2-4-2026

CMSI Note 19: China's Blue-Water Research Fleet: Science in Service of Strategy

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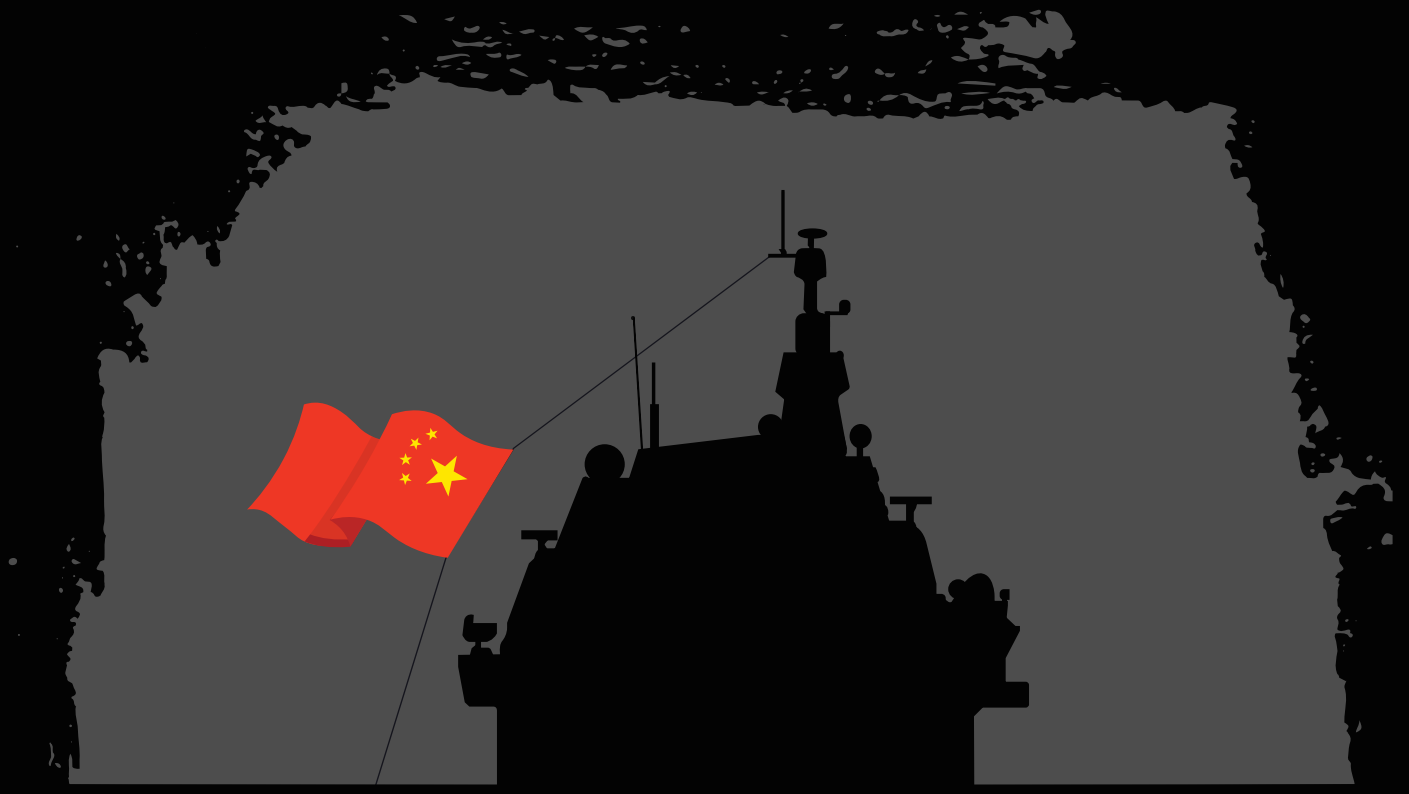

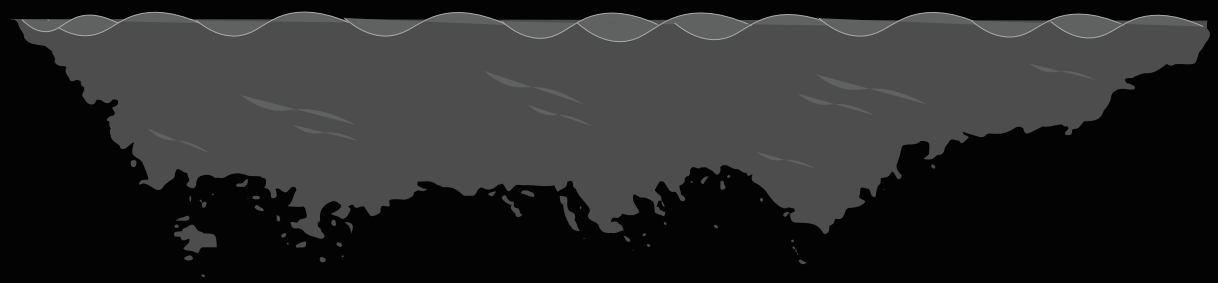

China's Blue-Water Research Fleet:

Science in Service of Strategy

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CMSI NOTE #19 /// 4 FEBRUARY 2026

China's Blue-Water Research Fleet:
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Ryan D. Martinson[1]

Key Takeaways:

- China's marine scientific research fleet is expanding its operations around the world, including the Western hemisphere. Presently, a Chinese research vessel, the *Tansuo* 1, is operating off the coast of Chile. It is owned by the Chinese Academy of Science Deep-Sea Science and Technology Institute (hereafter, the "Deep-Sea Institute).
- China's marine scientific research fleet—currently the world's largest—is capable of conducting a catalog of missions that advance Beijing's strategic and military ambitions and undermine U.S. interests. These potential missions range from studying oceanic phenomena that impact naval operations to supporting China's vision of the international maritime order.
- Most research ships are owned by state agencies, especially the Ministry of Natural Resources, which can dictate their operations. All rely heavily on state funding to cover operational costs. The state further influences research priorities through funding programs like the "Crucial Deep-Sea and Polar Technology and Equipment" program, which has an explicit national security driver. This program funded a major Arctic expedition led by the Deep-Sea Institute in the summer of 2025.
- The Chinese Communist Party exerts control over marine scientific research activities through the Party Committee and other Party organizations that dominate decision making within scientific research institutes. The Deep-Sea Institute has 14 Party branches, including one on each of its three research ships.
- The People's Liberation Army (PLA) leverages marine scientific research organizations to help support military requirements by organizing some personnel into militia units, training them to carry out military tasking, and subjecting them to military mobilization. Since at least 2016, the PLA has sought to build "new-quality" militia units, with expertise in emerging domains like the deep sea. The Deep-Sea Institute contains at least one "undersea target detection" unit.

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[1] Ryan D. Martinson is a researcher at the China Maritime Studies Institute. The views and opinions expressed here are the author's alone and do not reflect the assessments of the U.S. Navy, U.S. Department of Defense, or any other U.S. government entity. The author thanks Dan Caldwell, Paul Schmitt, and Chris Sharman for comments/edits on earlier drafts of this article. Any errors/omissions are his alone.

Introduction

Today, the People's Republic of China (PRC) owns the world's largest fleet of blue-water marine scientific research vessels. While their operations are largely concentrated in the Western Pacific, an increasing number are reaching across the globe—from the Indian Ocean to the Arctic, and even the Western Hemisphere.[2] In fact, as of this writing the Chinese research ship *Tansuo* 1, with its deep-sea manned submersible aboard, is operating in the Atacama Trench off the coast of northern Chile. See Figures 1 and 2 below.

Lacking armaments, vessels like the *Tansuo* 1 pose no direct military threat. However, these ships and their crews ultimately serve the will of Beijing, which can—and does—leverage them in ways that undermine U.S. interests. Therefore, although PRC research ships must be accepted on the world's oceans, just as China must tolerate foreign presence within the First Island Chain, U.S. leaders should appreciate the full catalog of roles they might play, understand the mechanisms by which the state, Party, and military control their operations, and, where and when possible, be prepared to limit their most damaging effects.

Figure 1. The Cruise of the *Tansuo* 1 (December 6, 2025-January 28, 2026)[3]

[2] For an early examination of the PRC research fleet, see Ryan D. Martinson and Petter A. Dutton, "China's Distant-Ocean Survey Activities: Implications for U.S. National Security," China Maritime Report No. 3, China Maritime Studies Institute, (November 2019), https://digital-commons.usnwc.edu/cmsi-maritime-reports/3/.

[3] AIS data and map come from www.vesselfinder.com.

Figure 2. *Tansuo* 1[4]

A Dual-Use Fleet

China's blue-water marine scientific research fleet comprises 40+ large-displacement vessels designed to operate in waters remote from the Chinese mainland.[5] These ships use onboard sensors to take measurements of the water column and seabed; deploy instrument platforms such as underwater vehicles and buoys; and collect samples for later analysis onboard or ashore. Individual ships are owned and operated by civilian research institutes. The *Tansuo* 1, for example, belongs to the Chinese Academy of Science Institute of Deep-Sea Science and Engineering (hereafter, the "Deep-Sea Institute"). This Institute currently possesses three such platforms. See Appendix for a full list of PRC blue-water marine scientific research vessels and their institutional affiliations. China's marine scientific research fleet represents the PRC equivalent to the "U.S. Academic Research Fleet" and the NOAA hydrographic survey and oceanographic research fleet.[6] Like their counterparts in the U.S., PRC ships support a broad portfolio of oceanographic research projects. Many constitute "basic science," and are generally inoffensive. Some vessels are tasked with exploring for seabed minerals in high seas areas,

[4] "R/V Tan Suo Yi Hao," Website of the Institute of Deep-Sea Science and Engineering Chinese Academy of Sciences, 20 December 2024, https://english.idsse.cas.cn/pf/ships/202412/t20241220_895641.html.

[5] China owns many other smaller-displacement (<2,000t) marine scientific research vessels which it employs for operations within the First island Chain. These are not included in this figure.

[6] "U.S. Academic Research Fleet," University-National Oceanographic Laboratory System, accessed 29 January 2026, https://www.unols.org/us-academic-research-fleet-0; "Ships of NOAA," NOAA Office of Marine and Aviation Operations, accessed 29 January 2026, https://www.omao.noaa.gov/marine-operations/ships-noaa.

activities which likewise pose little or no risk. However, the size and capabilities of the fleet enable it to perform a range of missions that support PRC strategic, military, and diplomatic objectives, thereby impacting U.S. security and other interests. These include

1. Acquiring data on the seabed and water column, helping to illuminate the ocean battlespace environment for the Chinese military, thereby eroding a traditional U.S. military advantage.[7]
2. Supporting applied research on oceanic phenomena—such as convergence zones, internal waves, acoustic propagation paths, and currents—that directly affect naval operations, allowing the PLA Navy (PLAN) to maximize the offensive potential of its submarine force and to potentially constrain the operations of U.S. Navy submarines.[8]
3. Deploying and/or recovering underwater vehicles equipped with acoustic sensors to help the Chinese military detect foreign submarines (a longstanding PLAN weakness).[9]
4. Surveying ocean areas prior to the installation of military equipment such as sensor arrays, seabed charging stations (for undersea vehicles), and sea mines; installing and maintaining such equipment.
5. Testing military equipment and sensors in waters where they might be used.
6. Collecting intelligence on the movements of foreign ships and aircraft.[10]
7. Serving as instruments of PRC diplomacy, by embarking foreign scientists, visiting foreign ports, helping foreign states survey their own waters, and advancing China's vision of the international maritime order—*Tansuo* 1's current mission.[11] See Figure 3 below.

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[7] Ryan Martinson and Peter Dutton, "Chinese Scientists Want to Conduct Research in U.S. Waters—Should Washington Let Them?" *The National Interest*, 5 November 2018, https://nationalinterest.org/feature/chinese-scientists-want-conduct-research-us-waters-should-washington-let-them-34997.

[8] Underwater phenomena can also impact the safe navigation of submarines. In 2014, a PLAN submarine was almost lost during an encounter with an internal wave. See 倪煜淮 [Ni Yuhuai], 内波，看不见的"能量传送带" ["Internal Waves, The Invisible 'Conveyer Belt of Energy'"], 人民海军 [*People's Navy*], 11 November 2020, p. 4. The Kuroshio ("Black Current") is a key feature of the Western Pacific operating environment. As defined in the PLA's *Dictionary of Military Terms*, it "has an important impact on maritime military activities, especially submarine activities." This likely refers to the distorting effects that the warm-water Kuroshio has on underwater sound propagation. 中国人民解放军军语 [*Dictionary of Military Terms*] (Beijing: Academy of Military Science Press, September 2011), p. 429. "Convergence zones" are oceanic phenomena that can allow for long range acoustic detection.

[9] For an example of such a platform, see Ryan D. Martinson, "Gliders with Ears: A New Tool in China's Quest for Undersea Security," CIMSEC, 21 March 2022, https://cimsec.org/gliders-with-ears-a-new-tool-in-chinas-quest-for-undersea-security/.

[10] 姚淮宁 [Yao Huai'ning], 着眼形势任务 遵循特点规律 积极探索海上民兵侦察情报建设新模式 ["Focus on the Situation and Task, Follow the Characteristics and Patterns, Actively Explore a New Model for Maritime Militia Reconnaissance and Intelligence Construction"], 国防 [*National Defense*], no. 1 (January 2018), p. 46; 张莉 [Zhang Li], 加强海上侦察分队建设初探 ["A Preliminary Discussion on Strengthening Maritime Militia Reconnaissance Elements"], 国防 [*National Defense*], no. 1 (January 2018), p. 57.

[11] The *Tansuo* 1's current operations in Chilean waters are reportedly in support of the Global Hadal Exploration Programme, a PRC-sponsored United Nations initiative associated with the UN Decade of Ocean Science for Sustainable Development (2021-2030). See 驻智利大使牛清报出席中智阿塔卡马海沟联合科考启动仪式 ["Ambassador to Chile Niu Qingbao Attends Launch Ceremony of China-Chile Joint Scientific Expedition to the

8. Conducting “operational assertions” within the First Island Chain to support China’s maritime claims and beyond the First Island Chain to demonstrate PRC opposition to foreign maritime claims, such as the U.S. extended continental shelf claim in the Bering Sea.[12]
9. Surveying ocean areas presumed to contain foreign civilian and/or military equipment; engaging in clandestine operations to gain access to or damage/destroy this equipment.[13]
10. Salvaging Chinese and foreign ships, submarines, and other hardware lost on the sea floor, covertly obtaining foreign technologies and protecting China’s own.[14]

Figure 3. PRC and Chilean personnel aboard the *Tansuo* 1 (January 2026).[15]

Atacama Trench”],中华人民共和国驻智利共和国大使馆 [PRC Embassy in Chile], 20 January 2026, https://cl.china-embassy.gov.cn/sgxw/202601/t20260121_11817572.htm.

[12] “Operational assertion” is a U.S. term. Beijing calls them “maritime rights protection operations” (海上维权行动).“Update: Chinese Survey Ship Escalates Three-Way Standoff,” Asia Maritime Transparency Initiative, 30 April 2020, https://amti.csis.org/chinese-survey-ship-escalates-three-way-standoff/; Ryan D. Martinson, “China Summer of 2024: The Missing Chapter,” CMSI Note #10, China Maritime Studies Institute, 16 October 2024, pp. 7-8.

[13] One target might be U.S. Navy undersea surveillance systems and equipment. See Ryan D. Martinson, “Exposed Undersea: PLA Navy Officer Reflections on China’s Not-So-Silent Service,” CIMSEC, 24 June 2025, https://cimsec.org/exposed-undersea-pla-navy-officer-reflections-on-chinas-not-so-silent-service/.

[14] The Deep-Sea Institute is home to a “Deep-Sea Science Quick Response Coordination Center” (深远海科学快速响应协调中心), which, among other missions, is tasked with deep-sea salvage operations. See 深远海科学快速响应协调中心 [“Deep-Sea Science Quick Response Coordination Center”], Website of the Institute of Deep-Sea Science and Engineering Chinese Academy of Sciences, accessed 29 January 2026, https://idsse.cas.cn/yjsgk/zzjg/glzc/shksxyzx/.

[15] “Ambassador to Chile Niu Qingbao Attends Launch Ceremony of China-Chile Joint Scientific Expedition to the Atacama Trench.”

Mechanisms of Control

The state, Party, and military have multiple overlapping means with which to influence decisions about where, when, and how the fleet is employed. Fundamentally, all major marine scientific research institutes rely directly on state funding for their operating costs. This gives the PRC powerful leverage to dictate their activities. Indeed, most vessels belong to organizations under the Ministry of Natural Resources (MNR), which can intervene at any time to ensure that state requirements are met. The Deep-Sea Institute is part of the Chinese Academy of Science (CAS), which is directly administered by the PRC State Council. As the CAS Charter clearly articulates, serving the state is its "raison d'être."[16] See Appendix for a complete list of organizational affiliations.

The PRC can also manipulate scientific research agendas through the allocation of research grants. For marine scientists and engineers, one major source of funding is the "Crucial Deep-Sea and Polar Technology and Equipment" initiative ("深海和极地关键技术与装备"重点专项). Set up in 2016, this program seeks to "address China's critical needs in deep-sea exploration, exploitation of deep-sea resources, and safeguarding *deep-sea national security* [emphasis added]."[17] With these objectives in mind, each year a group of PRC experts decides which types of research projects will be funded and how much money will be allocated, thereby ensuring that state priorities are fulfilled.[18]

As an example, in the summer of 2025, the Deep-Sea Institute led Chinas largest-ever Arctic research cruise with funding from the "Crucial Deep-Sea and Polar Technology and Equipment"

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[16] 中国科学院章程 ["CAS Charter"], Website of the Chinese Academy of Science, 25 July 2019, https://www.cas.cn/zj/yk/201410/t20141017_4225627.shtml.

[17]"深海关键技术与装备"重点专项指南解读 ["Interpretation of the Guidelines for the Key Project for 'Crucial Deep-Sea Technology and Equipment'"], 科技日报 [*Science Daily*], 3 March 2016, www.most.gov.cn/ztzl/shzyczkjjhglgg/zdyfzxjd/201603/t20160303_124425.html; 彭晓彤 [Peng Xiaotong], 我们为什么要挺进万米深渊 ["Why We Are Venturing into the 10,000m Abyss"], 光明日报 [*Guangming Daily*], https://www.cas.cn/zjs/201610/t20161021_4578492.shtml. The original title of this project was "Crucial Deep-Sea Technology and Equipment." "Polar" was added to the program title in 2021. See 专项概况 ["Program Overview"], 中国 21 世纪议程管理中心 [Website of the Administrative Center for China's Agenda 21"], accessed 30 January 2026, https://www.acca21.org.cn/trs/0001003200060001/; 专项概况 ["Program Overview"], 中国 21 世纪议程管理中心 [Website of the Administrative Center for China's Agenda 21"], accessed 30 January 2026, https://www.acca21.org.cn/trs/000100320016/haixiangxgguanzhuanxiang/zhuanxianggaikuang/.

[18] 21 世纪中心组织召开国家重点研发计划"深海和极地关键技术与装备""海洋环境安全保障与岛礁可持续发展"两个重点专项总体专家组 2025 年度工作会议 ["Center for China's Agenda 21 Convened the 2025 Annual Work Meeting for the Overall Experts Groups for the Two Key National R & D Programs, 'Crucial Deep-Sea and Polar Technology and Equipment' and 'Marine Environment Security and Sustainable Development of Islands and Reefs'"], 中国 21 世纪议程管理中心 [Website of the Administrative Center for China's Agenda 21"], 15 January 2026, https://www.acca21.org.cn/trs/00010004/17640.html; "深海关键技术与装备"重点专项 2017 年度项目申报指南编制专家名单 ["List of Experts Drafting the 2017 Application Guidelines for the Key Project 'Crucial Deep-Sea Technology and Equipment'"], 中华人民共和国科学技术部 [PRC Ministry of Science and Technology], undated, https://service.most.gov.cn/u/cms/static/201610/12181133ntr4.pdf; "深海关键技术与装备"重点专项 2019 年度指南编制专家组名单 ["List of Experts Drafting the 2019 Application Guidelines for the Key Project 'Crucial Deep-Sea Technology and Equipment'"], Peking University Health Science Center Website, undated, https://research.bjmu.edu.cn/attachments/009b79fc3b2f4afdb5043a04f566722e.pdf.

program.[19] The expedition comprised four ships, including the Institute's own *Tansuo* 3, mothership of the manned deep-sea submersible "Fendouzhe," which conducted 43 dives in the Arctic Ocean, some in concert with a second PRC deep-sea manned submersible, the "Jiaolong."[20] See Figure 4 below.

Figure 4. The *Tansuo* 3 Operating in the Arctic Ocean (Summer 2025).[21]

The Chinese Communist Party (CCP) has its own mechanisms with which to control the marine scientific research fleet. Within the research institutes themselves exist Party organizations tasked with enforcing CCP prerogatives. The Deep-Sea Institute, for example, is managed by a CCP Party committee, led by a Party Secretary, currently Peng Xiaotong (彭晓彤). As of February 2025, the Institute had 14 Party branches (党支部) comprising a total of 208 Party members. According to Peng Xiaotong, the Institute embarks a temporary Party branch on each research vessel, in his words, "to stake the Party flag" at the research site.[22] The Party branch

[19] 王绍绍 [Wang Shaoshao], 我国科考队圆满完成北极载人深潜任务 ["China's Scientific Expedition Team Successfully Completes Manned Deep-Sea Dive in the Arctic"], 人民网 [*People Online*], 27 October 2025, http://finance.people.com.cn/n1/2025/1027/c1004-40590563.html.

[20] 刘军 [Liu Jun], 我国成为世界上唯一在北极密集海冰区连续载人深潜国家 ["China Becomes the Only Country in the World to Conduct Continuous Manned Deep-Sea Dives in the Dense Ice Zones of the Arctic"], 新华网 [Xinhua], 27 October 2025, https://www.news.cn/government/20251027/db782bc117a64df698cc00e24aee2579/c.html.

[21] Wang, "China's Scientific Expedition Team Successfully Completes Manned Deep-Sea Dive in the Arctic."

[22] 朱汉斌 [Zhu Hanbin], 深海所：让党旗在深海科研一线高高飘扬 ["Deep-Sea Institute: Keeping the Flag Flying on the Front Lines of Deep-Sea Scientific Research"], 科苑党建 [*Party Building in the Sciences*], 20 February 2025, https://kydj.sciencenet.cn/content.aspx?id=4649. For more on the Deep-Sea Institute's Party branches, see 深海所党支部 ["Party Branches of the Deep-Sea Institute"], Website of the Institute of Deep-Sea Science and Engineering Chinese Academy of Sciences, 12 September 2025, http://idsse.cas.cn/sy_dqgz/dj_zzjg_1/202504/t20250417_7601315.html.

likely serves as the highest decision making body aboard the vessel, analogous to the role of the Party Committee on a PLAN ship or submarine.[23]

Statements by leaders at the Deep-Sea Institute vividly convey how beholden it is to Party directives. According to Zeng Gang, a member of both the Institute's Party Committee and its Discipline Inspection Commission, the Deep-Sea Institute is committed to "upholding the Party's comprehensive leadership over science and technology, integrating Party leadership into deep-sea scientific research and the development of deep-sea technology and equipment." Zeng also described the Institute as a "deep-sea strategic science and technology force upon which the state can trust and rely."[24] While the Deep-Sea Institute's Party apparatus may be especially effective at enforcing CCP dictates—in 2021, it received a national award for its Party work—the same tentacles present within it can be found in other PRC research organizations, ensuring absolute obedience where and when it matters.[25]

Figure 5. A Ceremony for CCP Party Members Held Aboard a Deep-Sea Institute Vessel.[26]

[23] Roderick Lee, "PLA Navy Submarine Leadership: Factors Affecting Operational Performance," China Maritime Report No. 27, China Maritime Studies Institute, (June 2023), pp. 14-15; Jeff W. Benson and Zi Yang, "Party on the Bridge: Political Commissars in the Chinese Navy," Center for Strategic and International Studies, (June 2020), pp. 14-15.

[24] 三亚市"担当作为先进集体"中科院深海所—— 党建引领深海探索不断突破、勇攀科学高峰 ["Sanya City's 'Advanced Collective for Responsibility and Action' the Institute of Deep-Sea Science and Engineering—Party Building Drivees Deep-Sea Exploration to Break Through Boundaries and Scale New Heights in Science"], 三亚新闻网 [*Sanya News Online*], 25 July 2025, https://www.sanyarb.com.cn/sanyazonghe/2025/07/25/detail_20250725458264.html.

[25] 深海所党委荣获"全国先进基层党组织"荣誉称号 ["The Party Committee of the Institute of Deep-Sea Science and Engineering Honored with the Title of 'National Advanced Grassroots Party Organization'"], Website of the Institute of Deep-Sea Science and Engineering Chinese Academy of Sciences, 2 July 2021, http://www.idsse.cas.cn/sydtlb/202107/t20210702_7648814.html.

[26] Ibid.

A final mechanism of control is exercised by the Chinese military. Within at least some marine scientific research institutes, perhaps most, the PLA has organized staff members into specialized "militia" (民兵) elements (分队). These units comprise scientists, engineers, and crew members who, aside from performing their respective day jobs, receive military training and are subject to military tasking. Militia units are managed by People's Armed Forces Departments (PAFDs), which are located in cities and countries throughout the PRC and form the foundation of the PLA's provincial military system.

In the Xi Jinping era, the PLA, working with partners in civilian government, has strived to build what it calls "new-quality" (新质) militia units. These forces bring expertise in critical and emerging fields, such as cyber, robotics, AI, and the deep sea.[27] As early as August 2016, one *PLA Daily* article outlined changes to China's approach to national defense mobilization, exhorting the military to "leverage resources in marine resource surveys, deep-sea exploration, and oceangoing transport, to enhance the mobilization of maritime and undersea combat forces…and harness the mobilization capabilities of emerging domains."[28] More recently, a January 2023 *PLA Daily* article reiterated the need to "expand the domains of national defense mobilization, highlighting new-domain and new-quality [forces]," including those with expertise in the deep sea.[29] This guidance has no doubt hastened the formation of militia units in marine scientific research organizations.

For its part, the Deep-Sea Institute is home to at least one militia unit. Classified as an "underwater target detection" (水下目标探测) element, it is managed by the PAFD of Jiyang District, Sanya, Hainan (吉阳区人武部), where the Deep-Sea Institute is located.[30] The Jiyang District PAFD also manages other more traditional maritime militia units, including those comprising members of China's fishing industry. See Figures 6 and 7 below.

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[27] Devin Thorne, "China's National Defense Mobilization System," Testimony before the U.S.-China Economic and Security Review Commission, 13 June 2024, pp. 16, 30, www.uscc.gov/sites/default/files/2024-06/Devin_Thorne_Testimony.pdf.

[28] 宋春雳 [Song Chunli], 现代动员当向精准要效能 ["Modern Mobilization Must Aim for Precision Effects"], 解放军报 [*PLA Daily*], 28 August 2016, p. 7. At the time, the author was the Deputy Commander of the Liaoning Provincial Military District (辽宁省军区副司令员).

[29] 于云先 [Yu Yunxian] and 张鹏轩 [Zhang Pengxuan], 加强国防动员和后备力量建设 ["Strengthen National Defense Mobilization and Reserve Force Construction"], 解放军报 [*PLA Daily*], 3 January 2023, p. 7.

[30] 吉阳年鉴 2021 [*2021 Jiyang District Yearbook*] (Sanya, Hainan: Nanhai Press, 2021), http://sznianjian.com/show.php?mlid=39598&ly=.

Figure 6. Members of a Jiyang District Maritime Militia Unit Receive Training[31]

[31] 三亚市吉阳区人武部探索捕鱼高产期海上民兵政治工作新方式 [“Jiyang District’s PAFD Explores New Approaches to Political Work for Maritime Militia During Peak Fishing Season”], 美篇 [Meipian], 21 November 2018, https://www.meipian.cn/1r3lk7dw.

Figure 7. The Jiyang District PAFD Inspects Militia Units Under its Control.[32]

The Deep-Sea Institute's militia element is one of many such units nationwide. PAFDs in locations as diverse as Xiangshan county, Zhejiang; Bao'an, Shenzhen; Zhanjiang, Guangdong; and Dezhou, Shandong have sought to leverage the skills and knowledge of marine scientists and engineers through the formation of dedicated underwater target detection units.[33] By June 2021, "new-quality" militia units constituted 23 percent of Zhejiang province's professional militia force (基干民兵). They were recruited from 13 different fields, including "deep-sea detection"

[32] The names of the units are displayed on the red flags. The Deep-Sea Institute militia unit is likely among them. See 三亚吉阳区、海棠区举行基干民兵集合点验大会 ["Sanya's Jiyang District and Haitang District Held a Mobilization and Inspection Meeting for their Militia Forces"], 琼崖国防 [Qiongya National Defense], WeChat, 23 April 2024, https://mp.weixin.qq.com/s?__biz=MzIzOTM4NjAxMA==&mid=2247515323&idx=2&sn=8f0c7d45c9bbdbfb40cc023b96fa2bd2&chksm=e928104ede5f99587f19b0505327826f8abe46f4d2d08bb362e20dcf76d90a8441db763592a0&scene=27&poc_token=HCj-fGmjY839UiEr7-R9p8-jAwOpw9kqF1pKmT-s.

[33] 民兵力量在"减脂增肌"中实现强身 ["Militia Forces Achieving Physical Fitness Through 'Reducing Fat and Building Muscle'"], 中国国防报 [*China National Defense News*], 23 May 2019, http://military.people.com.cn/n1/2019/0523/c1011-31099220.html; 深圳视角：15 名蛙人直扑出事海域，只为应急应战能派上用场 ["Shenzhen Perspective: Fifteen Frogmen Rush to Accident Sites, Ready to Respond to Emergencies and Combat Situations"], 三农视线 [*Sannong Shixian*], 25 October 2021, https://baijiahao.baidu.com/s?id=1714604558187083680&wfr=spider&for=pc; 解学锋 [Jie Xuefeng], 朱宏博 [Zhu Hongbo], and 熊永岭 [Xiong Yongling], 一次"知耻而后勇"的跨越 ["A Transformative Leap Forward Driven by a Sense of 'Knowing Shame and Being Brave'"], 中国国防报 [*China National Defense News*], 26 December 2019, p. 3, http://www.81.cn/gfbmap/content/2019-12/26/content_250742.htm ; 新质民兵如何迈向"未来战场"？ ["How Can New-Quality Militia Advance Towards the 'Future Battlefield'?"], 中国国防报 [*China National Defense News*], 18 July 2019, p. 1, http://www.81.cn/gfbmap/content/2019-07/18/content_238614.htm.

(深海探测).[34] Some PAFDs have even formed underwater target detection units within private companies, such as the Zhuhai's Yunzhou Tech, which designs and builds autonomous surface vessels.[35] Personnel from marine research institutes may also be organized into "maritime reconnaissance elements" (海上侦察分队). One such militia unit is embedded in an unnamed Hangzhou research institute and has employed its underwater imaging skills in support of military requirements.[36]

Conclusion

Since Xi Jinping came to power in 2012, the PRC has sought to transform itself into a maritime colossus with advanced capabilities to exploit and control the ocean, directly undermining the foundation upon which U.S. security and prosperity rest. China's blue-water marine scientific research fleet is a critical, but often overlooked, part of this story. As the fleet expands its operations around the world, including in the Western hemisphere, it has the potential to harm U.S. interests. Despite being unarmed, these vessels and their crews are capable of carrying out a range of missions that subtract from U.S. power and influence—from eroding America's longstanding advantages in undersea warfare to advancing the PRC's preferred vision of the international maritime order. Moreover, Beijing wields multiple levers to ensure that the marine scientific research fleet serves its strategic agenda, even when doing so is costly, dangerous, and inconvenient. These mechanisms include channeling state funding into research projects that meet critical needs, exerting influence through the Party Committee and other CCP structures within individual research institutes, and organizing marine scientists and engineers into specialized militia units controlled by the PLA.

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[34] 贾启龙 [Jia Qilong], 浙江省军区弘扬红船精神 推进民兵队伍建设 ["Zhejiang Provincial Military District Promotes the Spirt of the Red Boat to Advance Militia Force Development"], 新华网 [Xinhua], 9 June 2021, https://www.xinhuanet.com/2021-06/09/c_1127547624.htm.

[35] 2019 年珠海（国家）高新技术产业开发区管理委员会（唐家湾镇）综合治理局 ["2019 Departmental Final Accounts of the Comprehensive Management Bureau of the Zhuhai (National) High-Tech Industrial Development Zone Management Committee (Tangjiawan Town)"], 珠海国家高新区 [Zhuhai National Hi-Tech Industrial Development Zone], undated, p. 20, https://www.zhuhai-hitech.gov.cn/attachment/0/310/310590/2631939.pdf . This document states that an Underwater Target Detection Element was established within Zhuhai Yunzhou Tech "this year," presumably referring to 2019. Of note, the document acknowledges that the Zhuhi Yunzhou Tech "had lots of concerns" (有许多顾虑) about this decision. It was worried that the presence of a militia unit would "impact the company's normal operations" (会影响企业的正常运转) and that its personnel would suffer training accidents.

[36] 宋艳华 [Song Yanhua], 蔡俊 [Cai Jun], and 罗正然 [Luo Zhengran], 未来信息化战争民兵使不使得上劲？杭州新质新锐民兵奋发有为 ["In the Future Informatized War Can Militia Give It Their All? Hangzhou New-Quality Militia Are Working Hard"],中国国防报 [*China National Defense News*], 25 March 2018, Wechat, https://mp.weixin.qq.com/s/LF5iG-m5UNzbRtzuPQ6ZHA.

Appendix: China's Blue-Water Marine Scientific Research Fleet[37]

Ministry/ Agency	Owner	English Name	Chinese Name	Delivered	Tonnage	IMO	Notes
Ministry of Natural Resources (MNR)	Polar Research Institute	*Xuelong*	雪龙	1993	21,000t	8877899	Polar research vessel.
		Xuelong 2	雪龙 2	2019	14,000t	9829241	Polar research vessel.
	First Institute of Oceanography.	*Xiang Yang Hong* 01	向阳红 01	2016	5,000t	9779692	N/A
		Xiang Yang Hong 18	向阳红 18	2015	2,400t	9769506	N/A
	Second Institute of Oceanography	*Xiang Yang Hong* 10	向阳红 10	2014	4,600t	9696199	N/A
	Third Institute of Oceanography	*Xiang Yang Hong* 03	向阳红 03	2016	5,200t	9779680	N/A
	MNR South Sea Bureau	*Xiang Yang Hong* 05	向阳红 05	2023	3,000t	9981568	Former PLAN transport.
		Xiang Yang Hong 14	向阳红 14	1981	4,400t	8425000	N/A
		Xiang Yang Hong 31	向阳红 31	2022	4,000t	9854351	Ocean monitoring buoy tender.
		Haice 3301	海测 3301	2005	4,000t	?	Former *China Marine Surveillance* 83. May now be called *Xiang Yang Hong 33*.
	MNR East Sea Bureau	*Xiang Yang Hong* 19	向阳红 19	2011	4,000t	9625279	Former China Marine Surveillance 50.
		Xiang Yang Hong 20	向阳红 20	1969	3,090t	8326723	N/A
		Xiang Yang Hong 22	向阳红 22	2019	4,000t	9854349	Ocean monitoring buoy tender.
	MNR North Sea Bureau	*Xiang Yang Hong* 06	向阳红 06	1995	4,900t	8875011	N/A
		Jidi	极地	2024	4,600t	9970351	Polar research vessel.
	National Deep-Sea Institute	*Shenhai* 1	深海一号	2019	4,700t	9860996	Mothership of the "Jiaolong" deep-sea manned submersible.
	China Ocean Mineral Resources R&D Association COMRA	*Dayang*	大洋号	2019	5,000t	9861342	Belongs to COMRA, but used by the Second Institute of Oceanography
		Dayang 1	大洋一号	1984	5,600t	8226961	Former Soviet survey ship. Purchased from Russia in 1994.

[37] This table is derived from Martinson and Dutton, "China's Distant-Ocean Survey Activities," pp. 3-4; Manfred Meyer, *Modern Chinese Maritime Forces*, 2nd edition, (U.S.A.: The Admiralty Trilogy Group, 2026), pp. 83-95; and authoritative PRC sources.

Ministry/ Agency	Owner	English Name	Chinese Name	Delivered	Size	IMO	Notes
MNR (cont'd)	Guangzhou Marine Geological Survey	*Haiyang Dizhi* 2	海洋地质二号	2022	7,224t	9793789	N/A
		Haiyang Dizhi 4	海洋地质四号	1980	3,376t	8620399	Former *Haiyang* 4
		Haiyang Dizhi 6	海洋地质六号	2009	5,287t	9549126	Former *Haiyang* 6
		Haiyang Dizhi 8	海洋地质八号	2017	6,900t	9780756	N/A
		Haiyang Dizhi 10	海洋地质十号	2017	3,400t	9795751	N/A
		Haiyang Dizhi 12	海洋地质十二号	1980	3,574t	7714375	Former *Tanbao*
		Mengxiang	梦想	2024	42,500t	9947108	Oceanic drilling ship.
	Qingdao Institute of Marine Geology	*Haiyang Dizhi* 9	海洋地质九号	2017	4,350t	9780744	N/A
Chinese Academy of Science (CAS)	Institute of Oceanology	*Kexue*	科学	2012	5,000t	9643788	N/A
	South China Sea Institute of Oceanology	*Shiyan* 1	实验 1	2009	2,500t	9405758	SWATH hull design..
		Shiyan 3	实验 3	1981	3,300t	8427046	N/A
		Shiyan 6	实验 6	2020	4,000t	9904247	N/A
	Deep-Sea Science and Technology Institute	*Tansuo* 1	探索一号	2016	6,250	8315451	Mother Ship of the "Fendouzhe" deep-sea submersible.
		Tansuo 2	探索二号	2020	6,700t	9743071	Mother ship of the "Shenhai Yongshi" deep-sea submersible.
		Tansuo 3	探索三号	2024	10,200t	1024637	Polar research vessel.
Ministry of Education	Dalian Maritime University	*Yukun*	育鲲	2008	5,900t	1024637	N/A
	Ocean University of China	*Dongfanghong* 3	东方红 3	2019	5,000	9801110	N/A
		Dongfanghong 2	东方红 2	1995	3,500t	8887947	N/A
	Xiamen University	*Jiageng*	嘉庚	2017	3,700	9776640	N/A
	Sun Yat-sen University	*Zhongshan Daxue*	中山大学	2021	6880t	9909534	N/A
		Zhongshan Daxue Jid	中山大学极地	2024	5,852t	8130693	A converted supply ship.
Taihu Laboratory	N/A	*Weilai*	未来号	2025	7,000t	1032907	Classified as a "test vessel" (试验船).