Frogmen and Fast Boats: The Future of Irregular Warfare in the Maritime Domain

Timothy Jones, Naval Postgraduate School, Monterey, California, United States
John Willingham, U.S. Government, Washington, D.C., United States
Kenneth Walls Jr., U.S. Navy, Virginia Beach, Virginia, United States

ABSTRACT
This article examines how irregular warfare in the maritime domain (IW-M) can strengthen national defense strategies for smaller states confronting more powerful naval adversaries. It argues that integrating special operations forces (SOF) into IW-M efforts provides a cost-effective, adaptable approach to defending littoral spaces, imposing costs, and enhancing deterrence. Drawing on historical examples and contemporary force design, this article identifies key conditions for success: strategic purpose, political backing, feasible objectives, and SOF-as-integrators. It offers practical insights for defense planners on how purpose-built SOF can reduce gaps in conventional naval posture and enable partners through training, exercises, and low-cost technological adaptation. As great power competition intensifies, IW-M provides a scalable, flexible framework to counter aggression, defend sovereignty, and build regional resilience when conventional options are limited, unaffordable, or politically constrained.

KEYWORDS
irregular warfare, maritime security, special operations, littoral defense, great power competition

In an era of renewed strategic rivalry, the maritime domain has become a central arena for irregular threats—coercive but deniable, asymmetric yet strategically consequential. Adversaries such as China, Iran, Russia, and North Korea increasingly employ maritime militias, legal warfare, cyber-enabled coercion, and proxies to exert influence and challenge the international order below the threshold of conventional war. Their actions not only pressure larger maritime powers but also demonstrate to smaller maritime nations, including U.S. allies, how irregular methods can be leveraged to offset conventional disadvantages.[1]

CONTACT Timothy Jones | timothy.jones@nps.edu;
John Willingham | jodeuga@gmail.com; Kenneth Walls Jr. kenwallsjr@gmail.com
The views expressed in this paper are those of the author and do not reflect the official policy or position of the U.S. Navy, the Naval Postgraduate School, or the U.S. Government.

However, irregular warfare (IW) capabilities, commitments, investments, and scholarship remain predominantly land-centric, leaving maritime irregular warfare under-articulated as a distinct strategic approach. U.S. maritime strategy continues to emphasize large ships and visible operations.[2] Analysts and practitioners have identified functional gaps in naval special warfare,[3] maritime domain awareness,[4] waterborne assault,[5] riverine warfare,[6] sea-based unconventional warfare,[7] operational tempo,[8] and the use of unmanned systems at sea.[9] Historical cases—from Burma in the Second World War[10] to the Bangladesh War of Liberation[11]—demonstrate how irregular maritime tactical and operational approaches can yield outsized strategic effects,[12] including in deterring or countering Chinese and Russian influence.[13] Taken together, these dynamics support the article's core claim: *IW-M is a strategic necessity, rather than a derivative of land-centric IW, and therefore requires distinct development, analysis, and authorities*.[14]

The Department of Defense (DOD) defines irregular warfare as "a form of warfare where states and non-state actors campaign to assure or coerce states or other groups through indirect, non-attributable, or asymmetric activities, either as the primary approach or in concert with conventional warfare."[15] While deliberately broad, this definition underscores the need to specify how irregular approaches function in domain-unique environments to apply force without escalating to full-scale war.[16] The United States and its partners have refined these approaches on land, but their maritime application remains conceptually limited, constrained by land-centric paradigms, legal ambiguities, and complex littoral geography.

This underdevelopment carries strategic risks. Maritime chokepoints, port infrastructure, and vast littoral regions constitute critical vulnerabilities for both state and non-state actors. These spaces are not only economically vital—rich in fisheries, energy reserves, and trade routes—but also difficult to surveil, defend, or control through conventional means.[17] Adversaries exploit these challenges through incremental encroachment, gray zone operations, and the use of proxies. These actions are designed to be deniable and are both practically and politically difficult to counter with traditional naval power. Recent operations conducted by Ukrainian special forces in the Black Sea and by Houthi groups in the Red Sea highlight the significant influence that smaller actors—whether state or non-state—can exert by employing irregular warfare techniques and developing cost-effective maritime capabilities to challenge conventionally oriented adversaries.[18]

Reducing this gap requires a deliberate effort to conceptualize and operationalize irregular approaches at sea. It also requires understanding how SOF can be employed at multiple levels of warfare to achieve effects through persistent, accumulative tactical actions and operational campaigning in the maritime space. While IW-M will necessarily require integration with conventional naval forces, SOF bring unique capabilities—small-footprint, low-visibility presence, maritime insertion expertise, partner force development, and persistent situational awareness—that make them indispensable for campaigning below the threshold of armed conflict. Importantly, SOF can serve as a bridge across the Diplomatic, Informational, Military, Economic, Financial, Intelligence, and Law Enforcement (DIME-FIL) instruments of power for effective campaigning in the gray zone.[1920] Maritime SOF can generate access and persistent situational awareness; enable partner capacity where naval and coastal forces are thin; and synchronize low-visibility activities with informational, economic, legal, and law-enforcement levers. In contested littorals, this integration supports deterrence by denial while managing escalation through calibrated, reversible actions.[21] Framed this way, SOF are not a *substitute*

for conventional sea power but the *integrator* of domain-specific irregular effects that make IW-M strategically indispensable.

To remain competitive, the United States and its allies must professionalize and institutionalize IW-M capabilities and strategies. The necessary tactics already exist within the United States Special Operations Command (USSOCOM), but to be effective, IW-M must be incorporated into strategic planning and joint force design. This requires a mindset that recognizes the distinct dynamics of irregular conflict in the maritime domain and the enduring value of SOF. The United States should serve as an example for partners and allies by adopting an IW-M mindset, particularly as warfare trends toward low-cost, adaptable, concealable, and rapidly deployable systems and units. This approach involves policymakers and military personnel working to broaden the SOF maritime mission scope, inform senior leaders about the objectives and methods of IW-M, and reconsider IW-M's role within or alongside a conventional maritime posture in contested littoral regions. Additionally, it requires evaluating the risks and advantages associated with irregular approaches and conducting impartial reviews of current IW-M resources to identify and address gaps before offering tailored support to partners.[22] Wars may be decided on land, but they can be shaped—or lost—at sea.

This article proceeds in five parts. It begins by identifying the distinctive characteristics of irregular warfare in the maritime domain and then offers a historical overview of IW-M, drawing on past examples to illuminate enduring principles. Next, it examines the rising demand for IW-M amid strategic competition. It then presents a framework for organizing effective IW-M campaigns that positions SOF as the integrator of domain-specific irregular effects rather than a stand-alone solution. The conclusion assesses the future trajectory of IW-M and outlines implications for policy, force development, and research.

Defining and Operationalizing Irregular Warfare in the Maritime Domain

Irregular warfare aims to shape the strategic environment by deterring or preempting conflict while setting conditions for success in large-scale combat operations (LSCO). In practice, IW demands agility, creativity, and sustained partnerships to develop resilience, institutional capacity, and operational effectiveness. These efforts often unfold in politically sensitive environments and under ambiguous conditions, where attribution is difficult and overt force may be counterproductive. Consequently, IW practitioners must balance responsiveness and discretion, often conducting missions that are high-risk, low-visibility, and diplomatically delicate.

Irregular Warfare–Maritime: Definition and Strategic Logic

Extending from the Department of Defense definition, Irregular Warfare–Maritime is defined here as a form of maritime conflict in which state and non-state actors pursue indirect, asymmetric, or non-attributable means to influence, coerce, or degrade the capabilities of other maritime stakeholders. These actions may be pursued independently or alongside conventional naval operations. Whereas land-based IW may be localized, IW-M inherently operates across national boundaries and global systems due to the interconnected nature of sea lines of communication (SLOCs), maritime trade, and international legal frameworks.

In contrast to traditional naval warfare, which often supports land-based campaigns, IW-M may serve as *an end in itself.* Controlling key maritime terrain, disrupting commerce, or

signaling political resolve through indirect action allows even weaker maritime actors to exert disproportionate strategic leverage without escalating to open war.

Actors, Asymmetries, and the Character of IW-M

The character of IW-M reflects a dynamic interplay between stronger and weaker naval actors. States with limited naval capabilities may employ asymmetric maritime strategies to counterbalance the overwhelming force of major powers. For example, the Iranian Revolutionary Guard Corps Navy (IRGCN) has developed tactics—such as swarm attacks, maritime sabotage, and strategic mining—to complicate U.S. and allied operations in the Persian Gulf.[23] Conversely, dominant naval powers—including the United States, China, and Russia—may also leverage IW-M capabilities through special operations, proxies, or law-enforcement surrogates to project influence and maintain maritime order while avoiding large-scale commitments.[24]

Non-state actors, including pirates, insurgent groups, and private maritime security companies, may also engage in IW-M.[25] Their operations typically seek financial gain, political recognition, or strategic disruption. Legal ambiguity and uneven enforcement make it difficult to differentiate between criminal activity and political violence, complicating state responses and raising legal and operational challenges.

A Spectrum of Irregular Maritime Activities

Irregular warfare at sea can be understood along a spectrum of operational intensity. While not exhaustive and often overlapping, this framework highlights three primary modalities: (1) decentralized disruption, (2) coordinated asymmetric action, and (3) commerce raiding.

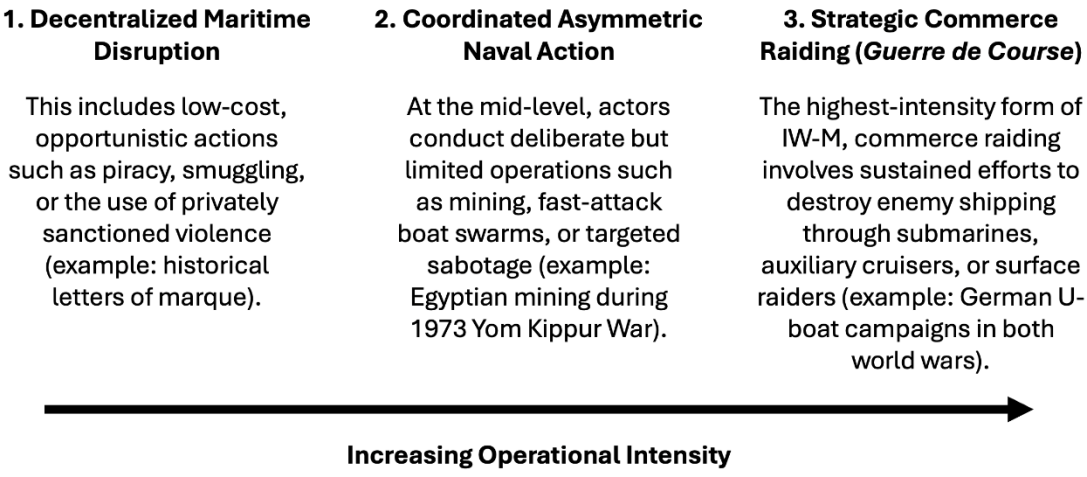

Figure 1. A Spectrum of Irregular Maritime Activities

At the low end, such operations require minimal resources but can significantly affect maritime commerce and coastal stability. At the mid-level, they rely on centralized control and are often calibrated to avoid full-scale escalation. At the high end, commerce raiding—although classically viewed as an alternative to decisive battle (à la Mahan)—remains beyond the immediate focus of this article due to its proximity to conventional warfare. This spectrum

helps clarify how IW-M functions as both a substitute for and a complement to traditional naval power. It also illustrates how actors calibrate their activities based on political objectives, resource availability, and the strategic environment.

Special Operations Forces and IW-M Activities

An effective IW-M strategy draws heavily from the doctrinal competencies of SOF as outlined by USSOCOM.[26] These core activities include direct action, special reconnaissance, unconventional warfare, foreign internal defense, civil affairs operations, counterterrorism, military information support operations (MISO), counterproliferation of weapons of mass destruction, security force assistance, counterinsurgency, hostage rescue and recovery, and foreign humanitarian assistance.[27]

While these capabilities were developed with land-centric operations in mind, they are increasingly relevant to maritime contexts. For instance:

- **Special reconnaissance** supports persistent situational awareness of maritime chokepoints.
- **MISO campaigns** influence coastal populations or maritime labor forces.
- **Foreign internal defense** and **security force assistance** strengthen partner maritime forces in littoral regions vulnerable to insurgency, piracy, or foreign interference.
- **Unconventional warfare** provides options for maritime sabotage.

Table 1 provides a conceptual mapping of SOF core activities onto potential IW-M applications. This framework demonstrates how these doctrinal tools can be adapted for joint, interagency, and multinational use in maritime campaigns. As regional powers and partners seek to bolster their IW-M competencies, this model offers a practical guide for capability development and operational integration. On their own, however, these actions and activities are unlikely to achieve significant strategic results unless they are integrated within a broader, coordinated strategy.

SOF Core Activity	IW-M Application	Example
Direct Action	Fast inshore attack craft and swarm tactics can be employed to strike high-value maritime targets, support littoral denial operations, or neutralize enemy presence in contested waters.	The IRGC Navy routinely deploys fast attack craft in swarm formations to patrol and defend Iran's littoral zones, using direct-action tactics to deter or harass adversaries.[28]
Special Reconnaissance	Maritime SOF units can conduct special reconnaissance missions on the peripheries of contested littorals to enhance early warning and maritime domain awareness.	During the 1971 Bangladesh War of Liberation, the Mukti Bahini "Water Rats" executed clandestine reconnaissance missions that provided critical intelligence on enemy naval and ground forces.[29]

Unconventional Warfare	Maritime SOF units can execute sabotage operations against enemy naval assets, ports, or maritime infrastructure to degrade power projection and disrupt economic and logistical networks.	Russia employs undersea sabotage and seabed warfare tactics as part of a broader IW-M strategy targeting critical European infrastructure.[30]
Foreign Internal Defense	Integrating SOF into partner or ally littoral defense efforts builds local capacity to secure territorial waters and resist external maritime coercion.	U.S. maritime SOF elements have helped equip and train partner and allied maritime forces in Southeast Asia and the Baltics to harden them against aggression from China and Russia, respectively.[31]
Civil Affairs Operations	SOF CA elements can liaise with commercial maritime actors and civil authorities to increase resilience and integrate civil-military planning into IW-M campaigns.	U.S. civil affairs teams work with East Asian and European nations to bolster pre-conflict resilience and address vulnerabilities in maritime sectors.[32] The Chinese Communist Party built the Damerjog multipurpose port and expanded Doraleh Port in Djibouti as an alternative to the U.S. presence in the region.[33]
Counterterrorism	Maritime CT operations can serve as an entry point for partner or ally training programs while developing SOF TTPs and capabilities for maritime environments.	Countries such as India and South Korea have developed maritime SOF with specialized CT units using rigid-hull inflatable boats, mini-submarines, and swimmer delivery vehicles.[34]
Military Information Support Operations	IW-M messaging campaigns can counter adversary narratives, protect maritime claims, and shape public perceptions related to sovereignty and maritime security.	U.S. ARSOF contributes to NATO partner resilience by developing maritime information campaigns that counter Russian influence and hybrid warfare.[35]
Counter-proliferation of Weapons of Mass Destruction	IW-M strategy can incorporate SOF-led interdiction operations, boarding (VBSS), and partner capacity-building to deny WMD proliferation in maritime spaces.	NATO's Operation Sea Guardian provides a model for maritime interdiction, CT operations, and WMD counterproliferation through SOF-coordinated maritime security operations.[36]

Security Force Assistance	SOF can enhance partner interoperability and IW-M proficiency through targeted training and operational mentorship, increasing force employment options.	U.S. NSW has trained Indonesia's KOPASKA in combat diving and small-boat tactics; U.S. MARSOC has assisted in coastal defense and maritime sensing initiatives.[37]
Counterinsurgency	IW-M strategies can help stabilize littoral zones affected by insurgency, enabling states to shift focus toward external maritime threats.	Maritime special operations in Africa trace back to the U.S. Navy's Barbary Wars and have reemerged as vital tools for coastal security. Today, nations such as Nigeria are developing maritime SOF to counter insurgencies and violent threats extending into their littoral zones.[38]
Hostage Rescue and Recovery	Quick-reaction maritime SOF elements are critical for addressing kidnappings and piracy in littoral zones or commercial shipping corridors.	Several Sub-Saharan African countries have sought increased maritime SOF capacity for high-speed interdiction and hostage-recovery operations in piracy-prone waters. [39]
Foreign Humanitarian Assistance	Integrating FHA into IW-M broadens SOF legitimacy, enables civil-military cooperation, and enhances force acceptance by local populations.	U.S. SOF have worked with Colombia and other South American partners to strengthen maritime humanitarian response capabilities while reinforcing defense cooperation.[40]
Acronyms: *ARSOF – U.S. Army Special Operations Forces; CA – Civil Affairs; CAO – Civil Affairs Operations; COIN – Counterinsurgency; CP-WMD – Counterproliferation of Weapons of Mass Destruction; CT – Counterterrorism; FID – Foreign Internal Defense; FHA – Foreign Humanitarian Assistance; HRR – Hostage Rescue and Recovery; KOPASKA – Indonesian Navy Frogman Forces; MARSOC – Marine Forces Special Operations Command; MISO – Military Information Support Operations; NSW – Naval Special Warfare; SFA – Security Force Assistance; SOF – Special Operations Forces; TTPs – Tactics, Techniques, and Procedures; USSOCOM – U.S. Special Operations Command; VBSS – Visit, Board, Search, and Seizure; WMD – Weapons of Mass Destruction.*		

Table 1. USSOCOM Core Activities and IW-M Application.

A Brief History of Irregular Warfare in the Maritime Domain

Over the past seventy years, a wide range of states have employed maritime SOF as force multipliers to expand operational reach, provide economy of force, and serve as laboratories for new technologies and tactics.[41] When unified naval strategy or senior support was lacking, the impact was diminished.[42] Across time, these examples reflect the evolving strategic utility of maritime SOF—from sabotage-heavy operations in World War II to today's deterrence-oriented postures.

World War II: Foundations of Irregular Maritime Warfare

During World War II, major powers experimented with maritime special operations—typically small, elite units tasked with sabotage, reconnaissance, and direct action. The goal of these special mission units was to create strategic effects disproportionate to their size. Though often poorly integrated, they pioneered methods that prefigured modern IW-M principles.

The United Kingdom embraced asymmetric littoral warfare as early as 1940, when Major Roger Courtney envisioned amphibious raids using folding canoes ("folboats").[43] In mid-1940, his unit successfully sabotaged an Italian railway and escaped by canoe,[44] prompting the formal creation of the Special Boat Section (later Service) in March 1943.

Figure 2. Cockle Mark II Canoe. Operation Frankton during attack on the Port of Bordeaux (1942)[45]

With backing from Prime Minister Churchill, the Admiralty pursued additional asymmetric options. In 1942's Saint Nazaire raid ("Operation Chariot"), British commandos used eighteen modified vessels to destroy a key German drydock. In another act of sabotage, mini-submarines were deployed into Norwegian fjords to disable the German battleship *Tirpitz*—a mission so secret that many operatives did not know the target.[46] These operations reduced the German naval threat in the North Atlantic and improved convoy security, allowing the Allies to focus their attention elsewhere.[47]

Similarly, Italy's Decima Flottiglia MAS (X MAS), established in 1939, used manned torpedoes, mini-submarines, and fast attack boats to sabotage Allied naval infrastructure. Despite Italy's broader military collapse, X MAS conducted several successful covert attacks that contested British sea control in the Mediterranean.[48] The Italian navy had begun

experimenting after World War I and resumed development in 1936 at La Spezia, where personnel trained for undersea missions.[49]

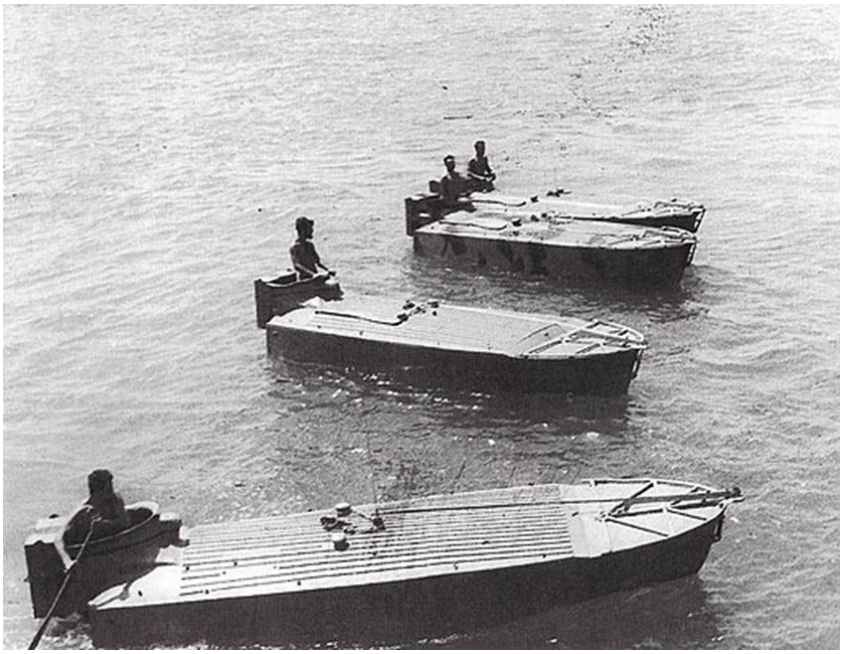

Figure 3. Motoscafo turismo modificato (MTM) or barchini (little boats) of X MAS.[50]

By 1940, Italy had developed human torpedoes (SLCs), mini-submarines, underwater breathing apparatus, and various underwater explosive devices and survival gear.[51] X MAS members operationalized these technologies with remarkable skill. Their most notable achievement was the destruction of two British battleships and several auxiliary vessels in the Port of Alexandria in December 1941, which provided the Axis fleet with unimpeded flow to troops in North Africa.[52]

Other powers also attempted to develop maritime irregulars, including the U.S. Scouts and Raiders, Navy Underwater Demolition Teams, and the Japanese Special Attack Units. Taken as a whole, the maritime commando operations of WWII demonstrated the scope and value of irregular tactics at sea. After the war, maritime SOF were swept up in postwar demobilization. Lacking senior advocates and overshadowed by nuclear deterrence, these units were sidelined. Yet with the onset of the Cold War, enough military leaders remained in uniform to preserve the lessons of WWII. In retrospect, the return of irregular warfare was unsurprising—Mao Zedong's success in China quickly demonstrated the potency of asymmetric tactics in the nuclear age. By the 1950s and 1960s, special operations forces were reestablished to meet the evolving strategic demand.

Cold War: Asymmetric Naval Innovation Under Strategic Constraints

During the Cold War, IW-M shifted from asymmetric kinetic operations to irregular warfare as it is currently recognized—that is, campaigning to extend influence, contest or defend littoral regions, and support allies and partners without escalating to high-intensity conflict. This shift reflected both weaker states seeking to offset superior navies and stronger powers' reluctance to enter large-scale conflict. In response, nations increasingly turned to special forces, proxies, and alliances to assert maritime interests without escalating to war.

During the 1961 Bay of Pigs invasion, Brigade 2506—a CIA-trained amphibious unit—attempted to invade Cuba but was compromised and destroyed in detail by Castro's militia.[53] In response, the United States built a professional maritime special operations capability, establishing the Navy Sea, Air, and Land (SEAL) Teams in 1962. Designed for deniable, precision missions, SEALs became central to irregular warfare doctrine, particularly in riverine and littoral operations in Vietnam, Panama, and beyond. By the late 1980s, the U.S. established USSOCOM to provide unified command and control of sensitive and irregular missions.

Figure 4. Brown-Water Mobile Riverine Force patrolling the Mekong River Delta, Vietnam[54]

In 1987, shortly after SOCOM was established, the Reagan administration approved *Operation Earnest Will*—commonly known as the "Tanker War"—to provide U.S. protection to Kuwaiti tankers from Iranian anti-ship missiles, naval mines, and flotilla craft.[55] The fifteen-month campaign marked USSOCOM's first contribution of a joint SOF task force to a named operation.[56] During the conflict, SOF units captured an Iranian minelayer, repelled small-boat attacks, and collected intelligence on Iranian naval operations.[57] For its part, the

IRGCN refined its own asymmetric tactics, including small-boat swarm raids, clandestine mine-laying, and direct-action missions against coastal infrastructure, demonstrating the dynamic interplay between regional powers during an irregular maritime encounter.[58]

The effective use of IW-M during the Tanker War—contrasted with the Bay of Pigs failure—illustrates the value of irregular maritime tactics as a strategic alternative to conventional naval operations. Although Army doctrine still referred to "small wars," and naval doctrine continued to prioritize fleet engagements, the creation of USSOCOM and the collapse of the Soviet Union pushed Western militaries to consider IW-M's potential strategic utility.

Post–Cold War to Present: IW-M as Strategic Force Design

Since the Cold War's end, IW-M has become a more deliberate component of national defense planning, adopted by both global powers and smaller states. While the threat of large-scale naval combat persists, most naval operations since the Soviet collapse have centered on irregular and hybrid maritime missions.

The United Nations Convention on the Law of the Sea (UNCLOS), established in 1982 and entering into force in 1994, marked a significant milestone, codifying the maritime rights and responsibilities of nations and establishing a framework for governing the seas.[59] These legal standards transformed naval priorities by reinforcing freedom of navigation, stabilizing territorial disputes, and facilitating greater predictability in maritime governance.[60] Navies increasingly shifted from deterrence toward law-enforcement and crisis-response roles.[61]

Alongside UNCLOS, international agreements reshaped naval operations. NATO expanded into peacetime security, sanctions enforcement, and counter-piracy roles. ASEAN states—though not formally allied—also deepened cooperation, often with U.S. support. These efforts emphasized interoperability, domain awareness, and joint patrols in contested waters like the South China Sea or the Gulf of Aden.[62] As evidenced by Hon. Lawrence Garrett's (then Secretary of the Navy) 1992 posture statement, "that [Soviet] focus is gone, and the new landscape is characterized by much more diverse concerns," requiring a dramatic shift from Cold War force-on-force postures to constabulary operations such as maintaining freedom of navigation, enforcing maritime law, and adapting to complex geopolitical conditions.[63] These missions required presence and diplomatic agility more than kinetic power.

Figure 5. Philippine Coast Guard approaching Maritime Militia vessels during the Whitsun Reef incident, April 13, 2021[64]

Today's maritime environment has driven major adaptations, particularly in the U.S. Navy. Piracy off the Horn of Africa and Southeast Asia spurred multinational task forces such as Combined Task Force 151.[65] Facing dispersed threats, navies decentralized into smaller task groups capable of operating independently over vast areas.[66]

At the same time, the emergence of gray-zone tactics—such as illegal fishing and cyberattacks on maritime infrastructure—complicates legal and strategic responses.[67] Navies must deter or respond to aggressive behavior without provoking open conflict or violating international law. This has led to a dual emphasis on signaling and adaptability: forces must be visible but non-provocative, capable but not escalatory, and integrated with allies while still preserving operational autonomy. Success now requires not just technological superiority, but agility, clarity of purpose, and an understanding of legal and diplomatic constraints.

Considerations for a Coherent IW-M Strategy

In the contemporary era of aircraft carriers and nuclear-powered submarines wielding strategic nuclear missiles, navies have become so capable of mutual destruction that fleet-on-fleet combat is now difficult to imagine.[68] Capital ships demand immense investment and are often deemed too valuable to risk in direct combat—creating a strategic standoff among fleets-in-being. It follows that contemporary regular naval interactions increasingly fall under the IW-M umbrella.

Still, conventional navies have long struggled to counter agile and elusive irregular maritime threats. From Sir Francis Drake's commerce raiding[69] and 19th-century corsairs[70] to 21st-century piracy off East Africa,[71] capital ships have proven poorly suited to suppressing asymmetric actors.[72] Unlike on land, the absence of enduring sovereign control beyond territorial waters and the norm of "freedom of the seas" complicate responses to irregular maritime threats.[73]

To address these challenges, naval powers have historically secured chokepoints or escorted shipping, as seen in the Battle of the Atlantic[74] or the 1987–88 Tanker War.[75] Yet these approaches are logistically and financially costly, requiring forward-deployed bases, replenishment, and diplomatic access to third-party ports. IW-M actors, by contrast, operate with minimal infrastructure at significantly lower cost. Navies also require a global sustainment network, an asymmetry that hinders persistent presence.

IW-M exploits three enduring vulnerabilities: the difficulty of securing the open sea, the dependence on port or at-sea resupply, and the high cost—both financial and temporal—of building and maintaining warships and skilled crews (see Table 2). Commerce disruption magnifies these weaknesses because global commerce depends on uninterrupted maritime transit; even limited disruption can produce disproportionate effects.

This logic departs from Alfred Thayer Mahan's vision of decisive naval battles and instead reflects a modern cost-imposing approach to maritime competition that blends elements of Mahan's economic "logic" of maritime power with Mao's "grammar" to create a framework for sea-based guerrilla warfare.[76]

Objective	Conventional Approach	IW-M Approach
Sea Control	• Modern version of a decisive Mahanian battle. • Missile-salvo exchanges; air-to-air combat. • Requires commitment to large-scale combat operations, with potential for global war and escalation to nuclear conflict. • Expensive and manpower-intensive; favors large industrial powers.	• Deny strategic regions rather than seek total sea control. • Conduct harassing actions with flotillas of small vessels to damage, disable, or sink capital ships. • Repurpose civilian vessels to supplement limited warships and offset shortcomings in maritime domain awareness.
Guerre de Course/Port	• Submarines armed with nuclear weapons. • Large-scale exercises to demonstrate capability. • Frequent coastal patrols and effective policing of sovereign waters. • Overt forward presence and power projection.	• Fouling or obstructing critical shipping lanes. • Mining maritime choke points. • Maritime interdiction operations by small boarding teams using fast-attack craft and/or helicopters. • Coastal defense missiles—even in limited numbers—provide strong deterrent effects at low cost.
Impose Costs	• Blockade. • Enforce sanctions with overt naval presence. • Attack an opponent's fleet to force investment in a larger navy.	• Coordinated commerce raiding with SOF or small-boat flotillas. • Rocket or unmanned-system attacks from shore. • Clandestine sabotage operations against naval infrastructure and navigation aids.

Table 2. Conventional and Irregular Approaches to Warfare at Sea

For countries with extensive coastlines or contested maritime zones but limited naval capacity, IW-M provides a scalable and adaptive defense strategy.[77] Rather than emulate high-end fleets, they can develop asymmetric capabilities to deny access, disrupt operations, and impose costs. Integrated into broader defense strategies, IW-M enhances deterrence through defense-in-depth and persistent maritime domain awareness.

This approach aligns with the special operations concept of relative superiority—gaining the tactical advantage at decisive moments through initiative, deception, and asymmetry.[78] Strategic planning allows smaller powers to start from favorable positions, complicating adversary calculations. China's near-seas "active defense" strategy[79] and Iran's layered maritime denial posture exemplify how tailored IW-M strategies can offset naval inferiority and secure core interests without matching conventional strength.[80]

Limitations of IW-M

IW-M is not a panacea. While it offers cost-efficient and asymmetric tools for states with limited naval capabilities, IW-M also presents serious legal, political, and institutional limits. Planners risk strategic irrelevance if they focus too narrowly on IW-M's tactical methods while neglecting to define clear strategic objectives. The advantages of IW-M at the tactical level may be lost when planners confuse immediate outcomes with broader strategic impacts, losing sight of long-term goals. To be effective, IW-M must link tactics with well-defined strategic aims, emphasizing persistent efforts rather than simply adopting new techniques. This requires leveraging a variety of approaches within the IW-M domain and maintaining a comprehensive maritime defense strategy. Crucially, those employing IW-M must have a precise grasp of the strategic effects they aim to achieve.

A central obstacle is the legal ambiguity surrounding the use of force at sea. Unlike land-based IW, IW-M often unfolds in contested waters with unclear sovereignty and jurisdiction. Legitimacy is further complicated by disputed governance, political sensitivities, and a complex and often unenforceable legal regime.

UNCLOS provides a framework for governance, but enforcement remains difficult and uneven. States pursuing IW-M to assert claims over resources or historically symbolic waters risk international backlash unless such actions are carefully justified and supported by coordinated diplomatic and informational campaigns. Effective IW-M also requires whole-of-government efforts and multinational coordination. This introduces additional legal and operational burdens, especially where partners may hold divergent interpretations of international law or lack the legal and technical capacity to enforce it.

Institutionally, IW-M demands significant adaptation. Success depends on purpose-built forces that are specially trained and equipped for irregular maritime operations—often with doctrines, platforms, and operating concepts distinct from those associated with traditional blue-water navies. Building such capabilities requires shifting resources and overcoming entrenched preferences. Resistance among senior decision-makers—particularly in peacetime—can stall innovation and inhibit the agility needed to field effective IW-M capabilities at scale.

Designing Asymmetric Maritime Resistance

"Every strategy has an ideal counterstrategy."[81] This maxim captures the essence of IW-M, where weaker powers employ indirect, asymmetric approaches to undermine the direct, costly approaches favored by stronger adversaries.[82] For a small navy, the objective is not decisive victory but imposing sustained costs that degrade an adversary's resolve and capacity. History has shown that when superior navies fail to adapt to irregular tactics, the strategic mismatch benefits the weaker force, echoing Ivan Arreguín-Toft's theory of asymmetric conflict.[83]

Strategic flexibility among more conventionally minded navies would allow them to maintain relative superiority against a smaller, "flea-like" foe. When smaller navies adopt

asymmetric approaches but confront conventional actors willing to integrate irregular tools—such as China's gray-zone tactics or Russia's unconventional undersea warfare—their survival depends on adapting and innovating faster and exploiting adversary vulnerabilities.[84]

Effective IW-M strategies rest on realistic assessments of asymmetric advantage. Success depends on diverging from conventional theory and adopting what Sandor Fabian describes as "total defense," a layered approach that integrates civilian-supported denial tactics with irregular combat forces.[85] This requires purposeful investments in force design, capability development, and strategic mindset. Rather than chase parity through capital ships, states develop "purpose-built" forces optimized for coastal defense, mobility, concealment, and non-attributable action.

Operationally, IW-M blends conventional and unconventional elements. Artillery or missile systems can be hidden in littoral terrain or dispersed among civilian infrastructure, gaining effect through surprise and ambiguity. Irregular forces and civilian auxiliaries contribute intelligence, logistics, and political signaling. Maritime SOF are especially valuable in this context, providing flexible tools for disruption, denial, and informational effects in contested environments.

Ultimately, successful IW-M campaigns depend as much on leadership creativity and institutional adaptability as on force composition. States must learn to fight differently, using fewer resources to extract greater effect—i.e., "doing more—and differently—with less."[86] Iran's littoral missile deployments and China's coastal defense architecture illustrate how IW-M logics can be integrated into broader national defense strategies aimed at denying foreign aggression in one's near waters.[87]

The Strategic Utility of Special Operations Forces in Irregular Maritime Warfare

SOF are the preferred forces for operationalizing IW-M strategies, offering asymmetric, cost-imposing options for states lacking conventional naval superiority. Designed for politically sensitive, denied, or hostile environments, SOF leverage specialized tactics, techniques, and technologies to generate outsized effects across domains.[88] For countries with large littoral zones but limited blue-water capabilities, SOF provide a scalable economy-of-force solution, enabling denial, disruption, and strategic dilemmas for more powerful adversaries.

SOF generate strategic value when aligned with a clearly defined purpose set by senior political and military leadership.[89] Without such guidance, SOF risk being overused, misapplied, or sidelined. A coherent IW-M strategy enables SOF to act not merely as tactical adjuncts but as integrated instruments within broader national defense planning—particularly for countries seeking deterrence and denial against stronger adversaries.

Colin Gray's key conditions for SOF effectiveness also provide a useful framework for IW-M.[90] These include: a clear maritime policy demand; political leadership that embraces irregular warfare; feasible, domain-appropriate objectives; and a coherent strategy that gives SOF action purpose beyond the tactical level.

Decision-makers must be imaginative and flexible, particularly when conventional alternatives are unavailable or inadequate. SOF must be equipped to exploit adversary vulnerabilities with maritime-tailored platforms and tactics. Tactical and operational excellence—shaped by rigorous training and tailored selection—remains essential. A cultivated reputation for precision, risk tolerance, and effectiveness enhances SOF's deterrent value.

Historical memory and strategic narrative also matter. Nations that draw from past maritime conflicts often craft more resilient doctrine and public support for SOF roles.

Several states have adopted this approach. Norway and Denmark have invested in maritime SOF as part of their deterrence posture against Russia.[91] In Southeast Asia, Indonesia integrates SOF into its global maritime fulcrum doctrine,[92] while Singapore prioritizes SOF and stealth technologies to safeguard maritime sovereignty.[93] In the Middle East and Indo-Pacific, Iran and China employ layered SOF-centric denial strategies to frustrate superior naval fleets.[94]

Building effective maritime SOF requires more than adapting ground-based units. Mission selection, force design, and training must align with specific IW-M tasks—such as combat diving, small-boat tactics, underwater demolitions, and clandestine reconnaissance.[95] Maritime SOF must also be proficient in intelligence collection, civil affairs, and psychological operations to contribute to cross-domain effects.

Technology further expands SOF's reach. In denied or congested littorals, commercial-off-the-shelf (COTS) systems—drones, mini-submersibles, or stealth boats—offer scalable, cost-effective platforms for surveillance, sabotage, and strike. Some scholars emphasize the importance of maritime deception and concealment in defeating modern surveillance-strike systems, while others advocate for new operational concepts in mine warfare adapted to IW-M needs.[96] Coupled with SOF's inherent adaptability and survivability, these technologies can shift local balances of power at relatively low cost.

As depicted in Table 3, SOF provide flexible force-employment options, delivering lethal and non-lethal effects across visibility and posture spectrums. Efforts to adopt these tactical actions in mutually reinforcing ways—effectively layering them within a larger campaign—increase the strategic utility of an IW-M approach. Their versatility makes them indispensable in IW-M campaigns designed to exploit friction, ambiguity, and the fog of war.[97]

	High Visibility		**Low Visibility**	
	Offensive	**Defensive**	**Offensive**	**Defensive**
Kinetic	Fast attack craft and mobile rocket systems for rapid strike missions against enemy vessels.	Small boat teams for interdiction patrols and deterrence missions in territorial waters.	"Shoot and scoot" teams with anti-ship or SAM systems; SOF raids on enemy maritime infrastructure.	SOF-enabled naval mine placement to deter or prevent seaborne incursion.
Non-Kinetic	Electronic and cyber warfare demonstrations to complicate adversary command and control.[98]	SOF engineering teams to construct coastal defenses, including ports and chokepoints.[99]	Special reconnaissance in complex littoral terrain; information operations exposing adversary activity.[100]	SOF teams install maritime sensors for early warning and domain awareness.[101]

Table 3. SOF Flexibility in Capabilities, Postures, and Employment to IW-M Strategies[102]

Conditions for SOF Success in IW-M Campaigns

The strategic value of SOF in IW-M depends not only on tactical skill but also on leadership, organizational adaptability, and strategic clarity. Colin Gray identifies several conditions for SOF success—including high command understanding, appropriate mission alignment, and strategic patience—that are especially critical in the maritime domain, where effects must be cumulative and long-term.[103] His framework offers a useful lens for assessing when and how SOF can generate meaningful strategic outcomes.

When properly resourced and integrated, SOF enable states to impose outsized costs through focused, limited operations. They are particularly effective in helping smaller states achieve *relative superiority*—gaining and holding local advantage in time and space against a superior force.[104] This posture, exemplified in China's "active defense" and Iran's layered denial strategy, depends on early positioning, strategic concealment, and synchronized joint planning.[105] It is not the platform but the concept and coordination that determine SOF's effectiveness.

Even countries without high-end fleets can bolster their maritime posture by partnering with advanced SOF nations. U.S. and allied naval SOF can help build partner capacity through training, joint exercises, and experimentation with emerging COTS and unmanned systems.[106] However, without a coherent IW-M strategy, SOF risk is strategically irrelevant or misused.[107]

"A Handful of Cockleshell Heroes on Desperate Ventures: When Do Special Operations Succeed in Irregular Maritime Warfare?" by Colin S. Gray

In his 1999 *Parameters* article, *"Handful of Heroes on Desperate Ventures: When Do Special Operations Succeed?"* Gray outlines a compelling framework for assessing the strategic utility of SOF. He identifies eleven conditions that, when met individually or in concert, increase the likelihood of operational and strategic success. These conditions are interdependent, often context-specific, and shaped by historical circumstance, policy need, and the nature of the adversary.

1. Policy Demand - SOF are most effective when employed in response to clearly defined maritime policy gaps—such as defending littoral sovereignty, denying enemy access to vital waterways, or disrupting sea lines of communication. In environments where conventional naval options are unavailable or insufficient, SOF offer scalable, asymmetric alternatives tailored to political and strategic necessity.

2. Political Support - Permissive political conditions are essential. SOF operations—especially covert or clandestine ones—require decision-makers who understand the strategic logic of irregular warfare and are willing to accept the associated risks. Political-military alignment is key to sustaining maritime SOF employment over time.

3. Feasible Objectives - SOF succeed when tasked with achievable, clearly defined goals—whether independent or complementary to conventional efforts. In IW-M, this means identifying objectives grounded in operational timing (e.g., exploiting relative superiority), physical terrain (such as archipelagic chokepoints), and force capabilities.

4. Strategy - SOF require integration within a coherent maritime strategy—one that links tactical action to strategic effect. Maritime SOF cannot succeed through ad hoc missions alone. Their operations must be conceptually anchored in broader denial, deterrence, or cost-imposition campaigns.

5. Flexibility of Mind - Strategic success depends on imagination. Military and civilian leaders must possess the mental agility to conceptualize SOF's value beyond traditional ground paradigms. They must also be prepared to adapt quickly as maritime IW environments evolve.

6. Absence of Alternatives - SOF are often most valuable when other tools are unavailable, inappropriate, or ineffective. In maritime IW contexts—especially in denied areas or gray zone confrontations—SOF can deliver results that conventional naval forces cannot, precisely because of their stealth, speed, and flexibility.

7. Enemy Vulnerabilities - Successful IW-M campaigns exploit adversary blind spots. SOF can target vulnerable logistics hubs, under-defended islands, or coastal infrastructure. They can also exploit doctrinal rigidity or overconfidence in conventional force posture.

8. Technological Assistance - Technology amplifies SOF advantage in the maritime domain. Subsurface delivery platforms, unmanned systems, miniaturized sensors, and electronic warfare capabilities allow SOF to operate effectively across sea, surface, and air layers, mitigating conventional disadvantages.

9. Tactical Competence - Maritime SOF require rigorous selection, elite training, and domain-specific expertise. Operational success hinges on both individual skill and team cohesion. Tactical proficiency enables operators to perform complex missions under extreme conditions in contested littoral zones.

10. Reputation - Reputation matters. When adversaries perceive maritime SOF as highly capable and willing to act boldly, their deterrent effect increases. A reputation for innovation, stealth, and risk tolerance magnifies both the psychological and strategic value of IW-M operations.

11. History - SOF must understand—and embrace—their maritime legacy. Nations with rich histories of littoral defense, asymmetric naval warfare, or maritime raiding can draw from that past to inform doctrine, inspire personnel, and shape national narratives of defense and sovereignty.

Implications

For smaller countries confronting coercion by major powers like China and Russia, integrating special operations forces within broader irregular maritime warfare strategies presents a viable path to strengthening maritime defense. With tailored support from Western allies—through training, exercises, and capacity building—SOF development can enhance deterrence, bolster sovereignty, and improve interoperability.

Western allies must integrate IW-M approaches into their own joint strategies even as they train others, recognizing the paradox that some partners—already adept in irregular maritime tactics—may possess more practical experience than their instructors. Addressing U.S. shortfalls while supporting others demands a two-way exchange: providing resources and expertise while absorbing lessons from partners who have refined IW-M through active competition. Assistance between providers and recipients can be reciprocal—advanced partners offer resources, technology, training space, and expertise, while gaining insights from those actively employing IW-M systems and TTPs in competition and conflict.

Effective IW-M also requires recognition that the sea is inherently multi-domain and increasingly vulnerable to gray-zone aggression. Defense planning must address vulnerabilities and integrate responses across sea, air, land, space, and subsurface environments, especially where conventional forces are insufficient or unavailable. Under these conditions, SOF provide a logical tool for force modernization, risk mitigation, and strategic flexibility.

Countries that embed SOF within IW-M strategies, alongside or in support of conventional forces, are more likely to accelerate military modernization, close capability gaps, and improve joint force employment. This integration increases operational versatility and strengthens partnerships.

Examples from Iran, the Nordic-Baltic region, and Singapore illustrate the strategic dividends of IW-M when anchored by competent and well-integrated SOF. Iran's capacity to harass and challenge U.S. forces, Scandinavian and Baltic deterrence postures, and Singapore's investment in SOF highlight how IW-M can defend sovereignty and impose costs on adversaries.

As states transition SOF roles from heavy investment in counterterrorism toward foreign internal defense (FID), partner capacity building, and irregular warfare planning, allied SOF assistance becomes critical. U.S. and Western SOF are well-positioned to mentor partner nations in these transitions, helping them embed SOF more strategically within IW-M frameworks.

Conclusion

Since 9/11, the U.S. Joint Force has refined irregular warfare—particularly COIN and CT—primarily in land-centric contexts. These competencies should now be systematically adapted to the maritime domain. IW-M is a strategic necessity for states confronting formidable naval adversaries; it provides a viable, cost-imposing, dilemma-creating set of options below the threshold of open war. A purpose-built IW-M playbook offers scalable tools for partners and allies—particularly in regions such as the Taiwan Strait—before escalation pressures narrow policy options.

Yet the 2022 U.S. National Defense Strategy deemphasizes irregular warfare, overlooking IW's relevance in confronting adversaries such as China and Russia. This shift misses the enduring value of SOF core missions, not only for counterterrorism but also for enhancing

domain awareness, deterring aggression, and enabling partner resilience in contested maritime environments.

IW-M demands more than doctrinal rhetoric. It requires multi-domain planning, adaptable force design, and interagency coordination. States that fail to distinguish maritime from land-based irregular threats may suffer operational failure—or strategic collapse. Conversely, those that tailor their defense concepts around IW-M as a unique form of warfare can exploit adversary vulnerabilities, offset naval asymmetries, and enhance deterrence. It also requires a high level of self-awareness among both partners and providers. Potential assistance providers, including the United States, should demonstrate relevant experience, expertise, and established policy in IW-M to establish credibility with their partners.

Although this article focuses largely on the military instrument of power, irregular warfare at sea does not hinge on the use of force alone. An effective IW-M framework aligns the broader DIMEFIL toolkit to create cumulative advantage without inviting open conflict: informational tools shape narratives and attribution while preserving deniability; economic and financial measures raise the operating costs of gray-zone activity by targeting maritime revenue streams and logistics; and legal and law-enforcement mechanisms translate maritime law into practical friction for malign actors, signaling coalition resolve short of force. Future research should clarify the mechanisms and authorities by which SOF integrate non-military instruments, develop sequencing methods for operations and measures, and establish metrics for effectiveness and escalation management in IW-M campaigns.

At its core, IW-M is about tailored force employment. Purpose-built SOF—trained for both kinetic and non-kinetic operations—act as qualitative force multipliers and integrators, protecting sea lines and infrastructure, patrolling littorals, enabling unconventional denial strategies, and connecting military activities to informational, economic, and legal levers through access, partner development, and releasable intelligence. Conventional forces can likewise be adapted to irregular purposes (e.g., dispersing artillery or anti-ship missiles along contested shorelines).

Ultimately, IW-M is not a substitute for naval parity—it is a strategy of tailored resistance. When enabled by SOF, supported by allies, and nested within national security objectives and complementary instruments of power, it offers smaller powers the means to hold the line at sea, impose costs on adversaries, and defend their sovereignty with agility and credibility.

Endnotes

[1] John Willingham, *The Flea at Sea: How US Adversaries Wage Irregular Warfare on the High Seas*, Naval Postgraduate School, December 2024. Accessed June 26, 2025, https://hdl.handle.net/10945/73541; Kenneth Walls, "Fleet Tactics and Special Warfare," *Proceedings*, June 2023. https://www.usni.org/magazines/proceedings/2023/june/fleet-tactics-special-warfare. Accessed June 26, 2025.
[2] Andy Yakulis, "Warfare's New Equation: Why Numbers, Not Just Technology, Will Win Future Wars." *Real Clear Defense* January 21, 2025, https://www.realcleardefense.com/articles/2025/01/21/warfares_new_equation_1086002.html. Accessed August 13, 2025.
[3] Walls, "Fleet Tactics and Special Warfare."
[4] James Park, "Maritime Domain Awareness or Silent War?" *Irregular Warfare Initiative, Project Maritime*, May 20, 2025. https://irregularwarfare.org/articles/maritime-domain-awareness-or-silent-war/. Accessed June 26, 2025.
[5] Ben Connable, "Waterborne Assault: A Constant in Both Irregular and Conventional War," *Irregular Warfare Initiative, Project Maritime*, April 8, 2025. https://irregularwarfare.org/articles/waterborne-operations-irregular-warfare/. Accessed June 26, 2025.
[6] Walker Mills, "More than 'Wet Gap Crossings:' Riverine Capabilities Are Needed for Irregular Warfare and Beyond," *Irregular Warfare Initiative, Project Maritime*, February 9, 2023. https://irregularwarfare.org/articles/more-than-wet-gap-crossings-riverine-capabilities-are-needed-for-irregular-warfare-and-beyond/. Accessed June 26, 2025.
[7] Ibid.
[8] Rikke Haugegaard, "Fighting Danger at Sea: The Quest for Speed in Special Operations," *Inter Populum*, October 15, 2023. https://interpopulum.org/the-week-ahead-busiest-week-of-earnings-season/. Accessed June 26, 2025.
[9] Laurel Baker, "Autonomous Ghosts Are Reshaping Irregular Warfare and Maritime Security," *Irregular Warfare Initiative, Project Maritime*, September 12, 2024. https://irregularwarfare.org/articles/autonomous-ghosts-are-reshaping-irregular-warfare-and-maritime-security/. Accessed June 26, 2025.
[10] Cody Chick, "Sabotage from the Sea: The U.S. Navy's Guerrilla Force in China During WWII," *Interpopulum*, May 16, 2025. https://interpopulum.org/sabotage-from-the-sea-the-u-s-navys-guerrilla-force-in-china-during-wwii/. Accessed June 26, 2025.
[11] Booth, "Lessons in Maritime Insurgency from the Mukti Bahini Freedom Fighters of 1971."
[12] Willingham, *The Flea at Sea*.
[13] Ibid.
[14] Christopher P. Maier, "Assistant Secretary of Defense Christopher P. Maier Addresses Crucial Role of Irregular Warfare at the Semi-Annual Irregular Warfare Forum," U.S. Department of Defense, December 5, 2023. https://www.defense.gov/News/Releases/Release/Article/3607246/assistant-secretary-of-defense-christopher-p-maier-addresses-crucial-role-of-ir/. Accessed June 26, 2025; Jeff Goodson, "Irregular Warfare in a New Era of Great-Power Competition," *Modern War Institute*, May 20, 2020. https://mwi.westpoint.edu/irregular-warfare-new-era-great-power-competition/. Accessed June 26, 2025; Jacob Shapiro and Liam Collins, "Great Power Competition Will Drive Irregular Conflicts," *War on the Rocks*, April 8, 2024. https://warontherocks.com/2024/04/great-power-competition-will-drive-irregular-conflicts/. Accessed June 26, 2025.
[15] U.S. Department of Defense, *Joint Publication 1-0: Joint Warfighting* (Washington, DC: U.S. Department of Defense, August 27, 2023), II-7. Previous DOD publications defined IW as, "a violent struggle among state and non-state actors for legitimacy and influence over the relevant population(s)."

[16] Thomas R. Searle, "Many Ways to Be Irregular: The Real Definition of Irregular Warfare and How it Helps Us," *Inter Populum Journal of Irregular Warfare and Special Operations*, November 8, 2024. https://interpopulum.org/many-ways-to-be-irregular-the-real-definition-of-irregular-warfare-and-how-it-helps-us/, accessed June 26, 2025.
[17] Theodore Gatchel, *At the Water's Edge: Defending Against the Modern Amphibious Assault*, 1st ed. (Annapolis, MD: Naval Institute Press, 2013); Benjamin Jensen, "Distributed Maritime Operations: Back to the Future?" *War on the Rocks*, April 9, 2015. https://warontherocks.com/2015/04/distributed-maritime-operations-an-emerging-paradigm/. Accessed June 26, 2025; Milan Vego, "On Littoral Warfare," *Naval War College Review*, Spring 2015, https://link-gale-com.proxy.lib.umich.edu/apps/doc/A412410913/AONE?u=umuser&sid=bookmark-AONE&xid=dd3dcc16. Accessed June 26, 2025.
[18] David Kirichenko, "Small Craft, Big Impact: Ukraine's Naval War and the Rise of New-Tech Warships." *CIMSEC*. (June 3, 2025), https://cimsec.org/small-craft-big-impact-ukraines-naval-war-and-the-rise-of-new-tech-warships/. Accessed August 13, 2025; Shlomo Gueta, "The Houthi's Asymmetrical Maritime Warfare." *The Jerusalem Strategic Tribune*. (April 2024), https://jstribune.com/gueta-the-houthis-asymmetrical-maritime-warfare/. Accessed August 13, 2025.
[19] Daniel Elkins "Integrated strategic competition: A new approach to US national security." *The Atlantic Council.* (November 13, 2024), https://www.atlanticcouncil.org/blogs/menasource/national-security-great-power-competition-nsc-68/. Accessed September 30, 2025.
[20] Cesar Augusto Rodriguez, Timothy Charles Walton, and Hyong Chu. "Putting the 'FIL' into 'DIME': Growing Joint Understanding of the Instruments of Power." *Joint Force Quarterly*, no. 97, 2020, pp. 121-128.
[21] Glenn H. Snyder, "Deterrence and Power," Journal of Conflict Resolution, Vol. 4, No. 2, 1960.
[22] Tyler Hacker. "How the U.S. Army Can Close its Dangerous—and Growing—Small Drone Gap. *Modern War Institute*. March 3, 2024. https://mwi.westpoint.edu/how-the-us-army-can-close-its-dangerous-and-growing-small-drone-gap/. Accessed March 6, 2024; Colin Demarest. "U.S. Navy Leaders Agree: 'Embrace the Robots." *Axios*. February 5, 2025. https://www.axios.com/2025/02/05/military-robots-navy-drones-san-diego. Accessed August 13, 2025.
[23] Steven R. Ward, "The Continuing Evolution of Iran's Military Doctrine," *Middle East Journal* 59, no. 4 (2005): 559–576; Steven R. Ward, *Immortal: A Military History of Iran and Its Armed Forces* (Washington, DC: Georgetown University Press, 2009). http://www.jstor.org/stable/j.ctt2tt60b. Accessed June 26, 2025; Interview with Dr. David Crist, December 5, 2023; Michael Connell, "Iran's Military Doctrine," *The Iran Primer*, United States Institute of Peace; Defense Intelligence Agency, *Iran Military Power: Ensuring Regime Survival and Securing Regional Dominance* (August 2019). https://www.dia.mil/Military-Power-Publications. Accessed June 26, 2025; Office of Naval Intelligence, *Iranian Naval Forces: A Tale of Two Navies* (February 2017).
[24] Eric Cooper, *Persistent Gray Zone Aggression in the South China Sea Calls for Increased Coordination in Rule of Law* (Santa Monica, CA: RAND Corporation, April 2024). https://www.rand.org/pubs/commentary/2024/04/persistent-gray-zone-aggression-in-the-south-china.html. Accessed August 13, 2024; Nick Childs, *Russia's 'Shadow Fleet' and Sanctions Evasion: What is to be Done?"* (London, UK: The International Institute for Strategic Studies, January 2025). https://www.iiss.org/globalassets/media-library---content--migration/files/research-papers/2025/01/russias_shadow-fleet_and-sanctions-evasion/iiss_russias_shadow-fleet_and-sanctions-evasion_31012025.pdf. Accessed August 13, 2025; Willingham, *The Flea at Sea*; David Kirichenko, "Small Craft, Big Impact: Ukraine's Naval War and the Rise of New-Tech Warships." CIMSEC. (June 3, 2025), https://cimsec.org/small-craft-big-impact-ukraines-naval-war-and-the-rise-of-new-tech-warships/. Accessed August 13, 2025
[25] Christopher Booth, "Lessons in Maritime Insurgency from the Mukti Bahini Freedom Fighters of 1971," *Irregular Warfare Initiative, Project Maritime*, September 20, 2023.

https://irregularwarfare.org/articles/lessons-in-maritime-insurgency-from-the-mukti-bahini-freedom-fighters-of-1971/. Accessed June 26, 2025; Martin Murphy, *Piracy*. Center on Irregular Warfare and Armed Groups Case Studies (Newport, RI: The Naval War College August 2012), https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1003&context=ciwag-case-studies. Accessed August 13 2025; Jan Stockbruegger. 2021. "U.S. Strategy and the Rise of Private Maritime Security." *Security Studies* 30(4): 578-602. doi.org/10.1080/09636412.2021.1976821.

[26] U.S. Department of Defense. Joint Publication 3-05. Special Operations. May 12, 2025.

[27] Ibid.

[28] Ward, "The Continuing Evolution of Iran's Military Doctrine," 559–576; Steven R. Ward, *Immortal: A Military History of Iran and Its Armed Forces* (Washington, DC: Georgetown University Press, 2009). http://www.jstor.org/stable/j.ctt2tt60b. Accessed June 26, 2025; Interview with Dr. David Crist, December 5, 2023; Michael Connell, "Iran's Military Doctrine," *The Iran Primer*, United States Institute of Peace; Defense Intelligence Agency, *Iran Military Power: Ensuring Regime Survival and Securing Regional Dominance* (August 2019). https://www.dia.mil/Military-Power-Publications. Accessed June 26, 2025; Office of Naval Intelligence, *Iranian Naval Forces: A Tale of Two Navies* (February 2017).

[29] Booth, "Lessons in Maritime Insurgency from the Mukti Bahini Freedom Fighters of 1971."

[30] Sidharth Kaushal, "Stalking the Seabed: How Russia Targets Critical Undersea Infrastructure," *RUSI*, May 25, 2023. https://www.rusi.org/explore-our-research/publications/commentary/stalking-seabed-how-russia-targets-critical-undersea-infrastructure/. Accessed June 26, 2025.

[31] Molly Dunigan et al., *Characterizing and Exploring the Implications of Maritime Irregular Warfare* (Santa Monica, CA: RAND Corporation, 2012); Stephen J. Flanagan et al., *Deterring Russian Aggression in the Baltic States Through Resilience and Resistance* (Santa Monica, CA: RAND Corporation, 2019). https://www.rand.org/pubs/research_reports/RR2779.html. Accessed June 26, 2025.

[32] Kevin Bilms, "Solving for the Missing Element of Maritime Campaigning," *Irregular Warfare Initiative, Project Maritime*, September 14, 2023. https://irregularwarfare.org/articles/solving-for-the-missing-element-of-maritime-campaigning/. Accessed June 26, 2025.

[33] Omar Ben Yedder, "Ports as Springboard for Ambitious Diversification." *African Business*. May 14, 2024. https://african.business/2024/05/trade-investment/ports-as-springboard-for-ambitious-diversification. Accessed August 13, 2025.

[34] Andrew White, "Maritime FOBs for Seaborne SOF," *Asian Military Review*, September 22, 2020. https://www.asianmilitaryreview.com/2020/09/maritime-fobs-for-seaborne-sof/. Accessed June 26, 2025.

[35] Stephen Watts et al., *Countering Russia: The Role of Special Operations Forces in Strategic Competition* (Santa Monica, CA: RAND Corporation, 2021). https://www.rand.org/content/dam/rand/pubs/research_reports/RRA400/RRA412-1/RAND_RRA412-1.pdf. Accessed June 26, 2025; Brandon Schwartz, "ARSOF's MAROPS Maritime Operations," *Special Warfare*, Spring 2024. https://www.lineofdeparture.army.mil/Portals/144/PDF/Journals/Special-Warfare/arsof_marops.pdf. Accessed June 26, 2025.

[36] Lisa West, "NATO Operation Sea Guardian Teams 'Board' Ship," *UK Defence Journal*, January 8, 2024. https://ukdefencejournal.org.uk/nato-operation-sea-guardian-teams-board-ship/. Accessed June 26, 2025.

[37] Charles Propert, "Naval Special Warfare, Indonesian Navy's Komando Pasukan Katak (KOPASKA) Conduct Maritime Operations," *U.S. Indo-Pacific Command*, August 15, 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3874256/naval-special-warfare-indonesian-navys-komando-pasukan-katak-kopaska-conduct-ma/. Accessed June 26, 2025; "U.S. and Indonesian Marines Commence Keris Marine Exercise 2024," *U.S. Embassy Jakarta*, November 8,

2025. https://id.usembassy.gov/u-s-and-indonesian-marines-commence-keris-marine-exercise-2024/. Accessed June 26, 2025.
[38] Evelyn Usman, "Navy Unveils Special Ops, Marine Command to Tackle Emerging Threats," *Vanguard*, June 1, 2025. https://www.vanguardngr.com/2025/06/navy-unveils-special-ops-marine-commands-to-tackle-emerging-threats/. Accessed June 26, 2025; Matthew Olay, "U.S. Africa Command Launches Multi-Nation Special Warfare Exercise," *U.S. Department of Defense, DOD News*, May 14, 2024. https://www.defense.gov/News/News-Stories/Article/Article/3775192/us-africa-command-launches-multi-nation-special-warfare-exercise/. Accessed June 26, 2025; Haugegaard, "Fighting Danger at Sea: The Quest for Speed in Special Operations."
[39] Usman, "Navy Unveils Special Ops, Marine Command to Tackle Emerging Threats." Olay, "U.S. Africa Command Launches Multi-Nation Special Warfare Exercise."; Haugegaard, "Fighting Danger at Sea: The Quest for Speed in Special Operations."
[40] Martin Carey, "Navy SEALs Enhance Maritime Domain Dominance with Partner Forces in Colombia," *U.S. Southern Command*, July 20, 2023. https://www.southcom.mil/MEDIA/NEWS-ARTICLES/Article/3468472/navy-seals-enhance-maritime-domain-dominance-with-partner-forces-in-colombia/. Accessed June 26, 2025;
Alejandra Fontalvo, "Special Tactics Unites with South American Partners on Training to Save Lives," *Air Force Special Tactics*, September 24, 2021. https://www.airforcespecialtactics.af.mil/News/Article-Display/Article/2788222/special-tactics-unites-with-south-american-partners-on-training-to-save-lives/. Accessed June 26, 2025.
[41] Blanken, L.; Swintek, P. (2021). Special Operations Forces as a Rapid Prototyping Laboratory. Chapter published in Davis, Z. S., et al. Strategic Latency Unleashed: The Role of Technology in a Revisionist Global Order and the Implications for Special Operations Forces. No. LLNL-BOOK-818513. Lawrence Livermore National Lab.(LLNL), Livermore, CA (United States), pp. 322-331. http://hdl.handle.net/10945/67924; Leo Blanken et al. "Special Operations as an Innovation Laboratory." *War on the Rocks*. February 25, 2020. https://warontherocks.com/2020/02/special-operations-as-an-innovation-laboratory/#:~:text=Our%20goal%20here%20is%20to%20propose%20a%20simple,in%20order%20to%20rapidly%20prototype%20concepts%20and%20technologies. Accessed August 13, 2025.
[42] Willingham, *The Flea at Sea*.
[43] Gavin Mortimer, *The SBS in World War II* (London: Bloomsbury Publishing, 2013), 15–16.
[44] John Lodwick, *Raiders from the Sea: The Story of the Special Boat Service in WWII* (Yorkshire, UK: Greenhill Books, 2018).

[45] United Kingdom Government. Royal Marine Museum (2010). https://commons.wikimedia.org/wiki/File:Oper_frankton_cockle.jpg. Accessed June 26, 2025, Public domain, via Wikimedia Commons.
[46] William H. McRaven, *Spec Ops: Case Studies in Special Operations Warfare: Theory and Practice* (New York: Ballantine Books, 1996).
[47] Thomas Gallagher, *The X-Craft Raid* (New York: Harcourt Brace Jovanovich, 1971).
[48] Jack Greene and Alessandro Massignani, *The Black Prince and the Sea Devils: The Story of Valerio Borghese and the Elite Units of the Decima Mas* (Cambridge, MA: Da Capo Press, 2004); CPT William Schofield and P.J. Carisella, *Frogmen: First Battles* (New York: Avon Books, 1987).
[49] Greene and Massignani, *The Black Prince and the Sea Devils*, 3–4.
[50] MTM of Decima MAS. CC BY-SA 3.0, https://commons.wikimedia.org/wiki/File:4B-10Exercise.jpg. Accessed June 26, 2025, Public domain, via Wikimedia Commons.
[51] McRaven, *Spec Ops*, 79–80.
[52] Greene and Massignani, *The Black Prince and the Sea Devils*, 61, 75, 89.
[53] Peter Kornbluh, *Bay of Pigs Declassified: The Secret CIA Report on the Invasion of Cuba* (New York: The New Press, 1998).

[54] Naval Special Warfare. NSW History – Vietnam. https://www.nsw.navy.mil/HISTORY/Vietnam-War accessed June 26, 2025.
[55] Martin Navias and E. R. Hooton, *Tanker Wars: The Assault on Merchant Shipping during the Iran-Iraq Crisis, 1980–1988* (New York: I.B. Tauris & Co. Ltd., 1996), 1.
[56] John Partin, "Special Operations in Operation Earnest Will/Prime Chance I" (U.S. Special Operations Command History and Research Office, April 1998).
[57] Partin, 1, 15; Samuel J. Cox, "H-018-1: No Higher Honor: The Road to Operation Praying Mantis, 18 April 1988," *Naval History and Heritage Command*, April 2018, 5.
[58] Office of Naval Intelligence, *Iranian Naval Forces: A Tale of Two Navies* (February 2017); Farzin Nadimi, "Iran's Evolving Approach to Asymmetric Naval Warfare: Strategy and Capabilities in the Persian Gulf," *The Washington Institute for Near East Policy*, April 24, 2020. https://www.washingtoninstitute.org/policy-analysis/irans-evolving-approach-asymmetric-naval-warfare-strategy-and-capabilities-persian. Accessed June 26, 2025; Defense Intelligence Agency, *Iran Military Power: Ensuring Regime Survival and Securing Regional Dominance* (August 2019). https://www.dia.mil/Military-Power-Publications. Accessed June 26, 2025; David Crist, *The Twilight War: The Secret History of America's Thirty-Year Conflict with Iran* (New York: Penguin, 2012).
[59] United Nations Division for Ocean Affairs and Laws of the Sea, UNCLOS Overview and Full Text. https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm
[60] Bueger, Christian, Timothy Edmunds and Jan Stockbreugger. *Securing the Seas: A Comprehensive Assessment of Global Maritime Security, 14-15.* United Nations Institute on Disarmament Research; November 8, 2024.
[61] Morton, John F, "The US Navy in 1990," *Proceedings* 117, no 5 (May 1991). https://www.usni.org/magazines/proceedings/1991/may/us-navy-1990
[62] Hutagalong, Simon. "ASEAN, China And The Philippines: A Complex Maritime Dispute," Eurasia Review, July 25, 2024. https://www.eurasiareview.com/25072024-asean-china-and-the-philippines-a-complex-maritime-dispute-analysis/
[63] Hon. H. Lawrence Garrett, III, "Department of the Navy 1992 Posture Statement," page 3, Washington, D.C., February-March 1992. extension://efaidnbmnnnibpcajpcglclefindmkaj/https://apps.dtic.mil/sti/pdfs/ADA247771.pdf
[64] Philippine Coast Guard, "Chinese Ships at Whitsun Reef, April 13, 2021," photo provided to Reuters via ABS-CBN/BusinessWorld, Wikimedia Commons, public domain, https://commons.wikimedia.org/wiki/File:Chinese_Ships_at_Whitsun_Reef_Apr_13,_2021.jpg. Accessed June 26, 2025.
[65] "Combined Maritime Forces CTF-151: Counter-Piracy." Visited November 13, 2025. https://combinedmaritimeforces.com/ctf-151-counter-piracy/
[66] Acting CNO Admiral James Kilby's Key Task #3 emphasizes the need to Fight from the MOC, emphasizes the need for Distributed Maritime Operations (DMO): Kilby, James. *Testimony before the House Appropriations Committee,* "On the Posture of the United States Navy." May 14, 2025.
[67]Klein, Natalie. *Maritime Security and the Law of the Sea.* Oxford: Oxford University Press, 2011.
[68] Wayne P. Hughes and Robert Girrier, *Fleet Tactics and Naval Operations*, 3rd ed. (Annapolis, MD: Naval Institute Press, 2018).
[69] William Ledyard Rodgers, *Naval Warfare Under Oars, 4th to 16th Centuries: A Study of Strategy, Tactics, and Ship Design* (Annapolis, MD: Naval Institute Press, 1940).
[70] Caitlin M. Gale, "Barbary's Slow Death: European Attempts to Eradicate North African Piracy in the Early Nineteenth Century," *Journal for Maritime Research* 18, no. 2 (2016): 139–154. https://doi.org/10.1080/21533369.2016.1253303. Accessed June 26, 2025.
[71] George Hancock. "Piracy is Back in the Horn of Africa – What's Behind its Return?" *Royal United Services Institute*. February 1, 2024. https://www.rusi.org/explore-our-research/publications/commentary/piracy-back-horn-africa-whats-behind-its-return. Accessed August 13, 2024.

[72] Bridget. Coggins, "Failing and the Seven Seas? Somali Piracy in Global Perspective," *Journal of Global Security Studies* 1, no. 4 (2016): 270–283.
[73] J. S. Reeves, "Two Conceptions of the Freedom of the Seas," *The American Historical Review* 22, no. 3 (1917): 535–543. https://doi.org/10.2307/1842648. Accessed June 26, 2025; A. H. Dean, "The Second Geneva Conference on the Law of the Sea: The Fight for Freedom of the Seas," *American Journal of International Law* 54, no. 4 (1960): 751–789. https://doi.org/10.2307/2195140. Accessed June 26, 2025.
[74] Marc Milner, *Battle of the Atlantic* (Stroud, UK: The History Press, 2011).
[75] Crist, *The Twilight War*.
[76] Alfred Thayer Mahan, *The Influence of Sea Power upon History, 1660–1783* (Mineola, NY: Dover Publications, 1987). *Note: Original 1890 publication; this is the Dover reprint edition*; Holmes, J. R. (2009). China's Way of Naval War: Mahan's Logic, Mao's Grammar. *Comparative Strategy*, *28*(3), 217–243. https://doi.org/10.1080/01495930903025268; Willingham, *The Flea at Sea*.
[77] Willingham, *The Flea at Sea*.
[78] McRaven, *Spec Ops*.
[79] Toshi Yoshihara, *Mao's Army Goes to Sea: The Island Campaigns and the Founding of China's Navy* (Washington, DC: Georgetown University Press, 2022); M. Taylor Fravel, *Active Defense: China's Military Strategy Since 1949* (Princeton, NJ: Princeton University Press, 2019); James R. Holmes, "China's Way of Naval War: Mahan's Logic, Mao's Grammar," *Comparative Strategy* 28, no. 3 (2009): 217–243.
[80] Willingham, *The Flea at Sea*; Ward, *Immortal: A Military History of Iran and Its Armed Forces*.
[81] Ivan Arreguín-Toft, *How the Weak Win Wars: A Theory of Asymmetric Conflict*, Cambridge Studies in International Relations 99 (New York: Cambridge University Press, 2007).
[82] Arreguín-Toft, *How the Weak Win Wars*; Stephen Biddle, *Nonstate Warfare: The Military Methods of Guerrillas, Warlords, and Militias* (Princeton, NJ: Princeton University Press, 2021).
[83] Arreguín-Toft, Ivan. *How the Weak Win Wars.*
[84] Heritier N. Diakabana. The Changing Dynamics of Asymmetric Warfare: Why Great Powers Struggle Against Weaker Opponents. Johns Hopkins University, January 1, 2025. https://jscholarship.library.jhu.edu/handle/1774.2/70422. Accessed August 13, 2025.
[85] Sandor Fabian, "Total Defense, Revisited: An Unconventional Solution to the Problem of Conventional Forces," *Modern War Institute*, June 10, 2020. https://mwi.westpoint.edu/total-defense-revisited-unconventional-solution-problem-conventional-forces/. Accessed June 26, 2025.
[86] Willingham, *The Flea at Sea*.
[87] David B. Larter, "The U.S. Navy's New Anti-Ship Missile Scores a Hit at RIMPAC, but There's a Twist," *Defense News*, July 20, 2018. https://www.defensenews.com. Accessed June 26, 2025; Defense Intelligence Agency, *Iran Military Power: Ensuring Regime Survival and Securing Regional Dominance* (August 2019). https://www.dia.mil/Military-Power-Publications. Accessed June 26, 2025; Holmes, "China's Way of Naval War," 217–243.
[88] *Joint Publication 3-05: Special Operations* (Washington, DC: U.S. Department of Defense, July 16, 2014).
[89] Colin S. Gray, "Handful of Heroes on Desperate Ventures: When Do Special Operations Succeed?" *Parameters* 29, no. 1 (1999): 23.
[90] Ibid.
[91] Flanagan et al., *Deterring Russian Aggression in the Baltic States*.
[92] Amarulla Octavian, *Indonesian Navy: Global Maritime Fulcrum and ASEAN* (Jakarta: Indonesian Naval Command and Staff College [Seskoal Press], 2019).
[93] Tim Huxley, *Defending the Lion City: The Armed Forces of Singapore*, Armed Forces of Asia series (New South Wales: Allen & Unwin, 2000).
[94] Nadimi, *Iran's Evolving Approach to Asymmetric Naval Warfare*.

[95] McRaven, *Spec Ops*; James D. Kiras, *Special Operations and Strategy: From World War II to the War on Terrorism*, Cass Series: Strategy and History 15 (New York: Routledge, 2006).
[96] Jonathan F. Solomon, "Maritime Deception and Concealment: Concepts for Defeating Wide-Area Oceanic Surveillance Reconnaissance-Strike Networks," *Naval War College Review* 66, no. 4 (2013): 31;
LT Ridge H. Alkonis, "Mine Warfare Needs a New Concept of Operations," *Proceedings* 146, no. 10 (October 2020). https://www.usni.org/magazines/proceedings/2020/october/mine-warfare-needs-new-concept-operations. Accessed June 26, 2025.
[97] Willingham, *The Flea at Sea*.
[98] Diane Zorri and Gary Kessler, "Cyber Threats and Choke Points: How Adversaries Are Leveraging Maritime Cyber Vulnerabilities for Advantage in Irregular Warfare," *Modern War Institute*, September 8, 2021. https://mwi.westpoint.edu/cyber-threats-and-choke-points-how-adversaries-are-leveraging-maritime-cyber-vulnerabilities-for-advantage-in-irregular-warfare/. Accessed June 26, 2025.
[99] Gatchel, *At the Water's Edge*.
[100] "Exploring China's Unmanned Ocean Network," *Asia Maritime Transparency Initiative* (Center for Strategic and International Studies, June 16, 2020). https://amti.csis.org/exploring-chinas-unmanned-ocean-network/. Accessed June 26, 2025; Felix Chang, "China's Maritime Intelligence, Surveillance, and Reconnaissance Capability in the South China Sea," *Foreign Policy Research Institute*, May 5, 2021. https://www.fpri.org/article/2021/05/chinas-maritime-intelligence-surveillance-and-reconnaissance-capability-in-the-south-china-sea/. Accessed June 26, 2025.
[101] Jasmine Alsaied, "How to Make the Indo-Pacific Partnership for Maritime Domain Awareness Work," *The Diplomat*, October 11, 2022. https://thediplomat.com/2022/10/how-to-make-the-indo-pacific-partnership-for-maritime-domain-awareness-work/. Accessed June 26, 2025; Brit Felsen-Parsons et al., "Improving and Operationalizing Maritime Domain Awareness in the South China Sea" (Columbia University, School of International and Public Affairs, May 2020). https://www.sipa.columbia.edu/sites/default/files/migrated/downloads/Redacted%2520SIPA%2520Report%2520-%2520INL%2520%25281%2529.pdf. Accessed June 26, 2025.
[102] Willingham, *The Flea at Sea.*
[103] Colin S. Gray, *Explorations in Strategy* (Westport, CT: Greenwood Press, 1996).
[104] Gray, *Explorations in Strategy*.
[105] Yoshihara, *Mao's Army Goes to Sea*; Holmes, "China's Way of Naval War"; Fravel, *Active Defense*;
Ward, "The Continuing Evolution."
[106] Flanagan et al., *Deterring Russian Aggression in the Baltic States*; Derek Grossman, "Military Build-Up in the South China Sea" (Santa Monica, CA: RAND Corporation, 2020); Bill Hayton, *The South China Sea: The Struggle for Power in Asia* (New Haven, CT: Yale University Press, 2014); Octavian, *Indonesian Navy: Global Maritime Fulcrum and ASEAN*; Huxley, *Defending the Lion City*.
[107] Gray, *Explorations in Strategy*.