TALKING ABOUT SEA CONTROL

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The year 1990 was a significant one in naval history. It marked the transition from a world in which the oceans were contested to one in which one navy had uncontested command of the sea. The evidence for this shift is that during the run-up to the first Gulf War with Iraq, the U.S. Navy positioned half of its total aircraft carrier striking power in narrow seas, splitting it between the Red Sea and the Persian Gulf. If there was any conceivable threat, such a move would have constituted strategic Russian roulette. The incipient demise of the Soviet Union and the evaporation of its fleet, along with Iran's decision to stand aside, made the only threat to U.S. ships the stub oil platforms in the Persian Gulf and some mines in the gulf's northern reaches.

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In the two decades since, the U.S. Navy has enjoyed total command of the sea, so much so that it has stopped talking about sea control, even to the extent of forgetting *how* to. With the emergence in China of a robust area-denial force of great range and a navy capable of reaching beyond home waters, the time has again come to talk about sea control. This article will try to support the dialogue by discussing naval operational concepts that navies have used in the past and relating them to today's environment.

NAVAL OPERATIONAL CONCEPTS

The first thing to understand about naval warfare is that it almost never occurs between two evenly matched navies or fleets. There is always some

imbalance, and it is the degree and nature of the imbalance that spawn the naval operational concepts admirals employ to squeeze the most strategic value out of their fleets. Thus the following discussion will be organized against a presumption of imbalance, starting with the concepts used by a fleet with great superiority and ending with those used by the weaker side. Also, it should be noted at the outset that it is hard to separate naval operations from merchant shipping; naval operational concepts frequently involve acting against another's sea commerce. This point will be blended in rather seamlessly in the concepts discussed below. A third factor underlying this examination is sanctuary. Because naval warfare is characterized by the dominance of the tactical offense (he who shoots effectively first generally wins—a principle articulated by Wayne Hughes), sanctuary is needed to prevent the enemy from getting off a first shot or engaging in the first place. In an age of aircraft, missiles, and nuclear bombs, sanctuary is harder than ever to achieve.[1]

Blockade. A fleet that has great superiority may choose simply to bottle up an opponent's fleet and his commerce by stationing forces off his ports. The goal may be economic strangulation, or it may be simply to keep his fleet from getting to sea. This worked well in ages before aviation, when ships could operate out of shore artillery range (i.e., the enemy's sanctuary). Aircraft greatly complicate the problem, missiles and submarines even more. At some point a distant blockade becomes ineffective in a military sense and turns into commerce raiding, in an economic framework. Moreover, in an age where merchant ships have flags of convenience, multinational crews, international ownership, and cargoes that may change hands several times during a voyage, economic blockade becomes problematic.

From the Sea. A fleet that enjoys command of the sea (that is, establishes conditions in which the other navy cannot come out and challenge), or at least local sea control, but does not have the possibility of land-based aviation support can nonetheless bring with it everything it needs to project power ashore. In current terms, this is sea basing. The Leyte Gulf operation in World War II is an example. Given today's long-range aircraft, it is doubtful that there will be any more pure "from the sea" operations, although the initial operations in Operation ENDURING FREEDOM approximated such an undertaking, with the important exceptions that land-based tankers and reconnaissance aircraft were available. The British operations in the Falklands in 1982 also came close. Smaller-scale sea-basing operations might be mounted purely from the sea, and the modern expeditionary strike group is well designed for such a concept.

Air-Sea Battle. The stronger fleet, whether or not it encounters opposition, may be supported by land-based aircraft to a significant extent. General Douglas

MacArthur's Southwest Pacific campaign in World War II constituted a good example; his operational jumps reached only as far as the operational radius arcs of his land-based fighters. Today it is hard to imagine any major naval operation that would not represent some form of this concept.[2] Of course, we can blend space and cyberspace into this concept too—and surely will. The defensive converse of this concept would be the operation of an area-denial force, like that which the Chinese are building, in the littoral. The idea would be, using a combination of ballistic missiles and shore-based aircraft in conjunction with submarines and surface ships, to present the U.S. or other navy with a multidimensional threat that would be too hard to deal with. In both the offensive and defensive versions, the coordination of land-based and sea-based forces is critical, but that is something that has not often been satisfactorily achieved.

Decisive Naval Battle. In a contest for control of the oceans between two capable navies, a decisive battle has been the goal of the stronger. This is what Nelson sought in 1805 as he chased the combined Franco-Spanish squadron, and it is what Yamamoto sought in 1942 at Midway. Generally speaking, the weaker force will attempt to avoid such an engagement, but every once in a while circumstances conspire to precipitate one. Trafalgar was produced by Napoleon's ordering Admiral Villeneuve to sortie, and Midway was produced by Chester Nimitz's recognition that an ambush was possible. There might have been one off the Falklands in 1982, had there been sufficient wind for the Argentine carrier to launch its strike aircraft and had the aircraft then inflicted damage on the British carriers. In today's world there is little or no chance of such an engagement, except possibly among two smaller navies.

Fleet-in-Being. A navy that is strong but reluctant to roll the dice on a decisive battle might elect to avoid engagement but still present a threat to the stronger navy that would keep it from doing what it wanted (like projecting power ashore). In 1690 Lord Torrington, commanding the Anglo-Dutch fleet, adopted such a concept by keeping his fleet upwind of the French. Although suffering a defeat at the battle of Beachy Head, he kept his fleet intact, such that it constituted a threat to any invasion operation (which would compromise the mobility of the French force) but could not be brought to battle. Thus it achieved its strategic goal of preventing an invasion. The key to making a fleet-in-being strategy work is sanctuary. Today sanctuary is hard to find. However, diesel submarines might constitute a fleet-in-being if they went to sea and "got lost." If they could avoid detection they might constitute a sufficient threat, at least for a while, to keep the stronger navy (presumably American) from projecting power as it wished. A lone Argentine Type 209 submarine almost did this in the Falklands; the British task force used up almost all its antisubmarine weapons on false

contacts. Other sources of sanctuary might be political alignments or dense umbrellas of missiles and aircraft.

Commerce Raiding. A navy that is not strong enough even to constitute a fleet-in-being might try commerce raiding (also known by the French term *guerre de course*). The Germans resorted to it in both world wars. This concept requires sustained and systematic operations and therefore sanctuary for the bases of the raiders (since the early twentieth century, usually submarines). In an age of jet bombers and missiles, achieving such sanctuary is hard to imagine today, except perhaps for the U.S. Navy. Moreover, the same factors that complicate blockade make commerce raiding almost infeasible in the current environment. In any case, if the U.S. Navy attempted to interdict Chinese commerce, nuclear escalation could become an issue.

Delay, Disruption, Denial, and Demoralization. If a navy is not strong enough for anything else, it can attempt "delay, disruption, denial, and demoralization" (D4) operations. That is, it can send out units to try to do enough damage to the stronger force (which is presumably attempting to project power or blockade) to cause that force to abandon the operation or at least delay it, giving the weaker power some strategic breathing space. The effects of the "hits" may be physical, such that the operation cannot continue, or they may be demoralizing, either to the force itself or the attacking nation's public or leadership. The Argentine strategy after its fleet retreated to port was of this nature, and it almost worked when the containership *Atlantic Conveyor* was sunk by an Exocet. The Japanese SHO plan in World War II was also a D4 strategy. One of the elements that make a D4 strategy dangerous and potentially effective is the resolute acceptance by its implementer of the prospect that what it sends out will not come back. A D4 strategy is normally not sustainable unless—and this is a big *unless*—the weaker side has some kind of sanctuary that enables it to hide its forces until they are used and thereby meter them out over time. Mines and coastal submarines are potentially effective D4 tools. Such operations that are maintained for a substantial length of time essentially constitute "irregular warfare" at sea.

Maritime Security. Though not universally recognized today as a true area of naval warfare, maritime security has nonetheless been raised to a naval strategic imperative by the possibility that terrorists might sneak nuclear or other weapons into the United States or a friendly nation by sea. Given the economic and political disruptions caused by the 9/11 attacks, a seaborne insertion of weapons of mass destruction could be regarded as having the strategic importance of a conventional invasion. Maritime security thus occupies the same level of importance for the U.S. Navy as did fleet-based defense of the hemisphere in Alfred Thayer Mahan's time. Maritime security in today's world requires an almost

seamless blanket of awareness and cooperation over all the world's oceans. Thus it is inherently an international naval mission; the U.S. Navy's job is to help catalyze this cooperation. In fact, as an operational concept, maritime security today is different from the others in that it is absolutely dependent on the integrated operations of both strong and weak navies.

Bastions and Maneuver. If the principle of dominance of the offense at the tactical level holds true, which it has for the majority of naval history, logic says that trying to establish strongpoints or bastions at sea is a losing proposition. Two exceptions—where the defensive at sea has worked—have, by their rarity, the effect of proving the rule. The first is the clash between USS *Monitor* and CSS *Virginia* in March 1862, during the American Civil War. These ships being the first ironclads, naval guns and shells that could pierce armor did not yet exist, and thus the cannonballs of each bounced off the other. Less than a century later, the battle of the Philippine Sea in June 1944 was a triumph of integrated air defense due to the slowness of Japanese bombers and to the American use of radar to direct fighters, as well as of VT (proximity, or "variable time") fuses on antiaircraft shells. Today, although U.S. cruisers and destroyers carry the incomparable Aegis weapons system, modern antiship missiles have capabilities and characteristics that make them very hard to detect and shoot down. Submarines and mines are still very difficult to find. Naval leaders must still consider very carefully the fact that if "the other guy" knows where to find you, he can likely find a way either to evade or saturate any defensive scheme. If nothing else, he may just get lucky. Therefore, when there is a sea-control threat, maneuver is a requirement until that threat is neutralized.

That point raises the issue of the modern "sea base," essentially a stationary strongpoint at sea. In some U.S. Navy publications, the definition of the term is stretched to include almost any grouping of ships at sea, regardless of how they are arranged or maneuvered. Such definitions have more relevance to interservice budget competition than actual utility in naval operational art. A sea base is intrinsically a group of ships supporting an operation ashore. Accordingly, its scope of operational maneuver is highly restricted, as is the degree of tactical maneuver that can be tolerated if support to the shore is to remain effective. But history has taught navies not to get themselves into situations in which they must risk a disaster ashore in order to avert one at sea, or vice versa. This was Admiral Frank Jack Fletcher's dilemma right after the Guadalcanal landings in 1942: he felt constrained to remove his "sea base" of aircraft carriers before it could be attacked by the Japanese, since his carriers were the only operational ones in the Pacific. Thus, in theory, a navy should not attempt to project power ashore until it has achieved sea control. But the theory almost never holds. A

smart opponent will wait until the attacker is lodged ashore and cannot maneuver without invoking the dilemma above. This was the Japanese plan at Guadalcanal (from which resulted the first battle of Savo Island, disastrous for the Americans), Saipan (and the battle of the Philippine Sea), and Leyte (the SHO plan). The same dynamic was illustrated with the Argentine D4 operations during the British landings at the Falklands. Attempting to create and defend bastions at sea entails risk.

AIRCRAFT CARRIER DOCTRINAL ROLES

If there were no sea-control threat, there would be no need to discuss the doctrinal roles of carriers. As a new and uncertain modern world emerges, it is time to review how aircraft carriers have been used during their history. They are high-value units, and accordingly their use has always been governed by the degree of risk it is appropriate to incur; the doctrinal roles for carriers are centered on this aspect of their operations.

Eyes of the Fleet. The original use envisioned (at least by battleship admirals) for carriers was behind the battle line, out of harm's way, sending aircraft to scout and spot for the battle line. Interestingly, this may be a future role for our carriers. They stay far out at sea, beyond the range of missile-based access-denial systems, and send in ultra-long-range unmanned aerial vehicles for intelligence, surveillance, reconnaissance, and communication relay in support of a grid of submarines, destroyers, and other craft "inside the arena."

Cavalry. In early 1942, aircraft carriers supported the Doolittle raid on Tokyo, as well as a number of hit-and-run raids meant to disrupt Japanese operations. In these, the carriers relied on the protective cover of a large ocean. The missions were such that the carriers, if detected, could immediately run for safety; standing and fighting would have been suicidal. So long as a carrier can remain unlocated, it can speed around and deliver quick pulses of aerial bombardment.

Capital Ship. When in World War II a decisive naval battle became possible, as at Midway, carriers would stand and fight. Nimitz's definition of calculated risk nicely captures the logic of committing capital ships to a desperate fight: "You will be governed by the principle of calculated risk, which you shall interpret to mean the avoidance of exposure of your force to attack by superior enemy forces without good prospect of inflicting . . . greater damage on the enemy." Any capital ship is a "consumable" in such a fight, but not cannon fodder. Thus, when there was a prospect of inflicting greater damage to the other fleet, carriers could be risked, and of course some were lost. By the way, a capital ship is that ship type that is most capable in a fight for sea control and around which the tactics of the

fleet are centered. "Capital ship" is thus a doctrinal term related to sea control, not a general phrase describing any big, expensive naval ship.

Nuclear Strike Platform. After World War II, in the "Revolt of the Admirals" era, the Navy pressed its carriers into service as nuclear strike platforms. This was due not only to interservice fights with the Air Force but also to genuine concern that the slow B-36 bombers might not get through. The carriers had to survive to get to their launch positions; after that, all bets were off. Carriers retained their nuclear missions until the 1980s, when the evolving global situation made the massive Single Integrated Operational Plan obsolete.

Air Base at Sea. When carriers provide continuous support to operations ashore, they are functioning as air bases at sea—that is, as a kind of sea base. As such, they are constrained in their maneuvering and thus cannot tolerate any risk from sea-control threats. This is the mode in which aircraft carriers have been operating for virtually the whole post–Cold War era. Trying to use them in this mode in a sea-control situation almost guarantees they will take hits. During the Falklands War, the British had to use their carriers as sea bases, but because there was a sea-control threat from the Argentines, the carriers had to be kept out of harm's way. This meant that their short-legged Harrier jets could not provide adequate air defense for the San Carlos beachhead, and a number of destroyers and frigates were lost as a result. When carriers try to function as air bases inside the range arcs of sea-control threats, they must try to erect bastions around themselves. As previously discussed, this is a debatable proposition.

WATER COLORS

Reference is heard in naval circles to three metaphorical "colors" of water: blue, green, and brown. They denote generally the proximity of land: "blue" water, the oceanic, reaches farthest from land; "green" water is the oceanic littoral; and "brown" water comprises rivers, bays, and estuaries. In the Cold War, these colors had more specific meanings. Blue water meant those areas of the ocean in which only other naval forces could confront one's own. Green water denoted those areas of the ocean in which naval forces could be confronted and affected by land-based aircraft. Brown water was that zone of the ocean that could be covered by ground-based artillery. This distinction had some vague planning value, but the advent of long-range jet bombers carrying antiship cruise missiles made virtually all of the oceans "green." In the era of total U.S. Navy dominance after the Cold War, the "colors" of water all but disappeared, other than in characterizations of a navy as "blue water," which meant oceangoing, capable of more than purely littoral operations. With the emergence of very capable

sea-denial forces and oceangoing navies that might turn out to be adversaries, there is utility to readopting this shorthand, but with new definitions. The new basis of definitions would be the kind of naval forces that can operate at an acceptable degree of risk in water of each color.

Blue water would denote those areas of the ocean in which naval forces structured around high-value units (usually aircraft carriers or large amphibious ships, but perhaps in the future such things as arsenal ships as well) can operate. High-value units (HVUs) concentrate a substantial proportion of the force's offensive combat power in a single ship, the loss of which would likely unhinge a whole operation or at least significantly reduce the odds of its success. These ships are normally surrounded by a screen of cruisers and destroyers, as well as perhaps submarines operating in more distant support; the idea is to create a defensive bastion around the HVU that can fend off attacks by submarines, aircraft, other surface ships, and missiles. An HVU-centered naval formation relies on not only defensive firepower and electronic countermeasures but also maneuver to defeat attacks. Such maneuver seeks to deny detection and targeting as well as to force enemy units, especially submarines, to engage in such disadvantageous actions as speeding up in order to attack. If an HVU and its escort are far enough out at sea, the odds will be in their favor: they have plenty of room for maneuver, and an opponent can muster fewer forces against them. Blue water comprises those areas of the ocean where both of these conditions obtain. The weaker the opponent, the closer to shore blue water exists.

If an opposing nation possesses powerful antiaccess forces, especially if they consist of capable submarines, aircraft, surface vessels, and missiles, there comes a point at which the ability of the screen protecting an HVU risks being saturated. Depending on the sophistication of the antiaccess force—in terms of advanced missiles that are hard to shoot down, numerous tactical aircraft, robust sea surveillance and targeting, etc.—the distance at which saturation could occur varies. A small boat–based force can reach out only a few miles; one possessing antiship ballistic missiles can reach out hundreds. As an HVU-centered force moves inside the range arcs of various antiaccess systems, the defense problem becomes more difficult. Instead of just submarines and long-range bombers, the screen now has to deal with surface vessels (like fast missile boats), land-based tactical aircraft, and shore-launched missiles. Threats become not only more diverse but also more numerous. As the force moves in, the likelihood of "leakers" (missiles, aircraft, submarines, etc., that survive screen defenses to get a shot at the high-value unit itself) increases. Depending on the strategic and operational situation, there is a point at which the risk to the HVU becomes incommensurate with the nature and value of its mission. It is at that point that blue water would turn green.

Green water, in the new scheme, would embrace those areas of the ocean into which it is not rational to send HVUs. In green water, a different approach to naval warfare would have to be taken; offensive power must be dispersed into a number of vessels that have sufficient stealth and other characteristics that make them capable of operating in these areas, where antiaccess systems are capable of "ganging up" on high-value units. At first glance, this may seem to mean only submarines could enter green water, but certain kinds of surface combatants might be usable as well. What seems clear is that the offensive weapons of necessity in these waters would be missiles, torpedoes, and mines (be they launched from manned or unmanned vessels). The "names of the game" in green water would be hiding, deception, countertargeting, and ambush—and also, conversely, reconnaissance, targeting, and communicating. Given the lethality of modern antiship missiles, torpedoes, and mines, naval forces entering green waters would be at significant risk, whether attacking or defending. As space, missile, and other technologies improve, the proportion of green water in the world will expand.

Brown water, in the new order of things, would not simply be "worse green water" but zones in which oceangoing units could not operate effectively at all. Generally speaking, this would mean waters that are too shallow, narrow, or infested with mines. In brown water, only smaller craft could operate effectively, whether or not there was any actual opposition. While brown water clearly denotes rivers and some bays, it would not necessarily be limited to them. Depending on opposition and other conditions, certain seaward littoral areas, as well as straits and other choke points, might be regarded as brown water.

These new definitions, if they became widely accepted, would represent a useful shorthand for planning and discussing sea control. The very fact of acknowledging that green water, as just defined, even exists would lead necessarily to force-structure decisions that would in turn produce a naval force that is at least a bit less centered on high-value units than at present. Moreover, determining where potential naval missions exist in brown water might yield a force that was not simply "riverine" in nature. Using these water colors, with the proposed definitions, could enhance dialogue on sea control and point to a force more usefully adapted to the emerging strategic and operational environment.

THE DISCIPLINE OF SEA CONTROL

When a navy's sea control is challenged, life is more difficult. That navy cannot assume free access to the littorals, and it may face the prospect of being attacked far out at sea, depending on the particulars of a dispute. Since the best protection for a naval force is to be unlocated in the vast ocean, the force must not only develop measures for achieving this condition in wartime but must set things up

accordingly in advance, in peacetime. Thus a navy that contemplates opposition must attain an operational discipline that includes not only tactics and weapons but also command-and-control doctrine and nodes, as well as integration with diplomatic circles. The U.S. Navy allowed this discipline to erode in the Vietnam era, when it focused all its energies on power projection. Consequently, when a true sea-control challenge arose, in the form of the Soviet Fifth Eskadra during the Yom Kippur War in 1973, the U.S. Navy had neither the weapons nor the tactics to deal with the situation.[3] Only after the crisis (mercifully) blew over did the Navy take up rediscovering sea control. Since 1990, however, the Navy has again focused on power projection and, again, has lost the discipline of sea control. Perhaps this article will stimulate a new rebirth of this discipline before the Navy is confronted with a new challenge for which it is unprepared.

NOTES

1. Wayne Hughes, *Fleet Tactics: Theory and Practice* (Annapolis, Md.: Naval Institute Press, 1986), p. 25.
2. For a theoretical, doctrinal, and historical examination of the nature, planning, and conduct of major naval operations generally, see Milan Vego, *Major Naval Operations,* Newport Paper 32 (Newport, R.I.: Naval War College Press, September 2008), available at www.usnwc.edu/press/.
3. For this episode see Lyle J. Goldstein and Yuri M. Zhukov, "A Tale of Two Fleets: A Russian Perspective on the 1973 Naval Standoff in the Mediterranean," *Naval War College Review* 57, no. 2 (Spring 2004), pp. 27–63, available at www.usnwc.edu/press/.