East Asian Maritime Security

Monthly Column

Preparing for the "Autonomy Era" of Maritime Security in East Asia

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Introduction

In response to an increasingly severe regional security environment, the Japanese government is reviewing its national security and defense strategies with a goal of producing updated versions by year's end that can strengthen deterrence and enhance national resilience. Prime Minister Takaichi Sanae addressed the first meeting of her strategy review advisory panel in April 2026, urging them to consider "new ways of warfare" using artificial intelligence (AI), drones, and other technologies to be prepared for possible sustained combat operations in the future. The mention of drones and AI usually prompts thoughts of uncrewed aerial systems (UAS), both small and large, that have become ubiquitous during Russia's invasion of Ukraine, but the Indo-Pacific theater also requires careful evaluation of underwater and marine surface systems. This field is advancing quickly and will likely produce a more congested, contested, and complex maritime domain with faster innovation cycles. This could have dramatic implications for Japan's defense and US-Japan (and other allied) security cooperation in the future.

Japan's current strategy already includes some increased investment in unmanned assets for littoral defense, calling for quick development of an asymmetrical drone SHIELD (or "Synchronized, Hybrid, Integrated and Enhanced Littoral Defense"). The fiscal year (FY) 2026 defense budget allocates about ¥100 billion (~$650 million) to advance the SHIELD project for at least partial deployment in FY2027. It will be made up of a networked array of relatively inexpensive and large-quantity ground/ship-launched UAVs supported by small multi-purpose drone boats (unmanned surface vehicles or USVs) and unmanned underwater vehicles (UUVs). Japan's Ministry of Defense (MOD) added about ¥177 billion (~$1.1 billion) in FY2026 to support broader acquisition and deployment of uncrewed defense systems including small USVs for surveillance and reconnaissance. All of this, however, represents just the beginning of what is likely to be an extended period of technical and tactical innovation related to maritime defense systems, with AI at the center.

Evolving Maritime Security Challenges in the Indo-Pacific

The scale of maritime security challenges facing Japan and the United States in the Indo-Pacific theater is immense. Chinese naval modernization is well-documented, now forming the world's largest maritime force that is among the more technically advanced. China's fleet includes roughly twice as many modern destroyers, frigates, and submarines as those in Japan's Maritime Self-Defense Force (MSDF), and it includes three aircraft carriers, all of which raises concerns in Tokyo that beyond the East China Sea, the western Pacific could become a new area of Chinese operations against Japan's eastern and southern shores.

Less often discussed is China's investment in an "invisible net" or "Transparent Ocean" strategy that involves a 5-layer seabed-to-space sensor architecture in the western Pacific and East China Sea that Beijing hopes will deny US and Japanese access in a crisis. The five layers include: 1) satellites in space, 2) a surface/near-surface component of smart buoys, wave gliders, and USVs, 3) deep floats and UUVs in the water column, 4) a seabed grid of observatories hosting passive arrays and navigation beacons connected by undersea cables, and 5) a core command layer leveraging AI that is meant to synthesize the whole picture and orchestrate maintenance and deployments.

Actually building this ambitious far-flung network and having it function properly is fraught with technical and environmental challenges, so this might not be a near-term reality, but it indicates Beijing's direction, and China has already deployed some of these technologies in the South China Sea and unveiled new extra-large UUVs and autonomous sea mines at its military parade in 2025. The role for AI appears to be growing, as China demonstrated in March 2026 its first operational test for swarming USV technology (L30s) that can carry out a sequence of patrol, monitoring, and interception tasks under a command system that required limited operator input once the mission started.

Eventually, these kinds of systems will have increasingly capable AI and computing power "at the edge" on the USVs and UUVs themselves to overcome communication limitations at sea and improve efficiency (both in terms of power management and data storage). The systems will be part of a broader network featuring underwater or floating "relay stations" where the vehicles can temporarily dock, recharge, conduct data transfer, and receive mission or software updates. The networks would be primarily defensive and support an anti-access/area denial (A2AD) strategy, but China has begun installing them in maritime areas within the South China Sea that belong to other countries, so they can end up becoming a tool in support of Chinese territorial expansion or an underwater "land grab" of sorts. The networks can also include offensive components to enforce the A2AD mission.

Strategic Implications Forcing New Models of Innovation

Japan is closely monitoring China's maritime activities in the region and noting incidents in the Indo-Pacific and around the world where undersea communications infrastructure has been disrupted or sabotaged. Because Japan relies on undersea cables for nearly all its international communications, the government is enhancing its surveillance capabilities in the East China Sea to track maritime infiltration and protect against seabed threats, but in the AI autonomous era, this will become increasingly difficult if not countered with a similar allied effort.

AI will become even more important to maximize the efficiency of surveillance for seabed defense, given the inevitable smaller scale of Japan's material investment compared to China. Japan's FY2026 defense budget does include ¥2 billion (~$13 million) to begin introducing AI for MSDF communication infrastructure, but this is only a small initial step. Also, for all of Japan's high-level emphasis on the importance of expanding its unmanned defense capabilities, the government added only six civilian officials in 2025 to help with this category of the defense buildup plan, out of a net total increase of 91 officials.

In addition to maritime critical infrastructure protection, the US/Israel war with Iran has reminded defense planners of how important sea lines of communication (SLOC) and freedom of navigation are for economic security, and China's growing chokehold over the South China Sea is a concern in this regard. The United States can be a valuable partner for Japan in its effort to build up autonomous capabilities for broader maritime security, and it will be in America's interest to collaborate with Japan and other East Asian allies.

There are multiple strategic implications from all these developments, stemming from a denser and more contested undersea environment that is potentially widely distributed with both offensive and defensive components. Similar to the air domain, the rapid expansion of autonomous maritime systems will make it more difficult for crewed platforms to operate. Critical underwater infrastructure protection and SLOC protection will also evolve. Effective software updates for UUVs could become as important as building new hardware systems in a new cat-and-mouse game with AI underwater.

In addition, swarm risks to surface vessels will grow, while force replenishment options could expand by using autonomous transport ships. Defense procurement processes will need to adapt and cycle faster, suggesting a closer relationship among government policy makers, the military, and private defense contractors. It is also possible that denser deployments will lead to underwater incidents and accidents that blur the lines between exercise, reconnaissance, and pre-positioning for conflict, increasing gray-zone pressure and creating ambiguous signaling and escalation risks.

The US and Japan bring complementary skills and many shared or complementary strategic interests to the table when addressing these challenges. US venture capital firms have poured many billions of dollars in recent years into the defense arena to fund startups related to AI and autonomous systems. Much of this defense equipment is already being fielded in Ukraine and in the Middle East, and it is evolving rapidly. Traditional US defense contractors are also investing heavily in autonomy, for example on the US Navy's extra-large UUV ("Orca") project and the "Odyssey" and "REMUS" maritime autonomy programs.

The US/Israel war with Iran has demonstrated some early advantages from leveraging AI for data integration and intelligence related to targeting and speeding up the "adaptation cycle" for recognizing and responding to threats. Although details are few, an analysis by a UAE-based think tank suggests the preparatory work by US and Israeli forces that would normally have taken hundreds of analysts more than three months to complete was instead produced in about 90 minutes, enabling a nimbleness that facilitated the strike killing Iran's supreme leader and other top officials. This US capability and experience combined with Japan's technical strengths in materials and robotics, and its local area knowledge would be valuable to both countries in the East China Sea and Pacific Ocean.

Next Steps for Japan and the Alliance

Japan is trying to build up the AI component of its robotics strengths by taking advantage of the abundance of data its firms generate through their 70 percent share of the global market for industrial robots. The government will support international hubs for AI robotics to promote research and development while cultivating human resources and building international partnerships. This is part of a draft "AI Robotics Strategy" due to be finalized this year that sees the convergence of AI and robotics as a "once-in-a-century opportunity" for Japan. The government also established a ¥380 billion (~$2.5 billion) fund in FY2026 to help develop a globally competitive multimodal foundation model for physical AI, with additional funding expected until 2030.

On the defense front specifically, MOD and the Ministry of Economy, Trade and Industry (METI) have teamed up to support high-tech defense startups to help keep pace with accelerating defense technology development. The initiative combines a defense-oriented small business innovation research program with fast-track field testing and feedback from SDF units, flexible prototyping contracts, and measures to attract capital that can help new firms succeed quickly with dual-use technologies. Defense-only products will have a difficult time gaining sufficient scale in Japan to sustain innovation, even with looser restrictions on defense exports. But commercial products with defense applications have a better chance to grow.

Private sector competition and the Japanese government's desire to enhance its "AI sovereignty" could limit the scope of US-Japan collaboration in AI and autonomous system development, but there are various avenues among private companies and between the two governments that could benefit each side. A foundational step is to elevate alliance strategy consultations with a focused dialogue on maritime security in a new age of AI and autonomy.

Some of this is already happening at the service, joint staff, and defense policy levels, but this is not enough for what could be a fast-moving, fundamental shift in maritime defense.

To take this step, the allies could launch a time-bound series of intensive engagements involving a wider range of technical and operational expertise, sharing intelligence assessments of Chinese capabilities, surveying the near-term trajectory of technical innovation for maritime autonomy, identifying areas of strategic alignment, and then crafting a plan to bolster cooperative security in the maritime domain. This effort could help to bridge some of the traditional gaps that exist between different bilateral dialogues on deterrence strategy, roles and missions, and defense equipment cooperation. Other interested and capable partners could be included at key times such as Australia, South Korea, and the Philippines.

The purpose of this exercise would be to find areas of strategic synergy that will help the allies maximize the deterrence value of their maritime security investments. At the very least they should be developing autonomous maritime systems that can communicate with each other securely with some degree of interoperability. Allies can pool resources and knowledge that will help drive technical and operational improvements in this new era. The private sector will be a critical player in this process, and even though companies are competing, there is some productive cross-fertilization already happening as US high-tech venture capital firms engage more with Japan.

Technological change has always been disruptive to naval strategy traditions, forcing navies and industry to adapt or become vulnerable. We are in the early stages of another seismic shift in maritime technology, similar to the change from sailing ships to powered vessels, or the introduction of submarines and aircraft carriers. The end result of this new era is unclear at the moment, but we can be certain that leveraging alliances will help all partners adapt more quickly and successfully.

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