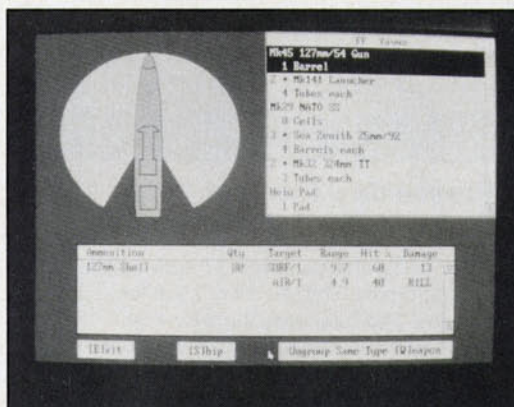


Harpoon: The Blue Side

or How to Make Sure the Pointy End Is Facing the Opponent

by James M. Lowerre



In early 1990, this reviewer, searching to broaden his wargaming horizons, elected to investigate an area unfamiliar to him: modern naval conflict. The February 1990 issue of *Computer Gaming World* decided for him that the game would be *Harpoon*, and soon another Tandy was launched into **Three-Sixty's** electronic ocean.

While prowling the GUK gap, elementary- to graduate-level lessons in modern naval warfare began to evolve. After digesting *Battle Set 1*, the other Battle Sets and the *Scenario Editor* became mandatory continuing education. Being the result of a quest for knowledge of modern naval matters, this article is designed to assist simulation sailors in getting their sea legs under them and to reduce the price of admiralty as they pursue victory at sea.

Absorbing the tactics and techniques concerning the successful employment of modern naval sub, surface and air platforms along with all their associated weapons is akin to eating an elephant with a pen knife and a shrimp fork: One has to take it one bite at a time. The discussion following is of tactics and techniques useful in the employment of the different types of platforms. Material previously covered by the esteemed M. Evan Brooks in both the February and April 1990 CGW issues will not be repeated.

Using Basic Platform Information

The first order of the day is to learn, or at least have available, information on the military attributes of the platforms on both sides (or all sides in *Battle Set 3*). A series of tables is useful for units operating in each type of environment. These tables include fixed-wing AEW (Airborne Early Warning); fighter; attack/strike; bomber; ASW (Anti-Submarine Warfare); EW (Electronic Warfare); helicopter (AEW/Search, ASW); and surface vessels, including CV (carrier), BB (battleship), CG (guided missile cruiser), DD (destroyer), FF (frigate), missile boats, commercial ships and submarines (attack and missile).

At the start of any scenario, use the platforms display option from the reports menu to list all classes. Then, while viewing each individual platform, the following information should be recorded: type, class, sensor ranges — air, surface and sonar (with a T for towed if appropriate), quantities and ranges of air, surface and submarine weapons (including the ranges and quantities of secondary weapons used for the platform's primary role), maximum speed and range, as well as nationality. Admittedly, this takes a little time, but the value of the familiarity with platform and weapon characteristics provided will contribute significantly to future success. This is also the cheap man's alternative to buying the board game for the platform data tables alone.

A partial example of this do-it-yourself platform data table from *Battle Set 3* is in Figure A.

How to Come Up with a Plan

Pay careful attention to the mission and the victory conditions given in the scenario brief. The scenario victory conditions (frequently referred to as the described end state by military officials) are the military objectives. As soon as the scenario comes up on the screen, save it and then put it on pause at the lowest group window magnification that will allow viewing all friendly and known enemy forces.

Click through all enemy bases and known groups, noting the numbers and types of enemy ships and planes present. Look at the geography of the region in relation to the relative positions and distances of enemy and friendly forces. Examine the characteristics of friendly and known enemy platforms.

Use the available information on the relative positions of enemy and friendly forces to determine the strengths and weaknesses of both sides. Obviously, the ideal plan uses the player's strengths against the enemy's weaknesses. Such strengths *may* include taking immediate advantage of the starting situation. In such a case, the player should reload the scenario *after* developing a plan to accomplish the objective(s). If the initial plan doesn't work, one should come up

with another one (nobody's counting!), since the experience prepares one for more complex scenarios.

Collecting Tactical Information

As each new enemy group is identified, click to that group and use the unit window to identify the platform type and its locations within the formation. Then check the characteristics of any "new" platforms. Use this information to decide the direction to attack with friendly aircraft and/or missiles. Maintain contact with the new group until it can be engaged. If contact is lost, one must expend resources to regain it (without forgetting that the enemy group is still out there).

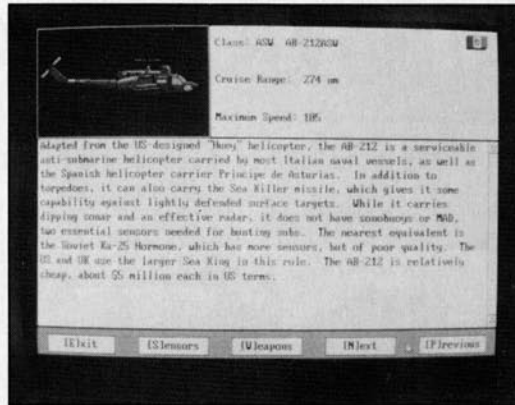
Although AEW aircraft are best suited to finding and continuously monitoring enemy groups, other aircraft can be used for this task. Long-range fighters, loitering just out of air defense range at high altitude with sensors on, are good for maintaining contact with enemy surface groups. If enemy fighters are not an immediate threat, ASW aircraft can perform this function.

Players who do not have local air superiority around their surface groups will soon discover that using their air search radars is far superior to the alternative of identifying approaching enemy air groups by watching them attack one's own ships. Thus, since most modern strike aircraft cruise at speeds around 10 knots per minute and, at a low altitude, can approach to within 12nm (nautical miles) of a surface target, smart commanders should set an interval of no more than three minutes between intermittent searches. Once a commander's ship has been spotted, however, it's time to leave the radars on.

Another way to avoid surprise attack is to routinely check enemy bases for decreases in the number of aircraft listed. The types and numbers that are missing will very likely be headed directly toward the player's fleet.

After striking enemy targets, click to the target and get a full report to determine the amount and type of damage done by the attack. Think of it as *Harpoon's* version of "battle damage assessment."

Finally, use the range circles to determine maximum sensor and weapon ranges for enemy groups. The sheer number of circles can be confusing at first, but the information they provide is vital to all decisions.



Preventing the Red "Fly By" or "Fly By" the Reds

The computer can provide auto-formation air cover. This reviewer's advice — just say "No!" Instead, the wise commander micromanages his/her air assets, launching AEW and fighter patrols to the exact positions desired and launching attack/strike missions to a specific patrol location so that when they arrive on station, one can make the final decision on when and how to attack the target. One can even assign helicopters to cover specific ASW zones by using the formation editor.

Use a simple sequence to attack surface targets (call it the "Eyeball 'em, Swat 'em, Poke 'em and Pound 'em sequence," or "ESPP" for short). First, the target needs to be identified and sensor

"In war everything is simple, and everything is difficult." — von Clausewitz

coverage achieved and maintained (AEW task). Next, the local airspace over and around the target (at least to the outer limit of the enemy air defenses) must be secured (fighters). Next, poke out the enemy's eyes by attacking with anti-radar missiles (attack/strike/bombers). This prepares the target so one can bombard it with relative impunity (attack/strike/bombers).

Remember Von Clausewitz: "In war everything is simple, and everything is difficult." This is as true at sea as it ever was on land. The effects of friction on friendly operations, especially attempts to synchronize multi-group attacks, should never be discounted. This is the bottom line for micromanaging air assets.

Don't mix aircraft types, with the exception of EW aircraft necessary to penetrate enemy air defenses. Match the

EW aircraft with the type of attack/strike aircraft they are to accompany (i.e., EA-6 and A-6B). An ESPP 'package' will require several different types of aircraft but each type should be launched in its own group(s). Mixing only places artificial restraints on the more capable aircraft, may needlessly expose some aircraft to enemy air defenses and presents a larger than necessary sensor image.

Supersonic aircraft can counter enemy air-to-air missiles fired at range by running out of range at max speed and high altitude.

Aircraft mission range is calculated from the original launch point. When a group reaches the bingo fuel point (the point at which one has only enough fuel to return to his base of origin) and a location closer to the group than the take-off point is available, the group can exceed its bingo fuel limit and still land safely at the closer landing point. Unfortunately, the player can't tell how much additional range the new landing point adds to the group's limit. One won't know what the group has remaining until the group actually arrives at the landing field. At that time, the remaining mission range will be briefly displayed just before the group completes landing.

AEW Aircraft — Airborne Early Warning will not happen if the aircraft aren't properly positioned. The requirement is to know about the enemy threat in time to neutralize it. Anything else is too late. These aircraft should be the first to launch at the beginning of any scenario.

Bomber Operations — See attack/strike aircraft. Local air superiority is essential for successful operation of bombers.

ASW Operations — ASW work is like preventative medicine in which the ASW aircraft are the doctors. It is always desirable to sink or drive off a submarine before it attacks a target. However, one should not forget that Magnetic Anomaly Detection (MAD) devices locate enemy submarines *only* when at low altitude.

It is extremely useful to combine these aircraft with otherwise defenseless convoys, as well as to patrol geographically restricted areas. One can even protect unescorted convoys with land-based ASW aircraft. Use the formation editor to join the two groups. Assign the plane a multi-sector patrol around the surface group, making the patrol ring coincide with the maximum enemy torpedo range plus and minus 2nm. Then, use the staff reminder to split the aircraft out of the protected group before it reaches bingo

fuel (or watch the mission range circle on a like aircraft launched at the same or an earlier time as the one(s) joined with the surface group).

ASW Techniques — In case of an undetected attack, one should triangulate upon the direction from where the attack came. Then one needs to fly to that point as soon as possible. Performing an outward spiral at low altitude, one should cover the area the sub could have moved in *since* the attack.

Prosecuting a sub contact — the flush 'em and rush 'em technique does just that. Move immediately to the center of the contact and drop one torpedo. Wait for the sub to take evasive action. When he does, move directly over him and deliver a *coup de grace* in the form of a final torpedo. Plan on using four torpedoes against any one sub contact to allow for the sub commander's skill and/or luck.

Helicopter Aircraft — AEW/Search Helicopters Operations. Remember what early warning means and patrol at highest (medium) altitude. Don't put these aircraft out front in a hostile air environment. Hold them as a separate patrol above the center of the surface formation. In this position, the helicopter doubles the effective range of the group's surface radars. Use the surface group's air defenses to protect the helicopter. At the first sign of enemy fighters, the helicopter should drop to Vlow altitude and hover inside the friendly formation.

ASW Helicopter Operations

Use those with sonar for formation ASW patrols. Assign no more than half the sonar-equipped helicopters to ASW patrols to ensure continuous coverage. Hold non-sonar-equipped helicopters for prosecuting contacts.

If operating in a hostile air environment, the patrolling ASW helicopters should be kept in the formation AAW ring or center. Above all, always assign four torpedoes to each sub contact.

Staying Afloat, So the Other Guy Won't

Scenario start — Check out all formations and group courses. Adapt the formations to the threat and the group courses to the plan. A surface group's course should generally zig-zag along a given travel path.

Formation editor — Formation orientation remains constant. Readapt the formation to any major change in the group's



general direction of travel. Concentrate ASW patrols along the group's general line of advance. Air defense vessels should be between the formation's "mission essential" vessels and air-to-surface threat(s). Remember what Sun Tsu said: "He who tries to defend everything, defends nothing." Concentrate on the threat.

Maneuver individual ships using the formation editor, especially when under attack. Assigning a unit a new location causes the unit to go immediately to max speed and head directly for the new position. For example, part of a group's reaction to a long-range missile attack would be to go max speed on a course directly away from the incoming missiles. At the same time, the air defense vessels would be repositioning in depth at the rear of the formation.

Group speed will automatically drop to half of the group's maximum when making a formation change. This allows vessels to quickly reposition, but can be overridden when necessary. Use the unit window to determine when the group is in its new formation.

Carrier Groups — Many scenarios revolve around the ability of one side or the other to defend a carrier group. In such a case, the group's first and foremost priority is to protect the carrier. If enemy air is a threat, then all air-to-air-capable aircraft should be given that mission. Check formation when an air threat is identified. If the CAP (Combat Air Patrol) fails, the threat can get within 12nm.

A need for speed coupled with an enemy submarine threat presents the opportunity to split off a decoy group. A decoy group consists of one of the carrier's cruiser escorts and one or two smaller escorts. The decoy group moves at high speed along the carrier group's intended path; the carrier group follows. One will be amazed at what pops up along the way to attack the decoy group.

The carrier group's second priority is to air-deliver ESPP-type attacks against surface targets.

Battleship Group — The 32 Tomahawk missiles of the battleship alone are good for the destruction of one or two small enemy bases. A battleship group without adequate air cover is no fun. Without adequate air cover, the group is also more vulnerable to submarine attack (helicopters are forced to operate close in).

ASW Group — Check the unit sonar ranges and ASW weapons ranges in the unit window before assigning positions in a formation. Helicopters, not ships, prosecute submarine contacts. Set the group's patrol course to zig-zag. Speed should be low (less than 19 knots) to prevent interference with the group's passive sonars and to limit the group's hydrophonic signature. One will find that the best sonar range is achieved at creep speed.

Turn air search radars on and enemy air (including long-range missile) attacks should be detected in time to react.

Missile Boats — With air superiority, substitute these boats for aircraft in the "pound 'em" phase of an ESPP attack. The unit's very high speed makes them nearly invulnerable to torpedo attack.

Unarmed Convoys — Astute players will set their course to frequently zig-zag and their speed to minimize the convoy's hydrophonic signature (something less than 19 knots, since different surface vessels have differing hydrophonic signatures, but most begin the noisy propeller cavitation at speeds above 18 knots).

Use a special formation. Make a large center circle (8 to 12nm in diameter). Place the least valuable vessel at the forward edge of the circle. Place all other vessels at the opposite side. Enemy submarines will hear the lead vessel and (hopefully) be decoyed into solely attacking the sacrificial vessel.

Note the direction of incoming weapons during the attack animation. Direct ASW groups back down the attack track. Split damaged vessels (speed impaired) away from the convoy (they're noisier). If the direction of attack is missed, the player should set the convoy speed to zero. Then the ASW groups can try to locate the attacker. After 30 to 60 minutes of ASW searches, one should resume creep speed and set the convoy's course to swing wide of the attack area by a distance in excess of the enemy's maximum detection range.

Staying Alive "Down Under" (Submarines)

Submarines in general — At the start of each scenario, do a "crazy Ivan" maneuver. This is a 90-degree turn to "look back into the baffles" of the submarine's track. It is always surprising to see what one finds upon looking.

Even though some submarines can "creep" at up to 19 knots (Sea Wolf), the passive sonars are most effective at a speed of about five knots. Avoid enemy SOSUS sensors (like around the Kola peninsula) by traveling at shallow depth and creep speed.

Contrary to M. Evan Brooks' assertion, sub speed can be set to zero. Move the set course point indicator to the zero point and give a zero speed command, then wait for a minute of game time.

Attack enemy surface groups with torpedoes. The torpedo is very destructive, has a high probability of hitting and may not immediately compromise the attacker's location. Some torpedoes outrange shipboard anti-submarine weapons.

Know the characteristics of your torpedoes. Range and speed are the key, especially since many targets can outrun a torpedo fired at long range.

When engaging a target with torpedoes, fire single torpedoes in two or three separate attacks. Use at least two torpedoes against an identified target and at least three against a contact. Make the attacks ten to fifteen seconds apart. Fire at enemy subs from the target depth. After firing torpedoes, turn 30 to 180 degrees away from the attack point, get or stay beneath the thermocline and cruise away for several minutes, returning to creep speed before getting attacked by reacting enemy ASW aircraft.

Try to attack all targets simultaneously at close range. If this is not possible, one must get exact location data and determine what one is facing. This insures that one is hitting the mission-essential targets. Don't diddle around for long in the middle of an enemy formation before attacking.

Individual submarines do not carry enough missiles to be sure that a sufficient number will get through to a defended target. If one desires to get in close, do not get too close. Knowing the activation range for one's

missiles is important. **Warning:** Missile firing immediately compromises one's position to air search radars.

If the player has been positively located, he has nothing to lose by immediately conducting an "all weapons" attack. No sense taking all that perfectly good ordnance to the bottom.

The classic indicator of air attack is a dropped torpedo picked up by your listening equipment. Turn to face directly into the attack, go to creep speed and dive to deep depth if one is not already there. If one is already at deep depth, rise to intermediate depth until the torpedo passes, then dive deep again, repeating as neces-

an undetected torpedo going past one's conning tower is a good indicator, it is advisable to alter course into the direction of attack (or 180 degrees if you didn't notice the direction of attack), go to creep speed, and get on the other side of the thermocline from where one was at the time of attack. If there is no enemy sub behind the player, then get beneath the thermocline.

Ballistic Missile Submarines (Boomers) — Creep deep. Be patient. Get within range of all missiles. Operate individual submarines. When firing with other submarines, time the firings to mass in time and direction.

Attack Submarines — move slow, listen hard, shoot quick.

"He who tries to defend everything, defends nothing." Summary — Sun Tzu

sary. Use the unit window to ensure one's course remains facing directly into the torpedoes attack.

If time between attacking torpedoes allows, set speed to zero at deep depth. Use creep speed if attacked again.

This technique requires some practice (i.e., save the game as soon as the attack is identified). Once the player has mastered it, the attacking aircraft will run out of torpedoes and one can slink off into the sheltering depths.

If one is attacked without any warning and survives (the sudden thrumming of

Harpoon is a fascinatingly detailed and complex study of modern naval conflict, as satisfying in breadth as it is in depth. In each battle set, new considerations relevant to modern naval conflict become comprehensible, even to us neophytes. One can only look forward to Battle Sets 4 and 5 (Persian Gulf/Indian Ocean and Western Pacific).

Additionally, the *Harpoon Battle Book* is scheduled for release in or before June. This reference is supposed to include all the detailed weapons and platform data currently accounted for, but not displayed in the game, as well as detailed tactics for use with the different platforms. **caw**

Figure A

Type	Class	Sensors			Weapons			Spd/Dmg			Nation	
		Range (nm)	Air	Surf	Sub	Quantity/Range (nm)	Air	Surf	Sub	Helo		Rng
Surface Vessels												
DDG	Cassard	250	60	1.6A	13/3	40/20	8/38	10/3.7	Y	30	136	France
CG	Andrea Doria	360	40	5A	40/70	—	6/6	Y	31	206	Italy	
PTM	Ramadan	40	25	—	Pt	4/32	—	—	17	13	Many	
Submarines												
SS	Type 209	—	16	8P	—	—28/20—	—	—	22	25	Greece	
SS	Enrico Toti	—	40	7P	—	—12/13.7—	—	—	15	14	Italy	
Aircraft												
Attack	Kfir C7	—	—	—	4/8	2/13 2/32	—	—	1317/ 1120	—	Israel	
Attack	Tornado	—	40	—	2/10 4/10	4/20	—	—	1900 1338	—	Italy	
Fighter	F15C	—110—	—	—	4/24	—	—	—	1881	—	US	
Attack	Jian 7	—	—	—	—	2/1	—	—	1320	—	—	
Attack	Fishbed	—	—	—	2/8	2/0	—	—	650 460	—	Many	
AEW	E-3 Sentry	—360—	—	—	—	—	—	—	4374	—	US	