

Conn...Sonar! Wargames Rules – Part 1

Core Rules for 1/700 Modern Submarine Combat



Game concept

The rules originated from a desire to wargame the encounters between submarines and ASW forces portrayed in books such as *Red Storm Rising* (Tom Clancy and Larry Bond), and in films such as *The Hunt for Red October* and *Crimson Tide*. I also was keen to use the 1/700 scale submarine and ship kits I was building as they are such great kits and I couldn't find any rules! Modern naval wargaming has often suffered from being seen as too complex to wargame on the table top because of the technological complexity and therefore now is thought perhaps best suited to computer simulation. Existing table top rulesets such as 'Harpoon', 'Prosub' or 'Modern Naval Battles' either require detailed calculations and although very accurate, are often not suited to an evening club game or are designed as an abstract card based system that doesn't allow miniatures to be used. The difficulties arise because these sets are comprehensive and encompass all facets of modern naval combat with the submarine aspect a minor player. There are in reality several distinct aspects to modern naval warfare. At one extreme, carrier or land based airstrikes or missile strikes can originate several hundred miles away and yet be resolved in seconds, whilst at the other end the stealth and uncertainty of submarine combat can take daring, guile and be enacted over short distances where collisions are a real danger.

By concentrating on submarines and ASW specifically I have tried to develop a playable (I hope), fun and yet challenging set of rules that capture the specific tactics and tension of the 'aerial dance' beneath the waves, with variable levels of complexity that can be added as desired. The core rules are unashamedly simple to try and give a playable game on a club night and I have resisted the temptation to add extra complexity. Further rules will follow in subsequent updates.

What you need to play

Tape measure, playing surface (6ft x 4ft is plenty), model submarines (1/700 recommended but any will do), submarine cards (see the files section of the Facebook group), torpedo markers, several d6s, tokens to represent sonar contacts on each submarine (e.g. coloured discs but you can keep a record if you wish), numbered cards to determine the order of play for as many submarines that are in play (for example if 6 vessels are playing use the 1 – 6 from a pack of playing cards).

Ideally you should use tokens that say the name of the submarine, or different coloured tokens to represent each submarine – it just makes it easier! You can just keep a paper record but I have tried to steer clear of record keeping. For convenience I will use 'sub' in the rest of the rules but this can also refer to surface vessels, helicopters or fixed wing ASW when further expansions are used.

Turn sequence

1. Each player selects one of their 'Action' cards for each submarine to determine its action that turn. Each player should keep their choice secret. Each player should also use a d10 to represent the new depth of their submarine. (Again this should be kept secret until it is their turn)
2. Deal out the random turn order cards.
3. The player with card No.1 then reveals that card and reveals their Action card for that turn.
4. The player moves any torpedoes that they have previously launched, using the small turn template if necessary and perform any sonar checks by those torpedoes.
5. The player resolves attacks by any torpedoes they have previously launched.
6. The player then moves their sub the distance specified on their action card, using the turn template if necessary.
7. The player then performs any sonar checks and sonar reduction checks that are allowed on their action card.
8. The player then launches any torpedoes that are allowed by the action card.
9. Repeat steps 3-9 for each player in turn according to their random turn order card.

Step 1 Action Cards

Each sub has 5 action cards to choose from, and an information card.

This is the example for the USS Los Angeles. Cards for Cold War subs can be found in the files section of the Facebook group. You will need to print off and cut out each set if you want to use that particular sub in the game.

 Los Angeles Class SSN Cruise/Passive Move 3mu Passive Sonar 3+ Detected 0 Reduce 5+ Depth Change 2	 Los Angeles Class SSN Cruise/Active Move 3mu Active Sonar 2+ Detected +2 Depth Change 2	 Los Angeles Class SSN Ultra Quiet Move 1mu Passive Sonar 3+ Detected -1 Reduce 4+ Depth Change 1
 Los Angeles Class SSN Flank/Evade Move 5.5mu No Sonar Detected +1 Hit Chance -2 Depth Change 3	 Los Angeles Class SSN Fire Weapon Move 3mu Pass. Sonar 3+ Detected +1 Act. Sonar 2+ Detected +2 Depth Change 1	Los Angeles Class SSN  1976 – Present Maximum Depth 7 Contacts 10 4 533mm Torpedo Tubes 24 Mk48 ADCAP 9mu Fast Setting (9 turns) 6.5mu Slow Setting (21 turns) 4 UGM-84 Harpoon (30mu min.) Flt. II 12 Vert. Tubes for Tomahawk Towed Array

Taking the top left card this represents the Los Angeles moving at average speed and using its passive sonar to detect enemy subs.

The top line denotes the type of action, in this case using passive sonar.

The next line denotes that the sub will move 4mu that turn and the chance of detecting enemy subs is a base 3+ on a d6.

The third line indicates that the modifier to an enemy subs chance to detect the Los Angeles is +0 and that the chance the Los Angeles has to reduce the contact level that an enemy sub has on it is 5+ on a d6.

The bottom line denotes that the Los Angeles can change up to 2 depth levels that turn if it wishes (it does not have to).

You should see that the cards represent the choice a sub driver constantly faces – going slow reduces the chance to be detected, using active sonar gives a better chance to detect an enemy but a ‘Yankee search’ announces your presence like a foghorn. Evading gives you speed to evade a closing torpedo and reduces the chance it has to hit you (through use of noisemakers) but is very noisy etc.

The Fire Torpedo card can be selected on any turn but you will only be able to actually fire a torpedo when you have 3 or more firing solution tokens on an enemy sub at step 8 of your turn. If you do

not have 3 tokens by step 8 then you cannot fire but all the modifiers for the fire torpedo card still apply to your sub that turn.

The player should also record or use a d10 to represent the new depth of their submarine. Note that the existing depth is used until it is that player's turn

Depth and the 'Thermal Layer'

Although noise is primary factor in submarine detection and combat, the underwater environment changes with increasing depth. In the game depths are represented from 1 (shallow) to 10 (very deep – the realm of giant squid, strange sea creatures, and SSBNs). For the purposes of the game there are 2 effects that are represented.

As a sub descends into the depths the increasing water pressure reduces cavitation (the formation of bubbles when the sub and its propeller/s move through the water). This means that at depths 8-10 a sub will make less noise due to the reduced cavitation. This isn't relevant to the Los Angeles (as it can't go that deep) but a look at the USS Nevada card shows that an additional -1 modifier to the chance for an enemy sub to detect it at those deep depths.

The thermal layer is the point at which the temperature of the sea changes rapidly. The effect of this is that it creates a barrier to acoustic transfer. This means that if one sub is on one side of the layer to another then the chance to detect is reduced by 1. This also has an effect if a torpedo is actively tracking you and you move through the layer. The level of the layer can be determined at the start of the scenario, can be randomly determined, or does not have to be used at all (as there isn't always a thermal layer!)

Step 2 – 3 Random order cards

Use any convenient method (such as some cards from a pack of playing cards). One card is dealt out to each player after each player has selected their action card. This determines the order of play for the turn and so adds an additional level of uncertainty to the game.

Step 4 – Torpedo Movement

The active player moves any torpedoes that they previously launched. Each torpedo is wire guided by the firing sub until such time as the guidance wire is cut, at which point the torpedo relies on its own passive and active sonar seeker – and is said to be 'Active'

All submarines can only control 2 wire-guided torpedoes at any one time (with the exception of the Seawolf class that can control 4!).



A M48 ADCAP torpedo undergoing maintenance. A single torpedo had a cost of \$3.5 million in 1988...

Movement while guided – each torpedo moves its move distance towards its target (see the torpedo data on the sub information card). Torpedoes often have a choice of speed that the player can select – again see the data on the information card. For simplicity the speed of the torpedo must be selected when fired and cannot be changed. You should keep track of the number of turns a torpedo moves by using a small dice next to the torpedo. When it reaches its target it then immediately makes an attack. If the torpedo misses its target then it can continue to be guided subject to the breaking the wire rule below.

Breaking the wire – at anytime a submarine can voluntarily cut the guidance wire. Additionally if the firing submarine moves such that it is facing away from the torpedo an angle greater than 45 degrees from its bow then the guidance wire is automatically cut.

Movement while 'Active' – when the wire is cut the player can choose whether the torpedo will continue straight or will undertake a circular search pattern. If straight running it will continue straight whilst if circular search it will use the small turn template to move in a circle (the player can determine whether it performs this clockwise or counter-clockwise). In both modes the torpedo has an active seeker range of 8mu with an arc 45mu each side of centre. At anytime during its move if any sub or surface ship is within this zone then the torpedo will roll to acquire the target on 3-6 on d6. There are no modifiers to this roll. If it acquires a target then it will then home in on the target as long as the target remains in the seeker zone. If the torpedo misses its target then it is removed from play on a roll of 1-3 on a d6, on a 4-6 it keeps searching according to its search pattern (this represents the chance the torpedo detonates on the sea bed, or too far away from the target to cause damage).

For both guided and unguided torpedo movement the depth of the torpedo does not need to be represented.

The only other effect is if an active torpedo is already homing on a target and the target crosses the thermal layer then the torpedo must reacquire the target.

If a torpedo is dropped on a turn and a sub moves through the layer then the torpedo is at -1 to acquire (i.e. needs a 4-6 to acquire).

If a torpedo's target is destroyed then you can guide to another target if you already are guiding another torpedo to that target, or you have 3+ tokens on another target. If you have 1-2 tokens you can guide towards but then must cut the wire and use the active torpedo seeker to acquire.

Way to go Dallas!

If another submarine enters the seeker zone of an active torpedo and is closer than the target sub that the torpedo is already homing in on then the torpedo may instead acquire the other submarine on a 4-6 on a d6.

Step 5 –Torpedo attacks

When a torpedo moves so that it contacts its target then it hits the target on a roll of 3-6 on d6. The only modifier is if the target is performing an evasion move that turn. It does not have to have been revealed that it is using the evasion card (as the target may not have had their turn yet), but it must do so when attacked. So if a sub driver sees that a torpedo is going to attack their sub that turn (say its 3mu behind the sub) then by selecting the evasion card the sub will benefit from the reduced chance to hit regardless of whether they go before or after the player controlling the torpedo that turn.

Set safeties to zero

Or rather don't as it never ends well! All torpedoes take 4mu movement to arm when they are fired. This means that any torpedo a sub fires must move at least 4mu before it can attack. So if you fire a torpedo from say a distance of 6mu then the enemy sub may move next (depending on the random move order) and move to within 4mu before the torpedo can arm (after all Ramius did it..). A torpedo that does not arm moves normally but cannot attack until it has moved at least 4mu.

Remember that there is no IFF (Information Friend or Foe) in this game. An active torpedo does not distinguish between the enemy Alfa and your own sub if you end up in front of it!

Reloading Torpedoes

It is unlikely that in a normal game that this will be required however a single torpedo tube can be reloaded in 5 turns (and only one tube can be loaded at a time). Certain scenarios may call for this to be a significant factor as the scenario may call for a US sub to manoeuvre to a location and fire Harpoon anti-ship missiles from the tubes. In a likely case the sub may have 3 Harpoons loaded and a single Mk48 for defence. If a soviet sub is lurking close by then reloading may prove costly.

Step 5 – Damage

When a submarine is hit by a torpedo it is destroyed on a roll of 4-6, a roll of 1-3 indicates it is damaged. Certain subs are easier or harder to sink and this will be indicated on their card. As a general rule diesel electric subs are destroyed on a 3-6 whilst larger double hulled subs such as Typhoons will only be destroyed on a 5-6. A second hit on a submarine will always sink it.

If a submarine is damaged then for the remainder of the game it may not use its 'Evasion' card and all rolls to detect or be detected using sonar, or to attack using a guided torpedo are one worse. A torpedo fired by the damaged sub that then relies on its own seeker is unaffected. This reflects the extra noise the submarine generates due to damaged propulsion, propellers etc. and the damage to sonar and fire control systems.

One other effect of a detonation is that any sub within 6mu of a torpedo detonation immediately loses one of each token it holds on each enemy sub.

Step 6 – Submarine movement

The active player moves the distance specified on the card it has chosen for that turn. It may turn using the appropriate turning template. SS and SSNs use the medium template, whilst SSBNs use the large template. The sub then changes depth according to what it declared at the start of the turn. The sub's current depth should then be represented by a dice next to the model.

Put her on the roof!



This is a special manoeuvre that can be used once per game by each sub and represents an emergency blow. The sub makes a move according to the card it has chosen that turn but instead of the depth change previously decided on immediately goes to depth 0 – and surfaces. All enemy subs automatically get a contact token for the surfacing sub. The surfacing sub gets an additional -1 modifier to be hit that turn for those torpedoes that attack it that turn as long as they attack after the emergency blow. Remember that the torpedo may also have to reacquire if the emergency blow takes the sub across the layer. (Reacquiring only applies to active torpedoes and not to torpedoes still being wire guided of course).

Step 7 - Sonar Checks

After completing its movement the submarine rolls a dice to perform a sonar check against each enemy target. The sub can detect any other subs unless the prospective target is in its baffles (see Crazy Ivan below). It uses the chance as shown on its Action card'. For example the Los Angeles using passive sonar would need a base 3+ on a d6 to acquire a target. It is useful to have a different coloured dice for each enemy sub to make it easier. The only modifiers are

- Any modifier shown on the target card e.g. if an enemy was trying to detect the Los Angeles while it is ultra-quiet then the chance is reduced by 1. The target player must tell the detecting player of any modifier (as they may not have revealed their card that turn yet)
- If the target sub is on the other side of the thermal layer then a -1 modifier is applied
- If the target sub is at depths 8-10 then an additional -1 modifier is applied
- A roll of a '1' is always a fail.

If the check is successful then the detecting player receives a token for the target submarine. Once it has 3 tokens for a specific target then it may use its fire torpedo card on a subsequent turn.

On each turn the sub can try and detect all enemy subs, rolling a separate die for each.

It is convenient to have coloured or named tokens for each sub to avoid any confusion.

The player can also make a contact reduction check if allowed by their action card. The player can make a roll against each enemy that has at least one contact token on them. If successful the check causes that enemy sub to discard a token. For example the Los Angeles at ultra-quiet rolls a 5 against an enemy Alfa that has 2 contact tokens on it. The Alfa must discard one token and so only now has one token.

It is quite possible that a submarine may find its chance to detect another is greater than 6. There is always a chance however to detect an enemy sub as someone may drop a wrench or the winch on the VLF buoy may make a screeching noise..... To reflect this if the chance is 7+ to succeed a six is needed followed by a 4-6. An 8 + requires a 6 followed by a 5-6 and 9+ or worse a double six.

For example an Alfa at depth 3 is close to the Asheville (Improved Los Angeles) at depth 6 when the layer is at depth 4. The Asheville is lurking Ultra-quiet and the Alfa is using passive sonar moving 4mu. The Alfa's chance to detect is 4+, modified by the -2 for the Asheville being quiet and a further -1 for the layer giving a 7+. The Alfa would need a 6 followed by a 4-6 to detect the Asheville. Of course the Alfa could use active sonar which would increase the chance to a 5+ but that's how wars start....

Crazy Ivan

When a submarine is pointing directly away from another that submarine is said to be 'in the baffles' i.e. the submarine in front loses sonar contact on the sub behind it due to the noise from its own propellers. To represent this when a submarine has a target in its baffles it must discard one contact token for that submarine that is in its baffles each turn if this is the case at the end of its turn. This does not apply if the player's sub is using the ultra-quiet action card that turn. I have not added in the complexity of towed sonar arrays in the core rule set.

A submarine is also not allowed to make a sonar check roll against an enemy sub if that sub is in its baffles unless it using the ultra-quiet action card.

Step 8 – Firing Point Procedures

When a sub has 3 tokens (but also see snapshot below and deep depth) relating to a specific target then it can select the fire torpedo action card on a subsequent turn (it does not have to though if it does not want to fire). After sub movement is completed the player places either 1 or 2 torpedoes directly in front of the firing submarine. A submarine can only fire torpedoes when it is using the fire torpedo action card.

A player may find that they selected the fire torpedo card at the start of their turn and that by the time they become active another player has had their turn and reduced the contact level you hold to below 3 tokens. In this case you then cannot fire but you still must conform to the other fire torpedo card parameters and modifiers. Of course you may have lost a token but then have regained it in your own sonar check phase and so may fire torpedoes.

A player can select the fire torpedo card when they have less than 3 tokens on an enemy sub and want to gamble that they get 3 by step 8. For example a Los Angeles is tailing an Oscar II and already has 2 tokens. The Oscar is using passive sonar. The Los Angeles has a base 3+ and the Oscar's modifier is +1 (it's a very old noisy large sub). With a chance of 2+ the Los Angeles is quite likely to get the extra token and then fire that turn.

Snapshot

If a submarine is fired upon then on its next turn it may fire a snapshot. If it has already had its action phase this turn then if it wishes to fire a snapshot then it must select the fire torpedo card on its next turn and can then fire a single torpedo directly towards the torpedoes that were fired at it. The torpedo must have the guidance wire cut, be straight running and goes active after the initial 4mu safety distance. The player firing a snapshot does not have to have 3 tokens for the target.

If the player has not yet had their turn then on its turn the player can change their action card to fire torpedo and fire a snapshot as described above. From that point on the sub uses the modifiers as set out on the fire torpedo card. If a greater depth change was proposed than allowed on the fire torpedo card then the depth change is reduced to that allowed on the fire torpedo card.

For example the Los Angeles had selected the passive sonar card and was changing depth from 5 to 3. One enemy sub has its turn before the Los Angeles and so uses the modifiers on the Los Angeles passive card to modify any of its rolls. The enemy fires a torpedo at the Los Angeles. The Los Angeles goes next and substitutes the fire torpedo card so it can fire a snapshot. The depth change is reduced to one (the maximum allowed on the fire torpedo card) and so the Los Angeles' new depth is 4. A second enemy sub goes last in the turn and now uses the Los Angeles fire torpedo card modifiers on any of its rolls.

The aim of a snapshot is to hopefully destroy the enemy sub but if not to cause the enemy sub to take evasive action and so stop guiding its own torpedoes toward your sub. This could then give your sub a chance to evade the seeker zone of the enemy torpedoes – at least that is the theory....

Deep depth

Firing torpedoes at very deep depths is problematic as it takes a high volume of compressed air. Firing a torpedo at depths 8-10 is not allowed in the game.

Set up

These rules are not designed to emulate the long range detection by submarines using convergence zones nor the deep speed runs and strategic stalking of a target. They are meant to enable players to recreate the close in action dramatically acted out on screen by Sean Connery, Denzel Washington and Gene Hackman in Hollywood movies, whilst forcing the player to confront the decisions faced by real sub drivers.

You can use several options when setting up a game. For the some scenarios all the sub models are placed on the playing surface in set positions. For more 'surprising' games some submarines remain off table and are placed in a random position and course when an enemy sub gets the first contact token on them. Rather disturbing when an enemy sub pops up close aboard!

Of course you are free to just all start with a sub (or subs but I would recommend starting with just a single sub each for your first game) on the table edge where you happened to sit down and play from there – after all that's how we started!

Scenario 1 – Barents Sea Encounter

This is the simplest scenario where a USN Los Angeles Class encounters a Soviet Akula hunter killer keeping watch in the Barents Sea.

Set up each sub on opposite edges of the table (6ft x 4ft or 4ft x 4ft). The Los Angeles is 6mu left of the centre line, the Akula 6mu to the right. Each sub is initially on pre-determined orders, the Los Angeles on course 90, the Akula on course 270. Both start at depth 3 and each must only use the passive sonar card, keep the same depth and maintain a straight course across the table until either it obtains a contact token on the enemy sub or the enemy fires a torpedo. Then they may move freely. There is no thermal layer in this scenario.

The winner is the sub that survives. If one sub escapes off the table edge then the result is a draw.

Scenario 2 – Multiple contacts

Similar to scenario 1 using a Los Angeles, an Improved Los Angeles, an Akula and an Alfa. The US subs are placed on one edge each 6mu either side of the centreline. The Akula is placed on the opposite edge of the table on the centreline. The Alfa is kept off table and introduced in turn 3. From turn 3 the Alfa is treated as using the passive sonar card at depth 7. The USN players can begin rolling for contact on the Alfa from turn 3 and as soon as a token is gained on it the Alfa is placed randomly on the table on a random course. From turn 3 the Alfa can also roll for sonar contacts and if it gains a contact token on a US sub then it is placed randomly also. Once placed on the table the Alfa is played normally. The thermal layer is a depth 5.

Scenario 3 – Looks like we've got a boomer coming out of the barn

A Soviet hunter-killer (a Victor III or Sierra) is placed in the centre of the table course 270 at depth 4. A Typhoon SSBN is placed on the eastern edge of table on the centreline at depth 4 course 270. Both must only use the passive sonar card until they detect the US sub. The maximum depth is 4 on the eastern side of the table up to the centre of the table. The western side of the table is maximum depth 10.

The aim for the Soviets is for the Typhoon to exit the western table edge. If they achieve this the Soviets win (it does not matter what happens to the Victor!).

The USS Dallas (Los Angeles class) is placed on the western table edge course 90 at depth 2 and must use the passive sonar card until it detects either Soviet sub.

The thermal layer is at depth 4 (so it has no effect on the eastern side of the table).

Coming next – Part 2 – Surface Contact - Includes Surface ships, helicopters and fixed wing air, more submarines and scenarios...

Writer's Notes

I hope you enjoy the rules, or at least give them a go! I would also welcome any feedback or suggestions to improve them.

I am also aware, given that I have been playing wargames for about 40 years that we are a strange bunch and that what suits one person is often an anathema to another. Some players want highly detailed rules, others faster play, all with different ideas of what constitutes a 'good game'. These rules are my own rendition of what I wanted to achieve – a playable set of rules where several people could sit down for an evening game, have a chat and get through a game without getting headaches, or spending periods of time with heads stuck in rulebooks or averaging out lists of modifiers in order to make a dice roll.

I toyed with adding some further complexity in the initial draft such as towed arrays, changing the programming of torpedoes after launch etc. but on reflection I thought best to save these for optional rules that could be added in with further expansions.

So this initial set is a 'starter' that should enable people to have a go with a few types of submarines – more will follow.....

Any rules queries or suggestions please use the Facebook Group that I have set up called Conn...Sonar!

I hope you enjoy.....

Robert Nott

February 2018

Turn sequence

1. Each player selects one of their 'Action' cards for each submarine to determine its action that turn. Each player should keep their choice secret. Each player should also use a d10 to represent the new depth of their submarine. (Again this should be kept secret until it is their turn)
2. Deal out the random turn order cards.
3. The player with card No.1 then reveals that card and reveals their Action card for that turn.
4. The player moves any torpedoes that they have previously launched, using the small turn template if necessary and perform any sonar checks by those torpedoes.
5. The player resolves attacks by any torpedoes they have previously launched.
6. The player then moves their sub the distance specified on their action card, using the turn template if necessary.
7. The player then performs any sonar checks and sonar reduction checks that are allowed on their action card.
8. The player then launches any torpedoes that are allowed by the action card.
9. Repeat steps 3-9 for each player in turn according to their random turn order card.

Transient...Close Aboard!

Conn...Sonar! Wargames Rules – Part 2

Expansion Rules adding Surface Ships, Helicopters and Fixed Wing Aircraft to 1/700 Modern Submarine Combat



Game concept

The submariner's nightmare can usually be described as the sound of rotor blades overhead, the splash of a sonar buoy followed swiftly by the high speed screws of a torpedo. Not only do sub drivers have the danger of enemy submarines but their list of enemies includes Helo's with air-launched torpedoes or depth charges and sonar buoys to hunt them out, surface ships with torpedoes, torpedoes with missile delivery systems (such as ASROC), and fixed wing aircraft like the Bear F or Orion that never seem far away.

The first thing to state categorically is that the Conn...Sonar! Rules only allow one side to have surface ships and air assets. This is because these rules are not a comprehensive modern naval system dealing with airstrikes, SS-N-12 strikes from 300 miles away etc. Ship to ship combat and air combat I leave to other systems. Nevertheless this system accommodates surface ships from small actions where a single picket ship hunts (or is hunted) by enemy submarines up to a full scale attack by multiple submarines against a convoy or even Carrier Battle Group.

What extra stuff do you need to play?

In addition to the requirements for Conn...Sonar! You need ship models, helicopter/aircraft models and the appropriate cards for each submarine, ship, helo or aircraft from the file section of the group site. In addition you will need some markers to denote the search zone of sonar buoys. These are 10mu and 5mu diameter circles (I use blue coloured card cut into circles and then a white pen to make dotted concentric circles – but anything similar will do). To enhance the game I also use Perspex shop risers to raise the ships and helo's above the playing surface. It just makes it look more pleasing to see the subs at a lower level (and makes it possible for subs to glide underneath the ships).

Turn sequence

You use the same turn sequence except that each surface ship, helicopter and fixed wing aircraft can carry out their own action. So you will need some extra cards from the pack of cards for the random order draw deck for each ship or helo in play. Where you are using a group of ships with no impact on ASW (such as merchantmen) a single card and action can be used for all ships in the formation and turn order.

Step 1 Action Cards

Each surface ship, helicopter and fixed wing aircraft has its own action card, similar in format to that of the submarines, but has some different specific actions that relate to type of ship or helicopter.

These are examples for the USS O H Perry (A guided missile frigate or FFG), and its resident SH-2F Sea Sprite helicopter. Cards for these and other common ships etc. can be found in the files section of the Facebook group. You will need to print off and cut out each set if you want to use that particular ship, helicopter or aircraft in the game.

 O H Perry FFG – Passive Move 4mu Passive Sonar 4+ Detected +0 Reduce 6+	 O H Perry FFG – Active Move 4mu Active Sonar 2+ Detected 2+	 O H Perry FFG - Ultra Quiet Move 1mu Passive 3+ Detected -1 Reduce 5+
 O H Perry FFG – Evasion Move 6mu No Sonar Detected +2 Hit Chance -1	 O H Perry FFG – Fire Torpedo Move 4mu Passive Sonar 4+ Detected +0	O H Perry Class FFG 1977 - Present   6 324mm Torpedo Tubes 6 Mk46 Torpedoes 7.5mu (8 Turns) 1 Nixie Torpedo Decoy 4-6 (Rear) Anti-Air Ave 4-6



SH-2F Seasprite ASW

Helicopter

1962 – 1993

10 DIFAR Sonar Buoy (Passive)
 5 DICASS Sonar Buoy (Active)
 2 MK46 Torpedoes (7.5mu 8 turns)

MAD 3-6 depths 1-3, 5-6 depth 4
 -1 vs Alfa, Papa or Sierra

The Perry's card looks very similar to the sub cards (except there is no depth change rating....). It carries a Nixie torpedo decoy and a helicopter, but its only offensive weapons relating to submarines are its battery of Mk46 homing torpedoes. Note that these are not wire guided and go active automatically (after the 4mu arming distance of course). Be careful when you launch if there are friendly subs in the vicinity....

Other surface vessels may have some other weapons that are relevant, such as missile propelled homing torpedoes (ASROC, SS-N-14 Silex) or the RBU Anti-submarine mortar systems favoured by the Soviets). These will be detailed on the respective cards and in the sections of this expansion.

The Sea Sprite has a few differences in that the action relate to use of sonar buoys, performing Magnetic Anomaly Detection checks or dropping a torpedo. Note that the Sea Sprite does not have a dipping sonar but other helos may do so – again this will be detailed in the cards for those helo's.

An important point is that when a sonar buoy card is selected the player can either drop a sonar buoy, make a sonar checks with already deployed sonar buoys or both. If it has dropped a sonar buoy then it must also decide what depth the sonar buoy will be set at. They should keep a small die to record this on the buoy circle

Sonar buoys can be set at depths 1-4. This may be important depending on the depth of the thermal layer as any sonar check (apart from some ship specific ones with low wavelength sonar) suffers a -1 when across the layer.

The Drop Torpedo card can be selected on any turn but you will only be able to actually drop a single torpedo when you have 3 or more firing solution tokens on an enemy sub at step 8 of your turn. If

you do not have 3 tokens by step 8 then you cannot fire but all the modifiers for the fire torpedo card still apply to your ship or helo that turn.

Helicopters can land or take off using the move card only. It takes 5 turns to re-arm a helicopter once it has landed.

Step 7 - Sonar Checks and Sonar Buoys

Surface ships operate in the same way as submarines – they have a choice depending on their card for that turn whether they use passive sonar or active sonar.

One important feature of ship, fixed air and helo's is that, unlike the secretive submarines, they communicate and co-ordinate their sensors and attacks with each other. The main effect of this is that when using surface ships, helo's and fixed wing aircraft the contact level (number of tokens) applies to each ship and helo. For example a Perry, a Spruance and a helicopter discover a Victor III. The Victor must collect contact tokens for the Perry and for the Spruance as separate targets. The Perry, Spruance, and helo are considered a 'fleet' and collect a set of tokens for the Victor. The Perry, Spruance and helo do not have to collect tokens individually but they do make checks individually. So in a turn the Perry, and the Spruance may make sonar checks and get 2 tokens and the Helo may also get a token. On the next turn any of them can use the 3 tokens to fire regardless of which ship or helo actually collected the token.

Sonar Buoys

These come in all shapes and sizes. I decided to keep it reasonably simple and divide the types into Passive and Active. In reality there are direction only, range only, combined active and passive etc. all with different range specifications. For the purposes of gameplay passive sonar buoys are represented by a 10" diameter circle and active by a 5" diameter circle.

Using the sonar buoy card enables the helo to drop a sonar buoy of any type carried, and to make sonar checks with existing deployed sonar buoys.

After moving, a helo or aircraft can drop a sonar buoy and make sonar checks with existing sonar buoys if it has selected the appropriate action card. If dropping a sonar buoy the circle is then placed on the playing surface. At the same time the player declares the depth of the sonar buoy and places a small die or counter in the centre of the disc. Any submarine that has any part of it inside the circle can be the subject of a sonar check by the helo player if they play the sonar buoy action card that turn. A sonar buoy cannot be used to make a sonar check on the same turn it has been deployed.

If a submarine is within more than one sonar buoy template then each additional sonar buoy gives a further chance to detect the submarine.

For simplicity all sonar buoy markers stay on the playing surface for the entire game as most have a battery life measured in hours.

Dipping Sonar

Some helicopters carry 'dipping sonar' that when hovering can be lowered and be used actively to detect submarines. I have amalgamated the dipping sonar (as it is usually used as a combination of active and passive) as a 10" diameter circle centred on the dipping helo (the same template as the passive sonar buoy one). In reality it would be used passively when the helo does not want to alert the target submarine and then actively when prosecuting an attack (at least I think that would be the approach...and am happy to be corrected by those with direct experience!)

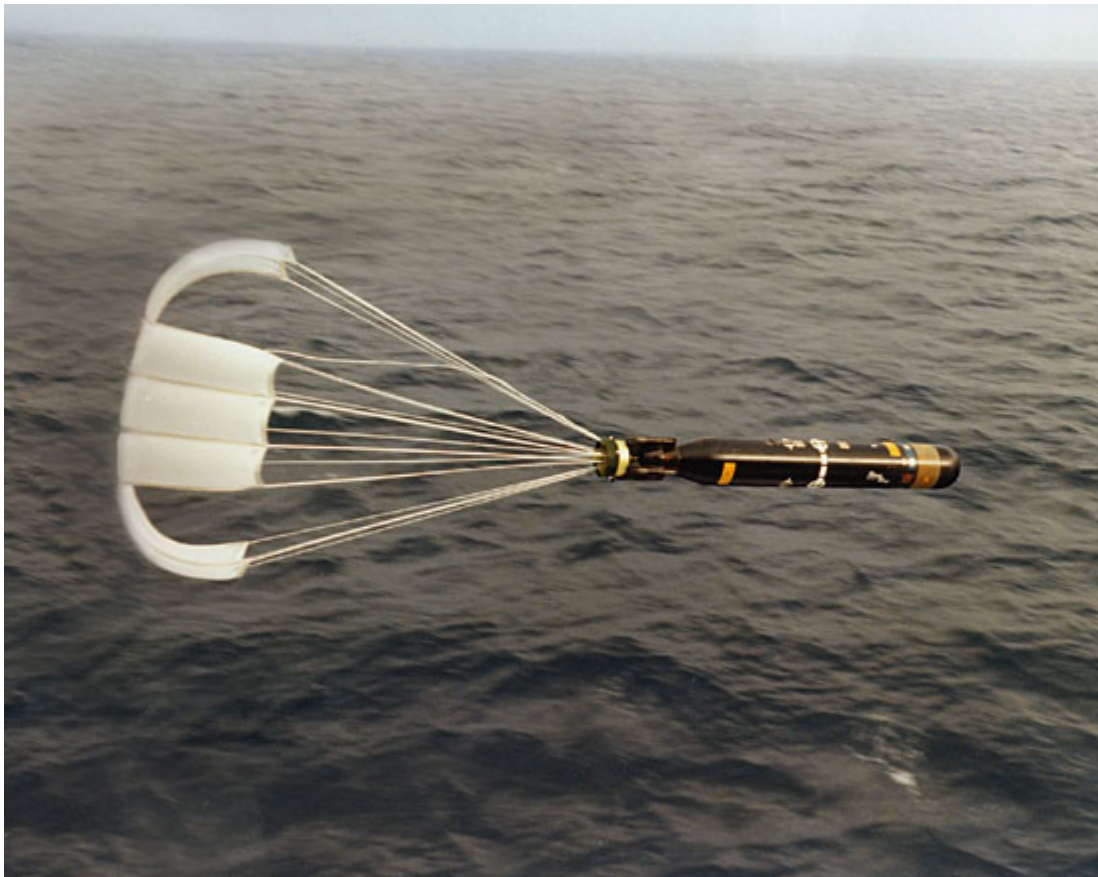
Use of dipping sonar also adds to the 'fleet' collection of contact tokens on a given submarine. With several sonar buoys boxing you in, and a helo is using dipping sonar you can certainly feel hunted....

Magnetic Anomaly Detection (or MAD)

Helo's or fixed wing air equipped with a MAD detector can register the distortion of the earth's magnetic field caused by a big hunk of metal (like a submarine) in the sea.

When making a MAD run the helo or aircraft must move within 2.5mu of the submarine (I find it convenient to temporarily use the 5" diameter active sonar buoy template as a guide). The helicopter or aircraft can then make a roll to detect the submarine and gain a token. The MAD detector details will be shown on the helo or aircraft card but are the same for every helo or aircraft so equipped. 3-6 is needed for a contact at depths 1-3, a 5-6 at depth 4, it is ineffective below that depth, a further -1 is applied if the target is an Alfa or Papa class (due to the titanium hull). The thermal layer does not affect MAD detection.

Steps 4, 5 and 8 Air launched, ship launched and missile launched Torpedoes



If the helo or aircraft has selected the drop torpedo card then it can drop a single torpedo at step 8 of its turn.

When a torpedo is air launched then it is placed underneath the helo or aircraft that dropped it. All air dropped torpedoes then go active and undertake a circular search at step of the player's next active turn. The direction of the turn is randomly determined and the torpedo then circles using the small turning template. As it moves the torpedo makes sonar checks against ANY SUBMARINE that enters

the 8mu seeker head zone 45 degrees either side of the facing of the torpedo. The torpedo then acts exactly like any other 'active' torpedo, such as a sub launched torpedo that has severed its guidance wire.

An important extra rule is that air launched torpedoes go active immediately – they do not suffer the 4mu arming rule that applies to sub launched torpedoes.

An air-launched torpedo can only operate up to and including depth 7.

Surface ship ASW systems

Surface ships can attack submarines using their helicopter assets, but also may have other weapons to deploy.

Fixed Torpedo Tubes

Most ships carry fixed torpedo tube sets amidships facing either side of the ship. For example the Krivak 1 has 4 torpedo tubes firing port and 4 starboard. All ships can fire a torpedo if they select the fire torpedo card. If they do so they place the torpedo on the appropriate side of the ship pointing in the desired direction. These torpedoes are straight running and go active after the safety distance of 4mu. Once they have acquired a target the torpedo will home in to attack and behaves exactly like any other active torpedo. If the torpedo then subsequently loses contact with its target (say the sub dives below the layer and the torpedo fails to re acquire, or the sub makes an attack, misses but remains in play) then the torpedo automatically assumes a circular search (random clockwise or counter-clockwise).

Missile Delivery systems

Some vessels have ASW systems that deliver a torpedo to a location by the use of a missile system.

An example is the USN ASROC system. These are primarily used when contact is made with a submarine at greater distances as they have a minimum range for the missile to ignite and travel before it can deploy the torpedo. These are detailed on the ship cards but to give an idea the minimum ranges are ASROC 0.5nm (5mu), VL ASROC 2.5nm (25mu) and SS-N-14 4nm (40mu).

If the ship selects the appropriate card then the missile is fired and a torpedo is placed at the chosen deployment point. This torpedo then behaves exactly like any other air launched torpedo.



Other ASW systems

The remainder of ASW weapons fall into the category of depth charges, depth bombs or anti-submarine mortars. These are unguided systems that deliver a payload to the target area in an attempt to damage or sink the sub. When a ship selects the appropriate card it can make such an attack and the ranges and effects are shown on the card. Often the card will combine the choices (to avoid having too many cards) so that it may say 'ASW attack' and that could allow a Krivak for example to fire its SS-N-14, launch a 21" torpedo or fire its RBU2500 mortar.



These attacks still require use of 3 contact tokens and are carried out as an instant attack according to the data on the ship card.

Damage from all weapon systems is the same (i.e. a base 4-6 kills a sub, 3-6 an SS, 5-6 a large sub) unless any other modifiers apply to that weapon system as shown on the ship card.

I have omitted any rules regarding nuclear depth bombs as the blast zone would ruin most games.....

Submarine attacks on surface ships

After all there are only 2 types of ship – submarines and targets.

Use of periscopes

Now that submarines shave surface targets, and despite the multimillion dollar sonar and computer systems, a sub driver will often not resist having a peek.... To reflect this if the submarine is at depth 1 in the sonar check phase (turn phase 7) and wishes to, they can declare they are using the periscope. Visual range is 40mu and the chance to detect (or at least get meaningful information) is a 2-6 on a d6. A successful check gives an additional token on one target in range of the periscope. So a submarine may make the appropriate sonar check and a periscope check and get 2 tokens that turn. Periscope checks cannot be made if using the evasion card but can be used with any other card.

The downside is that although the sweep of a periscope may only take seconds, it makes the sub vulnerable to visual detection and radar detection. If a sub uses the periscope then every surface ship, helicopter or fixed wing aircraft in range (40mu) gets an immediate roll of 5-6 to detect the

periscope. Success gives the detector an additional token. If you are attacking a group of surface ships and several helicopters it can be a costly manoeuvre!

Anti-surface weapons

Submarines may have a variety of weapons to deploy against surface ships. All can fire their wire guided torpedoes against surface ships. This is carried out in exactly the same way as if the torpedo was being guided, or has actively acquired a submarine with a base chance of 3-6. But the damage effects may be different as surface ships do not have the disadvantage of being surrounded all sides by water!

The US and British navies tend to use the same heavyweight torpedoes (such as MK48 or Tigerfish) against surface ships as well as submarines. On occasion (and actually on the one instance in history where an SSN has sunk a surface vessel in combat) unguided torpedoes could be used.

Unguided torpedoes (Optional rule)

Unguided torpedoes such as British Mk8 can be used against surface targets if part of the torpedo loadout of a submarine.

If desired these torpedoes can be fired in a spread of up to 4 using 3 contact tokens. All torpedoes are placed in front of the firing submarine angled in the direction required. They then move in step 4 along a straight track and if they intersect a target surface ship then they will hit on a 3-6 (There is always a chance of mishap or dud).

Wake homing torpedoes (Optional Rule)

Soviet submarines often carry a loadout that includes 25" (633mm) torpedoes specifically designed to attack ships. These torpedoes are fired towards the wake of target ship. As they cross the wake it uses its seeker to look for changes in the water caused by the passage of the ship, such as the small air bubbles. When these are detected the torpedo turns toward the ship then follows a zig-zag course, turning when it detects the outer edge of the wake, to keep itself in the wake. This will eventually bring it to the rear of the ship, where its warhead can do the most damage, to propulsion and steering.

This is slightly simplified in the rules. Using 3 tokens a sub can fire 1 or 2 wake homing torpedoes (or can fire a wire-guided and a wake homing for example). The wake homing torpedo is placed at the front of the firing submarine and angled towards the rearmost point of the target ship. It is convenient to place a small marker to identify this point. The torpedo will move straight until it intersects this point. The torpedo will identify the wake on a roll of 3-6 on d6 and if successful it will then it will turn towards the target ship and home in on the target i.e. it then homes in directly towards the rear of the target vessel. If it fails to detect the wake it continues running straight and will attempt to identify any further wake. This is determined when the torpedo crosses any point with 12mu of the rear of an enemy ship that is moving in a direction away from the torpedo.

Super-cavitating torpedoes (Optional rule)

Probably because of incidents where soviet submarines failed to detect USN subs until after it was clear that the American sub had solid firing solutions on them, the Soviets developed super-cavitating torpedoes as a defence against such attacks. These can only target submarines. The most common example is the VA-111 Shkval (or 'squall') torpedo that can be carried by Typhoon, Borei, Oscar II, Akula, Sierra or Victor III classes of submarines from about 1995 onwards. An earlier version was unguided with a timer and a nuclear warhead but that would ruin an evening's game...

This type of torpedo can only be fired from depth 1. It has a range of 4nm (or 40mu) and moves at a speed of around 200kts! In game terms the Shkval is placed at the front of the firing submarine when launched and can be angled within a 270 degree arc centred on the course of the firing

submarine. On the Shkval's next movement it moves 32mu in a straight line unguided and then becomes active and seeks for a target. It then acts like any other active torpedo on its next turn, but with a movement of 8mu for that turn. A Shkval can be fired under normal firing rules or snapshot.



Submarine-launched missiles (Optional rule)

Some modern submarines have the capacity to fire anti-ship missiles, and even some anti-submarine missiles from their torpedo tubes. The most common example being Harpoon missiles carried by USN and Royal Navy submarines. This gives the submarine more instant longer range striking power at the expense of revealing their position to any watching enemy. These rules are not intended to simulate the long range cruise missile attacks from dedicated SSGNs; an Oscars SS-N-19s have a minimum range of 120mu, but they can accommodate some sub launched missiles.

A submarine with missiles in its inventory can choose to load some or all (unlikely as what sub driver doesn't have at least one torpedo loaded at all times..) of its torpedo tubes with missiles. Reloading a tube takes 5 turns, whether with a missile or a torpedo.

The same conditions apply to firing a missile as to firing a torpedo (3 tokens, 1 or 2 missiles can be fired). But a missile can only be fired from depth 1. Firing a missile automatically gives every enemy a contact token for your submarine (and if there are surface ships and helo's each one in range gets a token!)

The effect of a missile hit on a surface ship is the same as a torpedo hit, except the missile has to penetrate the air defence systems of the target ship first. This is dealt with in an abstract way to avoid the copious intricacies of anti-air warfare systems. The missile will hit its target on a base 3-6 like a torpedo, but this becomes a 2-6 if the target has a poor AAW defence rating, becomes a 4-6 if the target has average AAW defence, a 5-6 if modern AAW and a 6 if AEGIS. Rather than provide extended lists for every ship, if a ship only has guns (not CIWS) then it is classed as poor, if it has older missiles and non-CIWS guns then average, modern anti-missile missiles (e.g. Seawolf, Block 2 Standard) and/or CIWS then modern, and AEGIS is self-explanatory. I will include AAW rolls to each surface ship card.

Most missile systems have a minimum range within which they cannot fire and this, to some extent, limits their usability in the game. Details are provided on each card however the minimum range for Harpoon is 3nm (30mu).

Sea Lance and SS-N-14/16 (Optional rule)

A further development is for some submarines to have access to missiles that carry a homing torpedo, giving the sub a capacity similar to a surface ship ASROC. If selected then the same rules apply to firing a missile but this results in an active torpedo being placed next to the target sub, which then goes active on the players next activation and searches for a target.

However the application of these systems is limited in the game due to the minimum ranges for these systems (Sea Lance 100mu, SS-N-14 40mu, SS-N-16 100mu). But the option is there if you want it...

Torpedo decoy (or 'Nixie')

Some US vessels deploy a torpedo decoy or 'Nixie' (proper designation AN/SLQ-25). If a ship has a 'Nixie' then when a torpedo makes a successful attack then the ship may roll a d6, on a 4-6 the torpedo had been decoyed and destroyed the 'Nixie'. This can only be used once and can only decoy a torpedo (wire guided, active or wake homing) from the rear (a 180 degree zone centred on the rear of the ship), as the 'Nixie' is towed from the rear of the ship. Some large ships may have more than one 'Nixie' and can use these singly or as a pair. If used as a pair then two rolls are allowed against the incoming torpedo but if successful then both 'Nixies' are destroyed in the detonation.

Damage to surface ships



Damage to surface ships is dealt with slightly differently than that of submarines. When a ship is hit roll a d6. On a roll of 5-6 it is sunk, 2-4 it is damaged and 1 a dud (or other mishap). If the ship is damaged then place a suitable marker (such as cotton wool to represent smoke) on the ship. Each damage marker that a ship has adds 1 to any further damage rolls the ship has to take i.e. if hit again then a 4-6 is needed. Each damage also reduces the chances the ship has to make sonar contact checks or to hit by 1 with any direct weapons (such as depth charges, ASW mortars). – Self-guided weapons such as active torpedoes are unaffected.

Certain ships will have modifiers based on armour or size, and certain torpedoes (such as the wake homing larger Soviet ship killing torpedoes may also carry a modifier). These will all be shown on the appropriate ship card/sub card.

Game set up

When surface ships and submarines are involved there are a few more set up aspects that need to be considered. At the start of the game a ship and its helicopter may not know the location of the enemy sub or subs and so would not know where to send the helicopter to deploy sonar buoys for example.

Typically an ASW picket ship will be tasked with making sure an area is free of enemy submarines before the main group of ships arrive. Rather than use decoy counters and dummy markers, a ship and helicopter must be on a pre-programmed course pattern at the start of the game, or use a random direction dice to indicate its course for that turn or several turns. For example an FFG may start the game on course 90 for 3 turns and then turn to course 45 for several more turns. Its helo may move 40mu in front of the FFG and zig zag and drop sonar buoys every 20mu. Or the helo could then use a random direction die to change course every few moves. The pattern of search can also be determined – drop sonar buoy, move 2 moves, dip (if capable), move 2 moves. This pattern must be recorded prior to any enemy subs being placed on the playing surface.

As soon as the 'fleet' has one token on a target submarine then all ships and air assets can move independently to prosecute the target.

We are trying to represent a situation where the 'fleet' know that enemy submarines are in the area (through SOSUS or previous contacts) and are searching the elusive enemy.

Revert to programmed moves (optional rule)

A further option is to keep track of how many turns a sub has not been contacted (at least one token must be held by the fleet to count as being contacted). If this reaches 3 turns then the 'fleet' and air assets must return to their programmed course and activity.

Alternative use of dummy counters (optional rule)

An option is to use dummy counters (2 dummies for each submarine, so 3 counters initially one of which represents the real submarine) and allow the fleet and air assets to move normally from turn 1. When a dummy is detected then it is removed (it carries the same characteristics as the real submarine every turn).

Other Optional Rules

Other suggestions that have been made so far include the following that I have not amended the rules to include, but have listed here as possible options to tweak your games.

Alfa class (Optional rule)

Given the Alfa's acceleration and manoeuvrability as an option the Alfa can use the small turning template instead of the medium one.

Creep speed (Optional rule)

When using the ultra-quiet card submarines can move 1mu rather than remain stationary.

Noisemakers (optional rule)

In the core rules the evasion card gives a modifier to the chance to be hit by an attacking torpedo. If more realism is sought the evasion card can be treated as a 'Flank Speed' card instead. All the same details on the card apply except the modifier against attacking torpedoes is ignored.

Instead the player has the option of deploying a noisemaker by placing a small marker (one with bubbles would be appropriate) behind their submarine at any point of its move. An active torpedo will treat the noisemaker as a possible target and attempt to acquire the noisemaker if it is the closest target. The same rules apply for acquisition as in the core rules i.e. a 3-6 to acquire. If it does acquire then it moves to the noisemaker and attacks and all the rules on removal from play or continue to search apply. Deploying a noisemaker has no effect if the attacking torpedo is still being wire-guided. Subs have 4 noisemakers and a record should be kept of their use.

Further notes

Hopefully this expansion adds a new more challenging element to Conn...Sonar! ruleset. Now sub drivers have the challenge of new adversaries, and also presents players with the option of discarding the underhand use of submarines and embrace the noble art of submarine hunting. Further cards will be provided in the files section of the group site for some of the most common surface ships, helicopters and fixed wing aircraft involved in ASW operations.

Still to come - more submarine ship and aircraft cards to expand the game and more scenarios.