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# Menace of Underwater Threats in Arabian Sea: Response Options for Littorals

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**ABSTRACT**

In modern day naval battles unmanned machines are replacing manned ones. The concept of naval power has altered due to enhanced use of unmanned underwater vehicles or UUVs in vast deep and mostly uncharted territory. Recent global incidents like use of underwater drones 'Sub Sea Baby' in Ukraine –Russia war, Sinking of Iranian Warship IRIS Dena on 4th March 2026 in Arabian Sea through submersible platform (Submarine or UUVs), participation of the USS Anduril's dive (UUV) in the 2026 US-Iran war in the Gulf and Indian deployment of UUVs during India-Pakistan conflict in May 25 are few indicative facts that UUVs are in use of naval forces. These UUVs with low risk, small size and low acoustic signatures provide excellent underwater domain awareness, swarm targets, guide weapons and lurk undetected. In Pakistan-India context UUVs deployment can change the underwater balance in adversary's favor especially during deployment of Pakistani warships in international campaign of anti-piracy operations at Gulf of Aden / Arabian Sea away from home ports. Empirical analysis provides sufficient evidence to argue that that India's hostile intentions against Pakistan pose a serious strategic challenge through UUVs deployment in the Arabian Sea. This study by applying a comprehensive qualitative analysis and using security dilemma lens discovers that Pakistan is facing Indian UUVs threat in the Arabian Sea and also proposes a plausible option to counter balance this threat.

## Introduction

In the past 20 years underwater warfare has undergone a radical transformation (Johannes Peters ). In today's naval battles unmanned machines are replacing manned ones. The way states view naval power has altered due more common use of these unmanned underwater vehicles or UUVs in vast deep and mostly uncharted territory (Bryan Clark ). Since centuries trade routes and the ability to project military might across continents under the control of one whoever controlled the seas. But this very concept is changing. To inflict damage to adversary one might not require heavy aircraft carriers, cruiser and nuclear powered submarines. This can be done through small, stealthy underwater drones. Nowadays naval battles beneath the waves are being shaped by underwater drones. In 2025, Ukraine by launching a small underwater drone commonly known as Sub Sea Baby into a Russian naval base at Novorossiysk accomplished an unexpected feat (Frederic Van Lokeren ). Upon eluding patrol boats and nets it collided with a Kilo-class submarine anchored at the pier. About $400 million were spent to rebuild the submarine. The drone struck the submarine and seriously damaged it. It was the first instance that a modern submarine was destroyed in a combat by an underwater drone. The drone was quickly and cheaply built in Ukraine carrying a large explosive charge. In comparison to the goal and mission the total cost of drone was minimal. Large costly naval platforms appeared helpless in the face of these tiny machines. Similarly on 8 September 2006 Iranian Guard claimed that they have captured US UUV Anduril dive from mouth of Strait of

Hurmoz. Due these very facts advanced navies are investing more on underwater drones. The US has built AI powered Seabed sentry, Orca, Manta Ray, REMUS and Knife fish. Similarly China has made XXLUUVs, Feiyi, HSU001 and Haiyi Glider, Russia built Poseidon and Klavision-2R, India has launched HEAUV, ULUAV and Avataar. The 21st-century world order mainly revolves around the Maritime Domain Awareness (MDA) (Hans). With the spread of technology advanced states rivalry has grown in scope both in space and deep within the oceans. It has been long time since 2009 both Pakistan and Turkiye are engaged in anti-piracy operations through deployments of warships at Gulf of Aden / Arabian Sea away from respective home ports under the arrangements of Combined Task Force 151(Zaki Khalid ). However, recent sinking of Iranian Warship IRIS Dena on 4th March 2026 in Arabian Sea(Umair Khan) through possible action of a US submersible platform (UUVs) indicative of the fact that during any conflict situation between India and Pakistan Ships under deployment of Combined Task Force 151 may fall prey to hostile action of adversary. Reportedly India had developed and deployed HEAUVs during conflict with Pakistan in May 25. In same time-frame Indian leadership also threatened other states to face the consequences due close relationship with Pakistan(Arhama Siddiqa ). This hostile intent of India against Pakistan poses serious strategic challenges in Arabian Sea deployments and need to be assessed thoroughly. Understanding the dynamics of this threat is essential for articulating well thought out response, maritime security and regional stability ultimately contributing to a more integrated and cooperative underwater domain awareness. By applying a comprehensive qualitative analysis, this article aims to serve a valuable resource for decision-makers, academia and practitioners interested in fostering a plausible option to tackle this threat. While studying the technological advancement of underwater drones and their application in future warfare few pertinent questions come to mind which need to be answered. This article aims to answer question pertaining how UUVs have evolved far since their inception; how states have acquired this technology and what's current state of UUVs deployment in the Arabian Sea. If empirical evidences have substantiated the Indian deployment of UUVs in the recent India Pakistan conflict 2025 with the possibility of their utilization in any India-Pakistan future conflict, then there exists a rationale for Pakistan to see that how this deployment pose security dilemma for Pakistan.

## Theoretical Underpinning & literature Review

Security of state in international system is interlinked with other states. When a state takes steps to strengthen its own security it generates a trigger responses from other states which cause the security of first state to decrease rather than increase(Anders Wivel ). States want to increase their security through acquisition of new technology and weapons but at the same time this action of states produce signal of insecurity among opponent states resultantly they take appropriate action to mitigate that threat; hence, embroil in a spiral action. In classical definition when actions of any state to improve its security create sense of insecurity for the opponent the situation is termed as Security Dilemma for other state(Charles L. Glaser ). The Security Dilemma is a concept that continues to be relevant today. It is a part of how people think about global politics. This idea was first created by Herbert Butterfield, John Hertz and Robert Jervis thereafter this concept developed more and more. People have used it to deal with important problems that are being talked about today. Through the historical lens it is clear that the idea of security dilemma takes the central position in the realm of defensive realism because as per defensive realists the security dilemma permits genuine state-to-state collaboration that goes beyond a short-term alliance, against a shared threat. On the other hand, aggressive realists believe that the security conundrum makes war both logical and unavoidable(Carl Bjork). Neoliberal academics argue that international organizations assist in resolving the security challenges; therefore realists are not the only ones who use this idea. Liberals also contend that because democratic systems lessen the security conundrum, they promote peace.

The term "Security Dilemma" was initially coined by John Hertz, who described it as follows(Tang, Shiping ): "Groups and individuals who share a region without forming a greater unity must worry about their protection from attacks, subjection, domination, or extermination by other groups and individuals." They are motivated to obtain stronger shielding power in order to fend against such dangers themselves from the authority of others. As a result, the others experience increased insecurity and are compelled to brace themselves with the worst. Since no state can ever feel totally safe in this world of competing units, power competition takes hold and self-sustaining cycle of security and power buildup begins.

Herbert Butterfield argued that even when states have no intention of harming one another, the security issue might drive them to war. Hertz claims that the security dilemma develops when states, driven by fear and uncertainty about their objectives in an anarchic syste(Mitchell, David ). Furthermore, Hertz asserted categorically that no security problem existed between Nazi Germany and other states, which suggests that malicious intent cancels out the dilemma. The security conundrum is described by Jervis as "these unforeseen and undesirable effects of activities supposed to be defensive, many of the measures by which a state tries to strengthen its security impair the security of others(Robert Jervis ) "

In her article, B. K. Bhuvesha has addressed why underwater awareness is essential in the Indian Ocean(B K Bhuvesha ). While discussing the significance of Maritime Domain Awareness in 21st century she has highlighted the importance of another sub domain

which has gained prominence in the India Ocean Region underwater domain awareness. As per the writer Under Water Domain Awareness (UDA) is required to be understood more than a security aspect as it's also required in marine environment, maritime disaster relief operations and in science and technology. The author has discussed the underwater domain awareness efforts in Indian Ocean Region by regional and extra regional states.

How the underwater drones evolved since inception with their possible roles in modern navies has been discussed amply by Guillaume Furgolle inhis article covering autonomous systems in the underwater domain(Guillaume Furgolle ). The author has mainly discussed the military use of underwater drones and their use depending upon the design, required safety features and required security. The author has prescribed that use of underwater drones in navies has become an operational requirement and it is expected to be increased in future shaping the battlefield on highly autonomous mode.

Vinayak Kumbar in his article analyzed the efficacy of underwater drones in the presence of nuclear submarines of the Indian Navy. The writer is of the view that underwater drones in its inventory, Indian navy can attain classical sea control in the Indian Ocean(Vinayak Kumbar ). The writer has critically analyzed various underwater projects of Indian Navy with regards to seabed dominance of future warfare.

Jeremia Humolong discusses the military application of underwater vehicles in the framework of law fare under three main topics. The author discusses the legal aspects of UUVs along with the immunity these vehicles enjoy and the rules to be followed while operating these vehicles(Nainggolan ).

Various writers discuss the efficacy, military application and law to be governed for using the autonomous underwater drones. All the search articles explored on the theme turned out to be informative and beneficial. Yet a literature lacuna or gap exists pertaining to the information on the hazards of the presence of underwater drones in the Arabian Sea, likely to be deployed against Pakistan, while operating under CTF 151. Hence, there is a need to see this important topic and suggest some prudent actions to be taken by Pakistan to mitigate this rising threat in any emergent situation in times to come.

**Analysis**

**UUV Deployment in the Arabian Sea**

Arabian Sea is seeing a shifting environment when it comes to the deployment of unmanned undersea vehicles (UUVs) and the related unmanned maritime system(Osama Hassanein). Although detailed information regarding the extensive, routine deployment of UUVs by all regional players is not widely disclosed, there is clear evidence of growing interest, market expansion, and some documented activities(Randall K. Nichols ). Significantly, there are concerns regarding Iran's use of underwater "Azdar" (drones) in the Gulf, which borders the Arabian Sea, as this may pose a threat to naval assets in the vicinity(Fariborz Haghshenass ). Moreover, the ME region has conducted naval exercises that include Unmanned Surface Vehicles (USVs), reflecting a broader movement towards the integration of unmanned maritime technology. Reports indicate that Iran has deployed "underwater soldiers" (drones) in the Gulf, which raises alarms about potential risks to U.S. warships operating in the area. Additionally, Saudi Arabia's NEOM project has confirmed plans to deploy a substantial fleet of Teledyne Slocum Gliders, a form of autonomous underwater vehicle (AUV), aimed at continuous, multi-year environmental monitoring commencing in April 2025(Summer James ).

India has made significant advancements in the development of Unmanned Undersea Vehicles (UUVs), particularly through a strategic alliance with the United States that emphasizes advanced undersea systems. Although India also has strong defense collaboration with Israel, this partnership mainly focuses on unmanned aerial vehicles (UAVs) and other sophisticated weaponry, with a comparatively lesser focus on UUV development. Furthermore, India has achieved progress in indigenous UUV development, highlighted by the introduction of its Autonomous Underwater Vehicle (AUV) named Neerakshi in 2023(Kingshuk Mondal). The collaboration between India and the United States is actively enhancing defense cooperation in advanced undersea systems, which includes Maritime Autonomous Systems (MAS) that encompass UUVs(DR Saroj Bishoy ). This initiative involves the development of Maritime Autonomous Systems (MAS), a category that includes UUVs. The Indian Navy's strong interest in these technologies arises from the necessity to enhance its ISR capabilities for monitoring its extensive maritime interests. The search results clearly demonstrate a robust partnership between India and the United States in the realm of advanced undersea systems and MAS.

Sonar continues to be the fundamental element of underwater detection. DRDO has developed indigenous sonar systems, including USHUS for submarines which can undertake detection, tracking and underwater communication (Piyush Pandey). Long-range passive sonar systems, including fixed seabed hydrophone system, play a vital role in detection of underwater threats such as submarines through low frequency acoustics. However, currently India is at the early stages of building long-range

passive sonar network like the US and China in a manner similar to SOSUS system. Future efforts may focus on distributed acoustic sensing that uses fiber-optic cables to turn existing infrastructure into sensing platforms for covert surveillance. Autonomous Underwater Vehicles (AUVs) and Unmanned Underwater Vessels (UUVs) offer continuous presence, data collection, and modular payload deployment without putting human lives at risk.

India is developing autonomous underwater vehicles such as Maya, Matsya, and Samudra, which carry payloads for collecting oceanographic data, conducting surveillance, and detecting mines. ISRO, DRDO, and NIOT (National Institute of Ocean Technology) are collaborating on deep-sea AUV initiatives designed to operate at depths as great as 6,000 meters. The Indian Navy has acquired Unmanned Underwater Vehicles (UUVs) and is using them for underwater operations(Nitin Agarwala ).

Detail of Indian UUVs is as follows:

Maya The first autonomous underwater vehicle created in India is also known as the Maya AUV. The National Institute of Oceanography (NIO) Marine Instrumentation developed and tested this UUV between 2003 and 2007(R. Madhan ). Technical specifications are as follows(Elgar Desa ):

| **Length** | **2-3 m** |
|---|---|
| Diameter | 2 m |
| Design | Mono-hull configuration featuring a slender-ellipsoid free-flooding nose cone |
| Weight | 250 kg |
| Hull Material | The main pressurized hull is constructed from aluminum alloy |
| Operating Limit | Capable of operating at depths of 200 m |
| Propulsion | Equipped with a single rear-mounted thruster powered by a magnetic underwater motor |
| Power Source | High-energy-density lithium polymer (LiPo) |
| Speed | Ranges from 3 to 5 knots |
| Endurance | Between 7 to 8 hours |
| Sensors | Utilizes a Doppler Velocity Log (DVL) |
| Control System | Employs Standard Linear Quadratic (LQ) controllers for both horizontal and vertical movements. |
| Payloads | Designed for defense applications including ISR, Mine Hunting, and Anti-Submarine Warfare. |

Adamya/Amogh: These platforms represent the most advanced indigenous technologies but are designed for torpedo-tube launch. Technical details are as under:

| **Dimensions** | **5 m** |
|---|---|
| Endurance | 8 hours at a speed of 4 knots, |

| | |
|---|---|
| Depth | 500 m |
| Usage | Mapping, surveillance, mine-hunting, and ISR tasks |

High Endurance AUV (HEAUV) India has developed High Endurance Underwater Vehicle (HEAUV) to undertake advanced Anti Submarine Warfare, ISR and weapon delivery platform. The equipment is having advanced AI features to operate it in fully autonomous mode and to have minimal dependence and monitoring in complex environment(Kondeti Lakshmi Vasudev). Technical details are as under:

| **Dimensions** | **10 m in length; 1 m in diameter** |
|---|---|
| Weight | 6 Tons |
| Operating Depth | 300 m |
| Endurance | Upto 15 Days |
| Speed | Maximum speed of 8 knots |
| Roles | Engaged in ASW, MCM, ISR, and the collection of bathymetric/oceanographic data, extending the reach of mother ships without endangering manned assets |
| Payloads | Modular and swappable, including front-looking sonar, flank array sonar, side-scan sonar (for MCM), and low-power X-band 360° surveillance radar (housed in a pressure-rated mast for ISR and collision avoidance). Communication capabilities include acoustic, UHF, C-band, and SATCOM. Powered by a battery array (electric motor combined with composite propellers), with a hydrogen fuel-cell option currently under development |

Source(General Dynamics Mission Systems ):

Extra Large UUVsThe Extra Large Unmanned Underwater Vehicles (XLUUVs) developed through the Indian Navy and DRDO initiatives and are specifically tailored for strike missions. The Indian Navy has placed an order for the production of 12 units(Lt. General P.C. Katoch ). The technical specifications are as follows:

| **Dimensions** | **50 meters length (including payload); up to 5 meters in width; up to 10 meters in height.** |
|---|---|
| Weight | 100-tonne class with the potential to expand to 500 tons (Primary Armed Program). |
| Roles | Engaging enemy submarines and ships; MCM, Surv etc. Can operate singular or with the friendly submarines in a kill operations. |
| Armament/Payload | Strike and mine-laying capabilities (exact configuration remains undisclosed).<br>Up to 10 tons of external armament payload (2 x 533 mm torpedo tubes).<br>The larger 500-tonne variant is specifically designed to accommodate both lightweight and heavyweight torpedoes. |

| | |
|---|---|
| Speed | Maximum speed 8 knots; cruising speed of 4 knots. |
| Endurance | Capable of lasting 45 days (utilizing Li-Po/Li-ion batteries or fuel-cell AIP). |

Sourcce(Nitin Agarwala ):

**Indian UUVs - a Potent Threat**

Unmanned Underwater Vehicles (UUVs) deployed by India in the Arabian Sea have added risky technological element to South Asia's maritime geopolitics(Muhtasim Afridi ). For Pakistan, this development has created a classic security conundrum in which the military modernization of one state, whether offensive or defensive, unintentionally increases the level of insecurity of its neighboring state, possibly leading to an unintentional arms race. Pakistan's maritime security paradigm is facing previously unheard-of strategic, operational, and tactical challenges as the Arabian Sea turns into a venue for underwater technological competition. The Arabian Sea is considered as a crucial maritime path for international energy flow, but it is also a hottest contested strategic area. To improve its Underwater Domain Awareness (UDA), the Indian Navy has been actively pursuing the integration of autonomous systems, such as autonomous underwater vehicles (AUVs) and UUVs. India uses UUVs in the Arabian Sea to keep an eye on Pakistan's naval movements and to counter the growing influence of extra regional powers, particularly China. However, the presence of UUVs naturally projects power directly toward Pakistan's maritime frontier because they can operate covertly, withstand lengthy deployments, and approach foreign territorial waters without endangering human casualties. UUV deployments are inherently ambiguous, which presents a security challenge. As per theory in international relations, a situation of security dilemma comes when a state’s attempt to bolster its security is perceived as a hostile action or harmful by other state(Anders Wivel). India may portray this purchase of UUVs as a harmless step toward coastal defense and maritime domain awareness. However, these capabilities pose a threat to the region's delicate strategic balance, according to Pakistan. UUV limits Pakistan's command's reaction time as identification of operational patterns and acoustic signatures is the foundation of conventional submarine detection. Additionally, predictability of underwater threats is greatly diminished by unmanned systems, which are smaller, quieter, and able to linger close to strategic choke points or naval bases like Ormara and Karachi. Pakistan is forced to assume the worst because of this opacity: that its naval deterrence and second-strike capability are being actively undermined. Secondly, Pakistan's conventional naval assets seriously threatened by use of these UUVs. In order to maintain a credible conventional deterrence against a larger Indian Navy, Pakistan relies on its submarine fleet, which includes the upgraded Agosta-90B and the incoming Chinese-designed Hangor-class submarines. The stealth advantage of Pakistan's naval deterrent is significantly diminished if Indian UUVs are able to map the Arabian Sea's underwater topography. Underwater autonomous weapons have the potential to cause instability in both conventional naval warfare and nuclear deterrence. The eventual formalization of a potent maritime response as second-strike capability is crucial to Pakistan's strategic calculations. There is a use it or lose it situation because Indian UUVs will be stationed close to Pakistan's coast. International maritime law is unclear when it comes to unmanned platforms; UUVs make crisis management more difficult. The rules of engagement are unclear if Pakistan finds an unidentified UUV operating near its territorial waters or exclusive economic zone (EEZ). Though the immediate cost of destroying an underwater drone is less than that of sinking a manned submarine but such an intersection, however, might quickly lead to a more extensive miscalculation that could escalate into a larger conventional / nuclear naval conflict. Unquestionably, India's deployment of UUVs in the Arabian Sea has changed South Asia's maritime security dynamics and put Pakistan in a difficult security situation. These technologies give India better underwater surveillance capabilities, but they also pose serious risks to Pakistan's naval deterrence and strategic viability(Imran Ahmed ). The Arabian Sea will continue to face increased risks of error as long as the underwater domain is unregulated and fiercely competitive environment. Now Pakistan must take steps to navigate safely from this conundrum and prevent the Arabian Sea's quiet depths from serving as a flashpoint for the next regional crisis.

**Response Options**

India's increasing emphasis on Unmanned Underwater Vehicles (UUVs) signifies a paradigm shift in underwater warfare as it aggressively modernizes its naval capabilities to establish dominance in the region. This new asymmetric threat cannot be addressed by traditional, piecemeal naval strategies for states like Pakistan, whose economic strength and maritime security are intricately linked to the Arabian Sea through Sea Lines of Communication (SLOCs). A comprehensive, multifaceted strategy that incorporates

cutting-edge technology, doctrinal evolution, and strong regional diplomacy is necessary to counter India's growing UUV fleet(Joseph, Biyon). India's desire to establish sea denial capabilities and attain complete maritime domain awareness under its "SAGAR" initiative is the driving force behind its development and deployment of UUVs. The introduction of underwater drones has been expedited by partnerships between the Indian Navy, DRDO, and private defense companies. It is insufficient to respond to this technological shift in a disjointed or merely reactive manner. The northern Arabian Sea's extremely complex thermal and acoustic environments make it difficult for them to detect small, silent, composite-material UUVs. Therefore, to close the capability gap in the operational, legal, and technological domains, a comprehensive strategy is required.

**Key Pillars of a Counter-UUV Strategy**

**Technological Integration and Enhanced Undersea Domain Awareness (UDA)**

The ability to recognize the threat is the cornerstone of any counter-UUV strategy(W Guvenc ). Pakistan need to make significant investments in advanced undersea domain awareness. This calls for the installation of multi-layered, persistent sensor networks. To monitor crucial choke points and naval approaches, fiber-optic hydrophones must be integrated with fixed acoustic arrays on the seabed (like SOSUS networks). Additionally, it is critical to develop domestic Counter-UUV (C-UUV) systems, such as optical sensors, magnetic anomaly detectors, and high-frequency active sonars tuned to detect small objects. It will be possible to distinguish between hostile autonomous drones and marine life in real time by using artificial intelligence (AI) to analyze massive amounts of acoustic data.

**Asymmetric Counter-Systems and Autonomous Warfare**

In autonomous warfare, using fire and forget system is essential. Developing autonomous underwater vehicles (AUVs) and defensive UUVs domestically is an economical way to stop Indian incursions(Piyush Pandey ). These defensive drones can be used for escorting valuable assets, active sonar pinging, and continuous patrolling. Furthermore, both soft-kill and hard-kill countermeasures need to be refined. Electronic warfare and acoustic jamming are examples of soft-kill techniques that can interfere with UUVs' ability to communicate with their mother ships or satellite networks. Micro-torpedoes and underwater net-interception systems are examples of hard-kill options that physically destroy hostile underwater drones.

**Doctrinal and Operational Adaptation**

Naval doctrines need to change from traditional platform-centric warfare to cross-domain, network-centric operations. It is necessary to incorporate anti-UUV tactics into routine naval drills. This entails to suitably equip existing air wing, submarine weapons, and surface fleets to function in a contested environment to counter the UUV threat. Enhanced physical security for port infrastructure (such as underwater barriers and localized sensor grids) and passive defense strategies (such as acoustic masking for friendly submarines) must become standard operating procedures.

**Legal, Diplomatic, and Regulatory Frameworks**

The growth of UUVs highlights a major gray area in international maritime law, especially with respect to the United Nations Convention on the Law of Sea (UNCLOS).Whether autonomous vessels enjoy sovereign immunity or the right of innocent passage is questionable. States that are at risk from India's naval expansion ought to actively promote the regulation of armed autonomous underwater systems in international forums. At the same time, underwater grey-zone operations can be exposed to international scrutiny through regional alliances and intelligence-sharing mechanisms with like-minded maritime states, which can help to create a collectively recognized maritime picture.

## Conclusion

Over the last two decades, underwater warfare has experienced a significant transformation. In contemporary naval engagements, unmanned systems are taking the place of manned vessels. The perception of naval power among states has shifted due to the increasing prevalence of unmanned underwater vehicles, or UUVs, operating in extensive, deep, and largely unexplored regions. It is a well-established fact that global order of the 21st century is predominantly revolves around maritime interests, which has prompted the emergence of underwater warfare. Consequently, advanced naval forces are allocating more resources towards underwater drones. The United States has developed AI-driven seabed sentries such as Orca, Manta Ray, REMUS, and Knife Fish. In a similar vein, China has produced XXLUUVs, Feiyi, HSU001, and Haiyi Glider; Russia has created Poseidon and Klavision-2R; and India has introduced HEAUV, ULUAV, and Avataar. India has made notable progress in the field of Unmanned Undersea Vehicles (UUVs), particularly through a strategic partnership with the United States that focuses on advanced undersea technologies. While India also maintains a robust defense relationship with Israel, this collaboration primarily emphasizes unmanned aerial vehicles

(UAVs) and other advanced weapon systems, with a relatively lower emphasis on UUV development. The strategic balance of the Indian Ocean Region is drastically changed by India's use of unmanned underwater vehicles. Conventional naval acquisitions are insufficient to solve the complex security conundrum presented by these platforms' stealth, persistence, and deniability. There is an urgent need for a comprehensive approach that integrates proactive maritime diplomacy, AI-driven counter technologies, flexible naval doctrines, and state-of-the-art undersea domain awareness. Regional stakeholders can only defend their maritime sovereignty, preserve essential economic lifelines, and prevent underwater revisionism in the IOR by constructing a robust, multi-layered defensive matrix. Pakistan in future will need to adopt a comprehensive strategy to enhance its underwater domain awareness in response to Indian UUV activities in North Arabian Sea.

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