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CMSI Note #10: China's Summer of 2024: The Missing Chapter

Ryan Martinson

中国海事研究所
China Maritime Studies Institute

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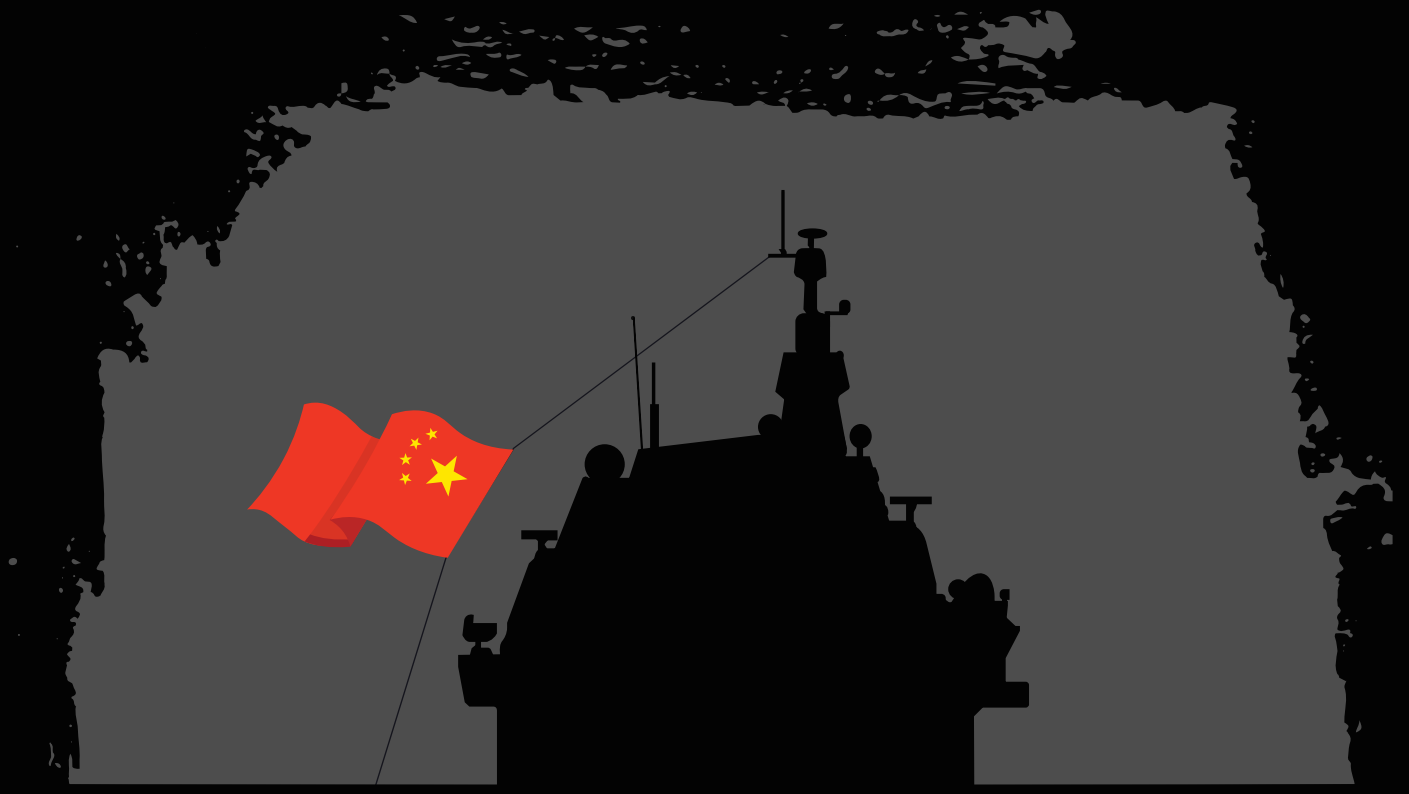

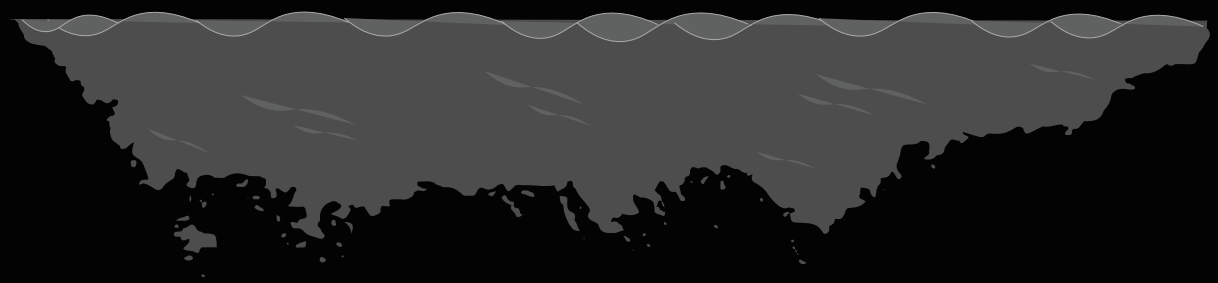

China's Summer of 2024:
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CHINA MARITIME STUDIES INSTITUTE
CENTER FOR NAVAL WARFARE STUDIES
U.S. NAVAL WAR COLLEGE
686 CUSHING ROAD (3C)
NEWPORT, RHODE ISLAND 02841

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China's Summer of 2024: The Missing Chapter

Ryan D. Martinson[1]

Key Takeaways

- In the summer of 2024, two Chinese oceanographic survey ships—the *Xiang Yang Hong* 01 and *Kexue*—conducted marine scientific research activities in the Bering Sea. Their actions represented a significant expansion of PRC marine data collection in this region.
- The Bering Sea is a key segment in the sea lanes connecting China with the Arctic Ocean. Thus, the operations of these two vessels should be understood as part of the unprecedented ramp-up in Beijing's Arctic endeavors that occurred in 2024.
- The main purposes of the two Bering Sea cruises are unknown. However, both ships were built to meet military requirements, at least in part. Even if they were just conducting basic marine science, the data they collected is inherently dual-use and will be shared with the Chinese military, improving its awareness of the operating environment.
- The *Xiang Yang Hong* 01 operated in Russia's EEZ and visited a Russian military port, demonstrating a high degree of Russian support for PRC activities in the region.
- Both ships conducted marine scientific research in waters above the U.S.-claimed extended continental shelf. If their operations involved surveys of the seabed, they would constitute a direct challenge to the U.S. maritime claim.

Introduction

The summer of 2024 saw more People's Republic of China (PRC) activity in the Arctic and near-Arctic than any year in the past.[2] Most of these activities have been well-documented. They include a People's Liberation Army Navy (PLAN) task force sailing north of the Aleutian Islands in the first week of July; PLA Air Force H-6K bombers patrolling the Chukchi Sea, Bering Sea, and North Pacific with Russian aircraft later that month; three Chinese ice-breakers conducting separate cruises in the high north in August and September; and, most recently, in late September, two China Coast Guard cutters navigating north through the Bering Strait in the company of two Russian Border Guard ships.[3] These events alone constitute a dramatic expansion in China's Arctic and near-Arctic operations, laying the groundwork for China's pursuit and defense of its Arctic interests.[4] But there is another episode that has not been highlighted, but should be, as it adds further clarity to PRC ambitions in northern latitudes and the role of China-Russian cooperation to help realize them. It involves the separate but overlapping scientific research cruises of two PRC oceanographic survey ships in the Bering Sea in August.

Background

The PRC possesses the world's largest fleet of oceanographic survey ships. These vessels conduct marine scientific research in all the world's oceans, with a special focus on the strategically important western and central Pacific Ocean. The bulk of the fleet is owned and operated by Chinese government research organizations, most concentrated in the Ministry of Natural Resources. The Chinese Academy of Sciences and individual Chinese universities also own/operate large-displacement research ships that cruise beyond East Asia.[5]

The operations of China's oceangoing survey fleet are comparatively transparent. While at sea, these ships generally transmit their location, course, speed, and other information via Automatic Identification System (AIS); PRC media outlets often publish news about their activities; and at least some of the data they collect results in academic publications. This differs from the PLAN's fleet of hydrographic survey ships, the activities of which are largely unknown, except by the foreign militaries that track them.

Experts embarked on PRC oceanographic survey ships mostly conduct basic scientific research. However, the data they collect are shared with the Chinese military, which uses them to improve its own awareness of and ability to predict the maritime operating environment. Moreover, the knowledge civilian oceanographers help generate informs the development of oceanographic and meteorological monitoring systems employed by Chinese government agencies, which share their reports and other products with the military. This type of "civil-military fusion" has been integral to the PLAN's successful expansion into the "far seas" that began in 2008.[6]

Past PRC Research in the Bering Sea

Chinese research ships have been collecting data on the Bering Sea for decades—probably beginning with the country's first Arctic expedition in 1999. The Bering Strait is China's nearest access point to the Arctic Ocean, so Chinese ships engaged in Arctic exploration must transit the Bering Sea on their outbound and inbound voyages. When they do, they collect data.

Methods for doing so vary. For example, ships deploy disposable probes that measure temperature and salinity at various depth. For more accurate measurements, vessels might pause long enough to lower conductivity, temperature, and depth (CTD) rosettes with canisters to sample ocean water for further analysis aboard the ship. Moreover, Chinese ships bound for the Arctic Ocean have released unmanned underwater gliders in the Bering Sea, retrieving them weeks later on the way home, their data providing valuable "profiles" of the water columns in which they operated. Chinese ships have also installed instruments moored to the seafloor, some fully submerged, some with surface buoys, to capture data over long periods of time. These platforms are later removed or replaced during subsequent Arctic expeditions, their data brought back to China for analysis.[7]

Usually, data collection occurs in the middle of the Bering Sea, beyond the exclusive economic zones (EEZs) of both Russia and the United States. Sometimes, however, PRC ships operate in foreign EEZs, presumably with the permission of the coastal state, as required by the United Nations Convention on the Law of the Sea (UNCLOS). For example, in 2014, the R/V *Snow Dragon* collected CTD data in the U.S. EEZ. Figure 1 below shows the locations where the ship stopped to take measurements.

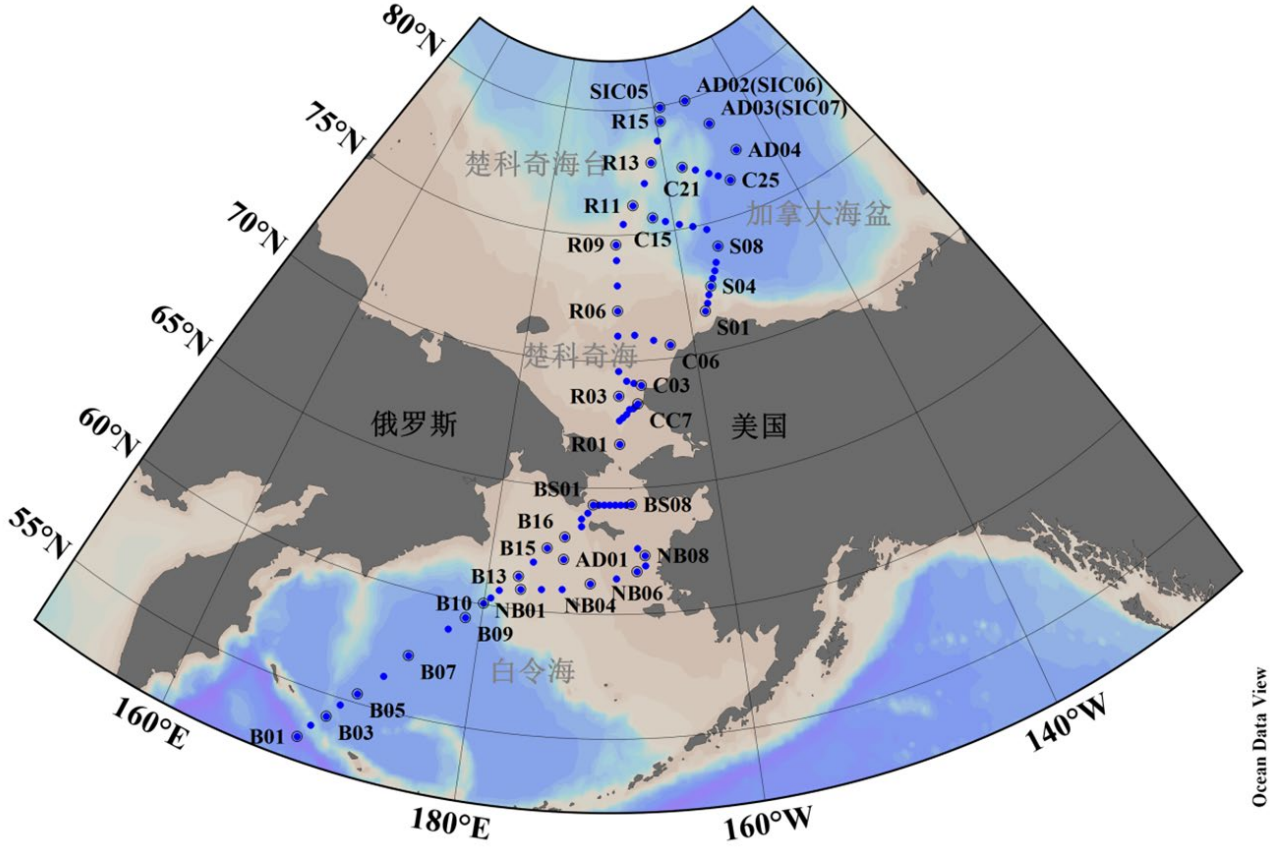

Figure 1. *Snow Dragon* Survey Activities in the Bering Sea (6th Arctic Expedition, 2014). Dots indicate locations of survey activities.[8]

Data essential to basic oceanographic research can also be leveraged for operational (i.e., military) oceanography. They are inherently dual-use. As a case in point, in 2012 the R/V *Snow Dragon* collected CTD data in the Bering Sea as part of the 5th Arctic Expedition. Civilian oceanographers aboard the ship shared these data with PLAN experts, who subsequently used them to calculate sound speed profiles in the surveyed areas. In a published version of their work, the authors acknowledged that their findings "hold positive significance for the safety of marine shipping, the development of marine resources (especially fishery resources), understanding the migratory patterns of fish and mammals, *as well as for military activities*, in these waters [emphasis added]."[9] These PLAN experts employed similar techniques to derive sound speed profiles for data collected in the U.S. EEZ as part of the same expedition, declaring that their results had "a certain degree of reference value for the detection [capabilities] of acoustic equipment and the stealthy operation of underwater submersibles"—indicating a clear military purpose.[10]

The Protagonists

As shown above, PRC research cruises to the Arctic have long included data collection in the Bering Sea, and the knowledge they have yielded has been used to, among other purposes, support military operations in these waters. However, the summer of 2024 witnessed a major expansion in these activities. While the three ice-breaking research ships that conducted Arctic cruises—i.e., the *Snow Dragon* 2, *Jidi*, and *Zhong Shan Da Xue Jidi*—no doubt collected data during their transits through the Bering Sea, two other ships sailed to the region to conduct far more substantial surveys. Because they did not voyage north of the Bering Strait, their activities made no headlines in the Chinese or international press.

The two ships in question are the *Xiang Yang Hong* 01 and the *Kexue*. Both ships belong to the same class of 5,000-ton oceangoing survey vessel designed by the China State Shipbuilding Corporation (CSSC) 708 Research Institute and built by CSSC's Wuchang Shipbuilding. Delivered in 2012, the *Kexue* is owned/operated by the Chinese Academy of Sciences, while the *Xiang Yang Hong* 01 belongs to the Ministry of Natural Resource's First Institute of Oceanography.[11]

Both ships were built, at least in part, to meet military requirements. When the *Xiang Yang Hong* 01 was commissioned, PRC sources declared it would, among other things, conduct "comprehensive observation in the field of military oceanography."[12] Upon its delivery, the *Kexue* was expected to provide "technical support for the urgent resolution of issues involving marine resources, energy, *national defense and security*, and reduction of natural disasters [emphasis added]."[13] In the years since its delivery, the *Kexue* has been observed operating in sensitive waters throughout the Indo-Pacific, including near the U.S. territory of Guam.[14]

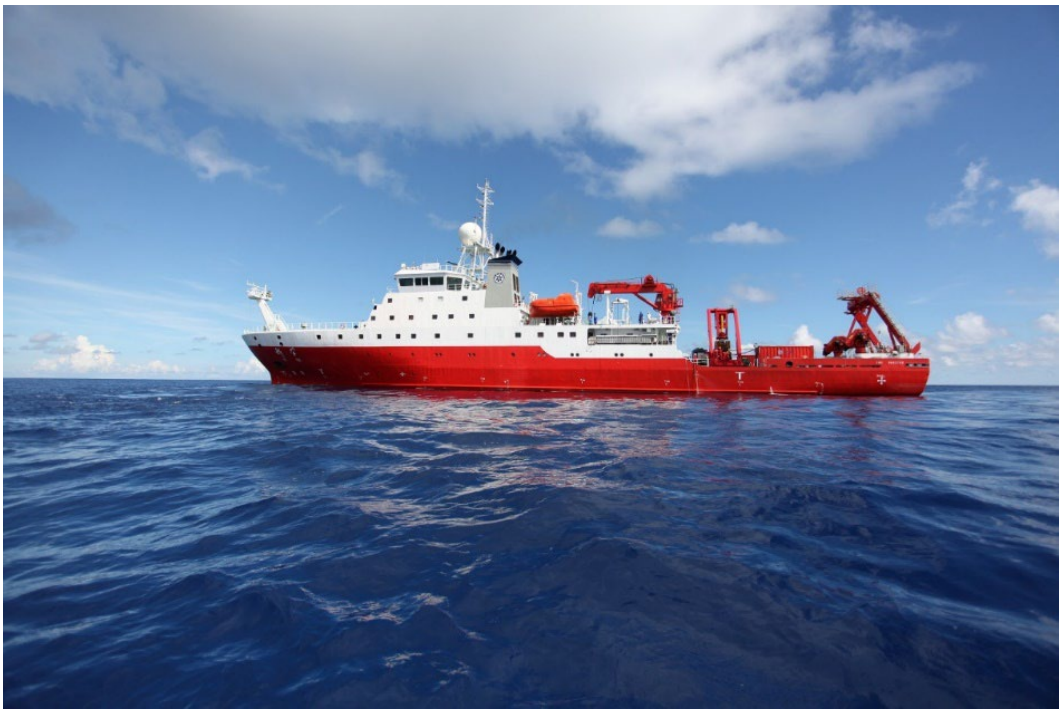

Figure 2. R/V *Kexue*[15]

Figure 3. R/V *Xiang Yang Hong* 01[16]

Summer 2024 Cruises

The *Kexue* left Qingdao on 10 July 2024. It then successively transited the Tsushima Strait, Sea of Japan, and Tsugaru Strait, before entering the North Pacific, operating there for about three weeks. The *Kexue* entered the Bering Sea on 9 August, where it remained for 5-6 days. The ship paused up to ten times while operating in the high seas areas at the center of the Being Sea, indicating data and/or sample collection, the installation of moored instruments, and/or the deployment of one or more submersibles.

On its way south, the *Kexue* transited past Alaska's Aleutian Islands three times: south through the Buldir pass, then north through the Amchitka Pass, then south again through the Amukta pass. It is unclear what scientific purpose these transits served, if any. The ship then resumed its North Pacific research activities in high seas areas south of the Aleutians, before returning home the same way it came. The ship arrived back in Qingdao on 3 September. See figure 4 below.

Figure 4. Activities of the R/V *Kexue* (9-22 August 2024)[17]

The second ship, the *Xiang Yang Hong* 01, departed Qingdao two weeks after the *Kexue*, on 24 July. Like the *Kexue*, it sailed north through the Tsushima Strait into the Sea of Japan, but instead of transiting the Tsugaru Strait it took the Soya Strait, located between Hokkaido and Sakhalin. It then sailed directly northeast, entering the Bering Sea on 6 August, three days before the *Kexue*. From 11-15 August, the ship conducted a bathymetric survey in the middle of the Bering Sea, beyond the U.S. and Russian EEZs. However, on 15 August it abruptly ended the survey, sailing into Russia's EEZ east of the Kamchatka Peninsula. It then navigated southwest through Russia's EEZ before returning to the center of the Bering Sea, where it continued its cruise. On 24 August it again suddenly left these waters, sailing northwest in the direction of Russian coast. It did not enter Russia's territorial sea, but came very close. After lingering there for a couple of days, the ship returned to the central portion of the Bering Sea to resume its bathymetric survey on 28 August. That continued until 2 September, when the ship proceeded to the Russian inlet of Avacha Bay, home to the Russian Navy's Pacific Fleet, remaining there for a day. After the ship left Avacha Bay, it returned home via the same route it came, arriving in Qingdao on 15 September. See figure 5 below.

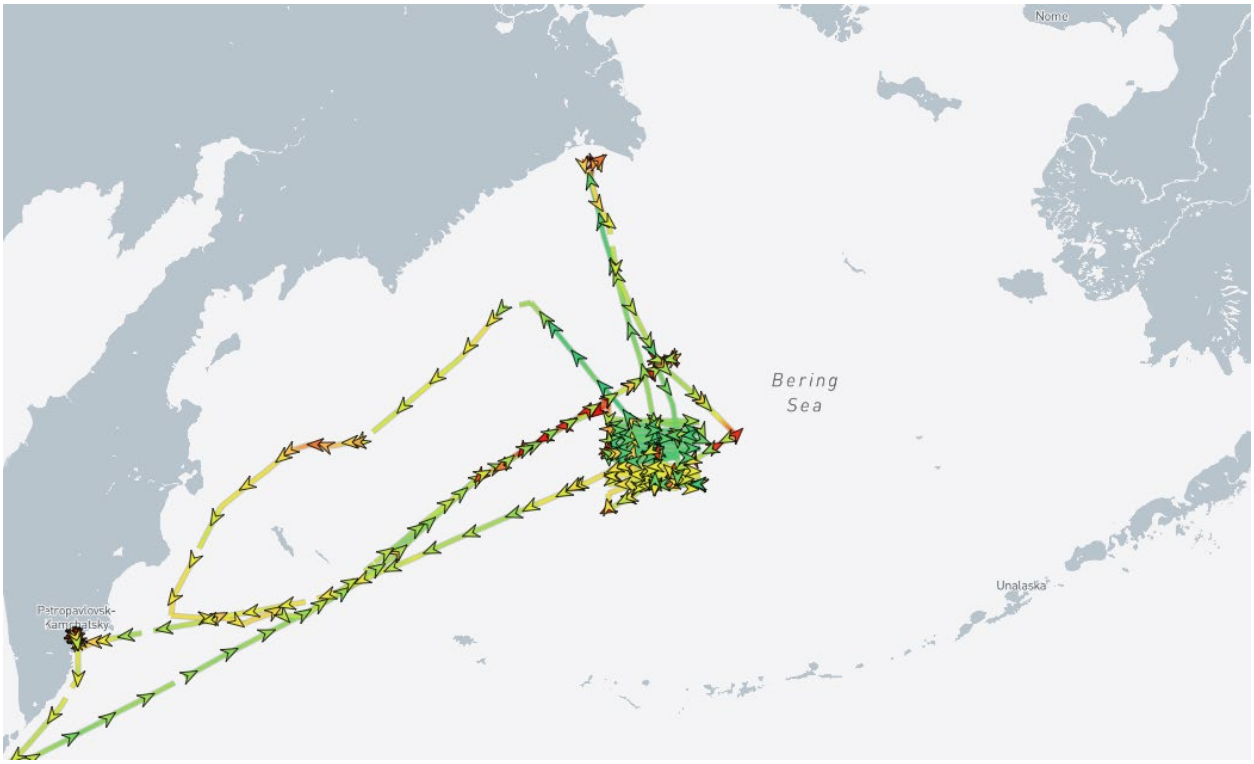

Figure 5. Activities of the R/V *Xiang Yang Hong* 01 (4 August-8 September 2024)[18]

Discussion

The summer of 2024 saw a significant ramp-up of PRC activities in the Arctic and near-Arctic. The overlapping cruises of the of the *Xiang Yang Hong* 01 and *Kexue* in the Bering Sea in August were a noteworthy, but hitherto unexplored, chapter in that expansion. This episode amplifies and reinforces the theme of accelerating PRC operations in northern latitudes. The Bering Sea is a key segment in the sea route connecting China and the Arctic. It could be used by Chinese merchant ships, coast guard cutters, surface combatants, and submarines, both in war and peace. Thus, it is vital that China develop a detailed knowledge of its seabed and water column. The summer 2024 cruises of the *Xiang Yang Hong* 01 and the *Kexue* clearly contributed to that end.

Their operations also shed light on the evolving China-Russia relationship. The *Xiang Yang Hong* 01 spent several days operating in Russia's EEZ—a very rare, maybe unprecedented, event, that could not have happened without Russian permission. Perhaps more noteworthy, Russia allowed the ship to access Avacha Bay, home of key elements of Russia's Pacific Fleet, including its submarine units. This too has likely never happened before. These two events provide a valuable index of the current state of China-Russia maritime cooperation.

This episode also highlights the Bering Sea as a new arena of U.S.-China contention in the realm of international maritime law. In December 2023, the U.S. formally described the outer limits of an extended continental shelf beyond its EEZ, including in the Bering Sea.[19] See Figure 6 below. This move brought a significant portion of the seabed in the center of the Bering Sea under U.S. jurisdiction, giving it exclusive rights to explore for and exploit any resources therein (both

living and non-living).[20] The U.S. now asserts jurisdiction over marine scientific research related to the continental shelf in large swaths of high seas areas.[21] Because the U.S. has not ratified UNCLOS, the PRC rejects its extended continental shelf claim, describing it as "illegal, null and void."[22] Both the *Xiang Yang Hong* 01 and *Kexue* completed surveys within the bounds of the U.S. extended continental shelf in the Bering Sea. See Figure 7 below. Depending on what these surveys entailed, their actions may have represented a direct PRC challenge to a U.S. maritime claim—perhaps for the first time in the history of U.S.-China relations.

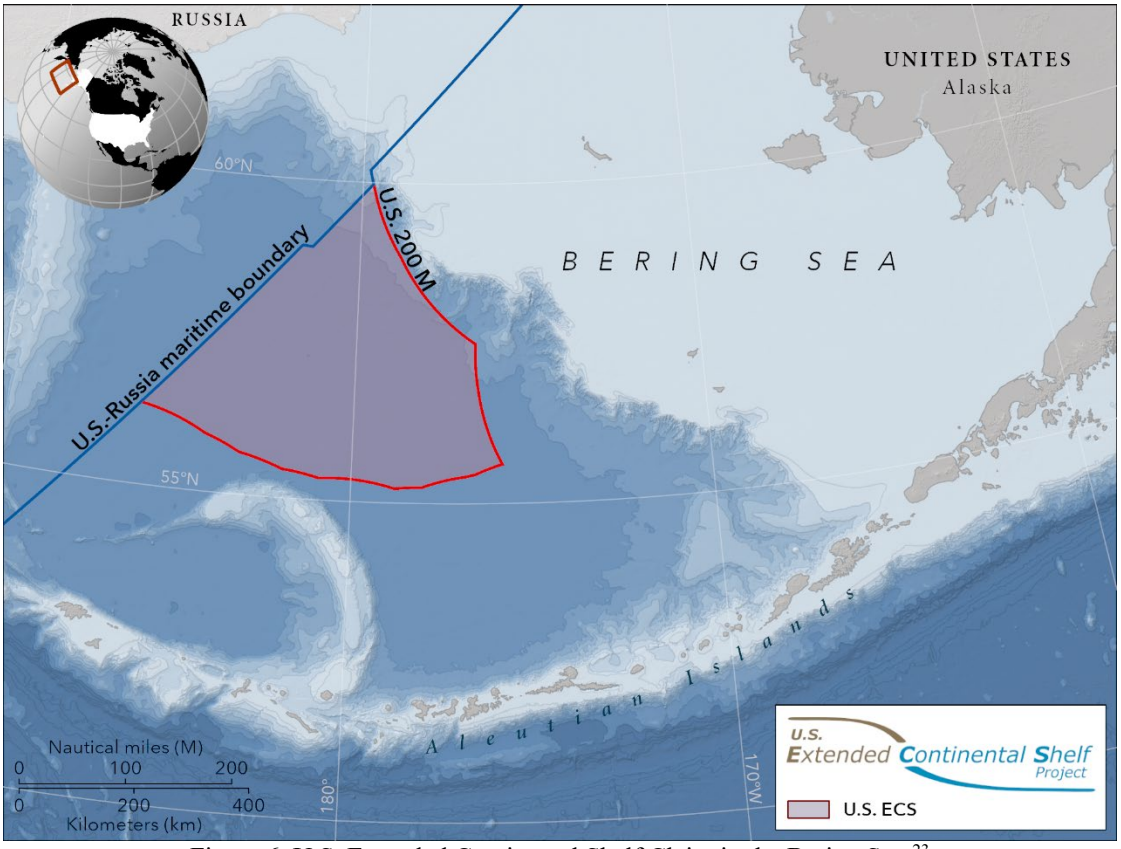

Figure 6. U.S. Extended Continental Shelf Claim in the Bering Sea.[23]

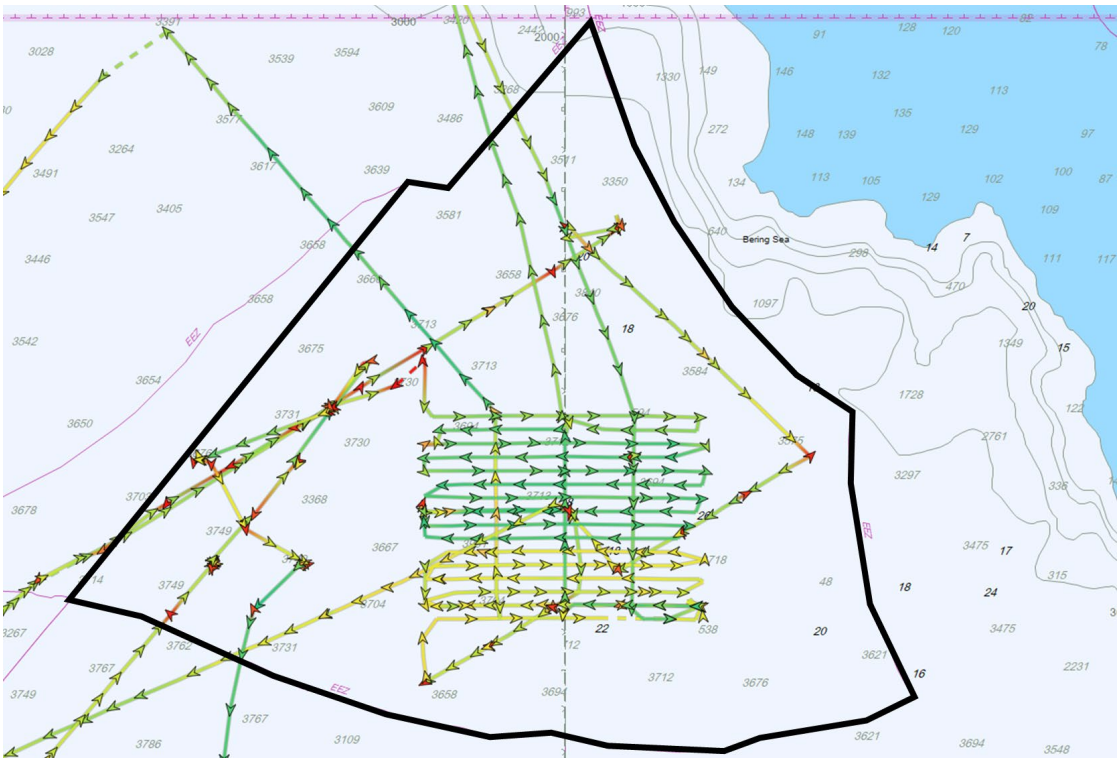

Figure 7. The Operations of the *Xiang Yang Hong* 01 and *Kexue* in the Bering Sea (August 2024). Dark line indicates approximate location of U.S. Extended Continental Shelf claim.[24]

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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, Raul (Pete) Pedrozo, and Chris Sharman for providing valuable feedback on earlier versions of this article. Any errors or omissions are his alone.

[2] Here, the "near-Arctic" refers to water north of the Aleutian Islands.

[3] 中俄两军组织实施第 8 次联合空中战略巡航 ["China and Russia Organize Their 8th Joint Airborne Strategic Patrol"], 新华社 [Xinhua], 25 July 2024, http://www.mod.gov.cn/gfbw/qwfb/16327081.html; "U.S. Coast Guard Encounters Joint Chinese Coast Guard, Russian Border Guard Patrol in Bering Sea," U.S. Coast Guard Press Release, 1 October 2024, https://www.news.uscg.mil/Press-Releases/Article/3922625/us-coast-guard-encounters-joint-chinese-coast-guard-russian-border-guard-patrol/ ; "U.S. Coast Guard Encounters People's Republic of China Military Naval Presence in the Bering Sea," U.S. Coast Guard Press Release 10 July 2024, https://www.news.uscg.mil/Press-Releases/Article/3834722/us-coast-guard-encounters-peoples-republic-of-china-military-naval-presence-in/; "NORAD detects, tracks and intercepts Russian and PRC aircraft operating in the Alaska ADIZ," North American Aerospace Defense Command, 24 July 2024, https://www.norad.mil/Newsroom/Press-Releases/Article/3849184/norad-detects-tracks-and-intercepts-russian-and-prc-aircraft-operating-in-the-a/. The three Chinese ice-breaking research vessels active in the Arctic Ocean in the summer of 2024 were the *Xuelong* 2 (IMO: 9829241), *Zhongshan Daxue Jidi* (IMO: 8130693), and the *Jid* (IMO: 9970351).

[4] For an official description of China's Arctic interests, see "China's Arctic Policy," State Council of the PRC, January 2018, https://english.www.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm. For discussion of Chinese military intentions in the Arctic, see Ryan D. Martinson, "The Role of the Arctic in Chinese Naval Strategy," *China Brief*, vol. 19, issue 22 (20 December 2019), https://jamestown.org/program/the-role-of-the-arctic-in-chinese-naval-strategy/.

[5] Ryan D. Martinson and Peter A. Dutton, "China's Distant-Ocean Survey Activities: Implications for U.S. National Security," China Maritime Studies Institute, November 2018, https://digital-commons.usnwc.edu/cmsi-maritime-reports/3/.

[6] Ryan Martinson and Peter Dutton, "Chinese Scientists Want to Conduct Research in U.S. Waters—Should Washington Let them?" *The National Interest*, 4 November 2018, https://nationalinterest.org/feature/chinese-scientists-want-conduct-research-us-waters%E2%80%94should-washington-let-them-34997; 方正飞 [Fang Zhengfei], 国家海洋环境预报中心十年如一日助力海军远征 亚丁湾护航的"幕后编队" ["The National Marine Environment Forecasting Center Helps the Navy on Long Distance Deployments, Serving as the 'Behind-the-Scenes Team' for Gulf of Aden Escort Operations"], 中国海洋报 [*China Ocean News*], 8 January 2019, https://zrzyt.zj.gov.cn/art/2019/1/8/art_1289957_29274408.html.

[7] 申铖 [Shen Cheng], 中国首次利用水下滑翔机完成白令海海域观测 ["For the First Time Chian Used Underwater Gliders to Complete Ocean Observation of the Bering Sea"], 新华社 [Xinhua], 11 September 2018, http://www.xinhuanet.com/politics/2018-09/11/c_129951516.htm; 中国第七次北极科考队布放我国首个白令海海域锚碇潜标 [China's 7th Arctic Expedition Team Deployed China's First Moored Subsurface Buoy in the Bering Sea"], 新华社 [Xinhua], 23 July 2016, https://www.gov.cn/xinwen/2016-07/23/content_5094174.htm; 徐挺 [Xu Ting], 中国第二次北极科学考察综述 ["A Summary of China 2nd Arctic Scientific Expedition"], 海洋开发与管理 [*Ocean Development and Management*], no. 5 (2004, pp. 17-23.

[8] 2014 年第六次北极科学考察 ["The 6th Arctic Research Expedition in 2014"], 极地海洋过程与全球海洋变化重点实验室 [Website of the Key Lab of Polar Oceanography and Global Ocean Change], 9 January 2019, http://coas.ouc.edu.cn/pogoc/2019/0109/c9710a232946/page.psp

[9] The authors of this study are affiliated with the Naval Institute of Hydrographic Surveying and Charting and PLA Unit No. 95871. 高飞 [Gao Fei], 张新睿 [Zhang Xinrui], 孙磊 [Sun Lei], 潘长明 [Pan Changing], 李胜全 [Li Shengquan], and 李佳讯 [Li Jiaxun], 白令海西部小区域声传播特征研究 ["An Analysis of the Acoustic Propagation Characteristics in a Small Area in the Western Part of the Bering Sea"], 声学技术 [*Technical Acoustics*], no. 4 (August 2015), p. 306.

[10] The composition of the research teams for the two studies were similar but not identical. 高飞 [Gao Fei], 潘长明 [Pan Changming], 冯盼盼 [Feng Panpan], 王璐华 [Wang Luhua], 王本洪 [Wang Benhong], and 李璨 [Li Can],夏季白令海声速剖面分布特征 海洋通报 [*Marine Bulletin*], vol. 33, no. 2 (April 2014), pp. 180-187.

[11] The *Xiang Yang Hong* 01 is an improved version of the *Kexue* design. "向阳红 01，" 牛 ["'Xiang Yang Hong 01,' Awesome!"], 人民日报海外版 [Overseas Edition of People's Daily], 30 August 2016, p. 4, http://paper.people.com.cn/rmrbhwb/html/2016-08/30/content_1708130.htm; 我国自主设计制造的海洋科学考察船 "科学"号交船 ["China's Indigenously Designed and Constructed Marine Research Vessel, the 'Kexue,' is Delivered"], 新华社 [Xinhua], 29 September 2012, https://www.gov.cn/jrzg/2012-09/29/content_2236128.htm.

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[13] 崔严重 [Cui Yan], 新一代海洋科考船揭秘 ["Uncovering the Secrets of China's New Generation Marine Scientific Research Ship"], 中国船检 [*China Ship Survey*], no. 8 (2012), p. 76.

[14] Stephen Chen, "US Spy Planes Kept Eye on Chinese Scientists During Research Expedition Near Guam," *South China Morning Post*, 4 October 2017, https://www.scmp.com/news/china/diplomacy-defence/article/2113883/us-spy-planes-kept-eye-chinese-scientists-during

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[16] "向阳红 01"起航赴西太平洋执行调查任务 ["The 'Xiang Yang Hong 01' Departs for a Survey Mission in the Western Pacific"], 第一海洋研究所 [Website of the First Institute of Oceanography], 11 July 2018, https://www.fio.org.cn/news/news-detail-8607.htm

[17] AIS data and graphic come from www.marinetraffic.com. *Kexue*'s IMO is 9643788.

[18] AIS data and graphic come from www.marinetraffic.com. *Xiang Yang Hong* 01 IMO: 9779692.

[19] "The U.S. Extended Continental Shelf," U.S. State Department, December 2023, https://www.state.gov/the-us-ecs/

[20] See UNCLOS, Article 77.

[21]; "Fact Sheet: Announcement of the U.S. Extended Continental Shelf Outer Limits," 19 December 2023, https://www.state.gov/announcement-of-u-s-extended-continental-shelf-outer-limits-2/

[22] For China's formal opposition to the U.S. declaration of an extended continental shelf, see "Foreign Ministry Spokesperson Wang Wenbin's Regular Press Conference on April 2, 2024," PRC Ministry of Foreign Affairs, 2 April 2024, https://www.mfa.gov.cn/mfa_eng/xw/fyrbt/lxjzh/202405/t20240530_11347729.html.

[23] "The U.S. Extended Continental Shelf."

[24] AIS data and graphic come from www.marinetraffic.com.