Battleship Drones: Desert Storm, Remotely Piloted Vehicles, and Joint Lessons for the 21st Century Warfighters

By: Capt. Grant T. Willis, USAF | July 20th, 2025

Saddam Goes South

After midnight on August 2nd, 1990, Ba'athist Dictator of Iraq, Saddam Hussein, sent 7 Divisions and 3 Separate Special Forces Brigades of his elite and politically reliable Republican Guard into the Gulf Emirate of Kuwait. Iraq's oil-rich neighbor had been accused by Saddam of waging an economic war against Baghdad after its costly 8-year long war with Iran had left it starved of cash. In the summer of 1990, Iraq boasted one of the largest militaries in the world with over 1,000,000 troops, more than 5,000 tanks, 3,500 + artillery tubes, 6,000 armored personnel carriers, 600 + surface to air missile launchers, 500 fixed wing aircraft, 500 rotary wing aircraft, and 44 naval vessels.[1] As the few remaining units of Kuwait's 2 mechanized brigades fled into Saudi Arabia, the international community and the United States

[1] Westermeyer, Paul W. "Liberating Kuwait U.S. Marines in the Gulf War, 1990-1991." https://www.usmcu.edu/, 2014. https://www.govinfo.gov/app/details/GOVPUB-D214-PURL-gpo52758. Pg 21-24.

moved to form a coalition to throw Saddam out. Leading the Allied coalition at sea were not only the powerful U.S. aircraft carriers, but an even more classic American naval icon, the battleships. The last use of the upgraded World War II-era Iowa Class Fast Battleships in combat and their often-forgotten role in the development of unmanned combat aviation showcase innovations that can inspire today's joint minded practitioners of war. The use of drones from battleships in Operation Desert Storm highlights many takeaways and lessons learned for both regular and irregular joint forces in today's Department of Defense (DOD).

Figure 1: Iraqi invasion plan of Kuwait

Today, to support the conventional force, Special Operations Forces (SOF) must complicate the enemy's thinking and create "dilemmas" an enemy command structure must attempt to mitigate. SOF's ability to use unique joint capabilities to instill "dilemmas" in the enemy's battle plan fix forces out of position and enable our joint conventional force freedom of action. There are many SOF examples of this concept which are well known, such as the Air Force Special Operations Command (AFSOC) operations leading Task Force

Normandy to take out Iraqi Early Warning Radar sites during Operation Desert Storm and the so called “Ugly Baby” mission to insert U.S. Special Forces into Northern Iraq in Operation Iraqi Freedom, leading to the fix of 13 of Saddam’s 20 divisions north of Baghdad. There is much to learn from such operations and there is plenty of material available to appreciate the lessons associated with them; however, some tactical actions like the use of drones from battleships can serve a similar form of instruction for SOF air professionals.

Figure 2: Iraqi Dictator and President, Saddam Hussein

Israeli Drones Inspire the DOD

In 1982, the Israeli Air Force (IAF) utilized aerial drones to spot and spoof Syrian air defense batteries in Lebanon's Bekaa Valley. The Israeli "Scout" drones flying above the Valley, found and fixed Syrian mobile SA-6 "Gainful" surface to air missiles (SAM), ZSU-23-4 "Shilka" air defense artillery (ADA) and accompanying radar sites. These drones, on top of identifying enemy positions, got the Syrians to foolishly turn on their radars, exposing them to attack from IAF high-speed anti-radiation missiles (HARMs). Those Syrian batteries not destroyed by HARMs were cleaned up by other IAF strike aircraft dropping bombs and firing rockets. Only 2 out of the 17 Syrian SAM sites in the Bekaa Valley survived destruction.[2] The United States Navy took note of the Israeli innovation in the use of air power and by the late 1980s, a contract was finalized to provide aerial scout drone capabilities to the Department of Defense. The American version of the Israeli Scout was known as the "Pioneer" or "RPV" (Remotely Piloted Vehicle) and would be used as a new "eye in the sky" for America's reinvigorated battleships.[3]

---

[2] Willis, Grant. "Israel's Firebees: UAVs & the Future of the Suppression of Enemy Air Defenses." Consortium of Indo-Pacific Researchers -, August 29, 2022. https://indopacificresearchers.org/iaffirebees/.

[3] *Combat Ships. Combat Ships Gulf War Warriors S3 E4*, 2022.

Figure 3: Syrian SA-6 Launcher, Bekka Valley, 1982

Iowa Class Battleships & The Tomahawk

By the early 80s, the Soviet fleet possessed 4 nuclear powered Kirov class cruisers. In the West, their power equated to many experts referring to them as "Battlecruisers", therefore, the 4 Iowa Class Fast Battleships were brought back into the fleet as America's answer. Although old, the Iowa Class would bring back their long-range heavy armament of 9 16-inch guns with a 23 miles range plus some late Cold War upgrades.[4]

The newest upgrade to the firepower of the recommissioned Iowa Class Fast Battleships was the BGM-109 "Tomahawk" land attack missile (TLAM) housed in 8 Mark 143 "Armored Box" Launchers with 4 TLAMs each. The ships also received 16 RGM-84 "Harpoon" Anti-ship cruise missiles (ASCM) housed in 4 quad-cell mark 141 canisters. For anti-air capabilities, they were equipped with a close-in weapons system (CIWS) in the form of 4 mark 16 "Phalanx" 20-mm Gatling gun mounts capable of firing 50 rounds per second or 3,000

[4] Bauernfeind, Ingo. *U.S. battleships 1939-45*. Havertown, PA: Casemate Publishers, 2024. Pg 213.

rounds a minute. The Tomahawks extended the battleships' main gun's weapon engagement range by 1,500 nautical miles. This precision guided weapons system gave America's battleships the range to hit the heart of Saddam's regime, Baghdad.[5] Both *USS Missouri* and *USS Wisconsin* fired their Tomahawks as part of the first BGM-109 strikes in combat against Iraqi targets. *Wisconsin* served as TLAM strike commander in the Persian Gulf.

In addition to the added firepower, the Battleships possessed a helicopter landing deck complete with a detachment to operate the Navy's latest Seahawk helicopter, and a complement of deck launched and net recoverable remotely piloted vehicles (RPVs). Known as the RQ-2 "pioneer", Navy Composite Squadron 6 (VC-6) would deploy units for Operation Desert Storm, separating into 2 ship-borne detachments with Det 1 aboard *USS Missouri* and DET 2 aboard *USS Wisconsin*. Similar to the role of airborne gunfire spotting and aerial reconnaissance played by the Vought OS2U "Kingfisher" catapult launched scout plane flying from battleships during World War II, the Navy's RPVs would be able to fill this role while beaming back real time battlefield footage to the combat information center (CIC). As the *Missouri* and *Wisconsin* opened fire against Iraqi coastal targets in Desert Storm, VC-6 would perform the task that many naval aviators assigned as spotting aircrew did during WWII, but without the risk of losing a human life if the aircraft were to be lost on target.

---

[5] Bauernfeind, Ingo. *U.S. battleships 1939-45*. Havertown, PA: Casemate Publishers, 2024. Pg 215-225.

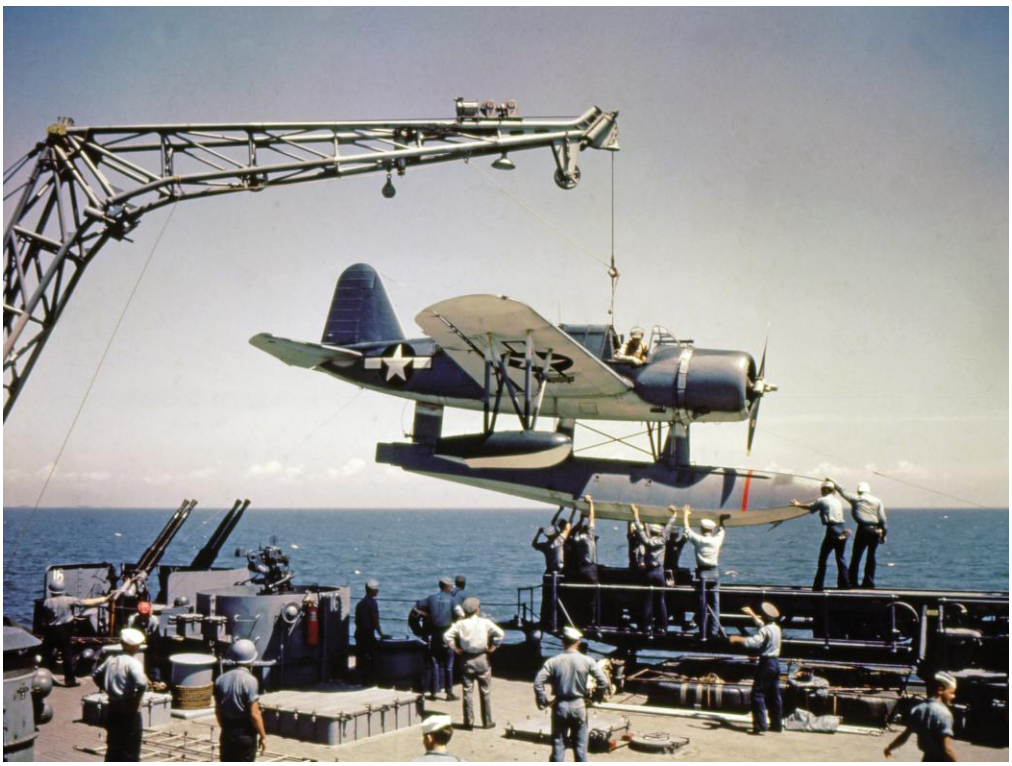

Figure 4: OS2U "Kingfisher" scout float plane, WWII

Bringing the Storm (Remotely)

After the fall of the Soviet Union, the U.S. Navy again decommissioned the Iowa Class Battleships beginning with Iowa in October 1990, followed by New Jersey in February 1991. For Desert Storm, only *Missouri* and *Wisconsin* remained to showcase their awesome firepower against another challenger to America in the 20th century.

At 0140 hours on January 17th, 1991, *Wisconsin*, as TLAM Strike Commander, coordinated the launch of 47 Tomahawk cruise missiles from ships of the Fleet in the Persian Gulf. Their targets, downtown Baghdad. In conjunction with the Air Force's new F-117 "Nighthawk" stealth fighters and

their precision guided bombs, *Wisconsin* launched 8 TLAMs while *Missouri* launched 7, joining the initial strikes to cripple strategic air defense and command and control targets in Saddam's capital. The battleships fired their missiles against the enemy capital at a range of 330 miles.[6] The opening carrier battles of WWII in the Pacific had shown the fact that the range of battleships was outmatched by the striking power of the aircraft, but now, the battleship was back in the long-range game, and the targets were downtown.

Figure 5: https://www.history.navy.mil/our-collections/photography/numerical-list-of-images/nara-series/dn-series/dn-sn-91-09313-uss-missouri--bb-63--fires-tlam.html

[6] Burr, Lawrence, and Peter Bull. *US Fast Battleships 1938-91 The Iowa Class*. Oxford, UK: Osprey, 2010. Pg 42.

The following night, both battleships fired an additional 29 Tomahawks. In total, *Wisconsin* coordinated the launch of 213 Tomahawks while *Missouri* led coordination for naval gunfire support (NGFS) to coalition ground units moving against the Iraqi Army in occupied Kuwait. The Mighty MO's 16-inch guns first fired in anger against Iraqi coastal command bunkers on February 3rd. *Missouri's* gunfire throughout the campaign would be corrected in real time by the RQ-2s of VC-6. Launched by rocket assistance from the battleship's fantail, the Pioneer drones flew line of sight only, limiting their range; however, in 1991 this capability was revolutionary for real time video correction of fire through using their infrared imaging. They could find and fix targets for destruction by either the guns of the battleships or ground artillery and air strikes.[7]

On February 24th, *Missouri*, to deceive Iraqi leadership into believing a coalition amphibious assault was imminent, began shelling occupied Faylakah Island. This shore bombardment commenced prior to the Coalition assault into Kuwait and U.S. 7th Corps' famous "Left Hook" advance into Iraq to cut off Saddam's Army in Kuwait. Faylakah Island would be defended by 10 Iraqi Divisions! Many of these units became intimately familiar with the consequences of being on the working end of *Missouri's* 133 16-inch shells throughout the island's bombardment and that naval gunfire's accuracy was only made more effective with the humming of the Pioneers loitering above.[8] To

[7] Ibid., Pg 44.
[8] Ibid., Pg 44.

put *Missouri's* gunfire into perspective it is important to understand that one nine-gun salvo of 16-inch guns off an Iowa Class battleship equates to the destructive power of 183 155mm artillery pieces.

In retaliation to the *Missouri's* guns, the Iraqis launched 2 Communist Chinese made H-2 "Silkworm" Anti-Ship Cruise Missiles at the *Missouri*. Each missile was armed with a powerful warhead weighing in at 1,113 pounds. British Destroyer, *HMS Gloucester*, escorting *Missouri* fired a Sea Dart Naval surface to air missile destroying one of the Silkworms while chaff fired from *Missouri* caused the other to miss the battleship by 700 feet and crashed into the Gulf. The Iraqi failure to hit the *Missouri* was a grave mistake as her RQ-2 found the missile battery, correlating the target for 50 rounds from the MO's 16-inch guns. The battery was annihilated. *Missouri's* sister ship *Wisconsin* joined in the bombardment of the Iraqis on Faylakah. The battle line now contained both America's remaining Iowa Class Battlewagons. *Wisconsin's* RQ-2 was launched alongside *Missouri's* to assist in target spotting. *Wisconsin's* detachment from VC-6 flew low over the island and upon seeing the Pioneer, something happened which had never occurred in the history of warfare. After seeing the Pioneer drone in the overhead, the Iraqis on the island knew more 16-inch shells had their names on them and they began to wave white flags and came out from their dug-in defensive positions with raised hands. The video feed beaming back to the *Wisconsin's* combat information center (CIC) was stunning. For the first time, humans surrendered to a robot from above.[9]

---

[9] Ibid., Pg 44.

Figure 6: https://www.history.navy.mil/our-collections/art/exhibits/conflicts-and-operations/the-gulf-war-1990-1991--operation-desert-shield--desert-storm-/uss-missouri-under-attack-by-iraqi-silkworm.html

On February 28th, 1991, a ceasefire went into effect. Saddam's Army was a shadow of its former self, Kuwait was liberated, and anyone who doubted America's military might was well instructed on the consequences of taking on the United States in open, conventional battle. Potential future adversaries took note. During the campaign both battleships fired a total of 1,078 16-inch shells and launched 52 Tomahawks.[10] The many sorties flown by the 2 RQ-2 detachments of VC-6 played a critical role in assuring the 1,000+ shells were

[10] Ibid., Pg 44.

as precise as possible and that every shot counted whether that be shore bombardment against targets of opportunity or critical calls for fire against Iraqi units in close contact with coalition troops. The total contribution of the airborne drone-gun line team must also take partial credit for the fix of 10 Iraqi Divisions dedicated to defending a geographic area well outside the coalition center of gravity and disabled potential Iraqi reserves to be placed in an advantageous position to stall any coalition advance. This is significant as Saddam dedicated 52 of his 60 available divisions to the defense of Kuwait.

Figure 7: Iowa Class Broadside from aft turret's 16-inch guns

Vice Admiral Stan Arthur (USN) highlighted the importance of the RQ-2s of Desert Storm in the pages of the U.S. Naval Institute's *Proceedings* magazine stating, "Remotely piloted vehicles proved to be marvelous, versatile devices.

They allowed the battleships to attack the enemy on their own, without the need for outside assistance in spotting. Spotting by the RPVs not only allowed for accurate naval gunfire support but also provided instant battle damage assessment. The RPV offers quick response and flexibility, because it is under positive tactical control and has the ability to get below a low ceiling."[11]

In the official VC-6 history published in an official memorandum after the war, the squadron commander, E.C. Ferriter reflects,

> VC-6 Pioneer UAV8s played a crucial role in support of battleship combat operations throughout operations DESERT SHIELD and DESERT STORM. VC-6 Detachment ONE deployed with the battleship USS WISCONSIN (BB-64) and Detachment TWO deployed with USS MISSOURI (BB-63). The UAV's unique capabilities were exceptionally valuable in reconnaissance and gunfire support operations. Pioneer's infrared camera proved particularly adept at locating enemy contacts of interest. Manned and supported at a level intended to support only one surveillance flight every other day, VC-6 UAV detachments flew three to four flights daily and provided extensive coverage for Battle Group Commanders, NAVCENT and USCENTCOM. UAV's detected Silkworm ASM sites, AAA batteries, artillery, ammunition bunkers, patrol boats, radar facilities, tank battalions, logistics sites and command posts. Real-time imagery provided by VC-6 was directly responsible for the pinpoint

[11] Arthur, Stan. "The Storm at Sea." U.S. Naval Institute, February 21, 2019. https://www.usni.org/magazines/proceedings/1991/may/storm-sea.

accuracy of 1,224 rounds of sixteen-inch gunfire directed at enemy positions in southeastern Kuwait. An on-station UAV over Faylakah Island linked video imagery of Iraqi soldiers waving white flags, recording the first ever surrender of enemy forces to an unmanned vehicle. This imagery was one of the Navy's best war media events. It was shown on worldwide TV, and frames were printed throughout the international press…During 1991, VC-6 was transformed from a service organization to a vital operational combat unit. In the Persian Gulf, VC-6 played an indispensable role in the Allied success in Operation DESERT STORM and verified the importance of the UAV in any foreseeable conflict. Squadron accomplishments were briefed to the highest levels of DOD including the Secretary of Defense and received world acclaim through international media coverage. At home, VC-6 met all commitments despite the large number of assets and personnel deployed to DESERT STORM. BQM sorties, for example, increased 17 percent over CY 1990. Through disciplined professionalism and a commitment to performance, the "Firebees" thrived during the most challenging period of squadron history. VC-6 excelled under all conditions.[12]

[12] Ferriter, E.C. “Fleet Composite Squadron 6 History for Calendar Year 1991.” https://www.history.navy.mil/, April 2, 1992. https://www.history.navy.mil/. Pg 9-10.

Figure 8: Bauernfeind, Ingo. U.S. battleships 1939-45. Havertown, PA: Casemate Publishers, 2024. Pg 225. RQ-2 video downlink footage from Desert Storm Campaign, 1991

Throwing the enemy out of position and off balance is the name of the game for special operations. To create dilemmas for the enemy and place doubts and unknowns which affect the distributions of their units. Real time battle damage assessments (BDA) and real time precision fire corrections are some of the most important tools a commander can use to attempt to rapidly achieve political objectives using air power. Unmanned systems that can assist in long range fires getting “on target” or confirming a target has been sufficiently destroyed are vital to accomplishing objectives or measuring effectiveness.

The RQ-2s flying off *Missouri* and *Wisconsin* may at first glance seem like tactical level platforms which hold little strategic effect upon a large campaign like Desert Storm, but this perception could not be more wrong. There are times when tactical units and their extraordinary actions combine to achieve strategic level effects. The story of America's battleships in Desert Storm is an uncommon one and the story of their ship-borne drones are even more unsung. The RQ-2's contribution to the advancement and development of unmanned combat aerial vehicles (UCAVs) is instrumental in leading to what we see on battlefields all over the world. From the sands of the Middle East and Fields of Eastern Europe to the Caucasus, drones have changed the character of warfare and sparked a revolution in military affairs (RMA). This latest RMA has prompted many commands across the U.S. Department of Defense, like U.S. Special Operations Command (USSOCOM) to adapt to the evolution in the character of warfare.

USSOCOM's (United States Special Operations Command) "SOF Renaissance" outlines the intent stated by the Commander, General Bryan Fenton, and many key aspects to Special Operations goals to meet contemporary threats. The pamphlet states,

> Today, SOF finds itself in a similar position to the 1940s, facing great power competition complexities. The increased coordination between China, Russia, Iran, and North Korea demands a strategic response. SOF's legacy of irregular warfare and strategic competition is deeply ingrained in its DNA. As we navigate this new era, the lessons of the past

80 years remind us that SOF's ability to adapt and innovate remains its greatest strength. This SOF Renaissance demands that we continue to lead, innovate, and excel as a bridge for strengthening and defending our nation. The nation's main effort will always be USSOCOM's main effort…The National Defense Strategy (NDS) threats are attempting to reshape the international order by posing significant challenges to global security and stability. Combined with a rapidly changing character of war, their convergence - a fusion of foes - is creating volatility and uncertainty as never before. This is challenging the rules-based order in place since World War II. PRC and Russia's alignment on authoritarianism, coupled with their strategic partnership, undermines efforts to maintain the rules-based international system…In addition to these converging threats and their employment of all levers of national power, the fluid future of warfare is also in motion. Driven by technological, geopolitical, and societal changes, the world is becoming more complex. With ubiquitous technical surveillance, a pervasive system of data collection enables targeting on people, activities, and locations utilizing various technologies such as online tracking, financial transactions, and mobile devices. Understanding the distinction between the evolving nature of war and its evolving character is essential for SOF

to maintain its place as a pathfinder for DoD, as we have trailblazed for decades.[13]

Figure 9: Soldier of the 75th Ranger Regiment

Case studies such as the pioneering use of drones from battleships in the Gulf War showcase what is possible when tactical innovations can produce strategic dilemmas for the enemy. The threat of amphibious assaults on Kuwait's Gulf coast through the effectiveness of battleship naval gunfire prompted Saddam's generals to divert forces away from the coalition main line

[13] "SOF Renaissance." https://www.socom.mil/, February 2025. https://www.socom.mil/Documents/2025-SOF_Renaissance(25FEB)Web.pdf. Pg 5-7.

of advance. Normally a job reserved for SOF, successfully diverting large numbers of enemy conventional forces away from the main effort is one of many unique functions of SOF air power. Even if such principles are executed by an unlikely group operating from the decks of battleships, professionals should take notice of applications in operations today.

As SOCOM searches for meaning within a new post-GWOT (Global War on Terror) era of great power competition, such case studies should serve as a motivator to seek innovative methods by specialized air warfare practitioners. Using unmanned aerial vehicles to find and fix the enemy is not a novelty. Throughout the GWOT and post-GWOT counter terrorism phases we find ourselves in, RPAs have sought out and hunted down enemy terror organizations and their leaders. With SOF at the forefront of these operations, it is vital to maintain a sense of how our tactics, technology, and personnel need to adapt to new enemy capabilities. As we move to an era in which non-state actors grow in weapons capabilities, we must continue to drive innovation to retain the edge against them on the battlefield. Militias and rebel/terrorist organizations such as Hezbollah, Kata'ib Hezbollah, Ansar Allah, Al-Qaeda affiliates, and ISIS continue to wield more and more conventional weapons within a "GWOT-like" environment. Employing one way attack drones, anti-ship ballistic missiles, cruise missiles, surface to air missiles, and many more, these groups seek to evolve into a "hybrid-conventional" status beyond the typical IED or AK-47.

Figure 10: U.S. Army MQ-1C "Grey Eagle" launching "Eaglet" Small UAS

If we are to maintain our military superiority over these types of organizations while still building a force capable of taking on Great Power rivals, we must harness the operational and tactical lessons of our own operational experiences in areas like Syria, Iraq, and Yemen as well as the series of conflicts across the globe since 2020. Building a myriad of unmanned systems across the joint force, able to perform a multitude of mission sets in both post GWOT hybrid conventional environments as well as the "big one", will allow SOF and the regular forces the ability to adapt and overcome threats as they appear. Ultimately the goal should be to provide the combatant commander with a buffet of tactical platforms across all domains of war offering low risk solutions to friendly forces and maximizing the ability to outmaneuver enemy adaptations on the modern battlefield. Small platforms such as the RPV providing a WWII era naval gunfire platform real time target

corrections from above go a long way in inspiring the sorts of systems we must have to find, fix, and finish the enemy at a distance. The RPV alone certainly did not win the war, no one tactical system ever does win a war alone. The joint nature of success on the modern battlefield requires a myriad of such systems to shape victory from the tactical and operational levels, eventually achieving strategic success. Our ability to leverage history and seek the knowledge therein prepares our force to adapt to the threats we will face tomorrow.

Figure 11: Soldier of the 75th Ranger Regiment with sUAS

Disclaimer:

The views and opinions expressed in this article are those of the author and do not necessarily represent the views or opinions of the United States Government, Department of Defense, or Department of the Air Force.

Author Bio:

Captain Willis is an AFSOC Pilot and fellow with the Consortium of Indo-Pacific Researchers. He is a distinguished graduate of the University of Cincinnati's Air Force ROTC program with a BA in international affairs and a minor in political science. His work has appeared in *Proceedings*, *Naval History*, Air University's *Journal of Indo-Pacific Affairs*, Air University's *Wild Blue Yonder Journal*, *Air Commando Journal*, and elsewhere.

Sources Consulted:

Westermeyer, Paul W. "Liberating Kuwait U.S. Marines in the Gulf War, 1990-1991." https://www.usmcu.edu/, 2014. https://www.govinfo.gov/app/details/GOVPUB-D214-PURL-gpo52758.

Willis, Grant. "Israel's Firebees: UAVs & the Future of the Suppression of Enemy Air Defenses." Consortium of Indo-Pacific Researchers -, August 29, 2022. https://indopacificresearchers.org/iaffirebees/.

Combat Ships. *Combat Ships Gulf War Warriors S3 E4*, 2022.

Bauernfeind, Ingo. *U.S. battleships 1939-45*. Havertown, PA: Casemate Publishers, 2024.

Burr, Lawrence, and Peter Bull. *US Fast Battleships 1938-91 The Iowa Class*. Oxford, UK: Osprey, 2010.

"SOF Renaissance." https://www.socom.mil/, February 2025. https://www.socom.mil/Documents/2025-SOF_Renaissance(25FEB)Web.pdf.

Arthur, Stan. "The Storm at Sea." U.S. Naval Institute, February 21, 2019. https://www.usni.org/magazines/proceedings/1991/may/storm-sea.

Ferriter, E.C. "Fleet Composite Squadron 6 History for Calendar Year 1991.", April 2, 1992.https://www.history.navy.mil/content/dam/nhhc/research/archives/command-operation-reports/aviation-squadron-command-operation-reports/vc/vc-6/pdf/1991.pdf.