NAVAL ///AR
ARCTIC CIRCLE

183

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SYSTEM REQUIREMENTS

MINIMUM SYSTEM REQUIREMENTS
OPERATING SYSTEM: Windows XP SP3/Vista/7 (32 or 64 bit)
PROCESSOR: Intel Core 2 DUO 1.8 Ghz or AMD equivalent
MEMORY: 2 GB RAM
HARD DISK SPACE: 2 GB HD
VIDEO CARD: 128 MB GeForce or ATI equivalent Direct X 9.0c compatible

RECOMMENDED SYSTEM REQUIREMENTS
OPERATING SYSTEM: Windows XP SP3/Vista/7 (32 or 64 bit)
PROCESSOR: Intel Core 2 DUO 1.8 Ghz or AMD equivalent
MEMORY: 4 GB RAM
HARD DISK SPACE: 2 GB HD
VIDEO CARD: 256 MB GeForce or ATI equivalent Direct X 9.0c compatible

INTRODUCTION

THANK YOU FOR PLAYING Naval War: Arctic Circle, where you command the real, contemporary naval and aerial forces of the great nations of the North Atlantic region.

The year is 2030. The world is in turmoil, and is starving for resources. The arctic region, long stable and calm, is quickly becoming the focus of attention, containing the last major unexploited oil, gas and mineral deposits in the world. The receding ice opens up new trade routes. The struggle for limited resources opens up old wounds, reignites injustices, and triggers new rivalries.

You are the military commander of your alliance's navy and air force, and are tasked with bringing about on the battlefield what could not be achieved through negotiations.

Your cause is just. Your demands are reasonable.

Your instruments are the most powerful machines of war humans have ever built: the warships, submarines and aircraft of the 21st century armed forces.

Good luck, and have fun!

– The NWAC Dev Team

HOW TO PLAY

★1 Main map. This is the most important part of the user interface, where you select your units, detections and issue orders. Select using the left mouse button, and issue orders for the selected unit(s) using the right mouse button. You zoom with the mouse wheel.

★2 Environment. This panel shows current time in the game, weather and light level. The horizontal bar shows current time compression level. Click the bar to change time compression.

★3 Mini map. This shows the entire play area, indicating land outlines, your units, detections and the current outline of the main map. Click to move the main map.

★4 Buttons giving access to information and mission settings panels. From left to right: units, detections (contacts), mission log (including mission objectives and battle reports) and mission settings.

★5 Button that swaps the 3D View and the Main Map.

★6 Incoming status messages from your units. Click the message to select the unit.

★7 3D View, showing currently selected unit or detection in its environment.

★8 Unit information panel. Shows detailed information about the currently selected group, unit or detection.

★9 Buttons opening and closing action panels. From top to bottom: Movement planner, Battle planner, Flight deck, Sensors panel, Special orders panel, Formations panel.

YOUR OBJECTIVES

IN THE campaign and skirmish missions, your objectives vary greatly. You may be tasked with protecting a convoy, destroying specific enemy units, taking out an airfield, achieving air supremacy, rescuing a troubled civilian ship, escorting your submarines past enemy sentries, or a number of different tasks.

In a typical mission, your objective will be to take out enemy surface units, submarines or airfields, and at the same time you will need to defend and preserve your own units.

Except in the case of airfields and some other land bases, which are always visible to the enemy, you will be tasked with locating the enemy forces first, and keep your own forces hidden from view until it is too late.

Your objectives are detailed at the start of the game, and when events occur that change their status. You can at all times find the mission objectives in the mission log.

USER INTERFACE

NAVAL WAR: Arctic Circle implements standard RTS conventions, and should be easily accessible to players who are already familiar with this genre.
The mouse-based user interaction on the map follows this simple rule:

- Left mouse button selects (a noun)
- Right mouse button gives an order (a verb)

You zoom on the map with the scroll wheel. Pan the map using the middle mouse button click-drag or by using the arrow keys.

Left-clicking on your own unit selects it. If the unit is the leader of a group, by default the whole group is selected. You can select individual group members, either in the information panel or on the map (if you are zoomed in far enough).

Left clicking on a known contact unit also selects it, giving you known information about the detection. The contact may be a part of a group, and in this case these detected units are grouped together like your own units.

You can also box select (left mouse button) multiple units.

The mini map supports left clicking to move the visible area of the main map. It also supports zoom using the mouse wheel.

The 3D View shows a 3D representation of the currently selected unit and

its immediate surroundings. You can rotate and adjust your camera position using the mouse, and zoom using the mouse wheel. You cannot issue orders in this view. Press the button on the immediate left of the 3D View to swap main map and 3D view positions on the screen.

Pressing the Escape key pauses the game and opens the game menu, which includes user interface options and exiting the game.

TIME COMPRESSION

TYPICAL SCENARIOS may play out over many hours of world time. The top colored bar (and its tooltip) shows the currently active time compression ratio (game speed). When the game starts, the time compression is typically 1:1; meaning one second of player time is one second of game world time.

By default, significant events in the game will slow down the time compression immediately. These events are new detections, a battle report is received (shots hit or missed a target) or one of your units running out of waypoints and orders. In the mission settings panel, you can control which of these events resets the time compression, and to what ratio they are reduced. Note that these settings are remembered and carried over between sessions.

In multiplayer, the system works differently. Games are played either in a fixed time compression, set in the lobby, or in a system called lowest agreed time compression. The latter means the time compression of the game is set to the lowest (slowest) rate any player has selected. If one player requests 1:20 and the other player sets 1:5, the game will be running at 1:5. If the second player changes his or her desired setting to 1:30, the game will start running at 1:20.

Press [+] or [-] on the numeric keyboard to increase or reduce the time compression, or left click on the color representing the desired time compression (top of game screen).

All ETA figures are reported in game world time, that is, they are unaffected by time compression.

GROUPS AND UNITS

ALL ORDERS and actions in Naval War: Arctic Circle are given on unit level. A unit is a single airport, surface ship, submarine or aircraft. Missiles, torpedoes, sonobuoys and mines are also units, but few (if any) orders can be issued to them.

Units may be organized in groups. A group typically has a formation. One unit is listed first and designated the main unit of the group (noted with a star on the

UNIT INFORMATION PANEL.

unit icon in the main panel). Other units in the group will have a formation order, meaning they stay at a specific position (station) relative to the main unit.

When the main unit or the entire group is selected, movement orders (and most other orders) will be issued to the entire group. Engagement orders issued to a main unit or the group may be executed by any and all group members.

You can select one specific unit and issue separate orders to it. If you issue specific movement orders to a group member (not main unit), it will break formation to execute these orders. A unit not in formation will always have its own icon on the main map. Once movement orders are exhausted, or if ordered specifically to do so, the unit will return to its formation position. Be aware that this may force the other units to reduce speed and wait.

Aircraft can be hosted on another unit (an airfield or a surface ship). Only after launch can aircraft handle their own orders. Aircraft launched together form their own group with an automatic formation.

PANELS

The user interface is organized in a number of action panels along the right hand side and information and settings panels along the left hand side.

While playing, you will frequently need to open a specific action panel to issue orders.

Beware that you cannot issue movement orders when action panels are opened (except, obviously, the movement planner). Open and close the panel using the toggle button or, even better, the associated shortcut key.

Mission log

In the mission log, you can see a full list of battle reports (engagements), mission objectives and status (game) messages.

THE UNITS PANEL (LEFT) AND THE DETECTIONS PANEL.

The Battle reports section is undoubtedly the most important part of this information panel, informing you of the result of all weapons fired by you and at you, and the damage done. You can see what unit fired (if known), what weapon/missile and what target. In cases of damage, icons give additional information: if any components (weapon, sensor, flight deck) were damaged and if the damage caused a fire.

The Objectives section current mission objectives, including victory conditions.

The Messages section lists the game status messages, allowing you to go back and review information after the heads up message has disappeared from the main window.

INFORMATION AND MISSION SETTING PANELS

The buttons that control the information and mission setting panels are located above the mini map area.

THE MISSION LOG SHOWING THE BATTLE REPORTS SECTION (LEFT) AND THE MISSION SETTINGS PANEL.

Units

This information panel lists the player's active units. The units are organized in bases (like airfields, missile bases, radar stations, ports), units (those not in a group) and groups.

The tooltip will provide additional information.

Clicking on the icon will select the group or unit.

Detections

This panel lists all currently detected units (including bases), whether they are unknown (not identified), friends or confirmed enemies.

You can select a detected unit directly on this list.

Mission log

In the mission log, you can see a full list of battle reports (engagements), mission objectives and status (game) messages.

The Battle reports section is undoubtedly the most important part of this information panel, informing you of the result of all weapons fired by you and at you, and the damage done. You can see what unit fired (if known), what weapon/missile and what target. In cases of damage, icons give additional information: if any components (weapon, sensor, flight deck) were damaged and if the damage caused a fire.

The Objectives section current mission objectives, including victory conditions.

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Mission Settings

This panel allows you to control the level of automation in the current game.

SETTING	DESCRIPTION
WEAPON ORDERS	Weapon orders can be changed for individual units in the Battle planner, but when you change it in this panel it will apply those changes to all your units. See below for description.
TREAT DETECTIONS AS HOSTILE	If set, all non-identified detections will be automatically assumed to be hostile (foe), allowing them to be engaged. Note that this may be unwise if orders of engagement warn against attacking neutrals or civilians.
AUTOMATIC EVASION	If set, your units will automatically evade imminent threats (aircraft on interception course, missiles and torpedoes). Aircraft will try to evade missiles. Submarines and surface ships will attempt to outrun torpedoes. Units may go to maximum speed to evade. Turned on by default.
AUTOMATIC ACTIVE SENSOR RESPONSE	If set, a unit will automatically turn on its actively radiating sensors (radar and sonar) if it knows it is already being illuminated by hostile sensors. Note that the sensor will remain on even if this is no longer the situation. If not set, you will be given a warning text if a unit notices it is being detected by active radar or sonar. Click the warning to go to this unit.

When important game events occur while the game runs at high time compression, the game will by default set the speed to 1:1. You can change the settings for the current game here. Note that the game will remember your settings for the next game session.

NEW DETECTION: You detect a new unit
BATTLE REPORT: You receive report of the outcome of weapon fire against your units, or attacks originating from your units
UNIT OUT OF ORDERS: A unit has no more waypoints or orders

ACTION PANELS

In the default mode (no action panels visible), right clicking on a detection will (if possible) engage it with your actively selected unit. Right clicking on a map position will tell the unit to move to this position (if possible). Drawing out a rectangle with the right mouse button will create a recurring movement (patrol) area for the currently selected unit.

Right clicking one of your carriers/airfields when an aircraft is selected will designate that unit as its new home, where it will be returning when ordered (or forced) to return to base.

NOTE: When an action panel is active, orders that are irrelevant for this action panel are no longer possible. This means that for example when the sensors panel is active, you cannot issue movement or engagement orders.

Movement Planner (Default key: M)

You can issue movement orders for units and groups. Orders are issued to the currently selected unit(s). If group or group leader is selected, order is issued to all members not currently executing separate movement orders.

Press the place waypoint(s) button (or hold the control key) to issue several waypoints instead of a direct movement order. Waypoints can also be issued when movement panel is not visible by using the control key.

For units in a formation, but not at station, press the Return to formation button to cancel other movement orders and return to station.

THE MOVEMENT PLANNER

Press Return to Base when an aircraft needs to return to resupply weapons or for other reasons. Units will automatically return to base when low on fuel. Note that when this order has been given, you cannot change your mind without risking that the unit crashes.

The leftmost control in this panel allows you to set elevation (height or, for subs, depth) for units where this is relevant.

The speed control allows you to set the current speed of a unit. The default speed is normally cruise speed. Note that for aircraft, speeds higher than cruise (especially afterburner) means far much fuel is consumed for the distance traversed.

You can issue all normal movement orders, including waypoints and area patrol orders, without opening the movement planner, using the right mouse button.

TIP: Drag-click with the right mouse button to order the unit to keep moving (patrolling) within a rectangular area. This assures that your air assets stay within the area you want them to be.

Battle Planner (Default key: B)
Gives detailed control over engagement (attack) options.

The strength of the attack determines how much ammunition is expended for each attack.

ATTACK STRENGHT	DESCRIPTION
OVERKILL	Use an excessive amount of ammunition against the target, expecting solid area defense.
DEFAULT (NORMAL)	Calculate a reasonable amount of ammunition for this attack, taking accuracy and defense somewhat into account.
MINIMAL	Use the minimum amount of ammunition that can destroy this target.

The player can also select whether to close and engage or engage not close. For aircraft, the default option is always close and engage, while for other unit types you will need to explicitly order it to move within range to engage (using close and engage). This is to avoid accidentally ordering slow ships to attempt to close within range of aircraft, a rather futile operation in most cases.

Right click on the target to execute the engagement order.

Some weapons support bearing only launch. You must select a specific weapon, from the drop-down list or in the main panel, and if the bearing only button is active, you can right click on the map to where you want the missile or torpedo to move. The weapon can and will acquire targets automatically if any are detected. It will not engage your own units, but does not discriminate on friend or foe status. For bearing only launch, a minimal attack means one (1), default is 2, and overkill is 4 missiles/torpedoes.

In this action panel you also set weapon orders for the unit.

| WEAPON ORDER	DESCRIPTION
FIRE ON ALL CLEARED TARGETS	Unit may automatically engage all air targets designated as enemy/foe, and will also honor all direct engagement orders.

FIRE IN SELF-DEFENSE ONLY	Unit will only fire at direct threats to itself or other group members, and when otherwise ordered to engage a target.
HOLD FIRE	Unit will not automatically open fire at any targets.

Sensors (Default key: S)
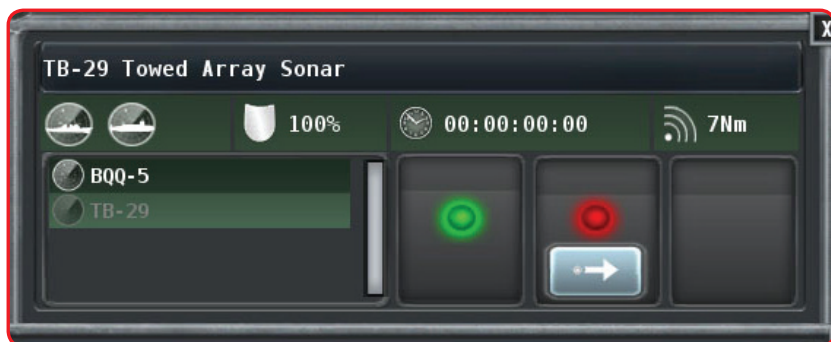
THE SENSORS PANEL

This is where you turn on and off active mode on radars and sonars (for sensors that support it), and deploy (and undeploy) those sensors that need to be explicitly used, like towed sonar arrays on surface ships and submarines, and the dipping sonars employed by some helicopters.

There is one line in this panel for each individual sensor on your unit (or selected units), and the indicators and buttons apply to the selected sensor only.

ACTIVATE (DEACTIVATE) SENSOR: For radars and sonars that support active (emitting) and passive modes. Having a sensor in active mode will in most cases radically increase detection ranges, at the cost of making the unit more vulnerable to counter-detection.

DEPLOY (UNDEPLOY) SENSOR: For sensors like towed sonar arrays or dipping sonar, this command starts deploying the sensor. It may take some time before it is finished deploying and will start searching for targets.

DEPLOY SENSOR DEEP: Some sonars support being lowered below the "layer" or thermocline (see explanation under submarines below). This command sets the depth of the sonar hydrophones to deep (alternatively shallow).

Flight deck (Default key: F)

Cruise | Low

QUEUE

ALL | ▼ | ↗ ALL | ▼

F-35C (Standoff Land Attack)

🛡 100% | ⏱ 00:00:00:00 | 🎯 1467KM (3520KM)

Naval Strike		🎯 0%	⛰ 0	⏱ 1H
Naval Strike (SR)				
✓ Standoff Land Attack		GAU-12 (180)		
Standoff Land Attack (SR)		JSOW (4)		

Sidewinder (2)

MJU-40 Flares (6)

THE FLIGHT DECK PANEL

For units that have an aircraft hangar, this is the action panel where you launch your aircraft and select weapon loadouts for aircraft already in the hangar.

Aircraft are queued for takeoff by double-clicking the aircraft icon or selecting the aircraft(s) and pressing the "queue" button. Up to six aircraft can be launched in a group.

It is generally unwise to mix different types of aircraft in one group.

Right click on the map to actually launch the aircraft. Alternatively, right-click on a target to have the aircraft launch and engage immediately. You can also right-drag-click a rectangle on the map to immediately have the aircraft patrol an area.

In the top of the panel, you can set initial elevation (height) and speed of the unit that is launched.

You will be notified on the bottom of the main map when the aircraft(s) actually launch. Click this notification to immediately select this unit.

Most aircraft support a number of different weapon loads. These are listed in the lower half of the panel. When you click on the text of the weapon load name, you can see what weapons are part of this load, and indicators telling what (if any) change this causes to the aircraft's range and stealth status, and how long it will take to get ready for takeoff. Click the circle in front of the weapon load name to execute the refitting.

Special Orders (Default key: P)
This panel is used for various types of jamming, for dropping sonobuoys (very important) and mines. Right click map for target area.

For sonobuoys and mines, drag-click with the right mouse button in a region to have the aircraft saturate the entire area with one order.

Formation (Default key: G)
This panel allows you to change the formation of a group.

You can also select one or several units in a group and split from the group, or join units selected together into a new group.

CAMPAIGNS AND SCENARIOS

THE GAME contains two different campaigns, telling the story about the great arctic war from two different sides.

You are recommended to play the western alliance campaign first, which introduces the story with a number of tutorial missions to help you to get familiar with the interface and the game play.

The second campaign, telling the story from the point of view of Russia and her allies, generally assumes you are familiar with the gameplay and are ready for more challenging missions.

The game also includes a number of standalone skirmish missions that explore a wide-ranging array of mission types, large and small.

MULTIPLAYER

YOU CAN play Naval War: Arctic Circle against other gamers over the internet. The game uses the Steam matchmaking system, allowing you to easily find other players to compete with.

Select Multiplayer from the main menu.

You can create and host a game, where you first choose among the available multiplayer scenarios. If you set the game public, anyone browsing for

games can find and join your game.

If you want to play against a person on your Steam friends list, click the Invite button.

If you are invited to a game, respond to the invitation you receive through Steam.

Alternatively, you can join a public game. You will see a list of available games, and can choose which you want to join.

Game settings include choosing sides in the game (default is random), and setting whether time compression should be fixed for the duration of the game, or use the slowest requested speed system.

NAVAL WAR-GAME CONCEPTS

SCOUTING

IN NAVAL War: Arctic Circle the action takes place over a vast area, and on the surface of a spherical Earth you cannot see far beyond the horizon.

To locate the enemy targets, as well as possible threats to your own units, you will need to scout. The typical scout vehicle is an aircraft. Normally you will at the start of any game launch a number of aircraft to patrol the perimeter of your important assets to detect threats, and then send additional aircraft scouting where you hope to locate the enemy.

You will also want to do counter-intelligence operations if possible, that is, sending fighter aircraft to intercept any enemy scouts if possible.

Elevation is very important for the detection ranges of aircraft. The higher up, the longer vision. The flipside is that the enemy will see your high-flying aircraft easily.

Some units in the game, most famously specific aircraft but also some surface ships, have stealth. These can only be detected at very short range, typically much closer than weapon range. A stealth aircraft is an extremely potent scouting (and counter-scouting) unit, however you may not want to risk these valuable aircraft early.

Specific AWACS (Airborne Warning and Control System) aircraft typically have the longest detection ranges in the game, especially at high altitude, and have fuel to stay in the air for a long time. They can provide invaluable battle space control, and also provides a very tempting target for the enemy's long range anti-air missiles.

Scouting for submarines will normally require dropping sonobuoys from your aircraft in the correct area, and maybe also use other sonar-equipped assets to find the enemy.

PASSIVE VS. ACTIVE SENSORING

SOME RADARS and sonars offer the option of being used in an actively radiating mode. This means electromagnetic radiation (radar) or sound waves (sonar) are transmitted through the air (or water), giving a detailed 3D image of the sensor platform's surroundings.

When you are actively radiating, you run the risk of being counter-detected by enemy passive sonars and radar warning receivers. Traditionally, any ac-

tive sensor will be detected at twice the distance where it can itself detect a corresponding target. However this is no longer necessarily true for radars. Active Electronically Scanned Array radars emit signals that cannot be easily detected by the enemy (low probability of intercept, LPIR). Modern radars as implemented in NWAC takes this into account, but as the detection/counter-detection arms race rushes forward, the game takes a conservative approach to how effective radars really will be at concealing their signals, and how effective counter-measures are. You are wise to assume that an actively radiating unit will be counter-detected.

ATTACKING AND DEFENDING HEAVILY DEFENDED TARGETS

SURFACE GROUPS and airfields typically have very capable CIWS and SAM systems that defend very effectively against anti-ship missiles, so take great care in firing your precious missiles at the right time, making sure you have a sufficient number of them amassed to saturate the air defenses and inflict sufficient damage. If you fire your missiles in insufficient numbers, you may end up having done no damage and expended your entire arsenal of offensive weapons.

An important concept of warfare is that of the threat axis. This is the estimate of the likely direction from which an enemy attack will come. Every group or unit can (and probably will) have a different threat axis for enemy aircraft, submarines and surface ships. For surface units, the most likely surface and sub threat axis is normally in the forward moving direction. Before planning your defense, you should make up your mind about the likely threat axis for all threats.

For defending effectively against missile attacks, it is essential to have scouting aircraft (the higher altitude, the longer detection range) that can detect the missiles at long range, and start taking them out. If the defender also has fighter aircraft available to fire at the missiles, the chance of the attacker successfully saturating the defenses is much lower.

Conversely, for the attacker it is useful to select an unexpected attack bearing, if possible, and to engage enemy scouting and fighting aircraft in the vicinity of the surface target to deny the defender advance warning. It may also be useful, if risky, to launch missiles from a shorter than maximum range to give the defender less time to get up defenses. This is especially useful for submarine-based missile attacks, which typically give the defender very little time to defend.

The most devastating attack possible against surface combatants is a torpedo attack from a submarine. There is little active defense available against torpedoes, forcing the enemy target to run away at maximum speed, breaking formation cohesion. Torpedoes are the most powerful weapons in the game if you can get within range. A single submarine can take out an entire carrier force if it manages to sneak by the screening ships and helicopters.

Defending against submarines is mostly based on active scouting with aircraft, often helicopters, dropping sonobuoys both well ahead of the task force and close in. The sonars of surface vessels at speed are not very effective, while the sonobuoys (and dipping sonars) of a helicopter suffers few noise distortions. Remember that the submarine threat axis of a ship is in its forward direction; submarines are unlikely to catch up with it.

Submarines should keep a low speed (except if already detected) both to avoid detection by passive sonar, and to avoid the movement interfering with its own sonars.

UNIT TYPE OVERVIEW

LAND BASED STRUCTURES

NWAC supports a number of land-based structures: Most importantly airfields, but also radar stations, missile batteries, seaports and other structures.

Airfields provide the bulk of your aircraft. An aircraft carrier only supports aircraft specifically designed for them, and the rest of your aircraft need a land-based runway. Airfields can take a pounding, and mostly have solid anti-air defense, and that is just as well, since losing airfields will give you few options to win most scenarios.

You are well advised to keep aircraft guarding the perimeter of your bases, both to engage hostiles and to provide early warning.

SURFACE SHIPS

Naval War is about mighty warships, ranging from aircraft carriers through destroyers and smaller patrol vessels. There are also non-combatants, like oil tankers and other transport ships, as well as civilian fishing boats. The latter serves great purposes in real life, however in NWAC they are reduced to targets.

Surface combatants have a significant arsenal of weapons to target air, surface ships and often carry long-range land attack missiles. In many scenarios, keeping your surface ships alive is necessary to meet your objectives. Surface ships typically move in formations, to mutually support each other against threats.

Powerful as they are, surface based radar only reaches so far. It is imperative to keep some sort of aircraft at altitude along the expected threat axis for at least detecting airborne threats before it is too late. Even if you have to rely on helicopters for airborne early warning (AEW) duties, they will at least give you much more time to react to incoming missiles. Also, use helicopters to search for submarines along the surface group's movement axis. By the time your ship sonars can detect any enemy submarine, it is probably too late.

SUBMARINES

Submariners like to say there are only two types of ships: submarines and targets.

Submarines are the ultimate stealth units, which can only be detected at reasonably short ranges by sonars. Modern subs have the size, crew and armory of the biggest warships.

Their weakness is range. They move slowly – to be safe from detection even slower than surface ships – and their most devastating weapon, torpedoes, have a quite short range. Your sub is only valuable if it is located close enough to its targets.

For submarines equipped with long range land attack missiles, that is less of a problem. At a time of their choosing, they can deliver a devastating attack with little chance of retaliation.

The thermal layer, implemented at 50 meter depth for simple convenience, is a barrier that reflects sound waves, so units on different sides of this layer have a harder time detecting each other with sonar. Some surface ship and aircraft sonars (like dipping sonars, towed sonar arrays and sonobuoys) can be optionally lowered below the layer to improve detection, that is, to intermediate depth.

In Naval War: Arctic Circle you remain in total control of all your submarines at all times, which is entirely unrealistic, as you cannot communicate with submerged vessels in the real world.

AIRCRAFT

Since World War II, the most powerful offensive weapon of a major navy has been its air force. Most surface combatants can at least carry helicopters. The largest navies also have carriers that can launch fixed-wing aircraft, and the most potent platforms for engaging surface and submarine threats can be found on land based airfields.

Multi-role and air superiority fighters – the distinction is somewhat blurred – form up the fighting backbone of your forces in many scenarios. Fighters

can deny airspace to the enemy, scout and engage any aircraft and missiles. With the correct weapon load, they can also engage surface and land targets, and perform other tasks. These aircraft have superior speed and agility compared to any others, at the cost of range and load capacity.

Bombers are much larger and have longer range than multi-role aircraft, enabling them to carry devastating loads of land or naval attack cruise missiles or bombs.

Naval patrol and reconnaissance aircraft are deceptively named for being the potentially most significant threat to submarines and surface ships. Slower and larger, and helpless against enemy fighters, they carry a significant load of cruise missiles, mines, sonobuoys and torpedoes over long ranges. Keeping them alive is often the key to victory in a game.

Helicopters are carried on most surface combatants in the game, and are the primary weapon and defense against enemy submarines. Typically employed in an anti-submarine warfare (ASW) role, searching with sonobuoys and engaging with torpedoes, they nevertheless have the ability to carry anti-ship missiles if fixed-wing air support is not available. Any surface group without other options for early warning should also have a helicopter patrolling at altitude to detect incoming threats in time.

One of the most important tactical considerations for playing Naval War: Arctic Circle is how you manage your aircraft's airtime and weapon loads. If you launch all your fighters to meet one threat, they may still be helplessly refueling when you really need them. Also, when you finally detect the enemy surface group, it is crucial that some aircraft with naval strike capability are ready to go.

Aircraft have range limited by fuel. When the aircraft only has sufficient fuel to return to base ("Bingo fuel"), it will automatically return. Issuing new orders to an aircraft which has 100% bingo fuel carries a very high risk of it crashing.

The game supports in-air refueling of most aircraft by designated refueling tanker aircraft. A tanker plane can quickly refuel planes, allowing them to stay in the air for a near-indefinite time. However, your tankers are vulnerable, and when your fighter aircraft run out of ammunition, there is no choice but to return to base for refitting.

Aircraft ranges are based on its cruise speed. On higher speeds ("military"), aircraft use a disproportionately higher amount of fuel over the same distance travelled. For aircraft that support afterburner (max speed), the fuel consumption is typically 24 times higher than cruise! An aircraft can only safely return to base on cruise speed. Adversely, to keep your aircraft in the air for a long time, have it loiter at reduced speed in a recurring movement pattern (right-mouse drag movement order).

WEAPON TYPE OVERVIEW

GUNS AND POINT-DEFENSE

Surface combatants are equipped with main gun batteries, like they have been for centuries, but the importance of these weapons are far reduced compared to eg. World War II combat. Naval War: Arctic Circle takes place in the age of missiles, but if your surface ships are within range to engage with its guns, this is a very cost effective way to take out enemies.

Close-In Weapon System (CIWS) Gatling guns are fast, short-range weapons primarily intended to target incoming missiles, and secondary smaller vessels and very careless hostile aircraft.

Guns and machine guns fitted on aircraft are very unlikely to be very valuable in typical gameplay, but can occasionally score a kill, especially against undefended targets.

ANTI-AIR-MISSILES

Surface-to-air missiles (SAM) are weapons fitted to land installations and surface ships for denying airspace to enemy aircraft and shooting down threats. These are the primary defense against anti-ship missiles.

Take great care avoiding getting your aircraft within range of enemy SAM systems, as they can decimate your entire air-wing in seconds.

Air-to-air missiles (AAM) are the offensive missiles that fighter aircraft uses to engage.

ANTI-SHIP MISSILES

Anti-ship missiles (ASM, AShM, ASuM), most commonly cruise missiles, are the game's primary weapons against enemy ships. Surface combatants, many submarines and some aircraft are equipped with a set number of anti-ship cruise missiles. They have different ranges and speeds. Supersonic missiles are harder to detect in time and shoot down, but typically operate at somewhat lower ranges.

LAND ATTACK MISSILES

Land attack missiles work, in this game, much like anti-ship missiles. Some missile weapons can attack both land and surface (sea) targets.

Land installations typically take a much higher number of missile hits, and are often even more heavily defended, than surface ships.

Land attack missiles are often anti-radar weapons, increasing the chance of damage to radar installations.

TORPEDOES

Torpedoes are one of the primary weapons of submarines, and effectively the only weapon against subs. Modern torpedoes have a far greater range and speed, not to mention automatic targeting, compared to their World War II forebears. There is little effective defense, except running away at maximum speed.

THERE ARE THREE MAIN CATEGORIES:

HEAVYWEIGHT TORPEDOES are torpedoes carried by submarines, for use primarily against surface targets. They have devastating explosive power (few ships have any hope of surviving two hits). Many of them can also target submarines.

LIGHTWEIGHT TORPEDOES are anti-submarine weapons, launched from surface vessels or (most frequently) aircraft.

ANTI-SUBMARINE ROCKETS (AsRoc) are ship-based weapons that combine a ballistic missile and a torpedo, and are used to target submarines. Effectively, the rocket transports a torpedo within range of the submarine, and then the lightweight torpedo targets the submarines.

BOMBS

Modern bombs are typically far more sophisticated, and have a greater range and accuracy than their free-falling predecessors, but aircraft would still need to get within dangerously close range of their targets. Primarily used against land targets.

COMMON NAVAL MILITARY ABBREVIATIONS

AAM	Air-to-Air Missile
AAW	Anti-Aircraft Warfare
AEW	Airborne Early Warning
ASCM	Anti-Ship Cruise Missile
ASM	Air-to-Surface Missile
ASROC	Anti-Submarine Rocket
ASUW	Anti-Surface Warfare
ASW	Anti-Submarine Warfare
AWACS	Airborne Warning And Control System
BOL	Bearings-Only Launch
C²	Command and Control
C²CM	Command and Control Countermeasures
C³	Command, Control and Communication
CAP	Combat Air Patrol
CIWS	Close-In Weapon System
CM	Countermeasures
OPFOR	Opposing Force (enemy)
SAG	Surface Action Group
SAM	Surface-to-Air Missile
SLAM	Standoff Land Attack Missile
SSM	Surface-to-Surface Missile
STOL	Short Take-Off and Landing
UAV	Unmanned Aerial Vehicle
VTOL	Vertical Take-Off and Landing

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