



Supercavitaing Torpedoes: A Threat from Russia the U.S. Navy Needs to Take Seriously?

Description

Of possible concern to the Pentagon, a “supercavitaing” torpedo has increased speed to attack surface ships and submarines on the move at great distances, with the ability to maneuver and achieve precision.

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Both Iran and Russia reportedly operate supercavitating torpedoes, according to their own press reports.

Supercavitating Torpedoes: What We Know

Russia’s VA-111 Shkval is a supercavitating torpedo reported by Russian press to achieve speed of 230 miles per hour, a speed more than four times speeds listed for most legacy torpedoes which travel anywhere from 28 to 48 Mph. The speed differential, therefore, is massive and therefore something likely to increase the risks posed to major US Navy surface ships and submarines seeking to elude detection.

An essay from [militaryperiscope.com](#), for instance, specifies this enormous margin of difference.

“The Shkval is fired from the standard 533-mm torpedo tube at a depth of up to 328 ft (100 m). The rocket-powered torpedo exits the tube at 50 knots (93 kmh) and then ignites the rocket motor, propelling the weapon to speeds four to five times faster than other conventional torpedoes,” the essay states.

Should the U.S. Navy Worry?

Given this difference, the technological leap forward woven into supercavitating torpedoes indeed sounds extremely significant, such that one might wonder just how this might be achieved.

Clearly the propulsion system appears to involve paradigm-changing innovations, as described by the [militaryperiscope.com](#) essay.

The torpedo is propelled by a solid rocket capable of achieving speeds of 230 Mph by, as the essay describes, “producing an envelope of supercavitating bubbles from its nose and skin which coat the entire weapon with a surface in a thin layer of gas.

This causes the metal skin of the weapon to avoid contact with the water, significantly reducing drag and friction.”

The Threat

The Shkval's range is concerning as well, as it is listed at 7,000 meters, which amounts for more than 4 miles, creating a distance and speed of attack likely to massively change the threat equation for US Navy submarines and ships.

Unless, of course, the submarines launching the torpedoes were seen and destroyed before being in position to fire or simply unable to detect ultra “quiet” US Navy attack and ballistic missile submarines.

“Supercavitation,” as it is called, is enabled by this “gas cavity” kept stable by a conical disk.

“The cavity is supported by rockets venting just above the cavitator. Four popout cylinders toward the aft end of the nose section keep the body of the torpedo stable and out of contact with the walls of the bubble in which it rides. At the rear of the torpedo are deflected control surfaces. Eight small rockets surround the main sustainer rocket. The main engine cuts in when the weapon has achieved supercavitation speed,” [militaryperiscope.com](#) states.

The Iran Factor

Also, as if Russian supercavitating torpedoes were not themselves generating sufficient concern, the Pentagon has likely noticed Iranian reports that its navy too has such a weapon. A report from Forbes years ago explains how Iran test-fired its “Hoot” supercavitating torpedo in the Strait of Hormuz in 2017.

Maybe No Game-Changer?

However, before anyone rushes to a premature panic, there are some things to consider when it comes to supercavitating torpedoes, such as complexities regarding its “guidance” technology and very noticeable noise. Specifics are provided in an interesting web post from a former US Navy officer who writes:

“Moving so fast, the SC torpedo is blind. It must simply travel its initial course, trusting its INS. But, since it is so fast, targets generally don't get to move so far in its travel time. But, this is a pretty bad

limitation (except for nuclear warheads).....The SC torpedo can communicate to the launching platform via a thin wire trailing from the torpedo to the launching submarine. This can allow the submarine to guide the 'blind' torpedo to its target. But, the wires can break. And the torpedo itself creates a problem. It is so noisy, it can mask the ability of the launching submarine to even detect the target.”

Also, one is quite likely to wonder if the US Navy itself has a supercavitating torpedo. The answer is unclear. While some open source reports claim they exist, others say they have not been deployed if they do exist, so there simply is not enough reliable information to confirm one way or the other.

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