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UKRAINE'S SEA DRONES ARE BEATING RUSSIA—TAIWAN SHOULD TAKE NOTES

BY DAVID KIRICHENKO

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Russia expected a swift victory, envisioning a victory parade in Kyiv just weeks after launching its full-scale invasion in February 2022. Instead, as the war drags on, conditions have only worsened for Moscow—particularly in the Black Sea. Despite lacking a formal navy, Ukraine has forced the Russian Black Sea fleet into continuous retreat, pushing it to relocate key assets far from occupied Crimea. By leveraging domestic-driven innovation and tactical ingenuity, Ukraine continues to outmaneuver Russian forces on land and at sea, offering Taiwan a potential blueprint for countering a future Chinese invasion.

At the war's outset, Ukraine's navy was virtually nonexistent, having lost most of its fleet when Russia seized Crimea in 2014. Its only major warship, the frigate Hetman Sahaidachny, was scuttled by Ukrainian forces in February 2022 to prevent its capture. Yet, through asymmetric warfare—naval drones, coastal strikes, and aerial attacks—Ukraine has transformed the Black Sea battlefield, forcing Russia into retreat and reclaiming strategic control over its waters.

Ukraine has focused on rebuilding its navy with a fleet of drones, making sea drones a cornerstone of its Black Sea strategy. When Russia attempted to blockade Ukrainian shipping, Ukraine quickly responded with sea drone strikes to neutralize the threat. Even after Russia's navy retreated from occupied Crimea to the Russian mainland, Ukrainian sea drones continued to pursue and strike Russian vessels.

In August 2023, Ukraine launched a sea drone attack on Russia's Black Sea naval base in Novorossiysk, nearly 600 km from Odesa. By deploying unmanned surface vehicles (USVs), Ukraine has been able to inflict damage on Russian naval assets while minimizing risk to its personnel.

"We don't have as many human resources as Russia. They fight, they die, they send more people, they don't care—but that's not how we see war," said Alex Bornyakov, Ukraine's Deputy Minister of Digital Transformation. For Ukraine's leaders, rapid technological innovation remains a top priority.

Ukraine's sea drones have been engaging and striking Russian helicopters over the Black Sea. Ukrainian Magura V5 drones armed with heat-seeking missiles shot down two Russian Mi-8 helicopters and damaged a third off the coast of Crimea. A historic first as a naval drone successfully targeted and knocked out an aircraft.

The Ukrainian military has increasingly modified its sea drones for multi-role capabilities, adding missile launchers and other weapons to enhance their effectiveness. On Jan. 5, Ukrainian USVs also launched kamikaze drones from the Black Sea, striking Russian Pantsir-S1 air defense systems in Kherson Oblast, each valued at $15–$20 million.

Serhii Kuzan, chair of the Ukrainian Security and Cooperation Center and former adviser to Ukraine's Ministry of Defense, noted that Russia is increasingly paranoid about protecting the symbolic Kerch Bridge from Ukrainian sea drones, allocating significant resources to its defense.

"Russia is using all available methods to safeguard the Crimean Bridge from destruction. This illegally constructed structure in temporarily occupied Crimea is critically important to Vladimir Putin and Russian logistics," Kuzan explains.

"Moscow has built an extensive defense system around the bridge, including protection from both air and sea threats," Kuzan notes. "The primary challenge for the Ukrainian Armed Forces lies in the variety of air defense systems deployed. The Russians have established multiple layers of such defenses around the bridge."

"Russia has fortified its defenses on the water with barges and boom barriers, along with constant naval and aerial patrols," Kuzan explains. "Helicopters, in particular, have been effective for some time against Ukraine's naval drones." But that is changing now as Ukrainian sea drones have begun taking out Russian helicopters.

Samuel Bendett, a senior fellow at the Center for a New American Security, said: "Ukraine and many other navies around the world are incorporating different USV technologies and tactics into their operations. It's very likely that lessons learnt by Ukraine in this war when it comes to the use of different USVs will inform how the future Ukrainian navy will shape up," Bendett explained.

The war in the Black Sea highlights how an asymmetrical strategy can reshape the balance of power. Despite having virtually no fleet, Ukraine has managed to cripple Russia's navy using limited resources.

"NATO, with its many maritime nations, includes states with limited naval forces—such as the Baltic countries. Ukraine's experience serves as an example of how these nations could enhance their capabilities to counter potential Russian aggression in the Baltic Sea," Kuzan said.

Beyond smaller states, Ukraine's use of naval drones also presents critical insights for larger naval powers, which must now reassess their strategies due to emerging technologies. "This war is also a lesson for larger naval powers, emphasizing the need to update their doctrines for naval warfare by analyzing the modern use of naval drones," Kuzan explained. "Understanding the advantages and threats of these technologies will allow them to effectively deploy or counter enemy naval drones in future conflicts."

Taiwan has been closely watching Ukraine's innovations. "Taiwan already benefits from US support and has its own advanced defense industry, which is testing both surface and underwater maritime drones," Kuzan noted. One example is Taiwan's Smart Dragon underwater drone, which is reportedly equipped with torpedo systems. "Incorporating torpedoes into Ukrainian maritime drones could be the next step in their development," he added. Taiwan excels in hardware production but struggles with design and system integration; however, ongoing joint ventures with US firms and government-backed initiatives aim to bridge these gaps.

Kuzan also suggested that deeper military cooperation between Ukraine and Taiwan could be mutually beneficial. "If the opportunity and necessity arise, Ukraine could potentially sell or exchange its military technologies with Taiwan," he said. "This would allow both countries to enhance their capabilities."

Taiwan faces a fundamentally different security landscape compared to Ukraine, particularly due to its legislative politics and defense posture, according to Treston Wheat, chief geopolitical officer at Insight Forward, a geopolitical risks consultancy, and an adjunct professor at Georgetown University. "The legislature leans more pro-Chinese and is planning to cut the defense budget in 2025," Wheat explained. "Additionally, much of Taiwan's defense strategy has focused on holding off China long enough for the US to establish its position."

This hesitation extends to asymmetric warfare tactics, an area where Ukraine has excelled in countering a larger adversary. "Taiwan is significantly less inclined than Ukraine to pursue an asymmetric approach," Wheat noted. "While there are valuable lessons from Ukraine on integrating modern technologies like drones, they are unlikely to be implemented."

Yet, as Taiwan prepares for a potential conflict with China, analysts believe that embracing asymmetric warfare and drone technology is crucial—a lesson reinforced by Ukraine's successes in the Black Sea. A recent report from the Center for Naval Analyses emphasized the importance of drones in countering

superior forces, urging Taiwan to dramatically scale up its production of unmanned systems.

While Taiwan has begun expanding its drone capabilities—forming a National Drone Team and developing an unmanned "kill chain"—its projected 3,200 drones by 2028 pales in comparison to Ukraine's 100,000 drones acquired in 2023 and its one-million-drone production goal for 2024. Kevin Pollpeter, the report's lead author, stresses that Taiwan must think bigger, particularly by integrating uncrewed surface and underwater vessels to disrupt a Chinese amphibious assault.

Taiwan may not yet fully embrace the asymmetric strategies that have defined Ukraine's success in the Black Sea, but the lessons are clear. As unmanned systems reshape naval warfare, smaller states confronting powerful adversaries must recognize that innovation under pressure—rather than sheer force—will be key to their survival, just as Ukraine has demonstrated to the world.

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