

## Advanced Tips and Tricks for the Naval Engine

The Naval Engine seems rather simple at first, but as you would expect, it's not as easy as it would seem. In this document, the hope is to help players grasp some things that will help you play at your best.

### Part I: General Rules of Thumb

#### A. Pre-Battle

When you load a battle, it's a good idea for you to take a careful look at the situation before you begin. Read the description carefully, there may be important information lurking in there. Then take a look at your units, and start asking some questions. Are my units able to support one another, or are they scattered? Do I have any units locked in Convoy? How will the terrain affect my plan?

#### B. Check the Conditions

This is part of the pre-battle check, but it's worth pointing out individually. What are the conditions? The first and most obvious is visibility. A daytime battle fought with 20,000 yard visibility will play out very differently than a night battle with 5,000 yard visibility.

However, wind and sea are also important. Check the "Wind and Sea Report" Heavy seas will slow down your lighter ships, and they are the ones who need speed for the most. It will be harder for them to make effective torpedo attacks, and slower ships are easier to hit.

If you are using Aircraft Carriers, it's even more important. Not only does a carrier need to be headed into the wind to launch planes, but remember that you can't run air ops if your combined speed plus the wind speed is greater than 50. You may need to slow your carrier up a bit in some circumstances.

Even if you don't have carriers but the enemy does, it's worth paying attention to this, because that will tell you the general direction any enemy carriers will have to go.

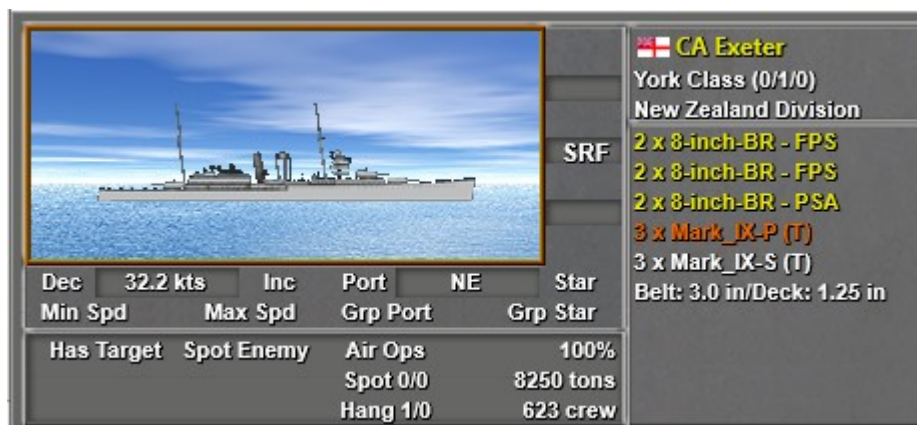
#### C. Know Your Ships (and theirs too!)

Again, this is a good item for the pre-battle check. There are two ways to look at the detailed information for your ship. You can do it in the Database Display, but an easier way to view it is in the Alt-UI. Even if you prefer the Classic UI to run the game, it's worth flipping over at start to look at this:



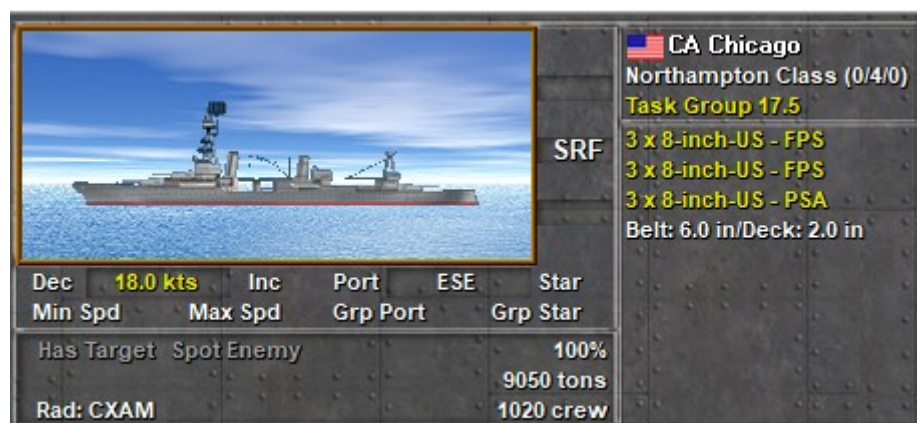
The key thing to look for here is on the right. Notice the guns and the layout. The ship has 4 turrets, and all of them fire Port and Starboard (hereafter PS), but 2 fire Forward (F) only, and 2 fire Aft (A) only. There are also 2 torpedo racks, each of which only fires P or S. (Some ships have swivel mounts that can fire either way.)

Now, compare that to a York Class:



The York class was built in the 30's in an attempt to get more ships out for the same amount of money. Notice that it has 1 less turret, and that it's one of the aft turrets that's missing. So, if you can get into the aft arc of that ship, it can only fire 2 guns at you, instead of 6.

On the other extreme, this is a US Northampton Class Cruiser:



Notice the gun layout. US Cruisers tended to have this arrangement. 3 turrets, each with 3 8" guns. It has as much firepower in the FPS arc as the York does period, and has 50% greater than the York in the aft arc (but 33% less than the Hipper.) We'll come back to all of this in Gunfire a bit later, but it's important.

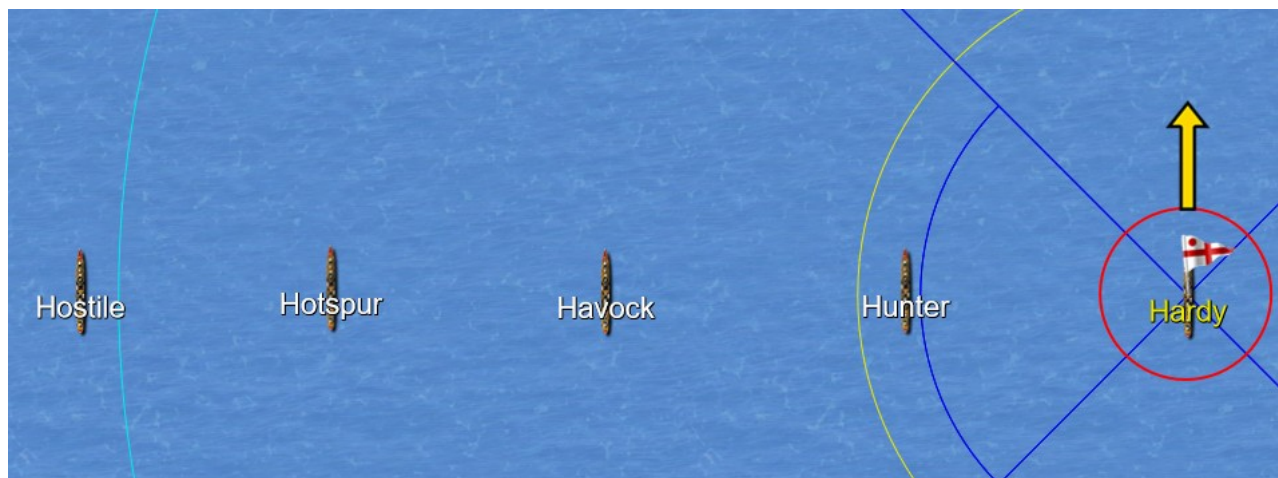
Also at this time, note the speed of your ships. Will they run together well? Do you have someone slowing you down? If so, should you detach that ship? (Dogger Bank in Jutland is an example of this, with the German Cruiser Blucher a bit of an anchor on the Battlecruiser Group.) Note which ships do and don't have radar.

There are other things about the various ships you can note, but that's a good starting point.

#### **D. Turns, and when to use them**

There are two kinds of turns in the game. Line Turns and Group Turns. They are not interchangeable, especially when you are maneuvering more than one ship. The "Line Turn" is best used for single ships, or ships in Line Ahead (one following another) formation. It has each ship turn when it reaches the point where the previous ship turned, keeping the line ahead formation. (Note, if you have ships with different turning radius' it can get messy) The Group Turn is best used for ships in other formations, when you want to keep relative positions. A good example of this is the escorts around a Carrier in Midway. They're typically in a ring, and the group turn will keep that formation as the Carrier turns.

However, even in line ahead, the Group Turn has uses. (These will mostly be seen in larger games like Jutland or Tsushima). If you make a group turn of 90 degrees with a formation in line ahead, you will now end up in line abreast.



One advantage of this is that it's faster, especially if you need to have the entire formation avoid torpedoes or the like. Another 90 degree turn would have the formerly rear ship now in the lead.

However, watch out, if your fleet does not have “can about turn” in the parameter data, you can only turn 180 degrees in this way.

Also, it's best to never change speed during a line turn. That changes turn radius a bit, and it messes up your formation coming out of the turn. A minor thing in a small KM scenario, but in Jutland or Tsushima, you'll likely never get it fixed.

### **E. Slow Down**

No, not your ships. Your timer. Especially if you're new, I don't suggest you run any faster than 1x as long as you are in contact. Use the time to constantly look. Look at the range, respective headings. Play the angles in your head, where is he heading, where are you heading? If you speed up too much, you'll suddenly find that the enemy is closer (or further) than you think or that you didn't respond to a move in a timely manner. Midway is a bit different, as fleets are so far away, but if anything there, being slow off the trigger can kill you, with aircraft moving at you.

### **F. Don't get tunnel vision.**

It's easy to zoom into one part of the battle and then start losing track of the bigger picture. This is especially dangerous in larger battles. This is how you let light ships get close enough to fire off their torpedoes. Make a point of zooming out and looking around. Where are all the ships? What are their headings?

### **G. Range Grid**

Yeah, I know, the Range Grid is ugly. It's also incredibly useful. I suggest in surface games keeping it on 1000y (as opposed to 1nm). That makes it much easier to judge ranges for firing torpedoes.

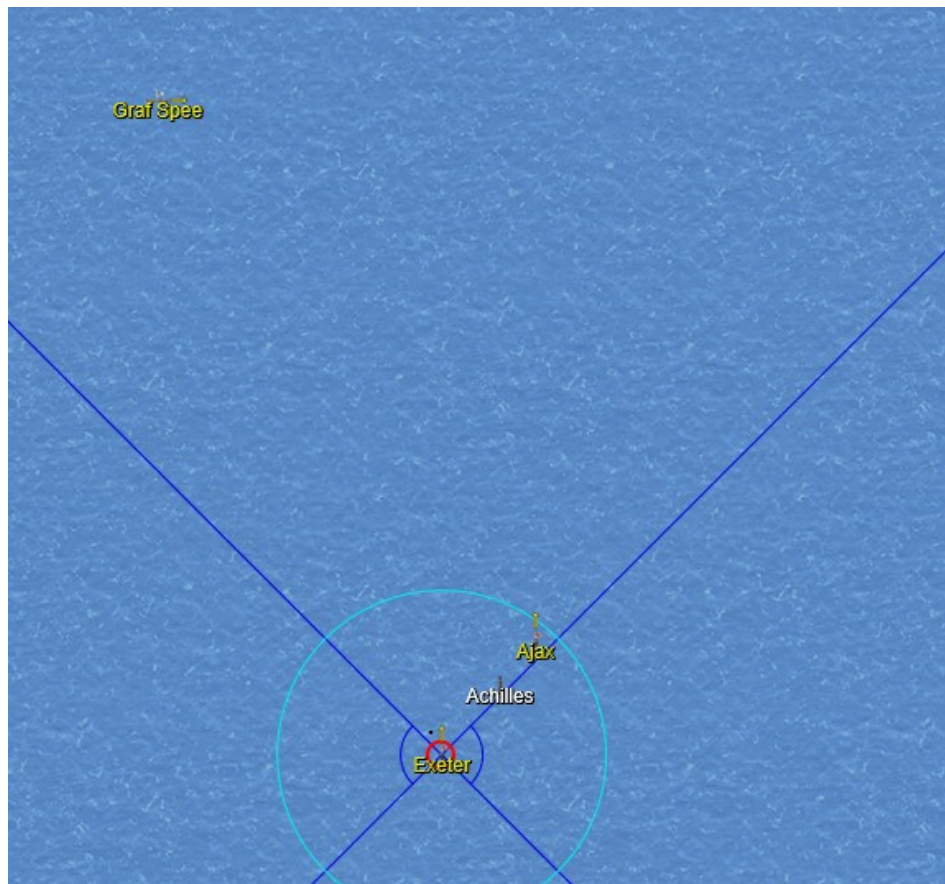
In Midway, you can turn the grid off, but instead you'll want to select “Distances” (in the View Menu in Classic UI, right under the Victory Conditions in the Alt-UI). Depending on the distance you choose, it will draw circles at 25, 50 or 100 nautical miles. Great way to get a fast sense of how far out the enemy is (and when they're in range!)

## **Part II: Gunfire**

### **A. Bearing Turrets**

You may have wondered why I obsessed so much about the guns on the turrets. This is why. If you are in a gun duel, your goal is always to have as many of your guns bearing at any given moment, with as few of the enemy guns bearing as possible. Now, it's not going to be common for you to get many situations where you can plant yourself in the aft arc of a ship and prevent the forward turrets from firing for more than a moment or two. However, it's much more likely to get into position where you can concentrate your full battery against only the forward battery of the enemy.





Notice that the Graf Spee can currently fire both fore and aft turrets, while the British are all limited to forward turret only. (Now, I do not recommend closing the British at River Plate, but that's the next point.) At the moment, the 2 British CL can only fire 50% of their main guns, while the CA can only fire 66%, as opposed to the Graf Spee that can fire all its guns.

Always look to have as many guns bearing as possible. **Always.** Then, maneuver to force the enemy to mask their guns. This can take lots of small course adjustments as the battle goes on (which is one reason to slow down your game.)

Of course, the ultimate version of this is the "Crossing of the T", where your line of battle is able to sail ahead of the enemy all guns bearing, and most of their rear ships end up being masked by their lead ships, and they can only fire their forward guns.

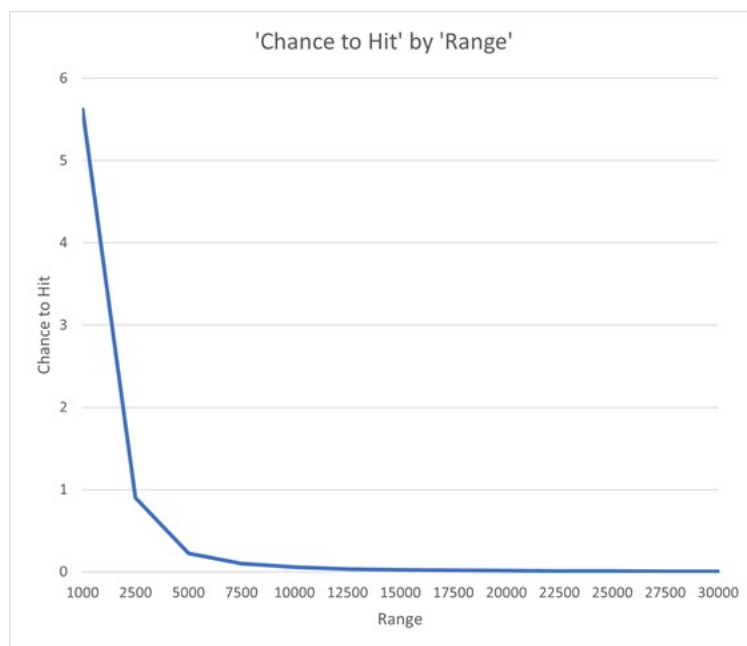
## **B. Choose your Range**

What range should you fight at? That is going to be individual to every battle, but it goes back to knowing your own force, and what you see of the enemy. As a general rule, if torpedoes are a major part of your offensive firepower, you'll want to close the range. If the enemy has the torpedo advantage, then you'll want to open the range.

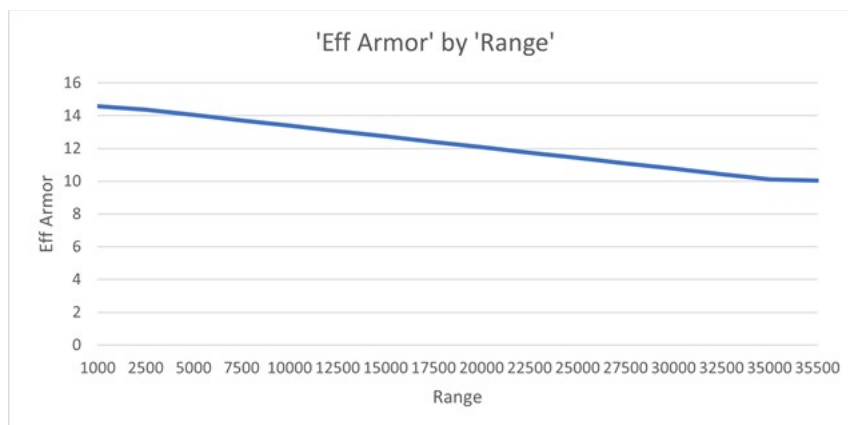
Also, it depends on the nature of the gunpower. Take the River Plate. It's not a good situation for the Germans at all, but look at the relative advantages and disadvantages. The Germans don't have many guns, but they're big ones. Much bigger than anything the British have, so when they do hit, you'll have a better chance of doing major damage, possibly enough to slow down an enemy ship. So, one

option is to try to keep the range open, where your bigger guns will have more chance to land a devastating hit.

The game's "to hit" equation is fairly complex, with four different variables that impact the result: base to-hit, range, target size, target speed. This illustrates how range affects things. It's assuming that you are firing at a 10000 ton target doing 32 knots (so a fairly average CA), with a base to-hit of 3.7%, (with a value of 1 meaning 100% chance to hit.)



Now, the nature of the armor calculation is such that you lose armor effectiveness as you approach the extreme range of enemy guns (representing plunging fire on the thinner deck armor.) Something to be aware of, but not normally a huge consideration. But, if you're facing a ship that has more armor than you can deal with, that's one approach. Here's a chart showing how that works when firing at the Bismarck (14.7" belt, 5.4" deck, using a gun that has a max range of 35500).



### **C. Concentrate Fire**

If you have multiple ships firing, it can be good to concentrate your fire on a single enemy. The faster you can take out an enemy ship, the fewer guns that are bearing on you.

One variant of this is to concentrate on the target with the weakest armor. For instance, in Jutland, the British “In” class Battlecruisers (Invincible and the like) have less armor than the newer ones, so a hit is more likely to be effective against them.

### **D. Pick on the slowpoke.**

The firing equation makes it easier to hit slow ships, so once a ship goes into yellow health, it’s time to pour on the fire. It starts slowing, which makes it more vulnerable.

## **Part III: Surface Torpedo Warfare**

### **A. Right Ship for the Job**

Many ships have torpedoes, but not all of them are really “torpedo ships.” For instance, many Cruisers have torpedoes, but that’s not their main purpose. There can be times where you can use them to good effect, but it’s much more situational. Your prime Torpedo Attack boats are DD, DE, TB and PT/MTB/S-Boot type craft.

These are the craft that should make attack runs on enemy ships as a prime priority. Even then, you don’t necessarily want to do it right away, but wait for the flow of the battle to create a good situation. (Note: especially in Jutland, these ships have many other uses, screening and using smoke to cover heavier ships most notably. DD usage in Jutland is an art unto itself.)

Here’s a guide of when/how I would use torpedoes by firing ship type.

*DD/DE/TB/MTB/PT/S-Boot.* As said, these are the prime torpedo ships. They’ll want to maneuver to set up a good position and go for it when the time is right.

*CA/CL:* These ships are a bit in-between. Not all cruisers have torpedoes, and some have extremely effective torpedo armaments (typically the Japanese fit here.) However, these ships are slower and less maneuverable, so they are a little harder to use. I would tend to use them for

- 1) Cripple Kills. If an enemy ship is badly hurt and you’re in range, it’s a prime target.
- 2) Mass Launch. This is the strategy the Japanese had in mind when they made their cruisers. A very wide spread fired from multiple ships in line with lots and lots of torpedoes, aimed at the entire enemy formation. If it works, it’s devastating.
- 3) Deterrence. Using your torpedoes to discourage enemy ships from getting too close.

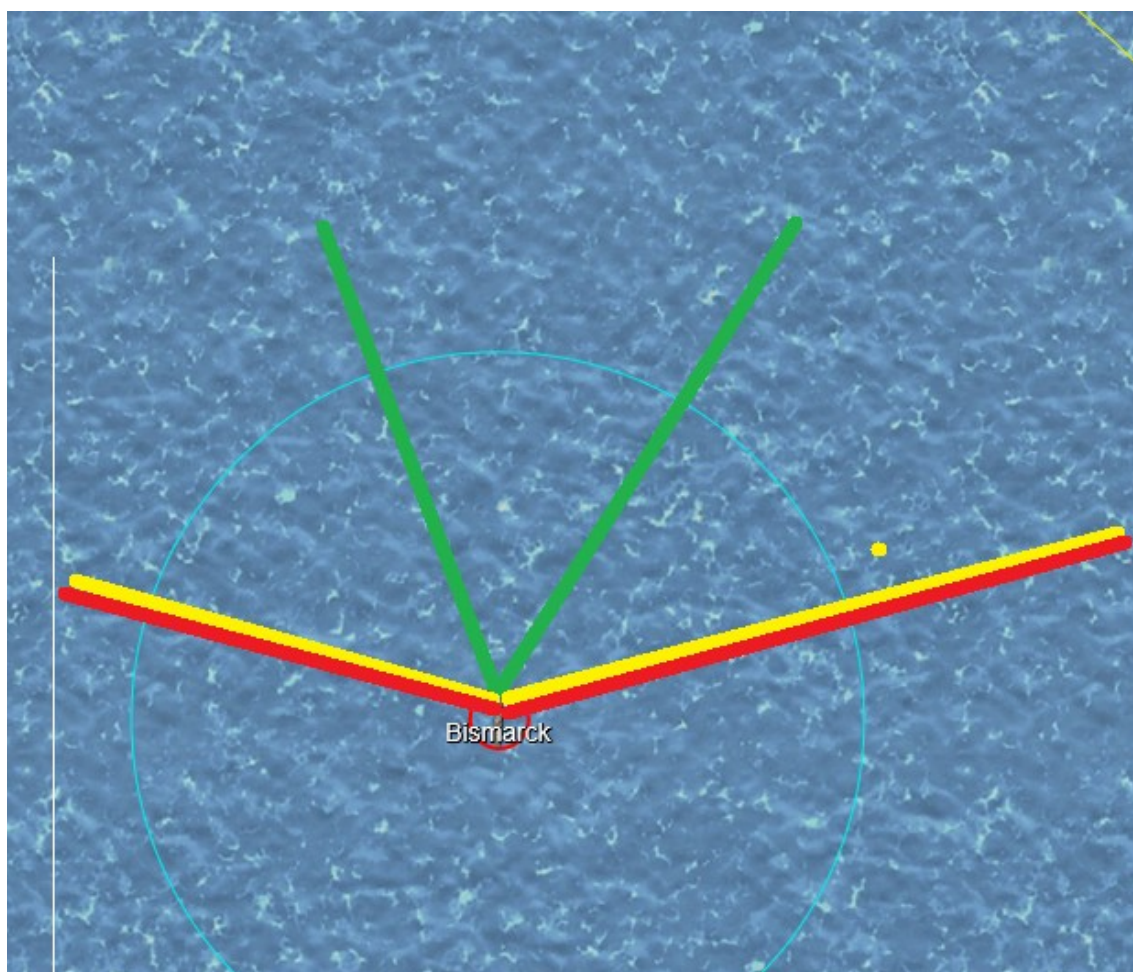
*BB/BC:* Honestly, cripple kill and deterrence is all these torpedoes are good for.

### **B. Angle of Approach**

This is likely the single most important part of a successful torpedo attack. While your torpedo attack ships are likely going to be some of the fastest in the game, if you get caught in a tail chase, you’re likely not going to have much success. Your vulnerable ships will get chewed up and spit out.

The ideal angle of approach is one where you are ahead of the enemy, and are approaching them from dead ahead on a converging course. You’ll have a closing speed of 70-75kts, which means minimal time for them to shoot up your ships, or to turn away from your attack.

As you move away from dead ahead, the angle gets more difficult, and your approach will become more difficult (and the enemy's ability to counter maneuver grows), until it becomes nearly impossible.



Between the green lines is an ideal approach. Between the Green and Yellow Lines is a more difficult but still viable (depending on exact distances and relative speeds.) Anything from the red lines out is unlikely to work, and you should wait and create a better situation later.

### **C. Fire a Spread**

I suggest firing torpedoes manually instead of using the TDC, and firing a spread. With practice you'll learn how to lead enemy ships. The important part is firing a spread to widen the "hit area" for your shot. I'd say that each torpedo should be aimed to hit about  $\frac{1}{2}$  ship length of the enemy unit apart. (So, a 4 torpedo spread should be about 2 ship lengths across.)

### **D. Hammer and Anvil**

If possible, fire your torpedoes from multiple ship/aircraft at the same time, so the enemy ship will have torpedoes coming at them from two different directions at once. It makes it much harder for them to avoid. (Note, this works best with aircraft, just because it's much easier to arrange it, but if you can do it with ships, all the better.)



### **E. Get in close.**

The closer you can get in, the better. Unless you're desperate, I'd say never fire further than 3000 or so yards, and honestly, you want to get to about 2000 yards if you can.

### **F. Use Smoke**

Smoke is one of the most versatile tools you have, and it is very necessary to get torpedoes in, especially in daylight or high-visibility night scenarios. When the enemy starts shooting at your approaching DD line, have the lead ship start smoke. The following ships will be protected in its train. The lead ship will be the most vulnerable, so be ready to detach it and have the others go around it without losing speed. (Pause the game immediately if your lead ship gets damaged to yellow, so you can do this.)

### **G. Avoiding Torpedos**

#### **1. Avoid before they're fired**

The best way to avoid a torpedo? It's the old story, an ounce of prevention... When you see enemy torpedo craft approaching from the green or yellow zones in the above chart? That's the time to turn. Force them into a disadvantageous or worse angle. Another reason to not play the game at too high a compression. These things will sneak up on you if you don't.

#### **2. Avoid when they're fired.**

If you are playing where you can hear torpedo launch sounds... the second you hear it. Turn. Even if you aren't playing with those sounds, you can guess pretty well when the enemy will launch. You can see if his tubes are pointed at you, and you can read the position as well as he can. Turn. (90 degree turn away from the torpedo threat is your best bet, all things being equal.)

#### **3. Unleash guns on Torpedo threats.**

A dead destroyer fires no torpedoes. Bring as many guns to bear as you can, be sure not to mask any. (This is especially important in Jutland where you can get some truly massive DD charges to deal with.)

## **Part IV: Submarine Warfare**

### **A. Depth Control**

What depth do you want to run at? That is really going to vary by circumstances. As a rule, any time you don't expect the enemy to see you, run on the surface. You get your best information then, and have your best mobility. You can certainly attack on the surface at night (a common tactic of both German and US subs.) Subs are hard to see, so as long as all enemy ships are between 50-100% of visibility away, you're hidden. **If the enemy doesn't have radar that is.**

If you can't safely remain on the surface, then get to periscope depth. This will cut your mobility way down, so you'll want to be in a good attack position before that.

If you've attracted the attention of the escorts, it's time to go deep. Get below that layer! That makes it harder for them to spot you, and gives you the best chance to evade.

**B. Turn off the deck gun.**

The deck gun will fire automatically unless you tell it not to. Do so. Immediately. The thing makes it much easier for the enemy to spot you. Only fire the deck gun if you are sure there are no nearby escorts and you want to save torpedoes.

**C. Periscope Down**

Periscopes can be spotted. Check the pdt of the game to find the distance, but it's generally around 1000 yards. So, when ships are that close, keep your scope down unless you're getting final information for your shot. Subs in that era would often raise their scope for a quick look, and then bring it back down. That's a good habit here as well.

**D. Let them come to you.**

Once you get a read on a convoy's movement (and especially its zigzag), you can move to get ahead of it. Then submerge and wait for it to come to you. One common tactic was to do an "end run". Run at full speed on the surface outside of visible range to get into that position, and then wait for them to come into your firing zone.

**E. Tortoise is good.**

If you're under water, it's best to run fairly slow. The faster you run, the easier it is for enemy passive sonar to hear you. You also wear out your battery more quickly.

**F. Clear last data.**

When you fire a torpedo or are otherwise spotted, immediately turn from your course (generally between 60 and 120 degrees), to get away from the location the enemy last saw you at.

**G. Get in close.**

I'd say you want to fire your torpedoes between 1000-1500y. You can fire a bit further out, but close range is your friend.

**Part V: ASW Warfare****A. Slow Down**

As an ASW Officer, one of your most vital assets is your sonar. The faster you go, the worse your sonar gets. Above a certain speed (found in the PDT file), your sonar won't work at all. When you've got a sub localized, you may want to do a high speed run to close on it, but otherwise, slow down, open your ears.

**B. Two are better than one.**

You don't always have two escorts available, but when you do, they give you a great deal of flexibility. If two escorts both have a bearing on a sub, you can then connect the lines to find a very solid location.

On the other hand, you can use one escort going slow to keep an ear on the sub, while the other charges in to engage.

**C. Forward is always the most dangerous place.**

This is especially true against a human, but just as sitting forward of a target and letting it come to you is an effective tactic for a sub, so it's the place of danger for you. If possible, have a set of ears a few thousand yards ahead of your convoy, listening for the enemy.

**D. Don't get tunnel vision.**

Sometimes, there's more than one sub out there. If you're putting all your focus on dealing with one contact, you just might miss the second one coming in to attack.

**E. Know your weapons.**

You have Depth Charges, Depth Charge Launchers and Hedgehogs. They all work a bit differently, and need a bit of a different approach. Remember that Depth Charges actually take a bit to sink down to the sub's level and detonate. All the weapons have different firing areas, so know what you're planning to fire before you even approach.

**F. Don't be stingy on ammo.**

Don't use one Depth Charge when you can fire a full pattern.

**Part VI: Aircraft and Carriers****A. Scout, scout, scout.**

Information is the most important resource you have. Don't be afraid to use a few extra planes to scout. You need to be careful to balance the number of aircraft with the size of the search area. If you don't assign enough aircraft, your "pie wedges" will be too big, and leave gaps between your search zones. Better to error in the direction of safety. Remember that the distance between your planes increases as they get further from your carrier.

**B. Time is life.**

Time is your next great resource. One thing about air operations is that deck operations are slow. So, you need to plan ahead, and it's very hard to get back wasted time. Start readying your planes immediately. Get your scouts up first, CAP second, and then ready a strike on deck. Consider launching them before you have a solid sighting. (Though this is a double edged sword. You won't want to do it every time, but at least consider it.)

**C. Location Markers**

Location markers are incredibly important for carrier operations. They have a number of uses.

1) When you first spot an enemy force, immediately place a marker there. Note it with a short description. Like "CV 1410 30NNE" A CV sighting at 1410, headed NNE at 30kts. That way, if your scouts get shot down, you still have a solid idea of where they are. If you keep view of them, update it on a regular basis.



2) Use them as strike targets. You can "aim" a strike at a Location Marker. This can be to your advantage in a few ways.

- If you want to get a strike going early, set a marker in the general area you expect contact, so the strike can get an early start.
- If you lose spotting along the way, you can continue the flight, and hopefully your strike will spot the carriers (and you can change the location marker they are aimed at as you go, if you have a sense where the enemy is.)
- You can actually set the target marker where you think the enemy will be, which will lead your flight to fly a bit more direct (and thus shorter and faster) route. This is also the actual practice in WW2.
- In human vs human games, it makes it harder for the other player to backtrack your strike to your own carriers. If your aircraft approach him on a beeline, he may well focus his search on a reciprocal bearing. Put in a dogleg and confuse him! (This isn't necessary against the AI).

#### **D. CAP and Ready CAP**

CAP is your first line of defense, and you'll need to keep a good number of aircraft available at all times. They can be divided into two groups, CAP and Ready CAP. CAP is aircraft that are already airborne. You'll need to be careful with them, so they don't go flying off if they chase down a scout. (Kill the scout, just be sure to return the fighter to where it belongs.)

Ready CAP are fighters that are on the deck, ready to launch at a moment's notice. (Note, if you're not on a general heading into the wind, this will be much less viable.) They can replace CAP units that have used up their ammo. They are also launched to get more fighters up if an enemy strike is inbound. This technique works better for the US, with their superior radar. If you don't have radar or are headed in a direction other than into the wind, you'll need to have more fighters up at any given moment.

### **Part VII: General Tricks**

#### **A. Location Markers**

Location markers are your friend. Use them wisely. Aside from what I discussed in the Carrier Ops, they can remind you of where you saw enemy units before. Be creative, they're a good way to keep track of information.

#### **B. Mine Warfare (Jutland)**

Jutland gives the Germans the ability to drop mines mid-battle. An easy way to do it is to use a group turn on a TB group, get them in line abreast, drop the mines behind, and then reform line ahead. Use a Location marker so you don't run back into them. At minimum, it'll give the British something to think about. Who knows, you just might get a BB on the cheap.

#### **C. Smoke**

Smoke has many uses aside from covering Torpedo Charges. You can use it to isolate enemy ships from the battle (by cutting off their sight lines), or to cover damaged friendly ships as they withdraw. (Useful in Jutland.)