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## Iran Deploys 20+ Ghadir Mini Submarines to Threaten U.S. Carrier Strike Groups in Persian Gulf.

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Iran's Ghadir-class midget submarines, built for shallow-water ambush in the Persian Gulf, are emerging as a key variable as U.S. carrier strike groups operate near Iran. While they cannot match U.S. naval power directly, their design and doctrine are tailored to impose operational friction, increase anti-submarine warfare demands, and raise risk for high-value U.S. vessels in constrained waters.

Recent U.S. carrier strike group activity around Iran has pushed the Persian Gulf's undersea contest back into the foreground, at exactly the moment Iran's smallest submarines are reaching mature operational employment. Iran is assessed to field an undersea fleet of roughly 28 to 30 submarines, with the bulk of that force made up of mini-submarines designed for the Gulf's restrictive geography. With one U.S. aircraft carrier already deployed in the Middle East region and indications that an additional carrier could be surged alongside the usual escort screen, the question is less whether Iran can match U.S. naval power and more how it can complicate it. This analysis examines the most operationally disruptive element of Iran's littoral undersea force, the Ghadir-class midget submarine, and explains why its technical design and ambush-oriented doctrine can impose real friction on U.S. carrier and escort operations even without achieving conventional sea control.

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Iran's Ghadir-class midget submarines, tiny diesel-electric boats built for the Persian Gulf's shallow, noisy waters, can ambush with torpedoes, mines, and possibly sub-launched anti-ship missiles, forcing U.S. carrier strike groups to slow down, widen standoff distances, and spend heavily on anti-submarine warfare just to operate safely near Iran (Picture source: Irna).

The Ghadir is purpose-built for what could be described as extreme littoral warfare. At roughly 117 tons surfaced and 125 tons submerged, the boat's small displacement and compact hull are tailored to the Gulf's shallow depths and cluttered seabed, where larger submarines risk grounding and where sonar performance is notoriously inconsistent. Iran's strategic logic is clear: the Persian Gulf is not an open-ocean arena; it is a maze of coastal shelves, traffic separation lanes, islands, oil infrastructure, and acoustic noise from dense commercial shipping. In that environment, a small diesel-electric submarine is less a scaled-down blue-water hunter and more a stealthy coastal ambush platform designed to appear, strike, and disappear.

On lineage and production, multiple open-source assessments converge on a North Korean connection. The Ghadir is widely assessed as being based on the North Korean Yono-class, with at least one Yono reportedly provided to Iran in 2004, followed by Iranian construction of its own modified variant. Fleet size remains deliberately opaque, but most credible estimates range between 20 and 23 operational boats. For U.S. planners, the exact number matters less than the operational effect of enough hulls to seed multiple chokepoints simultaneously and to absorb losses in a high-end fight.

The Ghadir's limitations are as important as its strengths. Its diesel-electric propulsion favors silent running on battery power, but endurance and payload are constrained by size and crew comfort, making it best suited to short sorties from coastal bases into preselected ambush areas. The core armament is austere: two 533 mm torpedo tubes and a limited onboard weapons load. That said, the lethality-per-ton is real. The Ghadir is associated with Iranian heavyweight torpedoes such as the Valfajr and is also linked in reporting to the high-speed Hoot supercavitating torpedo concept. More consequential for tactics is its mine warfare and special operations utility. The class is assessed as capable of covert mine laying and retrieving or inserting combat divers, giving Iran options that sit below the threshold of open naval battle but still impose strategic cost.

Iran has also pushed the Ghadir beyond pure torpedo ambush by experimenting with submarine-launched anti-ship missiles. In February 2019, Iranian authorities announced the successful test-fire of a Jask anti-ship cruise missile from a Ghadir-class vessel. The attached research further assesses that the Jask-2 represents an encapsulated swim-out weapon conceptually linked to the Nasr-1 family, providing a standoff engagement option that can threaten the outer defensive screen without the submarine having to close to point-blank torpedo range. Even if real-world targeting support remains a limiting factor, missile integration forces escorts to defend against more than the classic close-in torpedo shot problem.

The Ghadir's most worrying attribute is not speed or firepower, but how it exploits the Gulf's physics. The Persian Gulf's salinity, currents, and temperature layering can distort sound propagation and reduce the reliability of both active and passive sonar. Larger submarines are restricted in parts of the Gulf not only by draft but by environmental complexity. The attached analysis describes how thermoclines and acoustic shadow zones, combined with heavy ambient noise and bottom clutter, complicate consistent tracking of a small battery-running submarine. Within that framework, the Ghadir's reported bottom-resting approach becomes tactically plausible. A diesel-electric midget submarine can shut down, settle on the seabed, and become acoustically and physically difficult to distinguish from terrain.

For a U.S. carrier strike group operating near Iran, the threat is best understood as a layered constraint campaign rather than a single decisive torpedo. A plausible Iranian concept would combine covert minefields with multiple dispersed Ghadirs positioned along predictable routes and operating areas, turning the Strait of Hormuz and its approaches into what the attached study characterizes as a potential kill box for high-value units if geography and mine danger compress maneuver options. The carrier itself is unlikely to steam into the shallowest waters, but escorts, logistics ships, and chokepoint transits create windows of vulnerability. In wartime, even a small probability of a successful hit can have an outsized strategic effect because the target set includes multi-billion-dollar capital ships and the political symbolism of a carrier. Iran's advantage is not that each Ghadir is a wonder-weapon, but that a flotilla of relatively expendable submarines can force U.S. commanders into slower timelines, wider standoff distances, and heavier anti-submarine warfare consumption.

U.S. countermeasures are substantial, but they are not frictionless. A carrier strike group relies heavily on embarked MH-60R helicopters equipped with advanced dipping sonar systems optimized for littoral detection and tracking. The U.S. Navy has also expanded the use of unmanned surface and subsurface systems to enhance maritime domain awareness in the Gulf. Yet the central reality remains that anti-submarine warfare in the Persian Gulf is a contest against physics, clutter, and time. Midget submarines are built to operate inside that uncertainty.

In sum, the Ghadir-class does not need to defeat a carrier strike group in a traditional fleet engagement to be strategically effective. It only needs to make the operating environment expensive, ambiguous, and slow, while offering Iran credible options for mining, special operations insertion, and ambush strikes that are difficult to preempt with certainty. Tehran's investment in mini submarines reflects a deliberate strategic choice to develop undersea capabilities that thrive in the Gulf's constraints rather than compete symmetrically in blue-water environments. When U.S. carriers and their escorts concentrate near Iran, the Ghadir fleet stands out as one of the few Iranian naval assets capable of turning geographic proximity into operational risk.

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