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China Maritime Report #52: Everything Everywhere All At Once: The Growing Complexity of PLA Amphibious Exercises

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The Growing Complexity of PLA Amphibious Exercises

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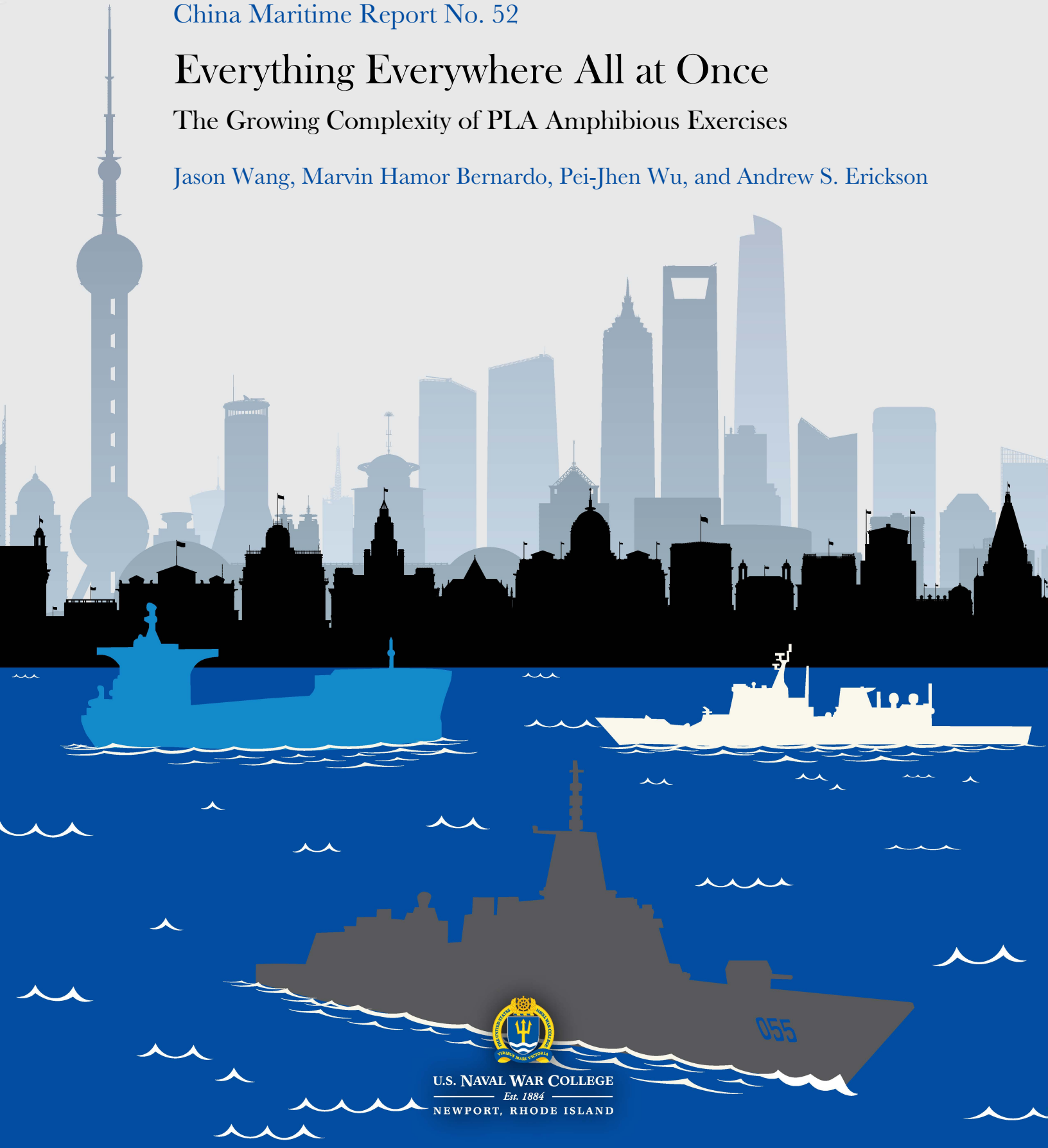

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Main Findings

- In August 2025, the People's Republic of China (PRC) conducted a large-scale exercise to simulate an invasion of Taiwan. This "capstone" amphibious exercise suggests that People's Liberation Army (PLA) training and preparations for a future Taiwan campaign are becoming more focused, realistic, and sophisticated.
- The exercise consolidated elements from previous years into a single simulated operation. It integrated a floating causeway system, anti-landing barriers and obstacles, and amphibious Landing Craft Tank (LCT) vessels that landed forces directly onto beachheads.
- For the first time observed, the PLA conducted a phased exercise with simultaneous amphibious landings in three distinct locations. Exercise areas incorporated civilian aquaculture obstacles like those expected to be found along Taiwan's coastline, increasing environmental and tactical realism.
- The exercise occurred at simulated "landing locations" opposite Taiwan, particularly within the Zhangzhou-Xiamen-Quanzhou littoral zone. The locations were distributed at distance intervals comparable to likely wartime beachheads along Taiwan's western coastline. The total distance between discrete exercise locations was approximately 360 kilometers, roughly the distance between Taipei and Kaohsiung.
- Not merely hypothetical in nature, the exercise reflected a specific geographical and operational focus. It appears to be part of a larger trend whereby the PLA is mapping its exercises onto analogous geography that reflects envisioned targets.
- Future research should explore the potential applications and implications of PLA efforts to train with similar distances and geometries as would be found in prospective conflict zones.
- Starting this summer, observers should scrutinize future capstone amphibious exercises to better understand the PLA's strengths, weaknesses, and underlying operational assumptions.

Introduction

There has been much public discussion in recent years surrounding the PLA's amphibious transport "gap" and China's supposed inability to sustain a large-scale amphibious invasion of Taiwan. This discourse seems to have ignored the Chinese Communist Party's decades-long strategy to obscure, obfuscate, and otherwise minimize its military intent and operational capabilities, hiding them from both the Chinese public and the international community. Satellite imagery reveals that in August 2025, the PLA executed a large-scale "capstone" amphibious exercise along China's southeastern coastline, rehearsing an invasion of Taiwan. This exercise suggests that PLA training and preparations for a future Taiwan campaign are becoming more focused and sophisticated.

The exercise was structured into two phases, marking a notable increase in scale, realism, and geographic scope compared to past iterations. The effort consolidated elements from previous years into a single simulated operation. The drills included synchronized amphibious landings in multiple locations, the employment of a floating causeway, the inclusion of defensive aquatic barriers and beach obstacles, and the use of amphibious LCT vessels for landing forces directly onto beachheads. The exercise simulated assaults on three distinct locations and employed a variety of ostensibly civilian vessels alongside dedicated amphibious ships. Notably, the PLA expanded its training against defensive obstacles both ashore and in the water around the landing areas, increasing realism.

This report outlines the exercise and describes the PLA's continued efforts to conduct increasingly realistic training operations, while also learning how to overcome the problems associated with follow-on logistics support.

The report is organized into three sections. Part one will provide an overview of the exercise and illustrate what occurred. Part two will describe the first and second phases of the exercise in detail. Part three will discuss key takeaways and conclude with potential points of consideration for future research.

Part 1: Overview of the Exercise

Figure 1: PLA Capstone Amphibious Exercice Locations, August 2025.[1]

The PLA's annual summer amphibious exercises, which culminate in August or September each year, are testbeds for developing innovative concepts and conducting operational experiments. These exercises increasingly simulate not only amphibious assaults, but also second echelon logistics operations needed for the long-term sustainment of a PLA invading force. Over the last several years, the PLA has incorporated dual-use civilian lift vessels into these exercises, increasing its lift capacity and ability to carry out large-scale amphibious operations.[2]

Why use nominally civilian vessels? By leveraging China's massive civilian shipbuilding sector, the PLA can increase its sealift capacity on a much shorter timeline and avoid building an expensive dedicated gray-hull amphibious fleet that may be used only once, if at all. The PLA is addressing its amphibious lift capacity shortfall by using civilian vessels to fill the gap and has probably taken this approach to maximize plausible deniability and to minimize "signatures" that could telegraph military intent.[3]

The 23-24 August 2025 capstone amphibious exercise, like its predecessors, was designed to test joint operations, not only across the military but with mobilized civilian logistics assets. It used

[1] Source: ingeniSPACE analysis.
[2] U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments involving the People's Republic of China 2025," p. 40.
[3] For background, see Ian Easton, "People's Republic of China Stratagems and Surprise Attacks — Implications for the Defense of Taiwan," *Naval War College Review*, Vol. 79, No. 1 (Winter 2026), pp. 1-23, https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=8493&context=nwc-review.

dual-use civilian vessels as auxiliary transports, including tugboats, roll-on roll-off (RORO) ships, and LCTs. New and notable aspects observed in the 2025 exercise are as follows:
(1) The exercise included a two-phase logistics component. First, a variety of vehicles were offloaded from sea-to-shore at several locations around Honghai Bay, Shanwei. Second, amphibious deployment and recovery operations were conducted at locations several hundred nautical miles apart (see Figure 1 above) using the same ROROs and amphibious fighting vehicles.

(2) Individual exercise sites incorporated realistic obstacles in the littorals and on the beaches for amphibious assault units to overcome.

(3) LCTs were employed to offload forces and cargo directly onto beachheads.

Overall, this exercise involved the consolidation of many discrete elements witnessed in previous years into a single operation, demonstrating the increasing realism and complexity of the PLA's training and the growing sophistication of its Taiwan invasion rehearsals, likely in reflection of its doctrine for a multi-phased amphibious campaign. Below we highlight salient changes seen in PLA capstone amphibious exercises over the past five years. Interested readers can find a timeline of developments and detailed imagery in Appendix A. PRC merchant ships observed participating in the civil-military training are listed in Appendix B.

Comparative Findings: Evolving Civil-Military Logistics

In recent years, the PLA has steadily expanded its amphibious capabilities through the utilization of dual-purpose, civil-military RORO vessels, specifically, ferries and vehicle carriers.[4] As early as 2014, the PLA used civilian ROROs as part of civil-military maritime activities.[5] By the early 2020s, ROROs were regular participants in cross-theater amphibious exercises.[6] In 2023 and 2024, ROROs, along with other types of shallow-draft ships, participated in "surge-lift events" (i.e., the large-scale coordinated operation of mobilized civilian vessels for short periods). This development coincided with an uptick in inter-theater coordination and increase in the use of civilian transport assets for military activities.[7] Today, "civilian" transport vessels are an integral part of the PLA's amphibious exercises. They have been observed at multiple exercises held in multiple locations.

The routine participation of ostensibly civilian transport vessels in PLA exercises underscores that these vessels are not merely an auxiliary logistics element but rather a formal operational capability enabling significant PLA lift capacity. By employing a variety of vessels, the PLA can broaden landing and transportation options, increase the scale and flexibility of amphibious

[4] 孙琪 [Sun Qi] and 刘宝新 [Liu Baoxin], 民用客滚船军事应用研究 [Research on Military Application of Civil Ro-Ro Passenger Ships]. 军事交通学报 (2022) (*Journal of Military Transportation*), *1* (2), 25–28; 刘宝新 [Liu Baoxin], 孙琪 [Sun Qi] and 董楠, 汽车滚装船国防动员问题研究 [Research on national defense mobilization issues for car roll-on/roll-off (Ro-Ro) ships]. *Forum* (2021), (04), 1–4.

[5] J. Michael Dahm and Conor M. Kennedy, "China's Navy is Exploring Ways to Use Ferries for Military Landings," *The Maritime Executive*, 10 September 2021, https://maritime-executive.com/editorials/china-s-navy-is-exploring-ways-to-use-ferries-for-military-landings.

[6] J. Michael Dahm, "More Chinese Ferry Tales: China's Use of Civilian Shipping in Military Activities, 2021-2022," China Maritime Report No. 25, *China Maritime Studies Institute*, January 2023, https://digital-commons.usnwc.edu/cmsi-maritime-reports/25.

[7] J. Michael Dahm, Beyond Chinese Ferry Tales: The Rise of Deck Cargo Ships in China's Military Activities, 2023, China Maritime Report 35 (Newport, RI: Naval War College China Maritime Studies Institute, February 2024), p. 1, https://digital-commons.usnwc.edu/cmsi-maritime-reports/35; 林超倫, 中國滾裝貨輪的潛在威脅與應對--以「渤海恆達」為例 ["Potential Threats and Countermeasures for RORO cargo ships from China: A case study of "BO HAI HENG DA"], 國防安全研究元 [*Institute for National Defense and Security Research*], 22 August 2025, https://indsr.org.tw/focus?uid=11&pid=2891&typeid=34.

operations, and minimize the "fatal funnel" and chaos expected during an invasion of Taiwan.

These diverse assets could be employed for sustained, large-scale, broad area operations across the length of western Taiwan.

The 2025 capstone amphibious exercise saw the PLA integrate components from previous exercises. New additions included the introduction of more complex command and control scenarios where amphibious operations occur simultaneously across multiple locations. We also observed the incorporation of activities observed in past exercises. Table 1 (below) outlines how the 2025 exercise integrated components seen at previous years, indicating unprecedented comprehensiveness.

Table 1. Capstone Amphibious Activities List[8]

Activity	2021	2022	2023	2024	2025
Synchronized Command and Control Across Multiple Locations	x	✓	✓	X	✓
Multiple Exercises Locations	x	✓	✓	✓	✓
In-water Obstacles (i.e. aqua-culture)	x	x	x	X	✓
Floating Causeways	✓	✓	✓	X	✓
Shoreline Anti-landing Barriers	x	✓	x	✓	✓
Deck Cargo Participation	x	x	✓	✓	✓
Possible Offshore Landing	✓	✓	✓	✓	✓
Direct to Port Unloading	x	✓	✓	✓	✓

Overall, the 2025 capstone exercise demonstrated meaningful progress toward the PLA's ability to coordinate large-scale, dispersed amphibious operations using civil-military assets. The PLA probably leverages commercial, dual-use vessels to minimize its military logistics "signature" and can be expected to muster invasion forces in multifarious civilian ports. By intentionally blurring the line between civilian and military activity, the PLA raises uncertainty and increases the cost and effort of U.S. and Taiwanese monitoring, requiring additional sensors and analysts to interpret activity. The deployment of dual-use vessels obfuscates the PLA's intentions, reduces indications and warning, and minimizes the amount of "executive decision time" available to non-PRC military and civilian officials prior to conflict, thus maximizing the probability of surprise.[9]

[8] Sources: ingeniSPACE analysis; J. Michael Dahm, "Chinese Ferry Tales: The PLA's Use of Civilian Shipping in Support of Over-the-Shore Logistics," *China Maritime Report* No. 16, China Maritime Studies Institute, November 2021, https://digital-commons.usnwc.edu/cmsi-maritime-reports/16/; Dahm, "More Chinese Ferry Tales"; Dahm, "Beyond Chinese Ferry Tales".

[9] Easton, "People's Republic of China Stratagems and Surprise Attacks — Implications for the Defense of Taiwan."

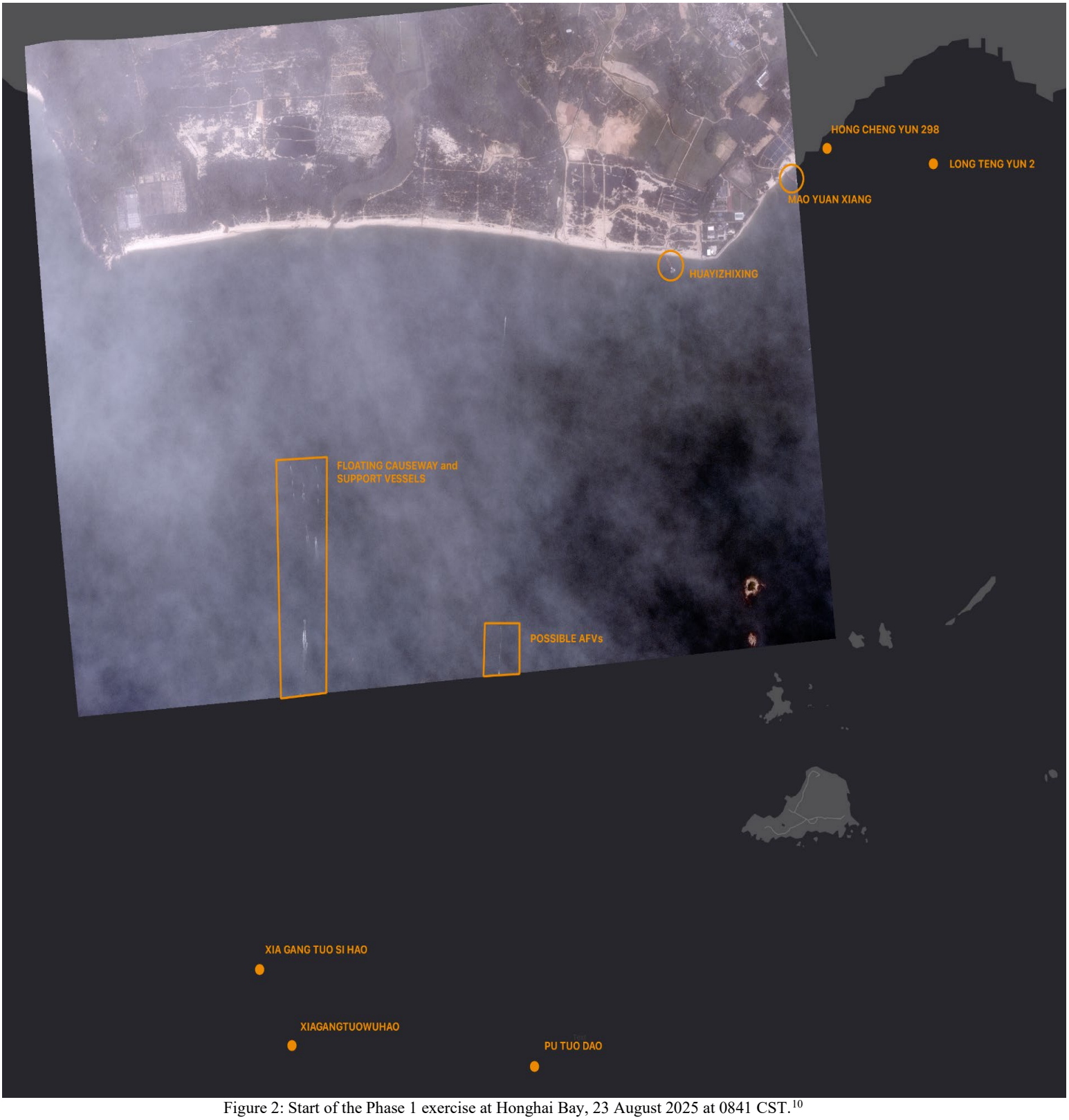

Figure 2: Start of the Phase 1 exercise at Honghai Bay, 23 August 2025 at 0841 CST.[10]

[10] BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com; AIS position data: HONG CHENG YUN 298 (MMSI 413266790), MAO YUAN XIANG (MMSI 413233070), LONG TENG YUN 2 (MMSI 413316830), HUAYIZHIXING (MMSI 413280040), XIA GANG TUO SI HAO (MMSI 412701220), XIAGANGTUOWUHAO (MMSI 412701230) and PU TUO DAO (MMSI 413127000), 23 August 2025, www.starboardintelligence.com.

Part 2: Overview of Phase One and Phase Two

The first phase of the exercise began on 23 August 2025 at Honghai Bay, Shanwei, and employed multiple landing methods.[11] As seen in Figure 3 (below), the PLA Navy-Marine Corps amphibious exercise area is divided between the west and east and separated by the PLA's Jiesheng Base in the center, with additional training areas in the east.[12] At first glance, the 2025 amphibious landing exercise seemed similar to the 2022 and 2023 capstone exercises – focused on vehicle and cargo logistics. Commercial satellite imagery indicates that hundreds of vehicles landed ashore. Four landing methods were used. Vessels with deeper drafts unloaded at a pier and via a floating causeway system, respectively. LCTs landed directly on the beaches, and armored fighting vehicles (AFVs) motored ashore from ROROs stationed over the horizon.[13] Three of these possible landing methods are captured in Figure 2 (above). The available data indicates that, among other things, the PLA was testing its ability to coordinate and integrate multiple types of landing methods into a single operation.

Figure 3: Annotated map of Honghai Bay exercise areas.[14]

Phase 1 was the larger of the two amphibious events, which involved the movement of AFVs, LCTs, ROROs, and other support vessels. The phasing aspect of the exercise was notable. The amphibious group congregated, set off as a unitary force to conduct its exercise, and then dispersed into three separate units (see Phase 2). The PLA appears to have moved units from one area of operation to another after completing the first operation. The dispersal pattern of the group suggests units completed the larger objective first and then proceeded to smaller areas of operation.

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[11] The Honghai Bay (COORD: 22.6883, 115.3939) amphibious landing area is also known as the Jiesheng Bay (捷胜湾) amphibious landing area. This training area has been the site of previous large-scale exercises. It was the location for the South Group amphibious landing exercise for the 2022 capstone. This was again repeated for the 2023 capstone exercise.

[12] Planet, SkySat, Image ID: 20250823_065940_ssc6_u0001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.

[13] This was made possible by using a sequence of satellite imagery during the 23 August exercise: 1) BlackSky at 0841 CST 2) Umbra at 1040 CST, 3) Planet at 1459 CST, combined with AIS data.

[14] Planet, SkySat, Image ID: 20250823_065940_ssc6_u0001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.

If transposed over Taiwan's west coast, the simulated PLA operation would have begun on beaches and ports in the Tainan-Kaohsiung area and, after completion, proceeded to other amphibious targets along the coast.

Figure 4: Composite image of Honghai Bay on 23 August 2025.[15]

LCT Direct-to-Shore Landing

Six LCT vessels participated in Phase 1 of the exercise. They conducted two separate direct-to-shore landing activities.[16] The first observed deployment began at approximately 0830 CST (local time) with four LCT vessels.[17] A registered cargo vessel named MAO YUAN XIANG and a "pleasure craft" named HUAYIZHIXING are shown in Figure 2 landing directly on the beach and unloading military vehicles.

[15] The SAR image was taken at 1004 CST, and the Optical image was taken at 1459 CST. Umbra, Image ID: 2025-08-23-02-04-46_UMBRA-05_MM, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.canopy.umbra.space; Planet, SkySat, Image ID: 20250823_065940_ssc6_u0001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.

[16] Only four have been visually confirmed by satellite imagery or other open-source data.

[17] AIS position data: HONG CHENG YUN 298 (MMSI 413266790), MAO YUAN XIANG (MMSI 413233070), LONG TENG YUN 2 (MMSI 413316830), and HUAYIZHIXING (MMSI 413280040), 23 August 2025, www.starboardintelligence.com; BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com.

Figure 5 shows HUAYIZHIXING at the time of the beach landing. Available imagery and Automatic Identification System (AIS) tracking data strongly suggest that the other two LCTs, the cargo vessels LONG TENG YUN 2 and HONG CHENG YUN 298, likely conducted similar direct-to-beach landings.[18]

The second deployment began at approximately 1020 CST with two vessels participating. The registered "pleasure craft" HUA YI 668 #1 unloaded military units directly onto the beach, and the cargo vessel HUA YI 007 unloaded vehicles via a floating causeway system (see Figure 4).[19] Each LCT can carry at least 20 vehicles, meaning a possible minimum of 120 vehicles were offloaded by LCTs.[20] However, we counted approximately 215 vehicles on shore.[21] This is the first time LCTs have been observed offloading units directly on the beach at a PLA capstone amphibious event.[22] Insights provided by Thomas Shugart and Michael Dahm on the participation of LCTs in the August exercise demonstrate that these vessels were used to conduct direct beach landings.[23]

Assessment of LCT Participation

Figure 5: HUAYIZHIXING offloading possible armored fighting vehicles adjacent to Jiesheng Base, 23 August 2025 at 0841 CST.[24]

LCTs are a newer addition to the PLA's dual-use fleet.[25] LCT sizes range from 75 to 135 meters in length, 16 to 28 meters in width, and 2.7 to 4.5 meters maximum draft.[26] Michael Dahm reported the first observed participation of large deck cargo vessels in the 2023 capstone amphibious exercise.[27] These vessels are capable of transporting not only oversized commercial goods and machinery but also military vehicles and personnel. Shallow draft vessels like these

[18] AIS position data: HONG CHENG YUN 298 (MMSI 413266790) and LONG TENG YUN 2 (MMSI 413316830), 23 August 2025, www.starboardintelligence.com. AIS is a navigation safety system broadcasting a vessel's position, identity, speed, and course to other vessels at sea.

[19] Figure 4 is a composite SAR and electro-optical image overlay showing the floating causeway and landing craft transports where HUA YI 007 possibly docked with the causeway. We observed the ship wakes possibly created by HUA YI 668 #1 and HUAYIZHIXING after they offloaded directly onto the beach. AIS position data: HUA YI 007 (MMSI 413278260) and HUA YI 668 #1 (413217490), 23 August 2025, www.starboardintelligence.com.

[20] BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com; Planet, SkySat, Image ID: 20250823_065940_ssc6_u0001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.

[21] This analysis is based on Figure 4, which outlines the locations of the vehicles.

[22] However, direct beach landings were observed in July 2025 at the same location involving three of the same LCTs. AIS position data: HONG CHENG YUN 298 (MMSI 413266790), MAO YUAN XIANG (MMSI 413233070), and LONG TENG YUN 2 (MMSI 413316830), 13-16 July 2025, www.starboardintelligence.com.

[23] Thomas Shugart and J. Michael Dahm, "Flooding the Zone: The Use of Civilian Landing Crafts (LCTs) in PLA Amphibious Operations," *China Maritime Studies Institute Note #18,* 7 January 2026, pp. 4-6.

[24] BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com; AIS position data: HUAYIZHIXING (MMSI 413280040), 23 August 2025. www.starboardintelligence.com.

[25] For more details see Shugart and Dahm, "Flooding the Zone."

[26] Shugart and Dahm, "Flooding the Zone," p. 3.

[27] Dahm, "Beyond Ferry Tales," p. 7.

LCTs number at least in the hundreds (and possibly thousands) in China, providing a considerable means for the PLA to land troops, vehicles, and supplies directly to shore.[28] The inclusion of these vessels in training events appears to show the PLA's interest in using LCTs to flexibly transport military forces directly to shore. LCTs could provide an essential over-the-shore lift capability, bridging the logistical gap between when the initial amphibious assaults hit the beach and the point at which the PLA might successfully capture and utilize a port or establish a floating causeway.[29]

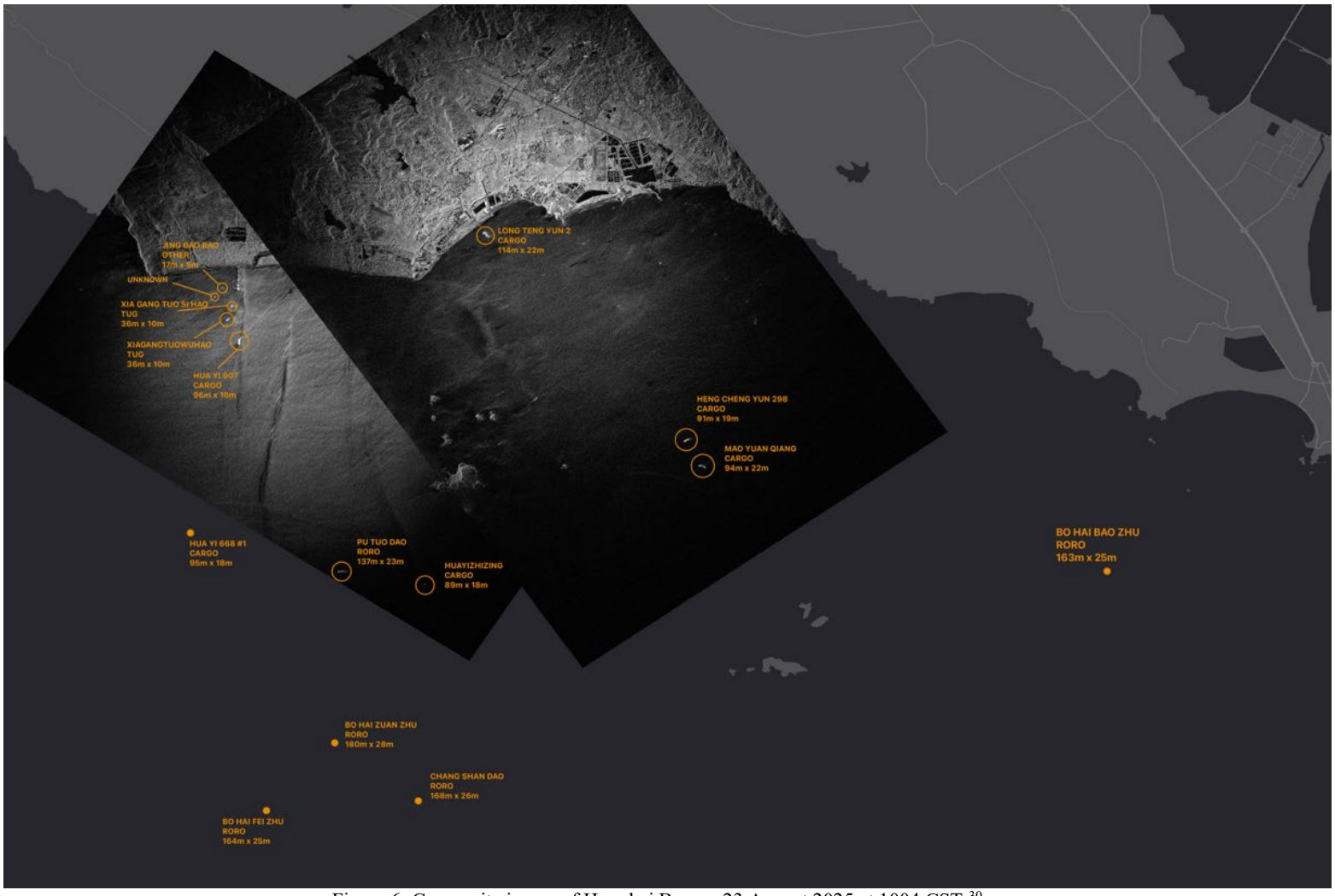

Figure 6: Composite image of Honghai Bay on 23 August 2025 at 1004 CST.[30]

[28] Shugart and Dahm, "Flooding the Zone." While the LCTs participating in the 2025 capstone amphibious exercise are not the same specific vessels that appeared during the 2023 and 2024 exercises, we note the three additional participating cargo vessels in 2025 for a total of six deck cargo vessels. For the 2023 exercise, the owners and operators of the deck cargo ships were all privately owned companies. For the August 2025 exercise, only two of the six ships that participated were identifiable on AIS, see Appendix B.

[29] Shugart and Dahm, "Flooding the Zone," p. 1.

[30] Umbra, Image ID: 2025-08-23-02-04-46_UMBRA-05_MM, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.canopy.umbra.space; UMBRA, Image ID: 2025-08-23-02-04-31_UMBRA-05_MM, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.canopy.umbra.space; AIS position data: BO HAI BAO ZHU (MMSI 412330020), PU TUO DAO (413127000), BO HAI FEI ZHU (MMSI 413324830), BO HAI ZUAN ZHU (MMSI 414210000), CHANG SHAN DAO (MMSI 412331000), HONG CHENG YUN 298 (MMSI 413266790), HUA YI 001 (MMSI 413278260), HUA YI 668 #1 (MMSI 413217490), HUAYIZHIXING (MMSI 413280040), LONG TENG YUN 2 (MMSI 413316830), MAO YUAN XIANG (MMSI 413233070), YONG XING DAO (412091000), JING BAO BAO (MMSI 412065980), XIA GANG TUO SI HAO (MMSI 412701220) and XIAGANGTUOWUHAO (MMSI 412701230), 23 August 2025, www.starboardintelligence.com.

Floating Causeway System Deployment

The PLA employed a floating causeway system between 1010 and 1040 CST. Figure 6 (above) shows its use, with HUA YI 007 likely unloading vehicles through this method.[31] After leaving the beach, the LONG TENG YUN 2 likely docked at the small pier located on the eastern exercise area of the Honghai Bay (see Figure 21 for a detailed image).[32]

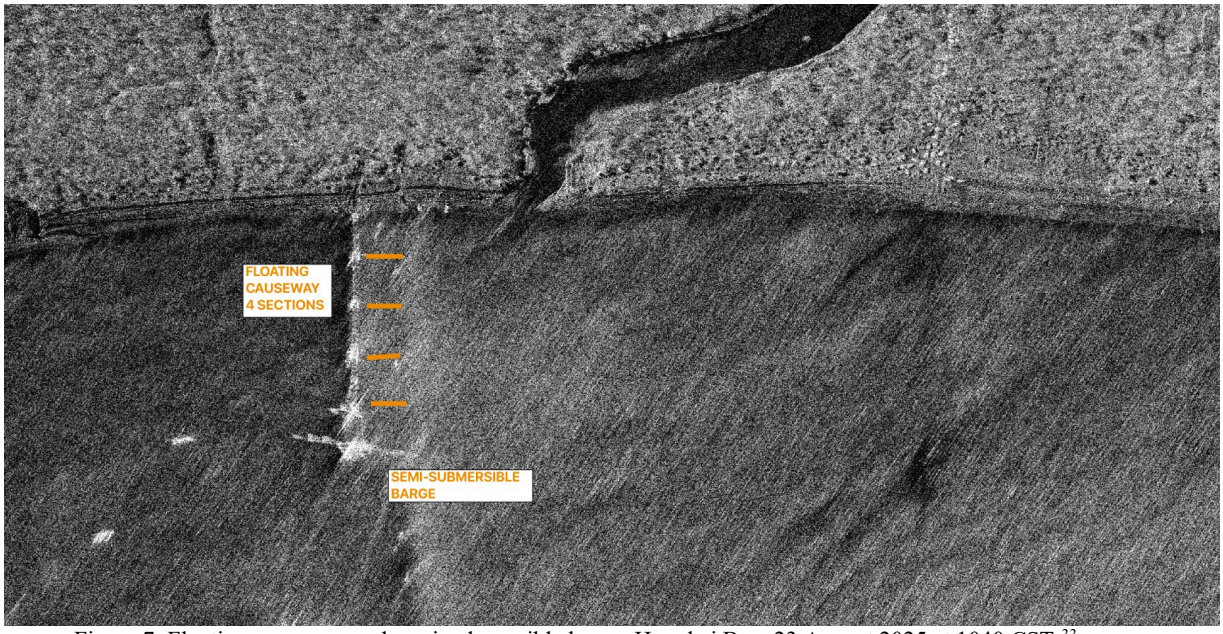

Figure 7: Floating causeway and semi-submersible barge, Honghai Bay, 23 August 2025 at 1040 CST.[33]

As seen in the image above, the floating causeway consisted of four self-propelled segments and one semi-submersible barge. Once complete, it had a total length of approximately 365 meters. Each of the causeway segments was roughly 70 meters in length and 9 meters across, and the barge measured 70 x 25 meters. The floating causeway system used during this exercise was similar to the ones previously observed at Dacheng Bay on 10 September 2021.[34] The floating pier system appears to use a semi-submersible barge at the head of the causeway for the docking of vessels like large ROROs ferries that have deep drafts.[35] We were unable to determine from which port the causeway modules and barge originated. It is possible that the segments were transported via heavy cargo ships the day before the exercise.

Support vessels accompanied the floating causeway system. Prior to the exercise, tugboats from Xiaomo Port repeatedly visited Honghai Bay.[36] The ships that supported the floating causeway system, as well as the semi-submersible barge, traveled to and from Honghai Bay with their AIS deliberately disabled. The escorts included six small vessels and one larger vessel that measured 27 x 12 meters. Operating "dark" without AIS transmission is unusual given the number of

[31] Throughout the exercise, only HUA YI 007 is presumed to have docked with the floating causeway based on AIS tracking data. AIS position data: HUA YI 007 (MMSI 413278260), 23 August 2025, www.starboardintelligence.com.
[32] AIS position data: LONG TENG YUN 2 (MMSI 413316830), 23 August 2025, www.starboardintelligence.com.
[33] Umbra, Image ID: 2025-08-23-02-04-46_UMBRA-05_MM, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.canopy.umbra.space.
[34] Dahm, "Chinese Ferry Tales."
[35] Ibid. pp. 47.
[36] AIS position data: XIA GANG TUO SI HAO (412701220) and XIAGANGTUOWUHAO (MMSI 412701230), 10-23 August 2025, www.starboardintelligence.com. The presence of the floating causeways coincided with visits from tugboats from Xiaomo Port, on 10, 12, and 23 August. A similar causeway was imaged in Xiaomo on 27 October 2023. Google Earth Pro 7.3.6.10441, 27 October 2023, Xiaomo, China, 22.747N, 115.044E, Maxar Technologies 2025 and Airbus 2025.

vessels in the flotilla and the heavy vessel traffic normally found in these waters. In the PLA's 2022 and 2023 capstone amphibious exercises, by contrast, vessels left AIS on, likely for safety reasons.[37]

A new type of hovercraft appears to have been integrated into the exercise.[38] The image below shows an image of this possible new hovercraft. It has a two-engine configuration, which is similar to the Type 726/A, but is smaller than its predecessors, the Type 728 (57.3 x 25.6 m) and 726/A (33 x 16.8 m).[39] To the authors' best knowledge, this is the first documented observation of this new hovercraft taking part in an amphibious exercise. None of the subsequent commercially available images of the 2025 August exercise captured the hovercraft's further participation. The new hovercraft was likely used to haul light equipment or to ferry personnel for the floating causeway.[40]

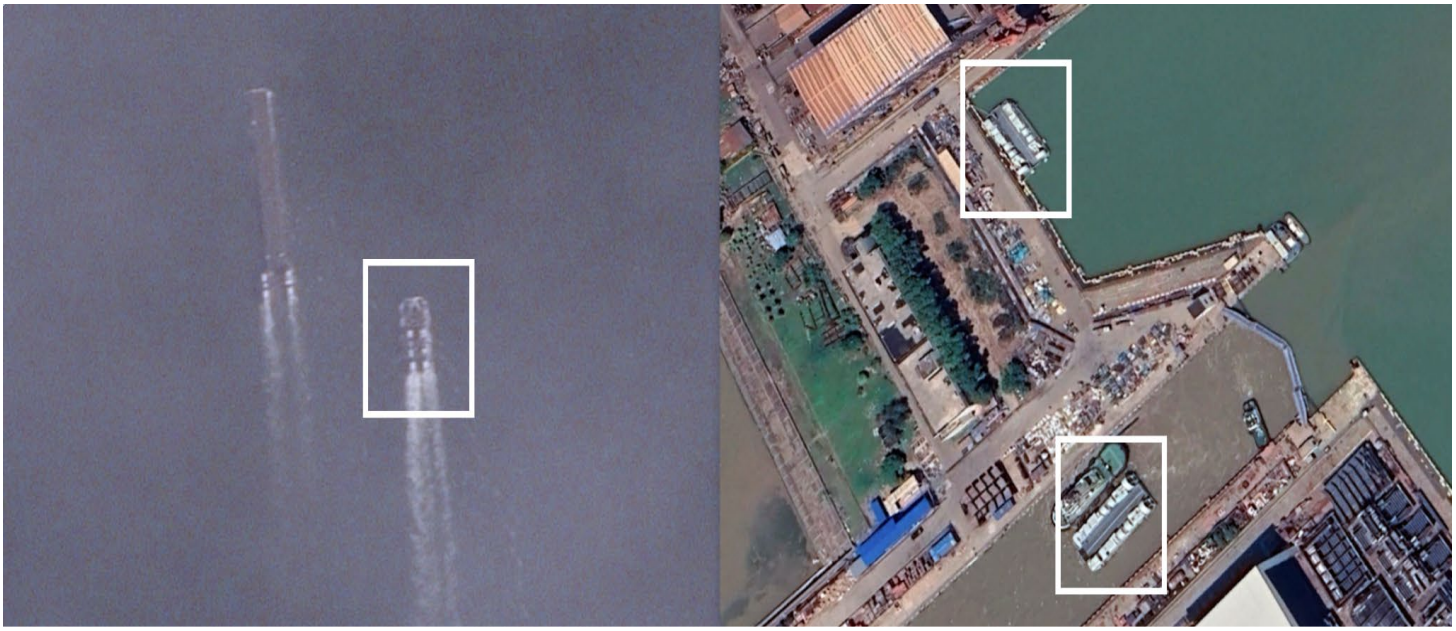

Figure 8: Possible new hovercraft type, Honghai Bay exercise 23 August 2025 (left) and Jiangnan Shipyard, Shanghai, China, 5 December 2025 (right).[41]

[37] Dahm, "More Chinese Ferry Tales" and "Beyond Chinese Ferry Tales."

[38] The hovercraft measured 27 x 12 meters. It was developed at Jiangnan Shipyard. See Google Earth Pro 7.3.6.10441, 5 December 2025, Jiangnan, China, 31.347N, 121.744E, Airbus 2025.

[39] Manfred Meyer (edited by Larry Bond and Chris Carlson), *Modern Chinese Maritime Forces*, Second Edition (Admiralty Trilogy Group, 1 April 2026), p. 31. Note that two similar vessels of the same size, but slightly different configuration, were imaged docked at the Jiangnan shipyard on 5 December 2025.

[40] The partial match is to the 1 YFL vessel, see Meyer, *Modern Chinese Maritime Forces*, pp. 56-57. This assertion is supported by a partial match of the six small vessels that also escorted the floating causeway to known PLA auxiliary vessels used as personnel ferries.

[41] BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com; Google Earth Pro 7.3.6.10441, 5 December 2025, Jiangnan, China, 31.347N, 121.744E, Airbus 2025.

Floating Causeway System Landing Area

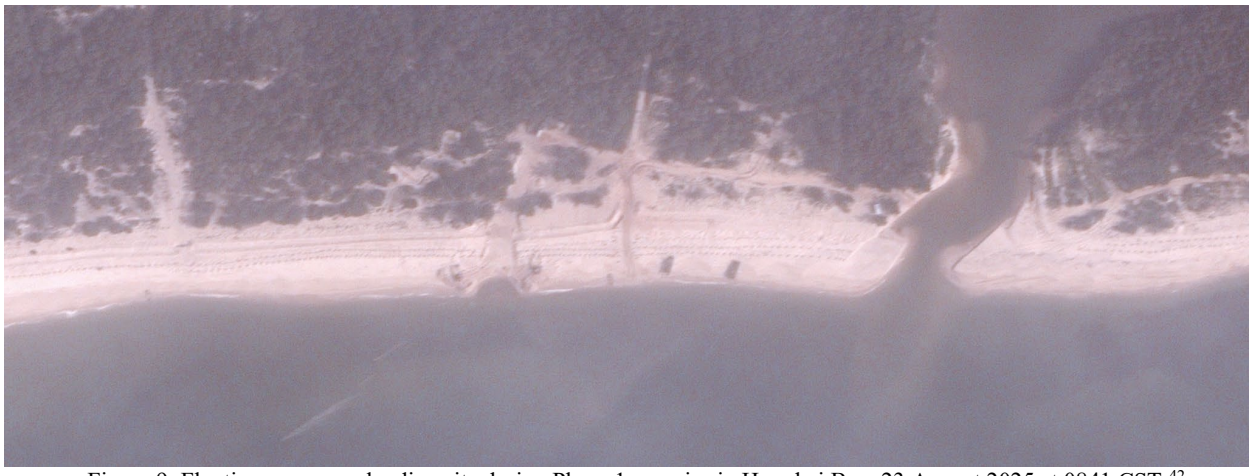

Figure 9: Floating causeway landing site during Phase 1 exercise in Honghai Bay, 23 August 2025 at 0841 CST.[42]

The point at which the floating causeway made landfall had a probable semi-circular excavation (approximately 27 meters across and 12 meters in length), as seen in the image above. The excavation appeared on the morning of the exercise. Spoils (material removed during excavation) can be seen in front of the excavation, and two possible backhoes are positioned on each side.[43] Excavations of this type were not seen during the 2022 or 2023 exercises. The excavation could have been used in conjunction with pillars to provide inshore stability and anchorage.[44]

Assessment of Floating Causeway

The self-propelled causeway system that took part in the exercise was first observed in 2021.[45] It appears similar to the U.S. Navy's improved lighterage system. A PLA causeway system was again observed in 2022 and 2023. The floating causeway systems used in 2022 and 2023 were the longest thus far on record at 650 meters.[46] The system employed in 2021 was 450 meters long. In 2025, the system used was 365 meters in length.[47] The causeway system did not join the 2024 capstone exercise.[48]

The causeway system was seen at repeated practice drills in Honghai Bay weeks prior to the 2025 exercise. These were likely rehearsals as they occurred in roughly the same location. During the capstone exercise, none of the ferry vessels docked directly with the causeway. This is in stark contrast to previous exercises where RORO ferries docked with floating causeways to facilitate offloading. As previously mentioned, it appears that only one LCT vessel used the causeway system. Images of Honghai Bay, taken approximately five hours after the causeway activities,

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[42] BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com.

[43] This excavation is notably wider than the floating causeway itself (approximately 9 meters across). Prior exercises were conducted at Dacheng Bay which has a deeper foreshore at 110-120 meters compared to Honghai Bay at 48 meters, when these exercises were conducted, respectively.

[44] We have seen similar excavations being utilized with the U.S. Navy's Improved Navy Lighterage System (INLS) during an exercise in 2008, where pillars were driven into the sand to anchor and stabilize the inshore portion. Given the resolution of the frame, it is unclear whether similar pillars were used to stabilize the causeways inshore portion. For further details on the similarities of the respective U.S. and China systems see Michael Dahm and Conor M. Kennedy, "Civilian Shipping: Ferrying the People's Liberation Army Ashore," *CIMSEC*, 9 September 2021.

[45] Dahm, "Chinese Ferry Tales," pp. 47-48.

[46] Planet, PlanetScope, Image ID: 20230924_015739_83_2427, 24 September 2023, Dacheng Bay, China, 23.597N, 117.197E. www.planet.com; Dahm, "Beyond Ferry Tales," p. 29.

[47] Dahm, "Chinese Ferry Tales," p. 48; Umbra, Image ID: 2025-08-23-02-04-46_UMBRA-05_MM, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.canopy.umbra.space.

[48] Planet, PlanetScope, Image ID: 20240826_021846_15_2447, 26 August 2024, Hougang Bay, China, 23.684N, 117.502E, www.planet.com.

show approximately 215 military vehicles ashore—some of which were probably offloaded via the floating causeway system.

Offshore Deployment

During the exercise, AFVs were likely deployed from a RORO passenger ferry at an approximate distance of 5 kilometers (2.7 nautical miles) from shore, just beyond the line of sight.[49] The RORO, named PU TUO DAO, likely deployed the AFVs via its rear deck.[50] Based on available data, the PU TUO DAO is the only ferry that participated in Phase 1 of the exercise. During previous exercises, ROROs operated roughly two kilometers from shore, or docked directly with a floating causeway.[51] The PLA appears to be experimenting with LCTs along with LSTs, LSMs, and large deck cargo ships for direct-to-shore deployment.[52] PLA planners may envision using ROROs as over-the-horizon deployment platforms for AFVs and are studying the most effective blend of military and civilian assets for amphibious assaults and over-the-shore logistics.[53]

Figure 10: BO HAI HENG DA and ZHONG HUA FU XING during the Phase 1 exercise on 23 August 2025 at 0840 CST.[54]

[49] From 23 August 0500 to 1200 CST, PU TUO DAO largely remained on station at that location.
[50] AIS position data: PU TUO DAO (MMSI 413127000), 23 August 2025, www.starboardintelligence.com; Shugart and Dahm, "Flooding the Zone," p. 5.
[51] Dahm, "Beyond Chinese Ferry Tales." Notably, During the 2025 exercise, the RORO maintained 5 kilometers distance from shore. Based on AIS data, they did not appear to dock directly with the floating causeway. AIS position data: BO HAI BAO ZHU (MMSI 412330020), PU TUO DAO (413127000), BO HAI FEI ZHU (MMSI 413324830), and BO HAI ZUAN ZHU (MMSI 414210000), 23 August 2025, www.starboardintelligence.com.
[52] Landing Ship Tank (LST) and Landing Ship Medium (LSM) are other forms of amphibious landing vessels. The PLA does operate dedicated vessels for both of these types, see Meyer, *Modern Chinese Maritime Forces*. Large Deck Cargo vessels are another form of single deck ships but at a larger size. These have been mostly observed as dual-use civilian vessels, see Dahm, "Beyond Chinese Ferry Tales."
[53] Shugart and Dahm, "Flooding the Zone."
[54] AIS position data: BO HAI HENG DA (MMSI 413254910), ZHONG HUA FU XING (MMSI 412283000), BO HAI BAO ZHU (MMSI 412330020), PU TUO DAO (413127000), BO HAI FEI ZHU (MMSI 413324830), BO HAI ZUAN ZHU (MMSI 414210000), CHANG SHAN DAO (MMSI 412331000), HONG CHENG YUN 298 (MMSI 413266790), HUA YI 001 (MMSI 413278260), HUA YI 668 #1 (MMSI 413217490), HUAYIZHIXING (MMSI

During the Phase 1 exercise at Honghai Bay, two passenger ferries, BO HAI HENG DA and ZHONG HUA FU XING, docked at Xiaomo Port.[55] ZHONG HUA FU XING docked first, spending approximately 3.5 hours in port, followed by BO HAI HENG DA, which spent roughly 2 hours in port. Commercial satellite imagery of in-port activity was not available. However, Xiaomo Port was used for previous capstone exercises in 2022 and 2023.[56] Given the available facilities and history of the port, the cargo ships possibly offloaded vehicles using a ramp or cranes at the terminal. This portion of Phase 1 constituted the direct-to-port offloading component of the exercise.[57] Commercially available satellite imagery and AIS data of BYD's dedicated RORO vessels reveal that this port has the facilities to accommodate the transportation of large volumes of vehicle cargo.[58]

Notably, ZHONG HUA FU XING and BO HAI HENG DA made port visits in Quanzhou, Xiaomo, and Yantai, but reported no changes in their drafts. Related data are supposed to reflect total displacement and usually vary with loading and offloading activities. As the ships' data were entered manually, it possible that operators intentionally concealed cargo operations to mask the amount of military cargo that was transported for the exercise.

Phase 2 Overview: Simultaneous Amphibious Exercise Across Multiple Locations

Figure 11: Exercise sites with approximate distances between each location.[59]

Phase 2 of the capstone exercise saw vessels dispersed into smaller units that operated across multiple locations. This phase began on 24 August, with simultaneous drills involving the

413280040), LONG TENG YUN 2 (MMSI 413316830), MAO YUAN XIANG (MMSI 413233070), YONG XING DAO (412091000), JING BAO BAO (MMSI 412065980), XIA GANG TUO SI HAO (MMSI 412701220) and XIAGANGTUOWUHAO (MMSI 412701230), 23 August 2025, www.starboardintelligence.com.

[55] AIS position data: BO HAI HENG DA (MMSI 413254910) and ZHONG HUA FU XING (MMSI 412283000), 19-27 August 2025, www.starboardintelligence.com.

[56] Xiaomo Port (COORD: 22.7425, 115.0393) is also known as Xiaomo Harbor. Dahm, "More Chinese Ferry Tales"; "Beyond Chinese Ferry Tales."

[57] This is inferred from other civilian activities at the port. Xiaomo is located within the Shenzhen-Shanwei Special Cooperation Zone, which has a BYD Vehicle Factory. Phate Zhang, "BYD starts construction of new $3 billion project at its fourth campus in Shenzhen," *CNEVPOST*, 14 September 2022.

[58] AIS position data: BYD ZHENGZHOU (MMSI 477155100), 18 July 2025; BYD SHENZHEN (MMSI 477140200), 7 July 2025, www.starboardintelligence.com.

[59] Source: ingeniSPACE analysis.

deployment and recovery of probable AFVs from ROROs at sea in three separate locations: Hougang Bay, Qianhu Bay, and Houcai Bay.[60] RORO ferries constituted the primary means of transport for AFVs across all three locations. Phase 2 training evolutions included synchronized command and control across multiple exercise locations and the use of more realistic training environments, created with in-water obstacles and shoreline anti-landing barriers.

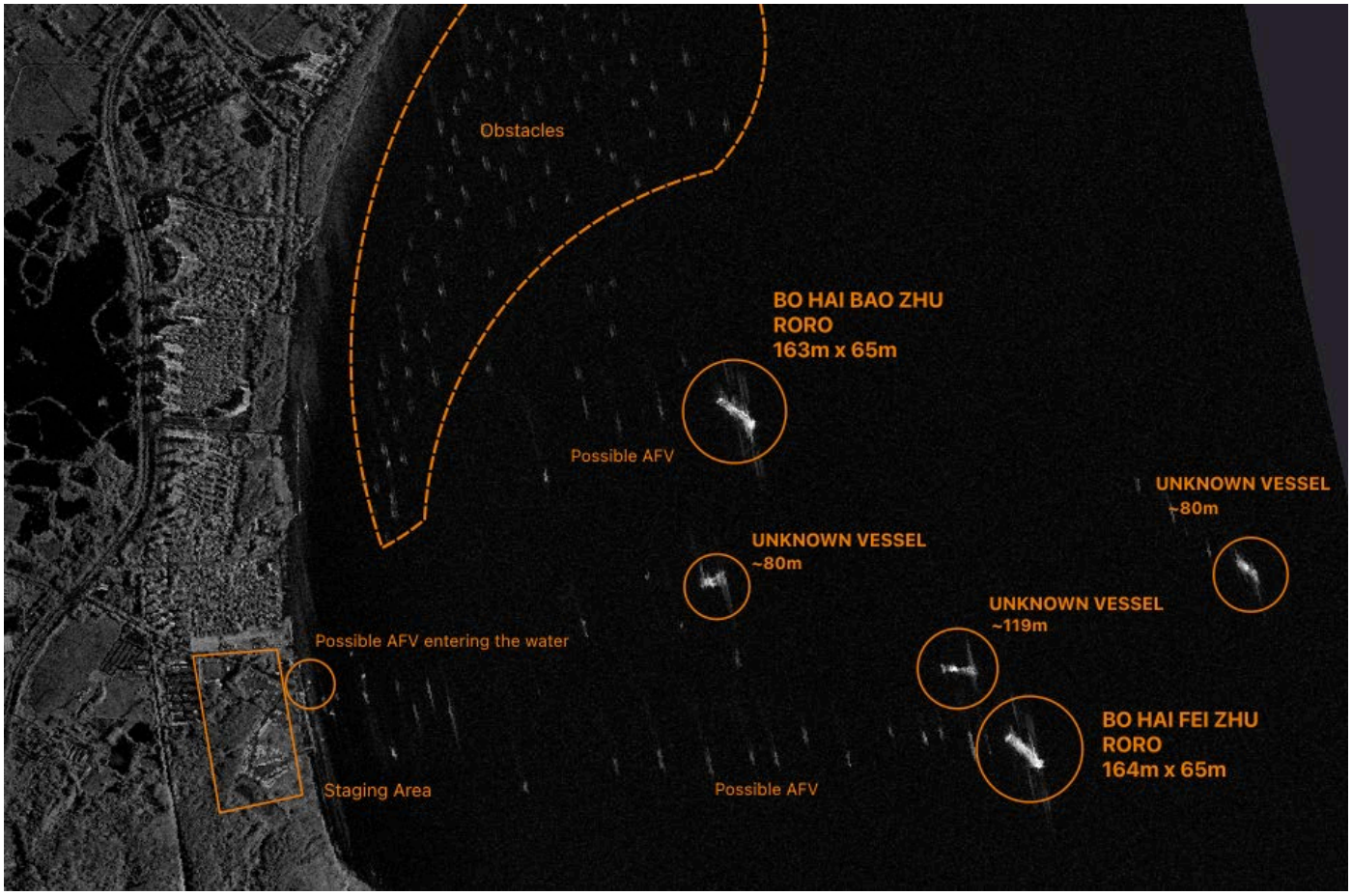

Figure 12: Simultaneous amphibious drills at Hougang Bay on 24 August 2025 at 1025 CST.[61]

At Hougang Bay, three unknown vessels participated in the exercise with two large passenger ferries, BO HAI BAO ZHU and BO HAI FEI ZHU.[62] As seen in the image above, the BO HAI BAO ZHU and the BO HAI FEI ZHU measure 163 and 164 meters in length, respectively, and 25 meters in width. Two of the vessels that accompanied them were possible PLAN Type 073A Yunshu-class landing ships.[63] The third accompanying vessel was likely a PLAN Type 072A

[60] AIS position data: BO HAI BAO ZHU (MMSI 412330020), BO HAI FEI ZHU (MMSI 413324830) , CHANG SHAN DAO (MMSI 412331000), and YONG XING DAO (MMSI 412091000), 23-25 August 2025, www.starboardintelligence.com; Umbra, Image ID: 2025-08-24-02-52-25_UMBRA-10_MM, 24 August 2025, Hougang Bay, China, 23.680N, 117.474E, www.canopy.umbra.space; Planet, PlanetScope, Image ID: 20250824_030638_89_24db, 24 August 2025, Houcai Bay, China, 24.172N, 117.983E. www.planet.com; Planet, PlanetScope, Image ID: 20250824_030641_10_24db, 24 August 2025, Qianhu Bay, China, 24.070N, 117.899E. www.planet.com.

[61] Umbra, Image ID: 2025-08-24-02-52-25_UMBRA-10_MM, 24 August 2025, Hougang Bay, China, 23.680N, 117.474E, www.canopy.umbra.space; AIS position data: BO HAI BAO ZHU (MMSI 412330020) and BO HAI FEI ZHU (MMSI 413324830), 24 August 2025, www.starboardintelligence.com

[62] Ibid.

[63] Meyer, *Modern Chinese Maritime Forces*, p. 30.

landing ship.[64] Social media videos produced by the PLA appear to corroborate the attendance of these PLAN vessels.[65] These probable PLAN vessels arrived at Hougang Bay on 23 August, the day before the exercise. Onshore, approximately 90 or more possible military vehicles were present on the shoreline, marked as "staging area" in Figure 12.[66] The number of vehicles does not include the possible amphibious vehicles already deployed in the water.

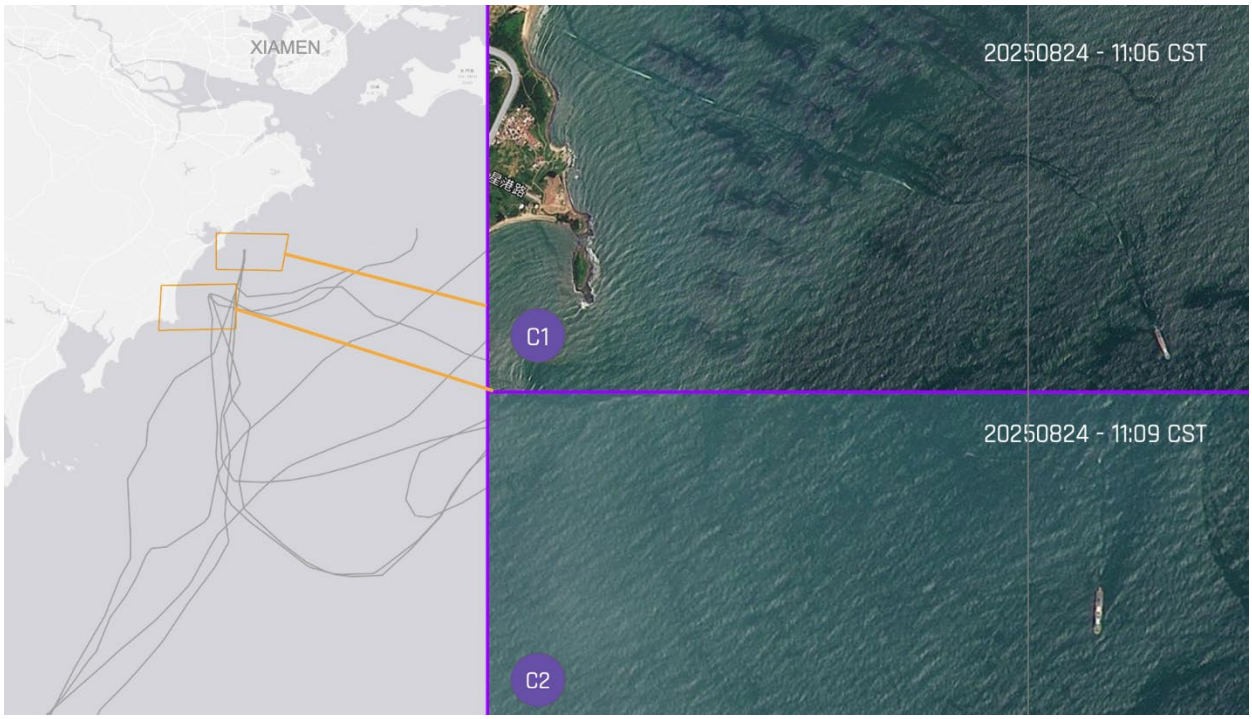

Figure 13: Simulation of amphibious drills at Houci Bay and Qianhu Bay on 24 August 2025.[67]

Two other amphibious drills were conducted at Qianhu Bay and Houcai Bay, approximately 40 kilometers southwest of Taiwan's Kinmen Islands. These drills appear to have involved loading and unloading AFVs at sea, with each using a single RORO passenger ferry. In Houcai Bay, we observed possible AFVs navigating between aquaculture rafts. The ferries involved were the CHANG SHAN DAO at Houcai Bay (marked C1), and the YONG XING DAO at Qianhu Bay (marked C2).[68]

Bohai Ferry Group vessels played a prominent role in the 2025 exercises. Bohai Ferry Group vessels are large, ocean-going RORO ferries that provide the PLA with military-civil lift capacity similar to the U.S.'s Maritime Security Program.[69] The size of the ROROs used in the 2025 exercise ranged from 163 to 190 meters in length, and 25 to 26 meters in width. They likely had a

[64] Ibid. pp. 28.
[65] 第 72 集团军某旅'黄草岭英雄连' 跨昼夜联合抢滩登陆演练 检验两栖作战能力 ["The Huangcao Ridge Hero Company of a Certain Brigade in the 72nd Group Army Certifies Amphibious Capability in Night Time Joint Assault Exercise"], 2025, C 位看热点资讯 [*Position C Look at Hot Info*], https://haokan.baidu.com/v?pd=wisenatural&vid=13620177021083132069.
[66] Umbra, Image ID: 2025-08-24-02-52-25_UMBRA-10_MM, 24 August 2025, Dacheng Bay, China, 23.602N, 117.181E, www.canopy.umbra.space.
[67] Planet, PlanetScope, Image ID: 20250824_030638_89_24db, 24 August 2025, Houcai Bay, China, 24.172N, 117.983E. www.planet.com; Planet, PlanetScope, Image ID: 20250824_030641_10_24db, 24 August 2025, Qianhu Bay, China, 24.070N, 117.899E. www.planet.com.
[68] AIS position data: CHANG SHAN DAO (MMSI 412331000) and YONG XING DAO (MMSI 412091000), 24 August 2025, www.starboardintelligence.com.
[69] The Maritime Security Program (MSP) maintains a fleet of commercially viable, military useful merchant ships to support U.S. Department of War sustainment sealift requirements during times of conflict or in other national emergencies.

draft of 6 meters.[70] Bohai's RORO cargo capacities range from 7,618 to 33,458 deadweight tons.[71] They can transport roughly 2,000 troops and 300 vehicles per ship. The company has organized its vessels into a "transport group" (海运大队) that is a part of its Strategic Projection Support Force meant to provide "force projection and logistics support in diversified military missions."[72] Cosco Shipping Ferry's owned and operated ships also continue to participate in the amphibious assault exercises. In August 2025, eight ROROs appeared during a single PLA amphibious exercise, an increase from five ROROs in 2023.

Table 2. Participating RORO Ships Seen in Previous Exercises[73]

Vessel Name	MMSI	Owner/Operator	Year				
RORO Ferries			**2020**	**2021**	**2022**	**2023**	**2024**
BO HAI BAO ZHU 渤海宝珠	412330020	Bohai Ferry Group Co.	✓		✓	✓	✓
BO HAI HENG DA 渤海恒达	413254910	Tianjin Bohai Ferry Financial				✓	
BO HAI FEI ZHU 渤海翡珠	413324830	Bohai Ferry Group Co.				✓	✓
BO HAI ZUAN ZHU 渤海钻珠	414210000	Bohai Ferry Group Co.		✓	✓		
ZHONG HUA FU XING 中华复兴	412283000	Tianjin Bohai Ferry Financial/Bohai Ferry Group Co.	✓	✓	✓		
YONG XING DAO 永兴岛	412091000	China Shipping Gang Lian/COSCO Shipping Ferry Co.		✓			
CHANG SHAN DAO 长山岛	412331000	COSCO Shipping Ferry Co.			✓	✓	
PU TUO DAO 普陀岛	413127000	COSCO Shipping Ferry Co.				✓	

Loading AFVs Further from Shore

As during its 2023 and 2024 capstone exercises (as well as earlier amphibious drills held in 2025), the PLA practiced the offshore loading and unloading of AFVs using civilian ROROs and continued to experiment with AFV deployment from near shore to over the horizon. In 2023, PLA units launched 7.5 kilometers from the shore (via the BO HAI FEI ZHU).[74] Distances have varied over time. During the 2024 Hougang Bay exercise, the BO HAI FEI ZHU and the BO HAI BAO ZHU were approximately 4 kilometers from shore when the amphibious vehicles were

[70] Dahm, "More Chinese Ferry Tales," p. 53.
[71] Ibid.
[72] 何國本 [He Guoben], 邹偉 [Zou Wei], 鮑文華[Bao Wenhua], and 陳龍 [Chen Long], 戰略投送支援船隊訓練現狀及對策 ["Current Situation and Countermeasures of Strategic Projection Support Fleet Training"], 軍事交通學院學報 [*Journal of Military Transportation University*], no. 5 (May 2017), p. 2; op. cit. Conor M. Kennedy, "Onboard Political Control - The Ship Political Commissar in Chinese Merchant Shipping," China Maritime Report No. 40, *China Maritime Studies Institute*, August 2024, p. 18.
[73] Source ingeniSPACE analysis; Dahm, "Chinese Ferry Tales"; Dahm, "More Chinese Ferry Tales"; Dahm, "Beyond Chinese Ferry Tales."
[74] Dahm, "Beyond Ferry Tales," p. 35.

launched.[75]

During the 24 August 2025 exercise, the PLA experimented with various deployment distances. Hougang Bay had the closest, with deployment approximately 1.5 kilometers and 2.4 kilometers from shore for the BO HAI FEI ZHU and the BO HAI BAO ZHU, respectively.[76] The CHANG SHAN DAO was approximately 3.8 kilometers from the shore of Houcai Bay during the offshore AFV loading exercise.[77] YONG XING DAO was observed the farthest from shore at approximately 6.2 kilometers (from the shore of Qianhu Bay).[78] The difference in distance between the exercises at Hougang bay compared to the two other locations could stem from the presence of the PLAN vessels. This would indicate two types of deployment are envisioned, one in conjunction with PLAN ships that are closer to shore, and another type that is conducted only with civilian vessels from over the horizon.

The heavier use of ROROs in Phase 2 may indicate a stronger focus on increased operational flexibility. Phase 2 beaches had a higher density of in-water obstacles where direct-to-beach landing presented greater difficulty. AFV deployment via ROROs could be understood as a means of overcoming specific types of beach obstacles. Furthermore, they may also reflect an effort to reduce reliance on fixed port facilities that could be unavailable early in a conflict. This flexibility could increase the resilience of PLA efforts in the face of likely defensive countermeasures.

Synchronized Command and Control Across Multiple Exercise Locations

During the 2025 capstone exercise, we observed synchronized amphibious activities over a wide geographic area. Units first started as a single large logistics group that then split into smaller elements. The PLA was possibly simulating the timing required to logistically cover the length of Taiwan's western coast. This contrasts with the 24-26 September 2023 capstone exercise which saw two groups conduct synchronized amphibious landings at two separate locations but never merge into a single logistic group.

During Phase 2 of the 2025 exercise, four ROROs departed from Honghai Bay on 23 August and sailed to three different locations, each with different in-water obstacles. Two of the vessels went to Hougang Bay, and one each to Qianhu Bay and Houcai Bay.[79] All four vessels were at their locations by 0200 CST the following day. Later that morning, between 1030 and 1130, all four vessels were seen conducting amphibious fighting vehicle recovery drills in their respective locations.

By 1200 CST, all ROROs departed their coastal exercise areas. They sailed east, approximately 25 kilometers from the Taiwan Strait median line and 40 kilometers southeast from Dongding Island. The ROROs sailed in formation at roughly 30 knots and returned to their original locations ten hours later. The ROROs arrived in quick succession within a 20-minute difference between each. This represents a significant improvement over the previous day.

According to reports that covered PLA exercises in 2022 and 2023, respectively, the units

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[75] Planet, PlanetScope, Image ID: 20240826_021846_15_2447, 26 August 2024, Hougang Bay, China, 23.684N, 117.502E, www.planet.com.
[76] Umbra, Image ID: 2025-08-24-02-52-25_UMBRA-10_MM, 24 August 2025, Hougang Bay, China, 23.680N, 117.474E, www.canopy.umbra.space.
[77] Planet, PlanetScope, Image ID: 20250824_030638_89_24db, 24 August 2025, Houcai Bay, China, 24.172N, 117.983E, www.planet.com.
[78] Planet, PlanetScope, Image ID: 20250824_030641_10_24db, 24 August 2025, Qianhu Bay, China, 24.070N, 117.899E, www.planet.com.
[79] AIS position data: BO HAI BAO ZHU (MMSI 412330020), BO HAI FEI ZHU (MMSI 413324830), CHANG SHAN DAO (MMSI 412331000), and YONG XING DAO (MMSI 412091000), 23-25 August 2025, www.starboardintelligence.com.

participating in the capstone amphibious exercises were previously divided to two "main" assault forces, a North Group and a South Group.[80] The North Group operated in three locations in Southern Fujian, including the Gulei Peninsula and Hougang Bay. The South Group operated in Honghai Bay.[81] The 2023 exercise saw the addition of a Hainan Group operated in Haikou, Hainan.[82] The three locations for the North Group stretched over 280 kilometers, while the South Group only had one location at Honghai bay. The total distance for both groups is approximately 310 kilometers. If the Hainan group at Haikou is included, the distance was over 860 kilometers. In 2024, amphibious training focused on two locations in Southern Fujian, Dacheng and Hougang Bay, which are only about 35 kilometers apart.[83]

In 2025, we observed a proliferation of exercise locations over a wider geographic distance for a singular force. The farthest distance between exercise locations was approximately 360 kilometers. This is roughly the same distance as that from Taipei to Kaohsiung. The geographical locations of the 2025 exercise represent both an expansion and concentration. The exercise was concentrated in the eastern region of the PRC facing Taiwan, and it expanded across a distance similar to the length of Taiwan's western coastline.

Part 3: A More Realistic Training Environment

The 2025 capstone exercise was notable for the inclusion of AFVs navigating between aquaculture obstructions close to shore. During previous exercises, aquaculture rafts were removed before AFVs entered the area to minimize the risk of fouling or capsizing.[84] In contrast, during Phase 2 of the 2025 exercise, AFVs navigated between aquaculture rafts at speed. The presence of aquaculture rafts may indicate a further attempt to simulate actual challenges amphibious forces would experience during combat. Taiwan's western coastline has a heavy concentration of aquaculture farms, particularly near Tainan and Pingtung, which could impede direct-to-beach landings.

The density of obstacles, including aquaculture structures and floating rafts, was significantly higher in the Phase 2 exercise. In particular, the obstacles present at Hougang Bay were possibly aquaculture rafts (semi-open fish cages, shellfish, seaweed, etc.) measuring approximately 10 x 25 meters, substantially larger than those at Honghai Bay (approximately 4.5 x 6 meters). Those found at Hougang Bay also formed denser clusters of obstacles (see Figure 12). As for those found at Houcai Bay and Qianhu Bay, they were possibly bivalve aquaculture farms with some frames measuring approximately 500 x 125 meters, forming dense fields (see Figure 13). The distances between these frames ranged from 40 to 60 meters. The difference in density of in-water obstacles for Phase 1 compared to Phase 2, taken in conjunction with the exclusive use of ROROs for Phase 2, could indicate a problem specific solution. To overcome in-water obstacles, PLA amphibious forces will deploy their landing crafts from ROROs.

The presence of civilian maritime structures at amphibious landing drills represents an increase in the complexity of PLA training. However, these exercises were still conducted in ideal weather conditions (Sea State 1 and Sea State 2) with ferries anchored offshore for several hours while

[80] The 2023 exercises also included a third group exercising on Hainan island. Dahm, "More Chinese Ferry Tales" and "Beyond Ferry Tales."
[81] Dahm, "Beyond Ferry Tales," pp. 31-35.
[82] Ibid. pp. 35-36.
[83] AIS position data: BO HAI BAO ZHU (MMSI 41330020), BO HAI HENG TONG (MMSI 413244930), BOHAI JINZHU (MMSI 413305960), BO HAI FEI ZHU (413324830), BO HAI ZHEN ZHU (MMSI 413409000), JINGZHOUHAI (MMSI 413492390), BO MAO (MMSI 413244720), and YOU JIAN JI ZING (MMSI 413289660), 26 August-3 September 2024, www.starboardintelligence.com.
[84] For example, we previously observed civilian aquaculture rafts removed prior to amphibious exercises in Dacheng Bay.

discharging amphibious vehicles into calm waters. In future iterations, as these exercises increase in complexity, we would expect the PLA to train in more difficult weather conditions.

Figure 14: In-water obstacles seen in Honghai Bay, 23 August 2025 at 1459 CST.[85]

Shoreline Anti-Landing Barriers

Figure 15: Anti-landing barriers in Honghai Bay, 25 July 2025.[86]

The presence of what appears to be anti-landing barriers likely indicates an additional attempt by the PLA to simulate some of the actual challenges its amphibious forces would experience during combat. In the 2025 capstone exercise, barriers were observed at Honghai Bay.[87] Installation of concrete blocks and stakes began in 2024 on the western side of Honghai Base at the location of the floating causeway exercise area. By 12 August 2025, the entire coastline west of Honghai Base had

[85] Planet, SkySat, Image ID: 20250823_065940_ssc6_u001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.
[86] Google Earth Pro 7.3.6.10441, 25 July 2025, Honghai Bay, Shanwei, China, 22.691N, 115.402E, Airbus 2026.
[87] Planet, SkySat, Image ID: 20250823_065940_ssc6_u0001, 23 August 2025, Honghai Bay, China, 22.673N, 115.422E, www.planet.com.

rows of anti-landing barriers installed.[88]

Additionally, these barriers have been deployed in other training locations outside of the exercise areas, specifically Dacheng Bay.[89]

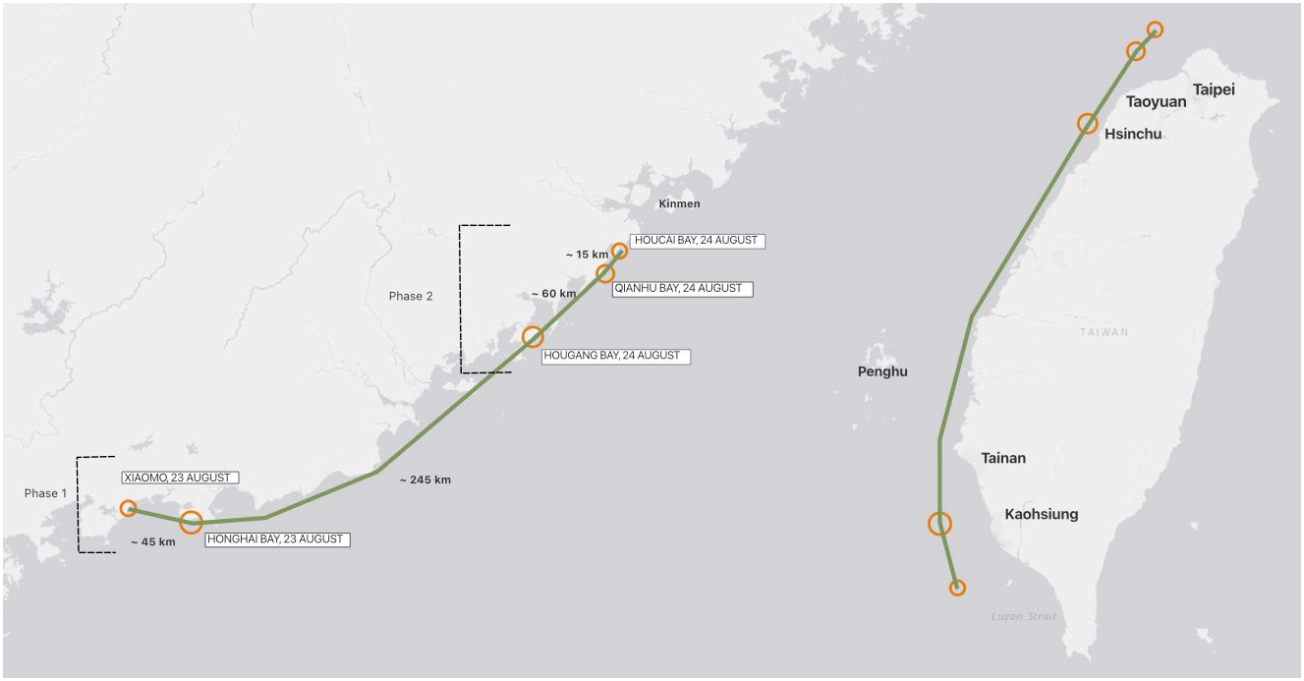

Figure 16: Overlay of 2025 capstone exercise onto Taiwan's western coastline.[90]

The total distance between exercise locations in 2025 was approximately 360 kilometers. This is roughly the same distance from Taipei to Kaohsiung. In the North, Houcai Bay and Qianhu Bay are approximately 15 kilometers away from each other, while Hougang Bay is located approximately 60 kilometers away from Qianhu Bay. The greatest single distance is from Hougang Bay to Honghai Bay at 245 kilometers, and another 45 kilometers to Xiaomo Port in the South. Figure 16 (above) transposes these distances onto Taiwan's western coast. The line has been flipped to better match Taiwan's coastline.

[88] Planet, SkySat, Image ID: 20250812_011040_ssc13_u0001, 12 August 2025, Honghai Bay, China, 22.673N, 115.422E, www.planet.com.
[89] Planet, SkySat, Image ID: 20250826_235141_ssc2_u0001, 26 August 2025, Dacheng Bay, China, 23.599N, 117.189E, www.planet.com.
[90] Source: ingeniSPACE analysis.

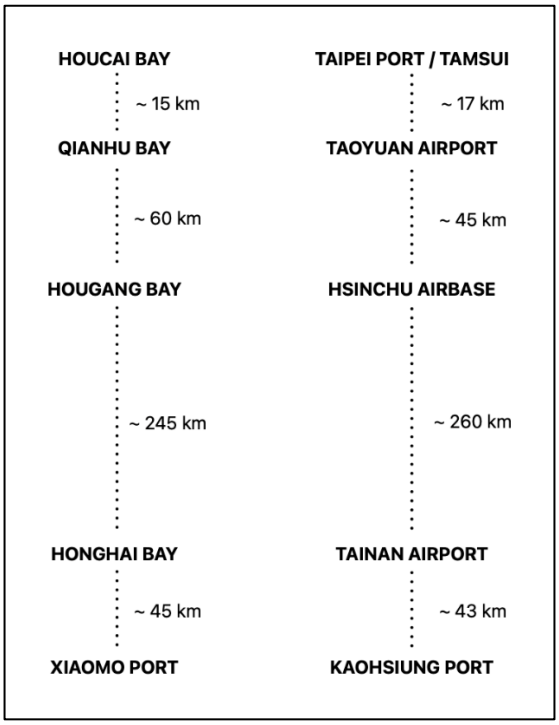

Figure 17: Comparative distances of important locations on Taiwan's western coast.[91]

Though not directly analogous to specific sites, the parallels are sufficient to permit cautious inference. The above chart shows possible locations on the western coast of Taiwan at the same approximate distance as those practiced in the 2025 exercise. While further analysis is needed, the PLA may be trying to model similar distances and dispositions of forces to more realistically rehearse its envisioned Taiwan operations.

Conclusion

Overall, the PLA's 2025 amphibious capstone exercise demonstrated an increase in complexity across all operational factors: time, space, and force. The PLA executed a large-scale invasion exercise that marks a clear shift from generic training to operationally grounded Taiwan contingency rehearsals. The PLA demonstrated an ability to conduct an amphibious operation in a complex, dynamic environment. Rather than simply representing a series of isolated drills, the exercise integrated multiple lines of effort into a single, coherent campaign simulation. It combined synchronized landings across three geographically separated axes—the first time that the PLA has been observed executing such a configuration. The exercise's designers added obstacles on the approaches to the beaches and on the beaches themselves, thereby providing a more realistic training environment with new challenges for the participating forces to overcome. The participants showed they could successfully synchronize the embarkation and debarkation of landing forces at a time and place of their choosing while using disparate types of amphibious connectors with different capabilities and requirements. The integration of new platforms and technologies at an ever-larger scale into more challenging environments represents a key indicator of Beijing's resolve.

To be sure, even as these exercises have increased in complexity, they have all been conducted in ideal weather conditions, with ferries discharging amphibious vehicles in calm waters. Previous CMSI reports have noted this and anticipated future PLA amphibious drills in more challenging weather conditions.[92] Future iterations of these amphibious exercises are still expected to take

[91] Source: ingeniSPACE analysis.
[92] Dahm, "Chinese Ferry Tales"; Dahm, "More Chinese Ferry Tales"; and Dahm, "Beyond Chinese Ferry Tales."

place in harsher weather conditions; this is the next logical step for the PLA to master in pursuit of its operational objectives.

Amphibious operations are among the most complex in modern warfare. They require effective command and control to synchronize an almost endless number of subcomponents into an effective whole. By increasing its flexibility and proficiency across relevant skill sets over time, the PLA is increasing the likelihood that it views (or will soon come to view) its ability to conduct a successful amphibious invasion of Taiwan as a viable option. The 2025 capstone exercise was conducted along the Zhangzhou-Xiamen-Quanzhou corridor, which closely matched the scale, spacing, and distances of plausible Taiwan invasion beachheads. Approximately 360 kilometers separated operational nodes in the exercise—comparable to the full north-south span of Taiwan's western coastline. This scenario-specific rehearsal suggests the PLA is aligning its exercise designs with envisioned operational objectives, using geography and scale to refine campaign execution and facilitate its potential real-world application. Future research should probe for related examples of such geo-equivalent training and preparations.

China's 2025 exercise should be understood in a wider context. It exemplifies the military training reforms that Xi Jinping announced in 2020. These reforms were first enacted in 2021, when the Central Military Commission issued a military training order focusing on actual combat training, joint command, and joint specialized training integration.[93] By 2024, the PLA had completed the exploratory phase of these reforms and established new training models.[94] The PLA's 2025 amphibious capstone exercise thus represents progress in developing and implementing new training methods. It was meant to accelerate the construction of higher-level integrated support systems, focusing particularly on the military employment of civilian lift capacity. Overall, the exercise evinced progress in the PLA's ability to coordinate large-scale, distributed logistics in support of a Taiwan invasion campaign.

Observers should scrutinize future amphibious exercises to better understand the PLA's strengths, weaknesses, and underlying operational assumptions. As the summer of 2026 approaches, it will be important to scrutinize PLA training activities and to consider what operational assumptions and further improvements they may incorporate.

[93] Kevin McCauley, "The People's Liberation Army Attempts to Jump Start Training Reform," *China Brief*, Vol. 21, No.3 (November 2021).
[94] Tai-yuan Yang and K. Tristan Tang, "'Strait-thunder 2025A' Drills Implies Future Increase in PLA Pressure on Taiwan," *China Brief*, Vol. 25, No.7 (November 2025).

Appendix A: Capstone Amphibious Exercise Timeline

Phase 1 - Floating Causeway Exercise & RORO Staging

11 AUGUST

1010 CST BO HAI HENG DA leaves its normal operating area in the Bohai Sea. It departs from Longkou Port (COORD: 37.6485481, 120.3114736).

1710 CST BO HAI HENG DA arrives in Lushun New Port (COORD: 38.8094 N, 121.1335 E).

2100 CST BO HAI HENG DA departs Lushun New Port and returns to Longkou Port, arriving at 2050.

12 AUGUST

1100 CST BO HAI HENG DA departs Longkou Port once again for Putian Port.

14 AUGUST

1330 CST HUAYIZHIXING departs the waters off Eastern Balianshan Island, Ningbo to anchor outside of Xiamen Port.

15 AUGUST

1200 CST BO HAI HENG DA (COORD 25.4208, 119.2727) arrives at Putian Port and remains there for approximately three hours before departing at 14:59 CST for Taiwan's Wuqiu Island.

HUA YI 007 departs from Pioneer Ship Factory (先锋船厂) in Taizhou (COORD: 28.3630, 121.6338), bound for Shenhu Port anchorage.

2032 CST BO HAI HENG DA (COORD: 24.9149 N, 119.5019 E) is located approximately 1.7 kilometers east of Taiwan's Wuqiu Island Restricted Zone. The vessel turns north (heading 345°) and sails directly into the Restricted Zone at 21 km/h.

2040 CST In the Restricted Zone, BO HAI HENG DA (24.9420 N, 119.5051 E) changes course (heading 31.7°) travelling at 23.2 km/h.

2054 CST BO HAI HENG DA changes course again 1.3 KM outside of the Restricted Zone (COORD: 24.9637 N, 119.5459 E) travelling at 23.5 km/h sailing back to Putian Port (Note: The vessel will return to the same area the following day around 2000.)

16 AUGUST

0040 CST BO HAI HENG DA holds station at the Putian anchorage after completing an approximately eight-hour loop to and from the southern edge of Wuqiu Island Restricted Zone for the second time in the last 48 hours.

0745 CST BO HAI HENG DA arrives at its berth (COORD: 25.3749, 119.3805) before departing for Xiangzhi anchorage the following morning.

1540 CST HUAYIZHIXING arrives at Xiamen anchorage.

1543 CST BO HAI HENG DA departs Putian Port berth toward Wuqiu Island.

1956 CST BO HAI HENG DA (COORD: 24.9862, 119.5710) adjusts heading to 232° travelling at 24.3 km/h toward Wuqiu Island, entering the Restricted Zone for about 30 mins just after 2010.

2015 CST BO HAI HENG DA (COORD: 24.94205, 119.5106) slightly adjusts course, heading 238° southwest toward Xiangzhi anchorage and exiting the Wuqiu Restricted Zone approximately five minutes later.

2329 CST BO HAI HENG DA arrives at Xiangzhi anchorage (COORD: 24.7578, 118.8300) and holds station until before entering the Port of Quanzhou on 20 August (COORD: 24.8194, 118.7314).

17 AUGUST

0150 CST HUA YI 668 #1 departs from the waters of Ningbo (COORD: 29.7998, 122.2284).

0630 CST HUA YI 007 arrives at Xiamen anchorage.

0830 CST BO HAI FEI ZHU departs Port of Penglai, Shandong.

ZHONG HUA FU XING departs Port of Zhifu, Shandong.

BO HAI BAO ZHU departs Port of Yantai, Shandong.

BO HAI ZHUAN ZHU departs Port of Dalian, Liaoning.

2000 CST CHANG SHAN DAO and PU TUO DAO depart Shandong, Liaoning.

2200 CST YONG XING DAO departs Port of Haibu, Shandong.

19 AUGUST

0530 CST HUA YI 007 arrives in Gulei Port (COORD: 23.7744 N, 117.5799 E) and docks for just 20 minutes.

0550 CST HUA YI 007 departs Gulei Port, heads back for Shenhu Port Anchorage.

1050 CST HUAYIZHIXING arrives at Shenhu Port, Quanzhou Anchorage. It is joined by HUA YI 668 #1 and HUA YI 007 by 1700 CST.

1810 CST HUA YI 668 #1 docks at Shenhu Port for approximately seven hours.

20 AUGUST

0010 CST LONGTENG YUN 2 enters Shenhu Port briefly next to HUA YI 688 #1 and departs 30 minutes later at approximately 0050 CST.

0140 CST MAO YUAN XIANG briefly docks at Shenhu Port for approximately three hours before departing at 0530 CST to loiters just off the quay.

0508 CST BO HAI HENG DA docks at Quanzhou Port (COORD: 24.8164, 118.7319).

0530 CST ZHONG HUA FU XING docks in the same area at the Quanzhou Port.

0730 CST LONG TENG YUN 2 returns to Shenhu Port for four hours then departs at 1223 CST.

1049 CST BO HAI HENG DA departs Quanzhou Port for an anchorage off the coast of Chongwu due east of Dingmen islet (COORD: 24.8170, 118.7323) and will hold position there for approximately two days.

1100 CST BO HAI FEI ZHU holds station at COORD: 24.6255, 118.8573 until nearly midnight.

1300 CST All supporting vessels participating in the Honghai Bay Exercise depart Shenhu Port and Anchorage toward the Shanwei exercise area.

1430 CST LONG TENG YUN 2, HONG CHENG YUN 298 and MAO YUAN XIANG sail separately toward the Taiwan Strait. They briefly hold stations at COORD: 24.5761, 119.0662 within one kilometer of each other for two hours before departing to Shanwei in formation the following morning at 1640 CST.

21 AUGUST

0750 CST BO HAI FEI ZHU moves to COORD: 24.5944, 118.6885 and holds station until 2150 CST, departing to another holding location in the Taiwan Strait the following day at COORD: 24.5015, 119.0051.

1330 CST SUPPORT VESSEL GROUP 1—consisting of HUAYIZHIXING, HUA YI 668 #1, and HUA YI 007—sails south to Shanwei.

1640 CST SUPPORT VESSEL GROUP 2—consisting of LONG TENG YUN 2, HONG CHENG YUN 298, and MAO YUAN XIANG—departs for Shanwei.

2150 CST BO HAI FEI ZHU and CHANG SHAN DAO head east into the Taiwan Strait. BO HAI FEI ZHU holds position at COORD: 24.5015, 119.0051. CHANG SHAN DAO follows suit, heading east to a position (COORD: 24.5300, 119.0222) 3.7 kilometers northeast of BO HA FEI ZHU.

2230 CST PU TUO DAO holds station for approximately six hours at COORD: 24.2694, 118.5119.

2351 CST CHANG SHAN DAO, initially located at COORD: 24.5307, 119.0238, changes course twice: first heading 305° at high speed 29.4 km/h, then 6° toward a location (COORD: 24.6862, 118.9086) north of where BO HAI ZUAN ZHU is holding position.

22 AUGUST

0430 CST CHANG SHANG DAO departs to join Bo HAI FEI ZHU.

0522 CST RORO GROUP 1: BO HAI FEI ZHU leads a group that includes CHANG SHAN DAO and BO HAI BAO ZHU south toward Shanwei. At 0530, CHANG SHAN DAO overtakes BO HAI BAO ZHU. BO HAI BAO ZHU maintains position 5km behind CHANG SHAN DAO until they reach Shanwei.

RORO GROUP 2: BO HAI ZUAN ZHU and YONG XING DAO depart for Shanwei in a separate group 12 kilometers to the west of Group 1.

RORO GROUP 3: ZHONG HUA FU XING and BO HAI HENG DA trail behind both groups by 40 kilometers.

0530 CST PU TUO DAO departs for Shanwei.

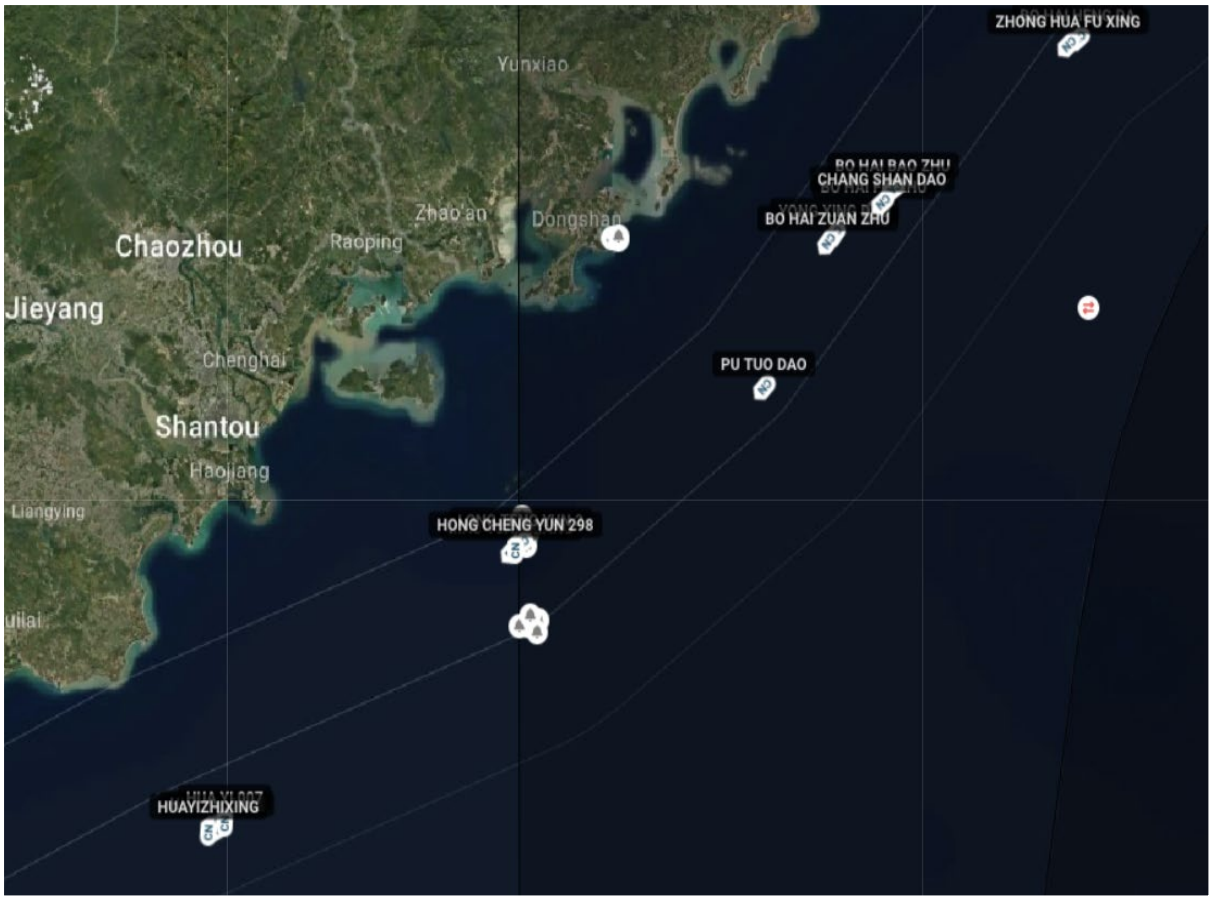

Figure 18: RORO ferry locations, 22 August 2025 at 1050 CST.[95]

2120 CST SUPPORT VESSEL GROUP 1 arrives south of the Shanwei exercise area.
- HUA YI 668 #1 holds station at COORD: 22.3484, 115.3758.
- HUA YI 007 holds station at COORD: 22.3433, 115.3829.
- HUA YI ZHI XING holds station at COORD: 22.3426, 115.4513.

2330 CST The first of the ROROs arrives at Shanwei. PU TUO DAO and BO HAI BAO ZHU take the lead and sail directly to Shanwei. BO HAI BAO ZHU holds position at COORD: 22.6551, 115.4863. PU TUO DAO is located southwest of BO HAI BAO ZHU's position at COORD: 22.5911, 115.4248.

23 AUGUST

0410 CST ZHONG HUA FU XING docks at Xiaomo Port. It then departs at approximately 0720 CST.

0526 CST Tugs XIA GANG TUO SI HAO and XIAGANGTUOWUHAO depart from Xiaomo Port (COORD: 22.7425, 115.0393).

0730 CST Amphibious exercise at Jiesheng Base begins.

[95] AIS position data: BO HAI BAO ZHU (MMSI 412330020), PU TUO DAO (413127000), BO HAI ZUAN ZHU (MMSI 414210000), CHANG SHAN DAO (MMSI 412331000), HONG CHENG YUN 298 (MMSI 413266790), HUAYIZHIXING (MMSI 413280040), YONG XING DAO (412091000), ZHONG HUA FU XING (MMSI 412283000) and HUA YI 007 (MMSI 413217490), 22 August 2025, www.starboardintelligence.com.

0840 CST HONG CHENG YUN 298, MAO YUAN XIANG and LONG TENG YUN 2 approach the eastern side of Honghai Bay (COORD: 22.6956, 115.4293).

0841 CST Sections of the floating causeway begin to arrive at Shanwei West.

PU TUO DAO deploys possible AFVs five kilometers offshore (COORD: 22.6433, 115.4122).

Figure 19: Floating causeway system arriving at the west side of Honghai Bay.[96]

0850 CST HUAYIZHIXING (COORD: 22.6891, 115.4192) approaches shore approximately 200 meters west of Jiesheng Base.

BO HAI HENG DA (COORD: 22.7441 N, 115.0373 E) docks at Xiaomo Port and departs at approximately 1100 CST.

1004 CST A floating causeway system (COORD: 22.6914, 115.3941) was imaged at 02:04:46 hours approximately 2.7 kilometers west of Jiesheng Base. At the time of collection, the assembled five section floating bridge was assembled with a semi-submersible large cargo deck attached at the end.

[96] BlackSky, Image ID: BSG-131-20250823-004152-389695791, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.blacksky.com.

Each segment was approximately 70 meters long.

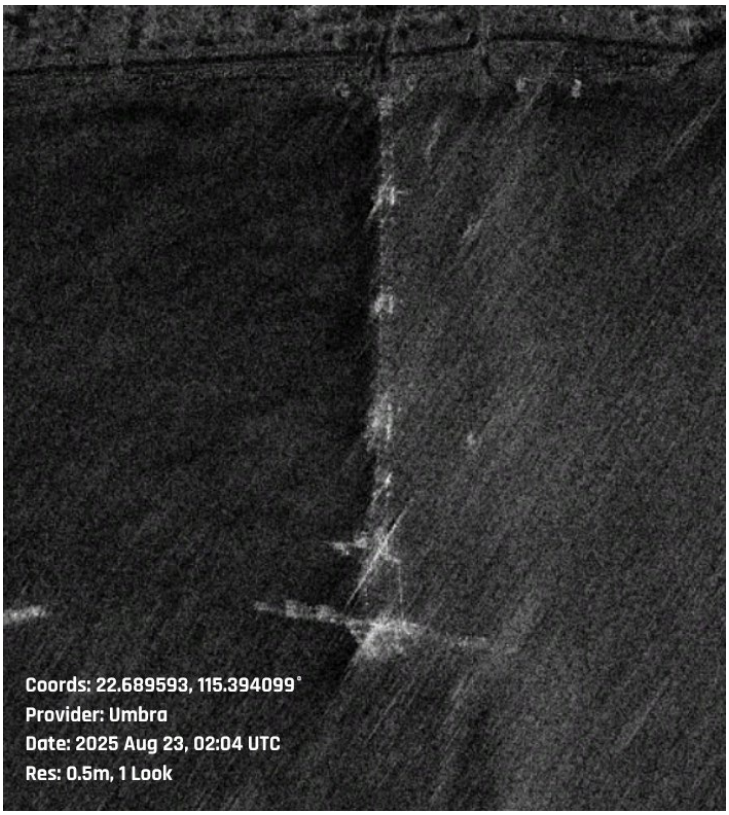

Figure 20: Possible self-propelled floating causeway assembled.[97]

1020 CST HUA YI 668 #1, JING BAO BAO, HUA YI 007, XIA GANG TUO SI HAO, and XIAGANGTUOWUHAO approach the floating bridges located approximately 2.7 kilometers west of Jiesheng Base.

LONG TENG YUN 2 approaches the small pier on the eastern side of Jiesheng Base.

Figure 21: Small pier on the eastern side of Jiesheng Base. Imagery taken on 23 August 2025 (detail).[98]

[97] Umbra, Image ID: 2025-08-23-02-04-46_UMBRA-05_MM, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.canopy.umbra.space.

[98] Planet, SkySat, Image ID: 20250823_065940_ssc6_u001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.

1459 CST The excavation at Honghai Bay, used to possibly anchor the floating causeway, appeared to have filled back up due to wave action.

Figure 22: Probable disassembly of self-propelled floating peer at Shanwei West Exercise Area.[99]

1200 CST All vessels begin to disperse from Honghai Bay. All tugs sail back to Xiaomo port (COORD: 22.7425, 115.0393).

2140 CST BO HAI BAO ZHU arrives in Hougang Bay. BO HAI FEI ZHU follows at 02:00 CST on 24 August.

2300 CST YONG XING DAO arrives in Qianhu Bay (COORD: 24.0707, 117.8997).

24 AUGUST

0030 CST CHANG SHAN DAO arrives in Houcai Bay (COORD: 24.1722, 117.9836).

10:00-11:00 Simultaneous amphibious drills seen in Hougang Bay, Qianhu Bay, and Houcai Bay (see Figures 23 below). Note that at some locations AFVs navigated through aquaculture rafts to reach their destinations.

[99] Planet, SkySat, Image ID: 20250823_065940_ssc6_u001, 23 August 2025, Honghai Bay, China, 22.688N, 115.393E, www.planet.com.

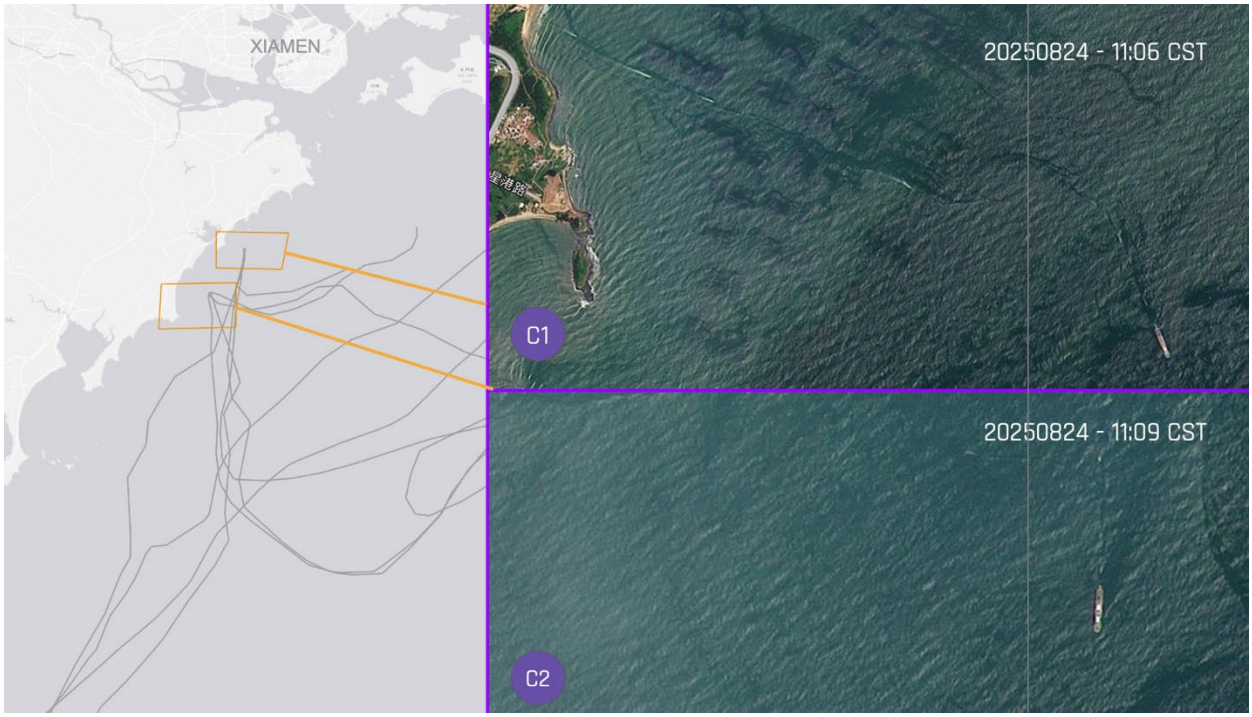

Figure 23: Composite image highlighting the Phase 2 simultaneous exercise.[100]

1200 CST All the ROROs participating in these separate amphibious exercises sailed eastwards toward the Taiwan Strait approximately 25 kilometers from the median line and 40 kilometers southeast from Dongding island.

The ROROs sailed in formation at roughly 30 knots with BO HAI FEI ZHU in the lead. All vessels simultaneously returned to their previously assigned beaches 10 hours later.

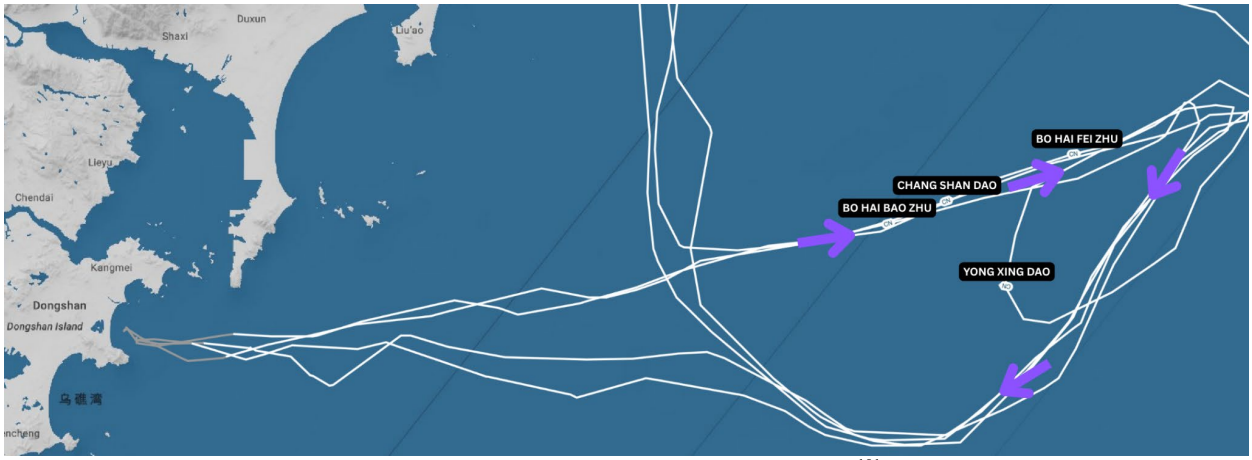

Figure 24: Sailing pattern of the RORO Group.[101]

1940 CST The four RORO left formation and returned to their respective exercise locations from the previous day.

[100] Planet, PlanetScope, Image ID: 20250824_030638_89_24db, 24 August 2025, Houcai Bay, China, 24.172N, 117.983E, www.planet.com; Planet, PlanetScope, Image ID: 20250824_030641_10_24db, 24 August 2025, Qianhu Bay, China, 24.070N, 117.899E, www.planet.com.

[101] AIS position data: BO HAI BAO ZHU (MMSI 412330020), BO HAI FEI ZHU (MMSI 413324830), CHANG SHAN DAO (MMSI 412331000) and YONG XING DAO (MMSI 412091000), 24 August 2025, www.starboardintelligence.com.

2130 - 2150 YONG XING DAO and CHANG SHAN DAO arrive back in Qianhu and Houcai Bay, respectively.

2220 CST BO HAI FEI ZHU and BO HAI BAO ZHU arrive back in Hougang Bay.

All four ROROs remain in their respective locations, holding station for twelve hours until approximately 0230 CST 25 August before departing for Xiamen.

24 AUGUST

0800 CST The following vessels are located north of Xiamen City heading north in the Taiwan Strait:

1. ZHONG HUA FU XING
2. HUAYIZHIXING
3. BO HAI ZUAN ZHU
4. LONG TENG YUN 2
5. MAO YUAN XIANG
6. HONG CHENG YUN 298
7. HUA YI 007
8. HUA YI 668 #1

1230 CST MAO YUAN XIANG, HONG CHENG YUN 298, HUA YI 007, and HUA YI 668 #1 all arrive at Xiamen Anchorage.

1810 CST HUA YI 668, MAO YUAN XIANG, HONG CHENG YUN 298 dock at Quanzhou Port, and all depart by 1950 CST.

25 AUGUST

0620 CST ZHONG HUA FU XING, is the first of the ROROs to arrive at Xiamen Anchorage.

1710 CST Four ROROs arrive at Xiamen anchorage area: YONG XING DAO, ZHONG HUA FU XING, BO HAI BAO ZHU, and CHANG SHAN DAO.

26 AUGUST

0600 CST All ROROs and cargo vessels depart from the exercise area and associated beaches and ports.

Appendix B: Civilian Vessel List

Vessel Name	Chinese Name	MMSI	IMO	Vessel Type	Owner/Operator
RORO Ferries					
BO HAI BAO ZHU	渤海宝珠	412330020	95083452	Passenger	Bohai Ferry Group Co. 渤海轮渡集团股份有限公司
BO HAI HENG DA	渤海恒达	413254910	9870692	Cargo	Tianjin Bohai Ferry Financial 天津渤海轮渡融资租赁有限公司*
BO HAI FEI ZHU	渤海翡珠	413324830	1400704	Passenger	Bohai Ferry Group Co. 渤海轮渡集团股份有限公司
BO HAI ZUAN ZHU	渤海钻珠	414210000	9713533	Passenger	Bohai Ferry Group Co. 渤海轮渡集团股份有限公司
ZHONG HUA FU XING	中华复兴	412283000	9849875	Passenger	Tianjin Bohai Ferry Financial/Bohai Ferry Group Co. 天津渤海轮渡融资租赁有限公司/ 渤海轮渡集团股份有限公司
YONG XING DAO	永兴岛	412091000	9517329	Passenger	China Shipping Gang Lian/COSCO Shipping Ferry Co. 中海港联航运有限公司/中运海运客运有限公司
CHANG SHAN DAO	长山岛	412331000	9520297	Passenger	COSCO Shipping Ferry Co. 中运海运客运有限公司
PU TUO DAO	普陀岛	413127000	9305154	Passenger	COSCO Shipping Ferry Co. 中运海运客运有限公司
Cargo Vessels					
HONG CHENG YUN 298	-	413266790	1400704	Cargo	Unknown
MAO YUAN XIANG	-	413233070	1400704	Cargo	Unknown
HUAYIZHIXING	华谊之星	413280040	1400704	Pleasure Craft	Unknown**
HUA YI 668 #1	铧薏 668	413217490	33280	Pleasure Craft	Unknown***
HUA YI 007	铧薏 007	413217490	Unknown	Cargo	Zhoushan Huayi Shipping Co. 舟山市铧薏船务有限公司
LONG TENG YUN 2	隆腾运 2	413316830	1400704	Cargo	Taizhou Longteng Shipping Co. 台州隆腾运有限公司
Tug Boats					
XIA GANG TUO SI HAO	厦港拖四号	412701220	Unknown	Tug	Unknown
XIAGANGTUAOWUHAO****	厦港拖五号	412701230	Unknown	Tug	Unknown
Other/Unknown					
JING BAO BAO	-	412065980	Unknown	Other	Unknown
Unknown Vessel (Honghai Bay)	-	-	-	-	-

*Tianjin Bohai Ferry Financial (天津渤海轮渡融资租赁有限公司) is the owner/operator listed on the Starboard website; however, other sources indicate that the owner may be Bohai Hengtung Ferry (渤海恒通轮渡有限公司).

**HUAYIZHIXING is identified as a cargo vessel in Marine Traffic, another ship registration platform.

***HUA YI 668 #1 is identified as a cargo vessel in Marine Traffic, another ship registration platform.

****XIAGANTUOWUHAO - originally operated in Xiamen Island but as of 1 January 2024 appears to be homeported in Xiaomo Port.

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