**The Chinese Navy just isn’t building more destroyers, they are building more nuclear submarines. Their ultra-quiet submarine technology is maturing fast.**

**Additionally, China is completing several underwater sensor networks, known as the “Underwater Great Wall,” in the South China Sea and around the Chinese coast. The networks give it a much better ability to detect foreign submarines. The Chinese Navy has also added patrol aircraft and helicopters that pick-up sonar information from buoys in the sea. Most of China’s navy now has the ability to deploy underwater listening devices called hydrophones on cables trailing ships or submarines.**

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**SOURCE:**

**Beijing Trims U.S. Lead in Submarine Technology**

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**Alastair Gale, *The Wall Street Journal* | Page A001, 21 November 2023**

For decades, the U.S. hasn’t had to worry much about China’s submarines. They were noisy and easy to track. The Chinese military, meanwhile, struggled to detect the U.S.’s ultra-quiet submarines.

Now, China is narrowing one of the biggest gaps separating the U.S. and Chinese militaries as it makes advances in its submarine technology and undersea detection capabilities, with major implications for U.S. military planning for a potential conflict over Taiwan.

Early this year, China put to sea a nuclear-powered attack submarine with a pump-jet propulsion system instead of a propeller, satellite imagery showed.

It was the first time noise-reducing technology used on the latest U.S. submarines had been seen on a Chinese submarine.

A few months earlier, satellite images of China’s manufacturing base for nuclear-powered submarines in the northeastern city of Huludao showed hull sections laid out in the complex that were larger than the hull of any existing Chinese submarine.

A second modern construction hall at the plant was finished in 2021, indicating plans to boost output.

At the same time, the western Pacific is becoming more treacherous for U.S. submarines. Beijing has built or nearly finished several underwater sensor networks, known as the “Underwater Great Wall,” in the South China Sea and other regions around the Chinese coast. The networks give it a much better ability to detect enemy submarines, according to Chinese military and academic texts.

The People’s Liberation Army, as China’s military is known, is getting better at finding enemy submarines by adding patrol aircraft and helicopters that pick up sonar information from buoys in the sea. Most of China’s navy now has the ability to deploy underwater listening devices called hydrophones on cables trailing ships or submarines.

In August, China conducted a sub-hunting exercise lasting more than 40 hours in the South China Sea, involving dozens of Y-8 anti-submarine patrol aircraft. A few weeks earlier, the Chinese and Russian navies conducted a joint anti-submarine warfare exercise in the Bering Sea, off the Alaska coast.

The developments mean the era of unchallenged dominance of the U.S. under the seas around China is ending.

In recent years, China has also rapidly expanded its surface fleet. It now exceeds the U.S. fleet by number of ships, although China’s ships are generally smaller and less sophisticated.

In response, a larger percentage of the U.S. Navy has been deployed to the Pacific, including some of the U.S.’s most advanced ships and aircraft. The U.S. has also increased the tempo of naval operations in the region and deepened coordination and training with allied fleets, such as Japan.

The U.S. also needs new strategies below the waves to face a more potent adversary, said Christopher Carlson, a former U.S. Navy officer. The U.S. needs far more resources, such as patrol aircraft and attack submarines, to locate, track and potentially target a new generation of quieter Chinese submarines, he said.

“The implications for the U.S. and our Pacific allies will be profound,” he said.

Simulations of a Chinese invasion of Taiwan conducted by U.S. military analysts often assume U.S. submarines would try to sink ships in the attacking Chinese fleet. The destruction of Chinese ships could help blunt the invasion and enable Taiwan to better de-fend itself, some of the simulations show, but a greater threat to U.S. submarines would complicate that task.

Even getting close to the Taiwan Strait might become more precarious. China’s nuclear- powered attack submarines could be assigned to a hunter-killer role seeking U.S. and allied submarines to the east of Taiwan, said Brent Sadler, a former U.S. submarine officer who is now senior research fellow at the Heritage Foundation, a think tank based in Washington, D.C. An indication of the rising stakes in c o u n t e r i n g China’s submarine fleet came in March, when Gen. Anthony Cotton, head of U.S. Strategic Command, said during a congressional hearing that China had deployed new missiles on its ballistic-missile submarines that could hit targets deep inside the U.S. while remaining close to China.

Keeping track of these Chinese submarines is one of the primary roles of the U.S. Navy and its attack submarines in the Asia-Pacific region.

One book published by a former PLA officer in 2020 suggests new Chinese attack submarines will have their engines mounted on shock-absorbing rafts to better damp vibrations. China is working on other quieting technology for submarines, such as new hull materials and more-efficient nuclear reactors for propulsion, academic research papers show.

Based on the available information, Carlson, the former U.S. Navy officer, anticipates the new Chinese submarines will be as quiet as Russian Akula I-class attack submarines commissioned from the 1990s—a series still in service today that marked a leap forward in stealth and speed from previous Russian submarines. “Finding a boat this quiet is going to be really hard,” he said. Much of China’s current submarine technology comes from reverse-engineering diesel- electric submarines bought from Russia after the collapse of the Soviet Union. Closer military ties between Moscow and Beijing have spurred concerns that Russia might be willing to share some of its advanced submarine technology with China, but there have been no clear indications of such transfers.

To be sure, a new generation of Chinese nuclear-powered submarines is years away from active duty, and significant progress in the program isn’t guaranteed.