable of housing surface-to-air missile (SAM) systems. Many locations also have the space to host large numbers of ships within expansive harbors, allowing China to surge PLAN ships from these facilities.⁴⁰ Fiery Cross, Mischief, and Subi also have hangers capable of accommodating up to twenty-four combat aircraft each, as well as bomber, transport, and refueling aircraft.⁴¹ Should the PLAN be tasked with defending access to the Malacca Strait in a crisis, PLAN ships and aircraft based in the Spratlys could respond much more rapidly than forces based further away on Hainan Island or the mainland. Moreover, if those forces were combined with a carrier strike group, possibly homeported on Hainan Island, the PLAN would then have a force that could indeed help China to finally “crack” its Malacca Dilemma.⁴²

Finally, China may also seek to establish a second overseas base, this time on the eastern end of the Indian Ocean, which may also help it to defend access to the region. For many years, Chinese analysts have discussed possible locations for an overseas base in the eastern IOR, to include Myanmar or possibly Cambodia, which lies just east of the Malay Peninsula.⁴³ China has long had strong military and economic ties with the Cambodian government, and while Cambodia's constitution prohibits the presence of foreign military bases on its territory, military relations between the two have grown more exclusive in recent years.⁴⁴ In the summer of 2019, it was reported that China had reached an agreement with the government of Cambodia to allow the PLAN to use a Cambodian naval base near Sihanoukville.⁴⁵ Although Cambodia is located roughly 650 miles from the eastern entrance of the Malacca Straits, depending on what the PLAN or PLA Air Force deployed, a presence there could improve China's maritime domain awareness, helping address some of the anti-air and AWS challenges the PLAN now faces.

[largest-aircraft-carrier-dock-south-13466](#); Shannon Tiezzi, “Why China Will Base an Aircraft Carrier Near the South China Sea,” *The Diplomat*, August 5, 2015, <https://thediplomat.com/2015/08/why-china-will-base-an-aircraft-carrier-near-the-south-china-sea/>.

³⁹ Asia Maritime Transparency Initiative, *China Island Tracker*, <https://amti.csis.org/island-tracker/china/>.

⁴⁰ Thomas Shugart, “China's Artificial Islands Are Bigger (and a Bigger Deal) Than You Think,” *War on the Rocks*, September 21, 2016, <https://warontherocks.com/2016/09/chinas-artificial-islands-are-bigger-and-a-bigger-deal-than-you-think/>; Defense Intelligence Agency, *China Military Power Report*, DIA-02-1706-085, January 2019, pp. 65-66.

⁴¹ Asia Maritime Transparency Initiative, “A Constructive Year for Chinese Base Building,” Asia Maritime Transparency Initiative Website, December 14, 2017, <https://amti.csis.org/constructive-year-chinese-building/>.

⁴² Defense Intelligence Agency, *China Military Power Report*, p. 103; Hu Xin, “The Expansion of National Interests,” p. 25.

⁴³ See for example, Li et al, “Overall Situation of Sea Power in the Indian Ocean and the Expansion in the Indian Ocean of Chinese Sea Powers,” 74–75.

⁴⁴ Article 53, Constitution of the Kingdom of Cambodia 1993 (rev. 2008), Constitute Project Website, www.constituteproject.org/constitution/Cambodia_2008?lang=en.

⁴⁵ Jeremy Paige, Gordon Lubold and Rob Taylor, “Deal for Naval Outpost in Cambodia Furthers China's Quest for Military Network,” *Wall Street Journal*, July 22, 2019, www.wsj.com/articles/secret-deal-for-chinese-naval-outpost-in-cambodia-raises-u-s-fears-of-beijings-ambitions-11563732482.

Inadequate Logistics and Sustainment

Perhaps the most commonly discussed challenge facing PLAN SLOC protection in the Indian Ocean is its inability to sustain the much larger and more diverse force that would be required for SLOC protection activities in a conflict. Over the past decade, the PLAN has proven capable of sustaining small groups of vessels in the Indian Ocean for long periods of time. However, though a three-ship taskforce is sufficient for the PLAN's counterpiracy needs in peacetime, defending access to Indian Ocean SLOCs in a conflict would require a much larger and more sustained force, and the PLAN has only a limited number of replenishment ships capable of supporting far seas operations. This includes roughly eight Type 903/A (*Fuchi*) supply ships, which have been used extensively in the Gulf of Aden, and the newer Type 901 (*Fuyu*) fast combat support ship, designed to support future carrier operations.⁴⁶ At present, however, the PLAN has only commissioned two of these ships, ostensibly one for each of the two carriers (*Liaoning* and *Shandong*, which was commissioned in December 2019.)

In the near term, the PLAN could mitigate this problem by leveraging China's massive commercial fleet. China's seagoing merchant marine fleet (including seagoing merchant vessels of at least 1,000 gross tons) surpassed 165 million dead weight tonnes in 2017, making it one of the largest in the world.⁴⁷ The PLAN could supplement its sustainment needs in the region in part by relying on this merchant fleet. Beijing has already taken steps so that the fleet can better support PLAN activities. For example, it has promulgated regulations requiring certain civilian vessels—including roll on/roll off vessels, tankers, and container ships—be built to military specifications, theoretically facilitating their future use by the navy with few if any modifications.⁴⁸ In September 2016, the PRC enacted the *Law of the People's Republic of China on National Defense Transportation*, which improves the process for military requisition of civilian transportation assets during wartime, natural disasters, emergencies, or "special circumstances," both domestically and abroad.⁴⁹ Specifically, Article 38 states that Chinese enterprises and agencies "shall provide shipping, aviation, vehicle, and personnel support for military actions in the protection of China's overseas interests, international rescue, and maritime escorts."⁵⁰ According to an editorial in the *PLA Daily*, the law "will greatly enhance our military's strategic maritime projection capability" (将大大提高我军海上战略投送能力).⁵¹ The PLAN has taken steps to implement these new regulations: Chinese commercial vessels have worked with the PLAN in both exercises and real-world operations. In the summer of 2016 for example,

⁴⁶ "China Commissions New Naval Supply Ship," *South China Morning Post*, August 1, 2017, www.scmp.com/news/china/diplomacy-defence/article/2105010/china-commissions-new-naval-supply-ship; Xu Daojiang and Li Wei, "Hulun Nur Ship Enters Service, Addresses Final 'Shortcoming' in China's Carrier Battle Group," *China Youth Daily*, September 14, 2017.

⁴⁷ United Nations Conference on Trade and Development, "Merchant Fleet by Country of Beneficial Ownership, Annual, 2014–2017," UNCTAD STAT, 2018, <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=80100>.

⁴⁸ 军民融合构筑打赢通途 ["Military-Civilian Integration Builds Gateway to Winning Battles"], 前卫报 [*Vanguard News*], April 24, 2012.

⁴⁹ 屈百春, 廖鹏飞, 高志文 [Qu Baichun, Liao Pengfei, and Gao Zhiwen], 军民融合加快推进战略投送能力建设 ["Military and Civilian Integration Accelerates the Development of Strategic Delivery Capabilities"], 解放军报 [*PLA Daily*], September 5, 2016, www.81.cn/jfjbmap/content/2016-09/05/content_155683.htm.

⁵⁰ 中花人民共和国国防交通法 [National Defense Transportation Law of the People's Republic of China, Xinhua, September 3, 2016, www.npc.gov.cn/zgrdw/npc/xinwen/2016-09/03/content_1996764.htm.

⁵¹ 李宏, 李宏 [Li Hong and Gao Jie], 战略投送支援船队开进联合演练场 ["Strategic Delivery Support Flotilla Enters Joint Training Grounds"], 解放军报 [*PLA Daily*], September 11, 2016, www.81.cn/jfjbmap/content/2016-09/11/content_156271.htm.

civilian transport ships took part in a 10-day logistics support exercise led by the PLAN's South Sea Fleet.⁵² With this foundation now well-established, Chinese commercial shipping firms, such as COSCO and others, could begin supporting the PLAN's operations in the Indian Ocean, thus augmenting China's limited far seas auxiliary fleet.

Another related logistics challenge is the PLAN's inability to preposition in the Indian Ocean specialized materials that would be required during a conflict, including ordnance and technical equipment to conduct specialized repairs. Most of the logistics support PLAN vessels receive in the region has come from commercial facilities. As a result of China's growing investments, Chinese state-owned firms now operate port facilities across the Indian Ocean (see the below table). Moreover, the PLAN has become adept at leveraging those facilities to obtain sustainment support for its ships while operating in the region during peacetime.

Select Examples of China's Involvement in Regional Ports⁵³

Country	Port	Terminal	Operator	Parties	Share (%)
Djibouti	Djibouti	Doraleh Multipurpose Port	Port de Djibouti SA	CMPH (China Merchants Port Holdings)/DPFZA (Djibouti Ports & Free Zones Authority)	100
Egypt	Port Said	Suez Canal Container Terminal	APM Terminals	APM Terminals COSCO Suez Canal Authority Egyptian Private Sector Nat'l Bank of Egypt	55 20 10.3 9.7 5
Malaysia	Port Klang	Westports Malaysia	Hutchison Ports	Hutchinson Ports	23.6
Pakistan	Gwadar	All	COPHC (China Overseas Ports Holding Company)	COPHC	100
Sri Lanka	Colombo	Colombo Int'l Container Terminal	CMPH	CMPH Sri Lanka Ports Authority	85 10
Sri Lanka	Hambantota	All	MPMC Limited	CMPH Sri Lanka Ports Authority	85 10
UAE	Khalifa	Khalifa Port Container Terminal 2	COSCO Shipping Ports	COSCO Shipping Ports AD Ports	90 10
Singapore	Pasir Panjang	COSCO-PSA terminal	COSCO Shipping Ports	COSCO Shipping Ports PSA Singapore	49 51

⁵² 南海舰队首次组织海上要地防御作战背景下后勤综合保障演练 [“South Sea Fleet Organizes Comprehensive Logistics Support Exercise for the First Time for Defensive Operations at Sea”], 中国新闻网 [China News Network] August 3, 2018, www.chinanews.com/mil/2016/08-03/7960640.shtml.

⁵³ Becker, et al., *China's Presence in the Middle East and Western Indian Ocean: Beyond Belt and Road*, 88.

However, other than its base in Djibouti, the PLAN does not, at present, appear to have arrangements with any other country in the region that would allow it to preposition specialized military equipment or technicians required to use that equipment, even in port facilities owned or operated by Chinese state-owned firms. Host governments whose ports do service PLAN vessels during a conflict, or allow the PLA to preposition military equipment on their territory, could possibly be dragged into the conflict as a co-belligerent.⁵⁴ Chinese security analysts are well aware of these limitations, and the need to establish additional facilities that could be relied upon to support the PLAN in times of conflict, with some arguing that:

the consumption of supplies for far seas ship formations is quite large, and the period of time it takes for replenishment is quite long...establishing an overseas support base (海外保障基地) can help our warship formations carry out far seas combat responsibilities more reliably and effectively, [thus] increasing our navy's far seas combat power.⁵⁵

Yet at least in the near term, the likelihood of the PLAN obtaining access to a military facility which it could use during a conflict remains remote, as many IOR countries seek to maintain a balance in their relations between regional powers and appear unlikely to abandon this hedging approach. Seychelles' engagement with both China and India over the past decade is an excellent illustration. In late 2011, China was reportedly offered access to naval facilities in Victoria, yet the deal fell through in part because of Indian objections.⁵⁶ In 2018, Seychelles' Parliament rejected the latest Indian request to establish military facilities on Assumption Island.⁵⁷

Elsewhere, however, China may be making progress. In the summer of 2019, it was reported that Chinese state firms were awarded a contract to build the Bangladesh navy a submarine, and provide training on its use and maintenance.⁵⁸ Although Bangladesh government officials have been vocal in their reassurances that the facility will not be used by PLAN submarines, this and other Chinese activities that could be construed as attempts to establish access to military facilities in the IOR will undoubtedly be closely monitored by India, the United States and others with equities in the region.

⁵⁴ Christopher D. Yung and Ross Rustici, with Scott Devary and Jenny Lin, *"Not An Idea We Have to Shun": Chinese Overseas Basing Requirements in the 21st Century* (Washington, DC: National Defense University Press, 2014), p. 49.

⁵⁵ 李守耕, 陈铁祺, 王丰 [Li Shougeng, Chen Queqi, and Wang Feng], 战略物资预置储备模式研究 ["On Preset Reserve Mode for Combat Readiness Material"] 军事交通学院学报 [Journal of Military Transportation University], 21 no. 7 (2019), p. 59.

⁵⁶ Dennis Hardy, "Seychelles and China: A Small Island State in a Global Sea," Paper Presented at the conference *Views of China's Presence in the Indian Ocean Region*, June 17-18, 2019, Hilton Arlington Hotel, Arlington, VA.

⁵⁷ Zeenat Saber, "India's Seychelles Military Base Plan Hits Choppy Waters," *Al Jazeera*, March 21, 2018, www.aljazeera.com/news/2018/03/india-seychelles-military-base-plan-hits-choppy-waters-180321150926691.html.

⁵⁸ "China To Help Bangladesh Build Submarine Base, Senior Official Says," *Radio Free Asia*, September 12, 2019, www.rfa.org/english/news/china/bangladesh-submarine-09122019173617.html.

Conclusion: The future of PLAN SLOC Protection in the Indian Ocean

As China's reliance on international markets and energy resources grows, protecting access to the Indian Ocean SLOCs and maritime chokepoints that connect China to those markets will become increasingly crucial. China's leadership is fully aware that the PLAN may be called upon to defend this access in a conflict with other great powers, and the PLAN has made impressive advancements over the past two decades in its ability to operate in this region.

Presently, however, the PLAN maintains only a modest footprint in the Indian Ocean compared to its competition, and it lacks the ability to sustain the type of large, diverse fleet required to be a formidable force. Moreover, PLAN anti-air and ASW defense limitations would put PLAN vessels at a distinct disadvantage during a regional conflict. Understanding these challenges, and how Chinese military and security analysts view them, may provide indications of what to look for in the future. A significant buildup of PLAN warships and logistics vessels in the region, for example, including future deployments of more advanced warships (including aircraft carriers), perhaps to Djibouti, would be a necessary step towards developing adequate SLOC protection capabilities in a conflict. It would also be a possible indication that China's leaders are reevaluating the PLAN's role in the region. Other activities, such as the development of air defense or ASW capabilities in Djibouti, the continued buildup of capabilities in the South China Sea along the eastern periphery of the Indian Ocean, or successfully negotiating agreements with regional countries that provide the PLAN with access to dedicated military facilities, may indicate a change as well.

Yet despite China's growing regional interests, given the many challenges described above, some have suggested that the PLAN's future in the Indian Ocean may resemble the Soviet Union's past, with the Chinese navy continuing to build up its forces, yet content to compete for political and maritime influence,⁵⁹ or limited SLOC protection and localized sea denial, as opposed to outright sea control.⁶⁰ While it may be too soon to know what shape the PLAN's future Indian Ocean strategy will take, understanding what to watch for will be critical, as China's growing interests and activities in the region will affect the strategic calculus of the U.S. Navy and others in the Indian Ocean for the foreseeable future.

⁵⁹ Rear Admiral Michael McDevitt, USN (Ret.), *Great Power Competition in the Indian Ocean: The Past As Prologue?*, (Alexandria, VA: Center for Naval Analyses, 2018).

⁶⁰ See for example David Brewster, "China's Limited Role in the Indian Ocean," *Real Clear Defense*, February 12, 2019, www.realcleardefense.com/articles/2019/02/12/chinas_limited_role_in_the_indian_ocean_114179.html.

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