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DISTRIBUTED LETHALITY AND ITS POTENTIAL EFFECTS ON MODERN NAVAL DIPLOMACY

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Exercise *Solo Flight*

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They [the fleet] would then pass along the coast before the eyes of the other cities and display the visible power of Athens.

- Thucydides, Book VI, line 47

Since nations began building ships and sending them forth to conduct trade and defend their shores those same ships have also served as diplomatic tools. As naval technology has evolved through the ages so to have the methods nations utilize in diplomatically employing their navies. The United States Navy (USN) has recently commenced a shift in doctrinal focus that will see the main thrust of US naval power shift from the nuclear-powered Aircraft Carrier Battle Group (CVN Group) to smaller Surface Action Groups (SAGs) armed differently than current carrier escort ships and capable of operating in the littoral region with much more autonomy that has been common in the recent past. This doctrinal concept is called Distributed Lethality (DL). DL shifts the focus of naval force projection to the surface fleet and stresses more traditional concepts such as Sea Control and Sea Denial as the main strategic goals for the force. This paper will prove that the shift to a Distributed Lethality-based doctrine by the USN will inevitably have some effect on the way USN forces (and potentially US allied naval forces) are used for naval diplomacy. Thucydides' statement above is perhaps one of the earliest references to presence as a form of naval diplomacy. Presence is one of the components of naval diplomacy as described by Geoffrey Till in his attempt to describe the modern use of navies as diplomatic tools.[1] In order

[1] Geoffrey Till, *Seapower: A Guide for the Twenty-First Century* (London: Routledge, 2013), 225.

to illustrate the potential effects of DL on naval diplomacy Till's model will be used. Till breaks naval diplomacy down into the components of: presence, picture building, coercion (further divided into deterrence and compellance), and coalition building. Following a full description of the DL concept, each component of naval diplomacy will be briefly described with contemporary examples to assist in illustrating the current state of the art. Then the possible effect of DL on each component will be examined. It is important to note that the aim of this paper is not to concretely define all the effects DL will have on future deployment of naval forces on diplomacy-based tasks. The paper will instead identify likely effects and areas that would benefit from future research as the DL concept matures.

Distributed Lethality

Distributed Lethality was officially announced as a concept in development by the USN in an article jointly written by three USN flag officers for the United States Naval Institute in January 2015.[2] The article referred to a shift underway in the surface force that was "not subtle, and … not accidental" [3]. The Admirals referred to the loss of core skills and competencies in the surface fleet due to the dominance of carrier-based tactics that relied upon uncontested control of the sea. Essentially the USN had become accustomed to domination of the maritime domain following the end of the Cold War and as a result the ability of surface ships to conduct core duties such as anti-submarine warfare (ASW) and anti-surface warfare (ASuW) had been allowed to atrophy. Protecting carriers in uncontested waters far from enemy controlled areas had become the sole focus of the USN.[4] To correct this problem the admirals have come up with

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[2] Thomas Rowden, Peter Gumataotao, and Peter Fanta, "Distributed Lethality," *United States Naval Institute Proceedings,* Vol 141, Issue 1 (January 2015): 18-23.
[3] *Ibid*, 18.
[4] *Ibid, 19.*

DL. The focus of the USN will shift back to the offensive while maintaining the skills required to support existing CVN battle groups. The idea of DL goes much further than conducting training to make up for knowledge and skill shortfalls. The strategy will place the surface combatant ship in the forefront of future naval strategy. This change will require arming the ships differently and employing them differently than the USN does currently.

Increasing the lethality of individual ships will be essential in order to make DL a reality. Vice-Admiral Rowden *et al* suggest many capability upgrades in their article and several deserve some description in order to understand what a DL-focussed force could bring to the proverbial table.[5]

Offensive surface-to-surface missiles

Current anti-ship missiles (ASMs) carried by surface ships are limited to an approximate range of 100 nautical miles (NM). DL ships will require much greater reach to have the offensive impact needed to reduce the requirement for carrier-based aircraft support. Work is underway now to convert existing missile technology, such as that used in Tomahawk cruise missiles, for use as ASMs. This would effectively give ships the option of conducting strikes against surface ships at ranges nearing 1000 NM. The concept has been proven through testing already and development continues with the aim of creating "bolt-on" weapons that could be placed on multiple classes of ship.[6]

Long-range ASW weapons

[5] The list of capabilities is found on page 21 of the Rowden article. Summaries of current capabilities were taken from this paper's author's own experience and knowledge.
[6] Rowden, 21.

Current ship or helicopter launched ASW torpedoes are severely limited in range (less than 10 NM). While the ships' helicopters are capable of operating at longer ranges, their persistence is limited to 2-3 hours per mission. Even flying 3 missions per day there are considerable gaps in a ship's capability to track and destroy submarines at distance. Modern sonar systems can detect and track submarines at longer ranges, which could eliminate the gaps in detection capability, but the ability to attack distant submerged contacts currently does not exist in the surface fleet. Longer range torpedo delivery systems are currently under development to close this capability gap.

Persistent Organic Airborne Intelligence/Surveillance/Reconnaissance (ISR)

Ships currently use Unmanned Arial Vehicles (UAVs) for ISR purposes. The stamina and range of those UAVs is increasing dramatically and those increases form a very important part of a DL task group's capability. UAVs will allow SAGs to operate without the support of carrier-based aircraft.

The Rowden article also included upgrades to the performance of existing weapon systems and sensors to enable greater ranges and autonomy. All of the upgrades and new capabilities are designed to allow for the use of ships in "Hunter-Killer Surface Action Groups" (HKSAGs).[7] The intended purpose of these HKSAGs will be to take and maintain control of contested waters to enable follow-on use of those waters by commercial or military assets.[8] By increasing the lethality of smaller and more cost effective ships the USN will allow for far more flexibility of employment than could ever be achieved by the current force of CVN battle groups.

[7] *Ibid, 20.*
[8] *Ibid.*

This flexibility will greatly affect the ways in which the United States could employ naval diplomacy and the following section will examine how those changes might come about.

Geoffrey Till divided naval diplomacy into components in an attempt to make the study of what is a very large and complex subject a little easier to study and understand. As it happens, Till's components should prove useful as a way to systematically examine how DL could affect naval diplomacy. For that reason the next section will consist of descriptions of each component as defined by Till as well as the current methods employed by navies in the pursuit of each component. The subsections will conclude with how DL could change the way navies operate within the component.

Naval Presence

Having ships capable of actually being present in an area is the prerequisite to any use of naval forces in diplomacy. Till is careful to separate the existence of a fleet from the presence of that fleet. The "fleet in being" concept that looks at the effect of merely having a navy has on a nation's international relations[9] has been studied by many maritime scholars but Till consciously separates possession of a navy from making that navy present. His definition of presence is taken from the UK Royal Navy and states that presence involves "deployments, port visits, exercising and routine operating in areas of interest to declare interest, reassure friends and to deter."[10] This concept is evident when the current employment of the Royal Canadian Navy (RCN) is examined. While the RCN is small in comparison to most other western navies, it conducts a variety of presence activities. This paper's author has personally conducted many such activities and will undoubtedly continue to do so in the future. "Showing the flag" has

[9] Ian Speller, *Understanding Naval Warfare,* (London: Routledge, 2014), 49.
[10] Till, 227.

always been part of a navy's job. Each time a ship enters a foreign port for fuel, food or simply rest and relaxation for the crew it is the culmination of ongoing diplomacy conducted by the navy's own state and the host nation. Warships provide a flexible and capable tool with which a nation may indicate that it has an interest in a particular place or situation.

One important limitation on presence as a component of naval diplomacy is endurance. A ship may only be operated for so long before significant maintenance is required to ensure she remains capable and fully operational. Additionally, the crew cannot be expected to remain away from their homes and families indefinitely. To compensate for this limitation modern navies use complex schedules of rotating deployments to allow for persistent presence in areas of critical interest (such as the Persian Gulf) and occasional presence in other areas of less critical interest. For the USN presence has evolved to mean the pre-positioning of CVN battle or strike groups in areas of interest. The cost of these groups and the capability loss that would accompany the destruction of a single carrier limit the areas that are suitable for their deployment. So there are limits to where the USN may be present.

Distributed Lethality may significantly change how the USN employs presence. The composition of the HKSAG is much smaller than that of a CVN group. The concept currently envisions groups as small as three to four ships in a SAG[11] compared to the nine or ten that make up a CVN group. The per-unit cost drops significantly as does the requirement for complete domination of the battle space. [12] Capt Henry Hendrix, USN breaks down the lifecycle cost of a CVN strike group to $6.5 billion per day of operation. Five destroyers have a life cycle cost of

[11] Rowden, 22.
[12] Henry J. Hendrix, "At What Cost A Carrier," *Disruptive Defence Papers*, (Washington, DC: Center for a New American Security, 2013), 5.

only $1.8 million per day of operation.[13] In these days of fiscal restraint it is very easy to see the attractiveness of the DL concept. Some will argue that the DL HKSAG will not be capable of the same power projection as the CVN group and they would be correct. The question that emerges from that debate is whether all naval forces deployed to demonstrate presence need to have the capabilities of a CVN group. USN leadership has indicated that they do not by endorsing DL.

The HKSAGs presence benefit does not simply relate to cost. HKSAGs are capable of self-defence in complex environments that modern aircraft carriers simply are not. The risk of losing a carrier is beyond the risk threshold of the USA and as a result the areas that they will be deployed to are limited to those completely dominated by the USN. HKSAGs are designed to enter and operate within contested battle space and as a result provide more flexibility to the USA in where naval presence can be established. The prime example of this benefit would be the littoral. The Eurasian Littoral is far too risky to deploy a CVN for presence or even warfare purposes.[14] DL doctrine calls for a variety of ships such as Littoral Combat Ships as well as cruisers and destroyers that would have no problem operating in such environments. The dispersed nature of HKSAGs further complicate enemy targeting and make expending very expensive modern anti-ship missiles such as the Chinese DF-21D ballistic missile less effective and therefore less likely to be used.[15]

It is clear that DL will bring capabilities to the USN that will substantially affect the way fleets are used to provide the traditional presence of naval diplomacy. Areas currently closed to

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[13] *Ibid,* 6.
[14] Robert C. Rubel, "The Emperor's New Clothes: The Self-Delusions of American Naval Power," published October 1 2015, last accessed at http://warontherocks.com/2015/10/the-emperors-new-clothes-the-self-delusions-of-american-naval-power/ on 3 May 2016, 7.
[15] Hendrix, 8.

CVN groups will be available to HKSAGs and the costs of operating the SAGs will be substantially less demanding upon the USA both in fiscal and manpower terms.[16] It is important to note here that the introduction of DL doctrine will not eliminate the need for CVNs, but it will allow the USN to maintain or even increase its presence in the world's oceans with fewer CVNs.

Naval Picture Building

Till states that naval picture building is "aimed at accumulating data on the geographic characteristics of littoral areas of interest, on monitoring the political situation and on assessing the strengths and weaknesses of other military forces in such regions."[17] Much of what occupies the modern sailor is picture building. The RCN divides the "picture" into surface, sub-surface and air components and devotes dedicated teams and sensors to the constant maintenance of their respective pictures. Survival of the ship and the fleet is entirely dependant upon having a clear picture. Where this work flows into the realm of diplomacy is how the information collected by the ships is exported and used by other diplomatic entities. Information fusion centres have been established in many parts of the world that aim to combine commercial shipping information with military intelligence in order to maintain currency in the naval picture. An example of such a fusion centre is the NATO Shipping Centre (NSC) in Northwood, UK. The NSC bills itself as "the link between NATO and the merchant shipping community."[18] All NATO ships at sea feed information they collect to such centres be they nationally or coalition controlled.

[16] CVN groups require 6-7000 sailors while HKSAGs of 5 ships require approximately 1250.
[17] Till, 232.
[18] NATO Shipping Centre Website, last accessed 3 May 2015 at http://www.shipping.nato.int/Pages/NSC.aspx

Distributed Lethality will have direct effects upon naval picture building. The dispersed nature of the HKSAG construct will place more ships in more areas. Those ships will be equipped not only with the short-range ASW helicopters that currently exist in the world's navies, but with longer-range UAVs which enjoy a greater degree of stealth than larger aircraft and could be capable of long range surveillance and detection with real-time data connectivity with the host ship. While CVN groups have long-range surveillance capability they do not enjoy the persistence of UAVs nor can they be positioned in the littoral. DL should increase the effectiveness of surface ships' naval picture building capability.

Naval Coercion

Till separates naval coercion into the sub-components deterrence and compellance. Each will get an in depth look in the sections that follow but a more general definition of naval coercion is justified first. Naval coercion can be viewed as that part of naval diplomacy that might be traditionally referred to as "Gunboat Diplomacy." James Cable wrote one of the cornerstone references on the phenomenon of gunboat diplomacy and he defines the term to mean: "the use or threat of limited naval force, otherwise than an act of war, in order to secure advantage, or avert loss, either in furtherance of an international dispute or else against foreign nationals within the territory or jurisdiction of their own state."[19] While war could be argued to be the ultimate diplomatic act of a state the establishment of war as illegal by the UN charter has made the application of it as a tool very rare since the end of the Second World War. As a result, the use of navies has indeed been "limited" as Cable describes it. Another, more recent writer on the subject of gunboat diplomacy is Christian Le Miere. He defines the term as: "the overt use of

[19] James Cable, *Gunboat Diplomacy 1919-1979: Political Applications of Limited Naval Force*, (London: MacMillan, 1981), 39.

naval or paramilitary power in kinetic or non-kinetic operations designed to intimidate militarily to further a political goal, often unstated, of deterring or coercing an opponent."[20] Le Miere's definition effectively modernizes Cable's definition. There are few uses of naval forces today that could not be made to fit into such a definition. There is not sufficient room in this paper to thoroughly examine the many nuances of gunboat diplomacy, but the term as defined by Cable and Le Miere is useful as it assists in the understanding of how naval forces are used as part of naval coercion.

Naval Compellance

Till defines compellance operations as those "intended to force an adversary to do something he does not want to do, or stop doing something he does want to do."[21] Till suggests that the use of maritime forces to compel an adversary is not as easy as it was in earlier eras. Indeed this is clearly the case. There is no longer the option of simply bombarding a country from the sea in order to force it to trade with you as in days gone by. The success of compellance operations can be difficult to measure as the results are not always immediately evident. In order to examine the current state of how modern navies are currently deployed in pursuit of compellance and therefore how DL might change that Maritime Interdiction/Interception Operations (MIOPS) will be used as they form a major part of modern compellance operations.

Maritime have become one of the main tools employed by states and multi-state allegiances in contemporary attempt at compellance. The use of sanctions against belligerent

[20] Christian Le Miere, "The Return of Gunboat Diplomacy," *Survival,* Vol 53, no 5 (October-November 2011): 57.
[21] Till, 234.

countries requires enforcement and as the majority of the world's trade moves by sea the enforcement of sanctions is left to naval forces. An excellent example of this is the enforcement of sanctions against Iraq after the invasion of Kuwait. Coalition warships were deployed into the Persian Gulf in order to ensure that only authorized oil left Iraq and that weapons did not enter. Following the attacks of September 11th 2001 those patrols broadened to include searching for terrorists and other contraband. For many sailors in the world's navies (including the RCN) today MIOPS constitute the bulk of their operational experience. The challenges that face forces conducting such activities consist mainly of the amount of water that needs to be patrolled and the limited number of platforms available to conduct those patrols.

A DL based fleet structure could benefit MIOPS in a similar way that it affects the component of presence and picture building. More ships in a given area available to a commander give that commander much more flexibility and capability in detecting and monitoring maritime traffic in the area. So much of a MIOPS deployment hinges upon the picture that is built and maintained in the area of operations. The increased focus DL places upon collection and dissemination of intelligence could prove extremely useful in identifying and interdicting vessels of interest (VOIs) during MIOPS. The increased lethality of individual platforms that DL will bring is less important in a MIOPS environment so long as each ship, or group of ships, is capable of self-defence and potentially capable of disabling non-compliant vessels.

Naval Deterrence

Till states the aim of naval deterrence operations is "to use naval forces to persuade an adversary not to do something through showing that the likely costs may well outweigh the

hoped for benefits."[22] He suggests that such operations take one of two forms, passive and active.[23] He also comments that the effects of both types can be very difficult to assess because if the adversary country does nothing it may be very difficult to prove why that occurred. Malcolm Murfett suggests that unclear intent on either side of the conflict can cloud the situation and can have huge effect upon the outcome of a deterrence operation.[24] Richard Shultz goes further to say that "deterrence works best when there are constants and certainty in the international system."[25] Considering the climate in the world today it is clear that naval deterrence is indeed a difficult task.

The method that has evolved as the preferred form of deterrence that of pre-positioning CVN groups in areas of interest to the USA and her allies. The thought is that the mere presence of a CVN and her supporting ships will deter belligerent countries from acting out on hostile intentions. The South China Sea is a prime example of such pre-positioning. The USA has shifted a large portion of its fleet to the area surrounding the South China Sea. Regular patrols are conducted through areas of ocean that China contends are its territorial waters. The deterrence patrols are a clear indicator to China and the region that the USA will not tolerate the restriction of freedom of passage in areas contested internationally.[26] In this case Till would

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[22] *Ibid, 238.*
[23] *Ibid*
[24] Malcolm H. Murfett, "Gunboat Diplomacy: Outmoded or Back in Vogue?" in *The Changing Face of Maritime Power,* ed. Andrew Dorman, Mike Lawrence Smith, and Matthew R.H. Uttley (London: Macmillan, 1999), 84.
[25] Richard H. Shultz Jr., "Crisis Response and Power Projection in Nonpermissive Environments and Asymmetrical Conflicts," in *The Role of Naval Forces in 21st Century Operations,* ed. Richard H. Shultz Jr., and Robert L. Pfaltzgraff Jr. (Washington DC: Brassey's, 2000), 42.
[26] Franz-Stephan Grady, "US Carrier Strike Group Arrives in South China Sea to Deter China," in *The Diplomat*, March 5th 2016, last accessed 05 May 2015 at http://thediplomat.com/2016/03/us-carrier-strike-group-arrives-in-south-china-sea-to-deter-china/

likely see the positioning and patrolling of the CVN groups as active deterrence directed at China.

Deterrence can also be aimed at criminal groups rather than nations. Examples of this are the Combined Task Force 151 anti-piracy patrols in the Gulf of Aden or NATO's Operation Active Endeavour in the Mediterranean aimed at stopping the smuggling of terrorist and weapons of mass destruction. Both operations use the persistent presence of significant naval forces to inspect and monitor shipping and deter criminal activity.

It is in the severity of the threat that DL will affect the task of naval deterrence. DL HKSAGs will be armed with combinations of long range strike weapons capable of hitting both land-based and seagoing targets. The aforementioned flexibility in locating such forces will also lend weight to the impact HKSAGs could have in a deterrent role. The DL concept could place the kinetic power projection capability of a CVN air wing into a SAG consisting of 3 to 5 ships. The difficulty in detecting and engaging such a SAG coupled with the destruction such a group could be capable of makes the adversary nation's risk to reward ratio change considerably for the worse. The effect of this could be greater potential deterrent effect at a lower cost for the USN.

Collaborative Naval Diplomacy and Coalition Building

The last of Till's components of naval diplomacy is Collaborative Naval Diplomacy and Coalition Building. Till describes this as "a range of activity expressly intended to secure foreign policy objectives not by threatening potential adversaries but by influencing the behaviour of allies and potentially friendly bystanders."[27] Building strong, interoperable coalitions at sea is imperative if the civilized nations of the world hope to monitor the massive

[27] Till, 242.

sea lanes of communication (SLOCs) that are so vital to the world today. Till describes some of the aims of collaborative naval diplomacy as creating interoperability between fleets, reducing inadvertent conflict, and naval reassurance.[28] Each of these aims is recognized through consciously and overtly deploying a nation's ships in company with those of other nations. Some examples of current methods of achieving the aims suggested by Till follow below.

Interoperability has always been an issue for naval forces. National codes of signals ensured that foreign navies could not intercept a commander's flag signals to his fleet in the heat of battle and use that knowledge against him. As technology progressed the methods of safeguard became more sophisticated. The advent of radio necessitated the development of more sophisticated cyphers and in the modern interconnected world encryption has become a daily occurrence that not only affects the military, but all walks of life. By sharing technology with allies and friends and encouraging the adoption of compatible equipment and tactics a navy can help to ensure that its allies become useful contributors in case of hostilities rather than bystanders. The NATO is an excellent example of this in the modern era. Standing NATO Orders (STANORDs) were established shortly after the founding of NATO and cover all aspects of interoperability from communications to tactics. The establishment of these orders, which are agreed to by all members before promulgation, ensures interoperability and is a definite force multiplier.

The reduction of inadvertent conflict can be clearly seen in recent efforts to include non-allied countries into allied exercises. China's participation in Exercise Rim of the Pacific

[28] *Ibid,* 244.

(RIMPAC) in 2014 marked an attempt by the west (more specifically the USA) to include China in exercises and reduce tensions in Asia through familiarity and contact.[29]

Naval reassurance involves the deployment of ships to another country's ports or waters to show support in times of insecurity or crisis.[30] Navies have done this throughout history and will no doubt continue in the future. What is up for some debate is the form that the reassurance will take should CVN groups fade as the primary force used. The shift to DL's HKSAGs and the flexibility to project a significant power into a contested area could make reassurance even more attractive for the USN. The risk involved with sending a carrier into a high-risk area to reassure an ally could be negated or significantly reduced by using an HKSAG in the CVN's place.

A shift to DL doctrine could also provide a great deal of support to the building of coalitions. While ships are currently interoperable, the reduction in cost reflected in the switch to HKSAGs in lieu of CVN groups might make it more likely for a country other than the USA to become the lead in a coalition used for reassurance. To illustrate this we might look toward the proliferation of AEGIS destroyers in the world. Five countries currently operate AEGIS capable destroyers and a sixth has ships under construction. All of the navies are close allies with the USA and operate with the USN on an almost constant basis. Perhaps most notable among them is Japan, whose ATAGO Class destroyers rank among the most modern and capable in the world[31]. If Japan (or a similar less-restricted country) were to possess a ship that is completely

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[29] Andrew S. Ericson and Austin M. Strange, "China's RIMPAC Debut: What's in it for America?", in *The National Interest,* 3 July 2014, last accessed on 9 May at http://nationalinterest.org/feature/china's-rimpac-debut-what's-it-america-10801

[30] Till, 245.

[31] Kyle Mizokami, "Japan's Atago-Class Destroyer vs. China's 052D: Who Wins?" in *The National Interest,* 4 October 2015 last accessed 9 May 2015 at http://nationalinterest.org/feature/japan's-atago-class-destroyer-vs-chinas-052d-who-wins-14000

interoperable with USN forces and such a ship were armed sufficiently to become an HKSAG member there exists a possibility for that country to lead an HKSAG. The current CVN-centric doctrine employed by the USN currently makes such an opportunity impossible. The cost of building and maintaining CVNs make them unobtainable to most nations and as a result foreign commands within modern coalitions are limited to small groups of ships or shore command of coalition missions such as Combined Task Force 150 in the Arabian Gulf.

Conclusion

Through the application of Till's components of naval diplomacy the possible impact of the major doctrinal shift of the USN from CVN Battle Group-based to HKSAG-based tactics has been investigated as it applies to future USN use of naval diplomacy. The essay began with a brief explanation of the main ideas and capabilities that DL would bring to the USN and what the future fleets might look like. This description was based upon the limited body of information now available as it was directed and described by USN leadership. Based upon that concept the effects of the new doctrine looked at the components of naval presence, picture building, coercion and collective naval diplomacy. In each component DL was shown to have the potential to significantly change the way in which the USN could conduct diplomacy using their naval forces. As the DL impact to the components was investigated the recurring capability differences that tended to re-emerge were flexibility, cost reduction, and higher self-defence capability.

A possible criticism to the method used by this paper might be that the concept of DL is, as of yet, unproven and has yet to be fully adopted by the USN. The fact that the USN continues to construct new CVNs today could also be seen as indicative of a resistance to change on the

part of the USN. Both of these statements are true and the USA has not released any statements as to the intended diplomatic changes planned with regard to their future fleets. This could perhaps indicate room for further research in the field of naval technology and tactics as these new concepts and capabilities are brought on line as well as the fields of international relations and diplomacy as the concepts become reality. Direction was issued in 2015 to begin trials of the concept within the USN surface fleets and those trials continue today.

This paper's thesis was that the shift to a Distributed Lethality-based doctrine by the USN will inevitably have some effect on the way USN forces (and potentially US allied naval forces) are used for naval diplomacy. The preceding sections of this have proven just that. A doctrinal change so large in scope must have an effect upon how a navy fights and how the nation employing it is able to do so. While the final effects will not be seen for some time it is very difficult to argue that such a significant change will have no effects at all.

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