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<b>13. SUPPLEMENTARY NOTES</b> A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department and the Maritime Advanced Warfighting School (MAWS). The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.  The return of Great Power Competition after a long period of technological advancement poses new complications to the joint force's mission to gain, maintain, and exploit sea control. Great and regional powers alike have embraced the once-discounted fortress fleet concept to threaten overwhelming cost to the United States Navy's doctrinal methods of gaining sea control while maintaining freedom of action in their own littoral spaces. The advancements in land-based scouting and firepower work both ways, however. This paper presents historical examples of traditional fleets working in close cooperation with land-based power in littoral spaces and argues that the USN fleet should bring its own forts forward in pursuit of its objectives. It explains the benefits for strategic flexibility by using forward fortresses at the operational level of war before explaining the method by which non-maritime assets could fight today as a fortress in support of sea control. Finally, it draws conclusions about the benefits of fortresses to a truly joint and multi-domain fleet, while recommending force structure and command relationships to support the fortress concept.					
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**NAVAL WAR COLLEGE  
Newport, R.I.**

**A Joint and Multi-Domain Fortress to Fight for Sea Control**

**A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department and the Maritime Advanced Warfighting School (MAWS).**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

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## A Joint and Multi-Domain Fortress to Fight for Sea Control

In 1940 the Kriegsmarine, under Luftwaffe cover, succeeded in seizing key land objectives in the face of the Royal Navy's seemingly total control of the North Sea. It came at a cost, though, delivered mostly by a single aging fortress, British submarines, and land-based air power. Fleet Air Arm platforms operated from the UK, carriers, and hastily built airstrips in Norway to impose cost on the Luftwaffe and Kriegsmarine. A combination of maritime and land-based assets served both the offense and defense: Germany got its sub-bases and secure SLOCs, while the UK permanently crippled the Kriegsmarine as a surface force.<sup>1</sup> As the smoke settled the UK, seemingly outmaneuvered, was able to use cost-effective platforms tied to land basing — the Royal Air Force and small craft of the Coastal Forces — to help keep the Kriegsmarine engaged in the Channel and North Sea, all the while employing its deepwater fleet to keep open its SLOCs and threaten the Axis in the Mediterranean.<sup>2</sup>

With the increasing ability of land-based assets to influence sea control and sea denial, the United States Navy and the Joint Force must embrace the fortress fleet concept. A maritime task force must integrate a truly joint and multi-domain fleet, to include not just shore-based air and scouting but also land-based force and counter-force assets, to effectively fight for sea control against a near-peer adversary. A land force engaged in the maritime space will allow premiere assets with truly strategic mobility — maritime task forces — to pursue theater and global objectives without being risked in the operational fight. Additionally, a land force dedicated to the forward sea control fight will be able to protect the friendly maritime force by engaging enemy Anti-Ship Cruise Missiles (ASCMs) and Anti-Ship Ballistic Missiles (ASBMs), degrading adversary scouting, and influencing enemy C2. Finally, it will be able to provide

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<sup>1</sup> John Robert Elting, *Battles for Scandinavia* (Alexandria, Virginia: Time-Life Books, 1981), 89.

<sup>2</sup> Leonard Mosley, *The Battle of Britain* (Alexandria, Virginia: Time-Life Books, 1977), 88.

scouting forward for joint fires, harden friendly CSISR networks, and provide joint fires from organically organized units.

Answering the question at the heart of this problem requires understanding Anti-Access / Area Denial (A2/AD) strategies, the fortress fleet concept, and the Wayne Hughes model for fleet combat. Broadly, A2/AD includes any and all efforts to exclude U.S. influence or forces in a specific area. A2/AD strategies can be lethal or non-lethal, exist in all domains, and both resist the entry of friendly forces and limit freedom of maneuver after arrival.<sup>3</sup> Historically, the fortress fleet concept has been discounted by major naval theorists but is now growing in favor. At its heart, a fortress fleet is one that prefers to operate from a protected port and underneath the umbrella of the fort's arsenal while retaining the ability to sortie out to an open sea fight. Fortresses hold more firepower and possess deeper magazines than a fleet and, in theory, a fleet operating within range of its supporting fortress need not worry about fighting a fleet-on-fleet engagement.<sup>4</sup>

The Hughes model of maritime combat consists of three opposing dyads that provide a prediction of the outcome of a modern missile engagement: offensive combat power (OCP) and counterforce, scouting and counter-scouting, and Command and Control (C2) and Command and Control Countermeasures (C2CM). The dyad of offensive firepower and counterforce is an objective, mathematical comparison between the numbers of missiles fired and the ability of a defender to shoot them down. That mathematical interaction is, however, modified by a more subjective interpretation of the other dyads, which is represented by offensive and defensive

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<sup>3</sup> Nathan Freier, "The Emerging Anti-Access/Area-Denial Challenge," CSIS, May 17, 2012, <https://www.csis.org/analysis/emerging-anti-accessarea-denial-challenge>, 1.

<sup>4</sup> James R Holmes, "Anti-Access and the 'Fortress-Fleet'," – The Diplomat (for The Diplomat, October 8, 2013), <https://thediplomat.com/2012/09/anti-access-and-the-fortress-fleet/>, 1.

awareness and effectiveness.<sup>5</sup> The understanding of a modern fight for sea control is a struggle between these six elements, and this paper will address them in the context of A2/AD strategies and fortress fleets in the offense and defense.

### **Operational Attrition for Theater and Global Maneuver**

A fight against a near-peer adversary is unlikely to be confined to the operational echelon or a restrictive JOA. By applying constant pressure to an adversary and providing options to the Joint Force Maritime Component Commander (JFMCC) at the operational echelon, a forward land element frees maritime assets to maneuver at the theater-strategic and global levels. No other joint asset is as strategically flexible as the United States Navy. By sharing the operational fight in the littorals, the Navy's task forces will retain the capacity to outmatch the adversary everywhere else.

The theater of conflict in a near-peer fight will be vast and superseded only by the global, national-strategic aspect of the conflict. A near-peer adversary must compete with the United States at the strategic echelon, and no adversary has the depth of strategically maneuverable assets to do so. An adversary must seek to attrit our maritime assets in an operational fight, an effort blunted by the F3. The Norwegian Campaign of WW2 may have crippled the Kriegsmarine's surface fleet, but the threat of large surface actions, heavy air bombardment, and engagements by fast attack craft didn't fade until 1944.<sup>6</sup> Even though the Royal Navy and RAF were on the back foot, they recognized the capability that they retained after Norway. The Home Fleet was the largest formation in the Royal Navy until 1944, but task groups were steadily sliced away from it to support other operations that had strategic impacts. Scores of escorts

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<sup>5</sup> Hughes Jr. Wayne P., *Fleet Tactics and Naval Operations: Third Edition* (La Vergne, Maryland: Naval Institute Press, 2018), 168-169.

<sup>6</sup> Mosley, *The Battle of Britain* 23-24.

blunted the U-boat campaign in the Battle of the Atlantic and preserved the SLOCs supplying Britain.<sup>7</sup> Carriers and other capital ships supported convoys to Malta and other operations in the Mediterranean with strategic significance.<sup>8</sup> All the while, the UK was able to stave off direct Axis threats to the Home Islands with assets of relatively low cost: aircraft, fast attack craft, and ADA.<sup>9</sup> By maintaining their position and imposing cost with land-based forces, the British were able to achieve their objectives elsewhere in the Western European theater. Though unlikely to be used to defend the homeland, an F3 will blunt an opponent's attempt to gain sea control enough that it will free up maritime assets to conduct missions elsewhere in the theater. Convoy defense, ASW, peripheral operations: all are missions best suited to maritime platforms that would otherwise be tied down or attrited in the sea control fight. By using an F3, the JFMCC reduces the overall cost to the joint force and increases flexibility in the entire theater. The more maritime assets that are spared from the operational fight, the more available to degrade adversary strategic interests and protect friendly national assets and interests.

### **Counterforce, Counter-Scouting, and C2CM**

Of all the benefits that a multi-domain Fleet Fortress Forward (F3) can provide to the Joint Force Commander, paramount are those that focus on the protection of friendly Maritime forces and the degradation of an adversary's offensive power. A forward land force brings with it a robust ability to defeat adversary firepower through ground-based air and missile defense, both to protect itself and portions of the maritime domain. This force also, by virtue of its position within or along the periphery of an A2/AD zone, can engage and disrupt aspects of adversary

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<sup>7</sup> Barrie Pitt, *The Battle of the Atlantic* (Alexandria, Virginia: Time-Life Books, 1977), 188.

<sup>8</sup> Whipple A B C., *The Mediterranean* (Alexandria, Virginia: Time-Life Books, 1981), 148.

<sup>9</sup> "Coastal Forces of World War Two," Coastal Forces of World War 2 | Online Information Bank | Research Collections | Royal Naval Museum at Portsmouth Historic Dockyard, 2001, [https://web.archive.org/web/20071014074925/http://www.royalnavalmuseum.org/info\\_sheets\\_CoastalForcesWW2.htm](https://web.archive.org/web/20071014074925/http://www.royalnavalmuseum.org/info_sheets_CoastalForcesWW2.htm), 1.

scouting. By the same token, this force can both directly impact adversary C2 through kinetic and non-kinetic means, as well as presenting additional dilemmas to an adversary's command structure. These capabilities provide the JFMCC the ability to degrade adversary offensive power and reduces the risk to the force during the fight for sea control.

Land-based forces acting in support of a fleet can sustainably conduct counterforce, being able to reload forward, and land-based assets display staying power through tactical mobility, site hardening, and the redundancy or rapid replacement of critical assets. In the missile age, warships and task groups are forced to fill the majority of their magazines with counterforce weapons for air and maritime defense. Additionally, the nature of modern weapons and the fragility of modern electronics means that a warship can't sustain any hits from an ASCM or CDCM without being combat ineffective. As such, staying power as defined by Hughes is no longer a consideration for warships, and surface vessels operating without any other source of counterforce must sacrifice much of their potential firepower to protect themselves.

The US Army and Marine Corps already possess or will field in the next three to five years tactically mobile, capable, and survivable air and missile defense assets capable of creating layered counter-force areas extending from littoral areas. The Army inventory for operational air and missile defense includes the family of Stinger-based platforms, Patriot Missile batteries, and the Counter Rocket Artillery Mortar (C-RAM) platform based on the Navy's Close-In Weapon System (CIWS).<sup>10</sup> USMC air defense units also bring Stinger-based units to contribute to low-altitude air defense.<sup>11</sup> Additionally, both the Army and USMC are beginning to field additional

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<sup>10</sup> Wes Rumbaugh, "Seeking Alignment: Missile Defense and Defeat in the 2022 Budget," Missile Threat, December 13, 2021, <https://missilethreat.csis.org/seeking-alignment-missile-defense-and-defeat-in-the-2022-budget/>.

<sup>11</sup> "GROUND BASED AIR DEFENSE," Ground based air defense, accessed April 20, 2023, <https://www.peols.marines.mil/Programs/Ground-Based-Air-Defense/>.

sensor, missile, directed energy<sup>12</sup>, and ballistic systems<sup>13</sup> that will add air and Unmanned Aerial System (UAS) protection to an F3.<sup>14</sup> Existing and emerging systems have successfully defeated ASCMs and Land Attack Cruise Missiles (LACMs) in recent tests as part of a series of ongoing upgrades.<sup>15</sup> The emphasis on tactical mobility, interconnected sensing, and the ability to engage aircraft and cruise missiles presents an opportunity for an F3 to protect not only itself but a significant portion of the littorals. F3-based counterforce exhibits operational endurance lacking in surface combatants: a Patriot launcher, for example, can reload within four hours, while a surface ship must return to a protected port to reload after a much longer transit.<sup>16</sup> Land-based assets can generate and maintain spaces in the maritime domain that reduce the risk to assets afloat, while also allowing those same warships to carry more power-projection weapons in their magazine into the fight.

Forward land assets are capable of defeating adversary anti-ship ballistic missiles both in large portions of a given theater and during terminal approach within the previously mentioned ADA envelope. In addition to the Patriot batteries' ability to engage cruise missiles and airframes, they also provide the F3 the ability to protect limited sections of the littoral from ASBMs on their terminal approach towards maritime targets.<sup>17</sup> More importantly, an F3 equipped with Terminal High Altitude Air Defense (THAAD) can provide protection for afloat

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<sup>12</sup> Jared Keller, "The Army Will Finally Stand up a Laser-Equipped Stryker Platoon next Month," Task & Purpose, December 6, 2022, <https://taskandpurpose.com/tech-tactics/army-de-m-shorad-platoon-fielding/?amp+%5Btaskandpurpose.com%5D>.

<sup>13</sup> "GROUND BASED AIR DEFENSE."

<sup>14</sup> Sydney J. Freedberg Jr., "Army Anti-Aircraft Stryker Can Kill Tanks Too," Breaking Defense, October 14, 2021, <https://breakingdefense.com/2018/07/army-anti-aircraft-stryker-can-kill-tanks-too/>.

<sup>15</sup> Kris Osborn, "U.S. Patriot Missile Defense Systems Can Now Kill Cruise Missiles," The National Interest (The Center for the National Interest, August 21, 2020), <https://nationalinterest.org/blog/buzz/us-patriot-missile-defense-systems-can-now-kill-cruise-missiles-167393?amp+%5Bnationalinterest.org%5D>.

<sup>16</sup> "Patriot Battalion Training Standards," CATS, accessed April 20, 2023, <https://atn.army.mil/ATNPortalUI/CATS/ViewCats?catsidentifier=dd25465f-6925-4dea-a6fc-8256a8072b88>.

<sup>17</sup> Kris Osborn, "U.S. Patriot Missile Defense Systems Can Now Kill Cruise Missiles."

platforms within 150-200 kilometers against ASBMs.<sup>18</sup> The ability of these assets to engage and track ASBMs lowers the risk to the JFMCC by increasing defensive awareness and attriting adversary offensive weapons. F3 assets can further protect high-value maritime assets from adversary systems and increase the operational flexibility of the JFMCC.

Through tactical mobility, deception, and hardening of nodes and launchers, land-based forces can achieve a level of staying power long since abandoned in purely maritime conflict. Inherent to the differences between land and surface maritime domains, an F3 will prove more survivable than standard surface Task Groups in the inevitable attrition portions of the fight for sea control. Strategic mobility is a key feature of naval forces but, at the tactical level, speed and maneuverability matter little against ASCMs with active seekers and supersonic speeds.<sup>19</sup> An F3 will have to contend with Precision Guided Munitions (PGMs), saturation by non-PGMs, or both.<sup>20</sup> Tactical mobility – specifically the ability to move between multiple prepared and camouflaged positions – will offset adversary PGM’s ability to degrade F3 capabilities.<sup>21</sup> This will be especially pronounced when combined with F3 counter-scouting and C2CM efforts. The conflict in Ukraine has shown that an increase in Circular Error Probability (CEP) of only 50% -- achievable through mobility, counter-scouting, and C2CM, not to mention limitations of the weapon itself – drastically reduces the PGM’s effect on targets.<sup>22</sup> These effects, and the effects of a saturation strategy, can be further mitigated by hardening the multiple sites used by F3 assets. Most significant to an F3’s staying power is the fact that a successful strike against an F3

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<sup>18</sup> “U.S. Department of Defense - Missile Defense Agency,” MDA, accessed April 20, 2023, <https://www.mda.mil/system/thaad.html>.

<sup>19</sup> Hughes, *Fleet Tactics and Naval Operations: Third Edition* 129.

<sup>20</sup> Mark B Schneider, “Lessons from Russian Missile Performance in Ukraine,” U.S. Naval Institute, October 5, 2022, <https://www.usni.org/magazines/proceedings/2022/october/lessons-russian-missile-performance-ukraine>.

<sup>21</sup> Robert Richardson, “Dodging the Silver Bullet,” accessed April 20, 2023, <https://www.airuniversity.af.edu/Portals/10/ASPJ/journals/Chronicles/dodge.pdf>.

<sup>22</sup> Schneider, “Lessons from Russian Missile Performance in Ukraine.”

counterforce or firepower asset is that a single hit only destroys a portion of the capability, not the entirety of it. A guided missile destroyer sunk, or with its radar knocked out, exits the fight with its entire magazine.<sup>23</sup> An F3, especially when supported by Army engineering assets for survivability, is uniquely postured to confound enemy OCP's attempts to degrade it, all while attriting adversary OCP. This complements the JFMCC's fight for sea control by reducing the number of platforms engaging afloat assets and presenting an intractable drain on enemy scouting and C2.

Any adversary seeking to support sea denial or sea control through an A2/AD strategy will have an ever-increasing scouting requirement. By denying and disrupting adversary scouting forward, land-based assets reduce risk to the JFMCC and provide the joint force with the flexibility to wield operational fires against the enemy's strategic and national-level scouting platforms. Forward assets also provide the JFMCC and JFC with more flexible and redundant options in non-kinetic effects on adversary scouting, further impairing enemy awareness of an already complex and massive theater.

Any near-peer adversary is expected to use multilayered air – manned and unmanned – and maritime platforms to conduct operational and tactical scouting. The previously mentioned DCA envelope, as well as basing provided for land-based rotary and fixed-wing aircraft, will serve to aggressively take the counter-recon fight to any adversary at the operational and tactical echelons of war. Near-peer adversaries have increased capacity in UAS and gray-zone scouting to fill the gap created by the massive increase in scouting requirements.<sup>24</sup> The smaller size and increased number and expendability of these assets beg the question of whether large capital

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<sup>23</sup> Hughes, *Fleet Tactics and Naval Operations: Third Edition*, 161-162

<sup>24</sup> Jude Blanchette, Greg Poling, and Tabitha Mallory, "Pulling Back the Curtain on China's Maritime Militia," CSIS, November 19, 2021, <https://www.csis.org/analysis/pulling-back-curtain-chinas-maritime-militia-0>.

ships are the appropriate platforms to degrade them. Accommodating the USAF Agile Combat Employment (ACE) concept, an F3 will build, secure, and maintain multiple airfields within its footprint, allowing rotary-wing aviation and more expeditionary fixed-wing aircraft to degrade enemy UAS and small surface combatants with less-exquisite weapons.<sup>25</sup> Additionally, the Army and USMC are both fielding assets tailor-built to counter UAS of various sizes. Shore-based, relatively cheap missiles such as truck-mounted Longbow Hellfires can also target large UAS or small craft.<sup>26</sup> An F3 will counter enemy scouting with a \$400 million battery of launchers and SHORAD, not a \$1.8 billion destroyer.<sup>27</sup> Put together, an F3 will attrit adversary tactical and operational scouting more than 35 nautical miles into the littorals<sup>28</sup>, in addition to serving as a drain on an enemy's limited inventory of collection assets. By aggressively denying enemy scouting, a land-based element increases gaps in domain awareness for the adversary and forces them to rely on low-density strategic assets to scout the AO, lowering risk and generating opportunities for the joint force.

An F3 will provide smaller, cheaper, more maneuverable EW assets the ability to disrupt adversary scouting. Army units have already fielded capable systems to counter smaller UAVs (Mobile-Low, Slow, Small-Unmanned Aircraft Integrated Defeat System). Both the Army and USMC will soon field improved capabilities to disrupt UAS at greater ranges around the F3.<sup>29</sup> By providing basing for various sizes of UAS at protected and austere airfields, UAVs and

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<sup>25</sup> "Agile Combat Employment - AF," U.S. Air Force Doctrine, August 23, 2022, [https://www.doctrine.af.mil/Portals/61/documents/AFDN\\_1-21/AFDN%201-21%20ACE.pdf](https://www.doctrine.af.mil/Portals/61/documents/AFDN_1-21/AFDN%201-21%20ACE.pdf).

<sup>26</sup> Freedberg, "Army Anti-Aircraft Stryker Can Kill Tanks Too."

<sup>27</sup> Ronald O'Rourke, "Navy DDG-51 and DDG-1000 Destroyer Programs: Background and Issues for Congress" (Washington, DC: Congressional Research Service, 2011), pp. 1-41, <https://web.archive.org/web/20121130074248/http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA543249>.

<sup>28</sup> Osborn, "U.S. Patriot Missile Defense Systems Can Now Kill Cruise Missiles."

<sup>29</sup> "GROUND BASED AIR DEFENSE."

manned aircraft can bring airborne radar jammers to the fight.<sup>30</sup> Lastly, and unlike capital ships, F3 assets can utilize age-old camouflage techniques and newer capabilities, such as radar-scattering netting, to defeat enemy scouting directed at the F3 itself.<sup>31</sup>

Forward EW assets present additional opportunities for the JFMCC to affect not only small adversary scouting platforms but can degrade larger platforms to provide further opportunities for the joint force.

An adversary seeking to coordinate scouting and firepower in a complex theater needs an ever-increasing level of domain awareness and confidence in that awareness. Awareness must be translated into timely action. A forward-based constantly engaged land force in the fight for sea control can constantly hold at risk the ability to make decisions, as well as the information and links used to feed decisions. The F3 will be able to employ shorter range and lower footprint C2CM platforms than those found in surface Task Groups. The MQ-9B, for example, could be flown from austere airfields under F3 protection.<sup>32</sup> Upgraded Army RQ-7 drones can operate even further forward, and both are capable of carrying electronic attack modules.<sup>33</sup> The Army is also procuring truck-mounted versions of electronic attack modules capable of influencing the C2CM fight at the tactical level.<sup>34</sup> Lastly, an F3 will be within the footprint of enemy satellites that the adversary will rely upon for decision-making and communications, and the F3 will be

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<sup>30</sup> Emma Helfrich, "USAF Special Ops Buys MQ-9B SkyGuardians to Test Air-Launched Drone Concepts," *The Drive*, March 7, 2023, <https://www.thedrive.com/the-war-zone/usaf-special-ops-buys-mq-9b-skyguardians-to-test-air-launched-drone-concepts>.

<sup>31</sup> John Knowles, "Hiding in Plain Sight – Camouflage, Concealment and Deception in the Ems," *Journal of Electromagnetic Dominance*, September 19, 2021, <https://www.jedonline.com/2021/09/19/hiding-in-plain-sight-camouflage-concealment-and-deception-in-the-ems/>.

<sup>32</sup> Helfrich, "USAF Special Ops Buys MQ-9B SkyGuardians to Test Air-Launched Drone Concepts."

<sup>33</sup> Yasmin Tadjdeh, "Textron Unveils New Tactical Unmanned Aircraft at Paris Air Show,"

*Nationaldefensemagazine.org*, June 19, 2017,

<https://www.nationaldefensemagazine.org/articles/2017/6/19/textron-unveils-new-tactical-unmanned-aircraft>.

<sup>34</sup> Mark Pomerleau, "2023 To Be Pivotal Year for New Army Electronic Warfare Systems," *DefenseScoop*, January 23, 2023, <https://defensescoop.com/2022/10/24/2023-to-be-pivotal-year-for-new-army-electronic-warfare-systems/>.

able to influence them through mobile ground-based stations such as the CCS Block 10.2.<sup>35</sup>

Difficult to quantify, but no less relevant, is the strain that a constantly-engaged, difficult-to-dislodge F3 will place on an enemy decision-making process. Every man-hour and ISR asset spent targeting, engaging, and re-engaging a threatening land asset is one not spent targeting our high-value warships, with a lower return of investment for an adversary for every weapon fired.

### **Scouting, Firepower, and C2**

Just as a forward land element can degrade adversary awareness and effectiveness, it can also enhance the joint force's awareness through scouting and support to C2 architecture.

Additionally, emerging capabilities for surface-to-surface fires as well as bases for land-based air assets allow a land force to restrict an adversary's flexibility in the maritime space and degrade their land-based sea control/denial strategy. The land force can therefore enhance the JFMCC's ability to understand and control the OE while complementing its ability to project power off- and over-shore.

A maritime force already contains an array of far-reaching scouting assets, either organic to warships or in the fleet air arm. They are, however, tied to the fragile warships themselves or relatively low-density and high visibility, such as Maritime Patrol Reconnaissance Aircraft (MPRA). A land force can introduce and support numerous, resilient, and replaceable scouting assets to support the maritime fight.

Land-based UAS across the joint force presents a deep and multi-layered distribution of platforms with an ever-increasing range and selection of mission modules. Land formations bring multiple echelons of UAS to the scouting fight, each with emerging additions to the sea

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<sup>35</sup> Sandra Erwin, "U.S. Space Force Declares 'Offensive' Communications Jammer Ready for Deployment," SpaceNews, January 23, 2023, <https://spacenews.com/u-s-space-force-declares-offensive-communications-jammer-ready-for-deployment/>.

control fight as new modules are developed. Small RQ-7 Shadow drones, assigned down to the brigade level, require very little in the way of facilities and now possess an MTI radar module.<sup>36</sup> MQ-9B drones, mentioned above, bring not only maritime search radar but also the ability to emplace sonobuoys.<sup>37</sup> The F3 will bring with it the ability to scout for its own fires and for fires coming from the rest of the joint force. This will force adversary elements to contend with the F3 in littoral spaces and the fight for sea control. With a land force protecting its forward airfields, a fleet of cost-effective, replaceable, flexible UAS will provide cueing for higher-level assets and provide forward scouting with reduced risk to MPRA and surface vessels.

Meshing with the USAF ACE concept, numerous protected and quickly repairable unimproved airfields provide bases for the USAF and USA inventory of small fixed-wing ISR assets to provide domain awareness. MC-12S/W and Guardrail fixed-wing aircraft remain in the Army inventory and, along with light aircraft in the USAF inventory such as the U-28, could be utilized to enhance the JFMCC's scouting picture around the F3.<sup>38</sup> These aircraft possess a shorter range than Naval MPRA and have a reduced capability, but are able to operate further forward and from more austere facilities. This adds another layer of capability to the JFMCC's arsenal and allows them to manage the risk of lower-density, higher-capability assets.

Within the counterforce sheath provided by a land force, the JFMCC can employ numerous manned and unmanned, short-range but small-footprint, surface craft to conduct scouting. The war in Ukraine has shown the value of unmanned surface vehicles (USuVs) in a

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<sup>36</sup> Tadjeh, "Textron Unveils New Tactical Unmanned Aircraft at Paris Air Show."

<sup>37</sup> Helfrich, "USAF Special Ops Buys MQ-9B SkyGuardians to Test Air-Launched Drone Concepts."

<sup>38</sup> Thomas Withington, "Guardrail Goodbye," Armada International, August 4, 2021, <https://www.armadainternational.com/2021/08/us-army-signals-intelligence/>.

sea denial fight in the littorals.<sup>39</sup> With the cover and protection of the F3, USuVs as well as patrol craft-type vessels can contribute to the scouting fight. While the Navy is divesting much of its smaller craft, partner nations in areas tailored for an F3 deployment have numerous patrol craft and smaller combatants that would best contribute to the overall scouting fight.<sup>40</sup> While the gray zone implications of the PRC maritime militia are untenable for an F3 in support of the JFMCC, the benefit of numerous lower-tech sensors and communications is plain to see. By leveraging U.S. unmanned and coalition manned small craft, an F3 can asymmetrically increase scouting with the added benefit of threatening similar craft used for scouting by an adversary.

A sea control fight with a near-peer adversary will present an extremely C2-denied environment, but a land force in the sea denial zone will provide numerous, resilient nodes to improve C2 for the JFMCC. Not only will these nodes provide meshed and redundant communications, but also forward basing to command the sea control fight itself.

In a comms-degraded environment, a land force and its numerous ground and short-range air assets will serve as nodes to retransmit and relay critical communications. In a near-peer environment, the joint force must expect degraded communications in contested littoral space where an F3 will operate.<sup>41</sup> Joint Force options to maintain Beyond Line of Sight (BLOS) communications would be limited: retransmission or relay of LOS communications, hard-lined communications between fixed sites, or long-distance terrestrial BLOS communications. An F3 would be postured to conduct all three. Mobile and sustainable ground stations, along with UAS,

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<sup>39</sup> Howard Altman, "Ukraine Situation Report: Sevastopol Attacked by Drones from Sea and Air," The Drive, March 23, 2023, <https://www.thedrive.com/the-war-zone/ukraine-situation-report-sevastopol-attacked-by-drones-from-sea-and-air>.

<sup>40</sup> Blanchette, Poling, and Mallory, "Pulling Back the Curtain on China's Maritime Militia."

<sup>41</sup> Samuel Winegar, "The Eyes of the Fleet: Distributed Maritime Operations in the First Island Chain," U.S. Naval Institute, November 30, 2022, <https://www.usni.org/magazines/proceedings/2022/december/eyes-fleet-distributed-maritime-operations-first-island-chain>.

could relay LOS signals. The deep inventory of land-based UAS has fulfilled various retransmission missions for decades. A theater with sufficient pre-conflict access and preparation would allow an F3 to utilize and protect a web of hardline communications nodes linked by undersea cables. Lastly, the F3 could maintain signals internally and with the JFMCC through high-powered HF assets.<sup>42</sup> Wide-spread, persistent, and resilient communications facilitated by a forward land element will serve to provide the JFMCC with the ability to fuse fires and scouting into an effective fight for sea control.

Historically, surface fires have been limited by range or the ability to target platforms afloat. Land-based air power complements this gap and, by operating out of protected or survivable forward basing, can deliver firepower in the sea control fight. Near-term acquisitions by the ground component, however, will allow the F3 to deliver surface-to-surface fires against land and maritime targets.

A land element in the sea control fight will be able to provide layered fires against maritime targets and, with soon-to-be delivered Long Range Precision Fires (LRPF), fires against land-based A2/AD assets. Though the DoD never fielded it, McDonnell Douglas delivered truck-mounted Harpoon missile launchers to our NATO allies.<sup>43</sup> Additionally, the DoD has never pursued a surface-to-surface anti-radiation missile, but the Israeli Defense Force has used surface-to-surface missiles to target radars as far back as the Yom Kippur War.<sup>44</sup> As part of

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<sup>42</sup> Kevin B Kennedy, "RADIO MANAGEMENT," Department of the Air Force, May 26, 2016, <https://www.mars.af.mil/Portals/59/documents/Regs/afi17-210%20Radio%20Management.pdf>.

<sup>43</sup> Heather Mongilio, "U.S. Sending Vehicle-Mounted Harpoon Launchers for Ukraine Coastal Defense," USNI News, June 15, 2022, <https://news.usni.org/2022/06/15/u-s-sending-vehicle-mounted-harpoon-launchers-for-ukraine-coastal-defense>.

<sup>44</sup> Joseph Trevithick, "Navy to Test Ground-Launched Version of New Radar-Busting Missile," The Drive, February 17, 2023, <https://www.thedrive.com/the-war-zone/navy-to-test-ground-launched-version-of-new-radar-busting-missile>.

Force Design 2030, the USMC will field the Naval Strike Missile to engage maritime targets.<sup>45</sup> Army Multi-Domain Task Forces (MDTFs) and Fires Brigades will field the Precision Strike Missile (PRSM), Strategic Mis-Range Fires (SMRF) missiles, and Long Range Hypersonic Weapon (LRHW), each capable of striking both land and maritime targets.<sup>46</sup> These fires will be able to shape the sea control fight not just by degrading major surface combatants but also the other components of an adversary's A2/AD strategy. Land-based firepower platforms are more distributed, more resilient, and simpler to reload than similar capabilities on maritime platforms. What they lack in capacity or higher-end capability, they make up for in their ability to place constant pressure on an adversary.

Just as the forward land element provides basing for counter-scouting and scouting air assets, that same basing will be used to support air-delivered firepower for the sea control fight. Expeditionary naval airpower will not be the only contributor: USMC F-18s and USAF F-15s and F-16s are all capable of carrying ASCMs, and these same airfields will of course be available for DCA sorties to defeat attacking aircraft.<sup>47</sup> Much as the RAF was able to accomplish sea denial in the home theater and in the Central Mediterranean, land-based air under an F3 will be able to achieve cost-effective results against an opponent's positive, amphibious objectives.<sup>48</sup>

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<sup>45</sup> "Force Design 2030" (USMC, May 2022), [https://www.marines.mil/Portals/1/Docs/Force\\_Design\\_2030\\_Annual\\_Update\\_May\\_2022.pdf?ver=7ul-eyF6RcSq\\_gHU2aKYNQ](https://www.marines.mil/Portals/1/Docs/Force_Design_2030_Annual_Update_May_2022.pdf?ver=7ul-eyF6RcSq_gHU2aKYNQ).

<sup>46</sup> Maureena Thompson, "Army Programs Promote Strength, Agility of Long Range Precision Fires," [www.army.mil](http://www.army.mil), June 1, 2022, [https://www.army.mil/article/257137/army\\_programs\\_promote\\_strength\\_agility\\_of\\_long\\_range\\_precision\\_fires](https://www.army.mil/article/257137/army_programs_promote_strength_agility_of_long_range_precision_fires).

<sup>47</sup> Stephen Silver, "What Could Make Saudi f-15s Deadlier? Harpoon Missiles.," *The National Interest* (The Center for the National Interest, October 13, 2021), <https://nationalinterest.org/blog/buzz/what-could-make-saudi-f-15s-deadlier-harpoon-missiles-195037>.

<sup>48</sup> Whipple, *The Mediterranean*

## Counters and Rebuttals

Some might argue that emplacing a land-based force in an adversary's littorals during competition or crisis would be needlessly escalatory. Any adversary would see offensive F3 assets – specifically long-range surface fires – as escalatory during a competition phase, potentially making conflict more likely.<sup>49</sup> This counterargument can be addressed in two distinct ways, however. The US need not emplace its premiere assets during the competition phase. Any capability deemed escalatory would remain as part of a deterrence or response package, and that would not preclude the US and allies from preparing infrastructure for these systems. Secondly, an F3 concept would be best complemented by local partners and allies employing their land-based assets in a similar fashion. By selling or otherwise supplying some of the assets mentioned in this paper to local partners, the US would allow smaller powers to deter aggression without overtly escalating great power conflict.

The second counterargument to the F3 concept is that tying so much of the sea control fight to an asset without strategic mobility degrades the maneuverability of the entire maritime component. Once emplaced, an F3 would be difficult to reposition and could be threatened by an overwhelming attack against portions of the F3. Most concerning would be the ability, or lack thereof, of F3 forces to retrograde while under threat of encirclement. The F3 concept maintains operational and strategic maneuverability for the entire maritime component, though, by freeing up maritime assets within and beyond the theater. Additionally, by echeloning forces, counterforce, and fires – from light-footprint screening forces to heavier guard and cover forces – the F3 would allow for lighter forces to withdraw under pressure while providing combat power to fight back into position after regaining the initiative. The long range of land-based

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<sup>49</sup> Lyle Goldstein, "Bad Idea: Turning A2/AD against China with 'Archipelagic Defense,'" Defense360, February 28, 2023, <https://defense360.csis.org/bad-idea-turning-a2-ad-against-china-with-archipelagic-defense/>.

assets also allows for an F3 to emplace along multiple and mutually supporting axes. Finally, tactical and operational mobility, along with staying power, would allow the F3 to remain flexible below the theater-strategic level of war.

### Way Ahead

With the increased capability, range, and capacity of land-based force, it should be certain that a campaign in the littorals will need to look different from the sea control operations of the last thirty years. The question is, how should the JFMCC organize and employ the force? How should a CJFC and JFMCC leverage existing and emerging capabilities?

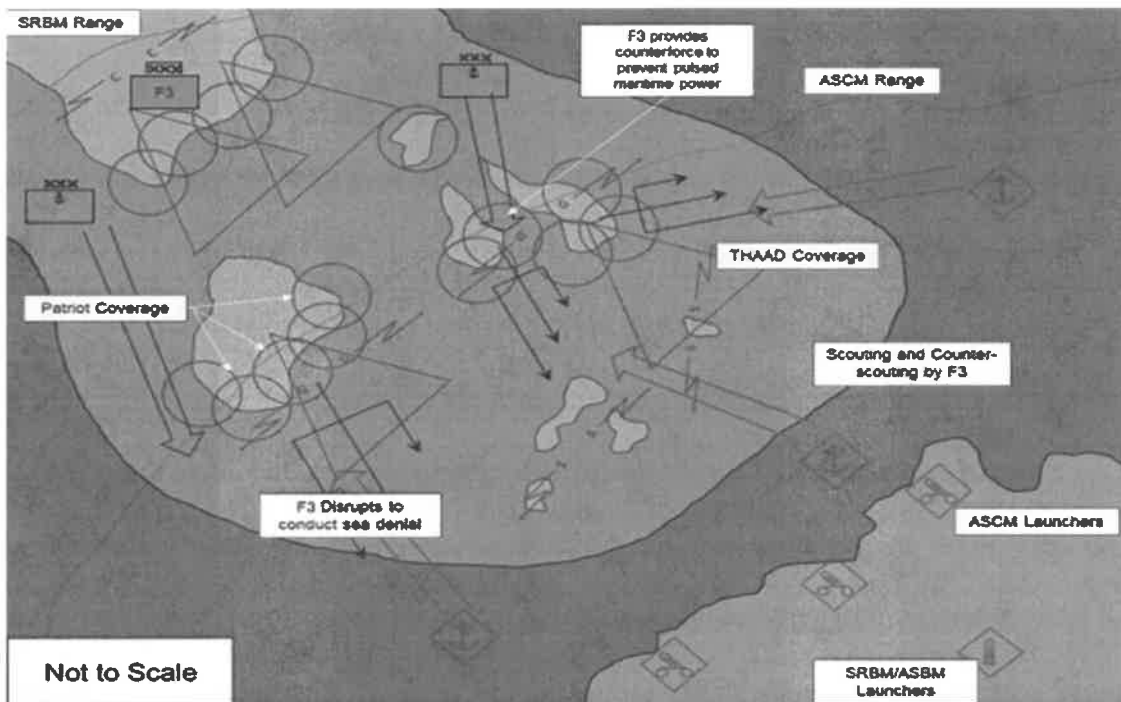


Figure 1: A possible representation of an F3 in a sea control fight.

In the last forty years, many of the capabilities that we acquired to fight for sea control were tied to surface vessels, submarines, or aircraft. Those same weapons, however, have shore-based versions that were either never fielded or sold only to allies. By quickly reviving or “buying-back” these capabilities, the JFMCC could quickly equip an F3 with the assets needed to contest sea control without waiting for next-generation programs.

A campaign in a near-peer fight will almost certainly be combined and multi-national. By providing last-generation or current-generation assets to regional partners as we field our next-generation capabilities, we will help our allies generate their own F3 capability. As evidenced by the Houthi conflict and the war in Ukraine, even aging air and missile defense can still contest the skies and attrit enemy offensive combat power. By spreading the F3 concept and capability around, we create multiple “hedgehogs” that deter during competition and complement our F3 during conflict.

As naval doctrine and culture support the very definition of task forces as created and resourced to accomplish a specific task, any task force for sea control or denial should contain the forces needed for an F3. Additionally, due to the complexity of the joint concepts underwriting multi-domain cooperation between an F3 and forces afloat, these relationships should be established and rehearsed in peacetime.

Lastly, and related to the recommended command relationships, peacetime command structures should reflect expected task organization in conflict. A sea control task force will lose valuable time during crisis or conflict if it is too busy reorganizing from service-based peacetime structures to a wartime footing. In our already joint combatant commands, there’s no reason not to identify the most likely task forces to be operated in crisis and begin to station and train forces together during competition.

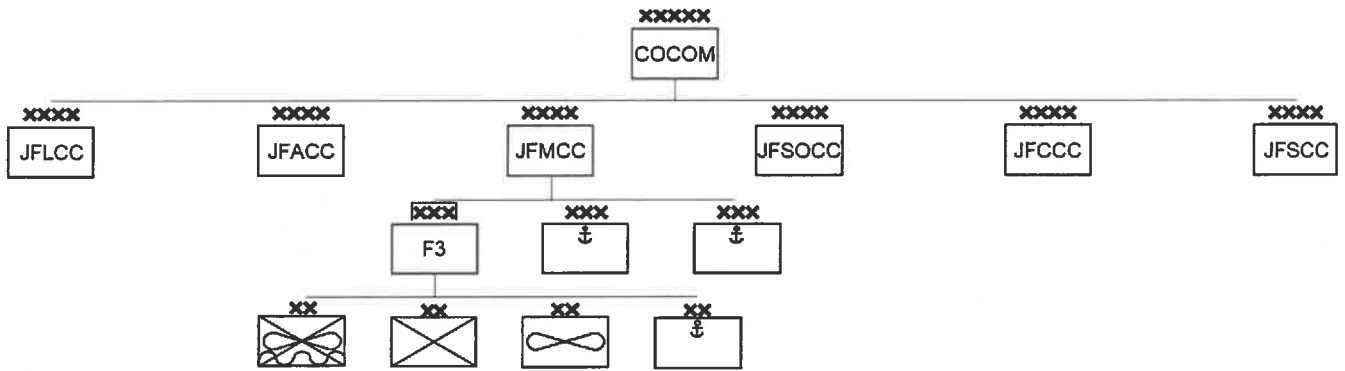


Figure 2: A possible task organization for an F3, with the COCOM Commander serving as the Joint Force Commander and the Theater Fleet serving as JFMCC. The F3 here is the equivalent of a numbered fleet, corps, or MEF.

### Conclusion

In the days of Nelson or Mahan, a fortress fleet was a tool of the weaker navy, and its reach extended only so far as the range of its guns. The Norwegian campaign of WW2 showed the power of combined land and sea forces on both the offense and the defense. Japan's wild successes in Southeast Asia all came under the umbrella of land-based air. Malta showed the benefit of an air-equipped fortress placed astride an enemy's SLOCs and axis of advance. Though none at the time called these operations or task forces a "fortress fleet," that does not change that they were exactly that. Now, fortresses extend their reach throughout the entire littorals and can influence enemies halfway across the ocean. An allied campaign in the littorals will require sea denial and sea control, defense and offense, and likely not in a sequential but rather a fluid and cyclical manner. Fortresses in support of fleets have shown their worth in past conflicts and have only grown in capability and capacity. In future fights for sea control, the JFMCC cannot afford to go without a fortress of its own. We must train, equip, and organize for a truly joint and multi-domain force to fight for sea control and support its exploitation.

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