

U S E R S M A N U A L

**MACINTOSH
VERSION**

NOVA



LOGIC™

WOLF PACK

TABLE OF CONTENTS

WolfPack Credits	4
------------------------	---

GETTING STARTED

System Requirements	5
Installation	5
Quick Start	5
Startup Menu Selections	6

WOLFPACK

Object of The Game	8
Scoring	8
Clicking	8
Shortcut Keys	8

COMMON DISPLAYS AND CONTROLS

Tactical Map	9
Day Mode	9
Night Mode	9
Aerial Mode	9
Color Coding on Tactical Map	10
Magnification Selector	10
ID Selector	10
Moving from Ship to Ship	11
Command Group	12
Text Display Window	13
Strategic Map	13
Strategic Map Tools	14
Order Selection Buttons	14
Status Screen	15
Damage Screen	16
Timing Selector	17
Repeater Telegraph	17
Compass/Rudder Control	18
Viewport Right/Left Controls and Angle of View Indicator	19
Viewport Magnification Lever	20
Reticule Control	20
Deck Guns	20
Bottom Depth Indicator	21

SUBMARINE DISPLAYS AND CONTROLS

Depth Gauge	22
Dive Control	22
Periscope Up/Down Control	23
Fuel Gauges	23
Hydrophone Display	23

Snorkel Indicator	24
Metox/Naxos Indicator	24
Torpedo Control Group	24
Bottom Depth Indicator / Deck Gun Control Group	25

DESTROYER DISPLAYS AND CONTROLS

Radar	26
Sonar (Passive and Active)	27
Hedgehogs	28
Deck Guns	28
Depth Charges	29

WOLFPACK MENUS

CREATING OR MODIFYING A MISSION

Master Map	32
The Construction Set	33
Mission Name	33
Submarine	33
Surface	33
Duel	34
Mission Time Limit	34
Reconnaissance (Day, Night and Aerial Modes)	35
War Year	35
Ship Types and Selection	35
Orders Selector	36
Mission Construction Set Menu Bar	41
Submarine Tactics	45
Destroyer Tactics	46
Miscellaneous Descriptions	47
Milk Cow Submarines	47
Pillenwerfers	47
Captain Types	47
Missions	49

Appendix A: TABLES

Visibility	50
Radar	50
Hydrophone	51
Sonar (Active)	51
Miscellaneous	52

Appendix B: PULL-DOWN MENUS CHART

Appendix C: SHORTCUT KEYS

NovaLogic's Limited Ninety-Day Warranty and License Provisions	59
Disk Replacement Policy	59

WolfPack Credits

Game Design: John Garcia

Programming: Todd Stewart

Additional Programming: Jim Ratcliff
Chuck Romberger

Sound Effects: Russell Brower

Art: Rod Parong
Keith Rust

Original Art Design: Kelly Day
Eugene Drill
John Duggan
David Mosher
Russ Wolvek

Animation: Brummbaer

Original Music: Thom Clement

Music Arrangement: Kevin Brandon

Technical Consultant: Stewart Kosoy

Concept: Roy Langsden
John Luden
Terry Shakespeare

Manual Written by: John Garcia

Special Thanks to: John Butrovich
Paul Robinson

Getting Started

System Requirements

What you will need:

This version of *Wolfpack* is designed to work with a Macintosh equipped with the following minimum configurations:

- a) 68020 or later CPU
- b) 4 megabytes of RAM or more
- c) System 6.07 or higher with color QuickDraw
- c) 8-bit 12" or larger color monitor
- d) minimum of 5 megabytes of free hard drive space

Installation

Floppy Disk Installation

To install the floppy disk version of *Wolfpack*, insert Disk 1 of the **Wolfpack Installer** into your floppy drive. Double-click on the diskette icon to view its contents then double-click on the *Wolfpack Installer* icon to begin the installation process. A *Wolfpack* intro screen will appear. Click on it and the *Installer* window will appear.

Click and drag the "**Recommended**" icon to the drive (shown on the right of the window) where you want your *Wolfpack Folder* installed. When it is done with the first disk, the *Installer* will prompt you to load the second disk. After loading the items from the second disk, you will be notified if the installation was successful. Click **Quit** and you're ready to embark on an exciting adventure with *Wolfpack*.

CD Installation

Insert *Wolfpack CD* in your CD-ROM drive. Double-click on the *Wolfpack CD* icon to view its contents then double-click on the **Wolfpack Installer** icon. A *Wolfpack* intro screen will appear. Click on it and the *Installer* window will appear.

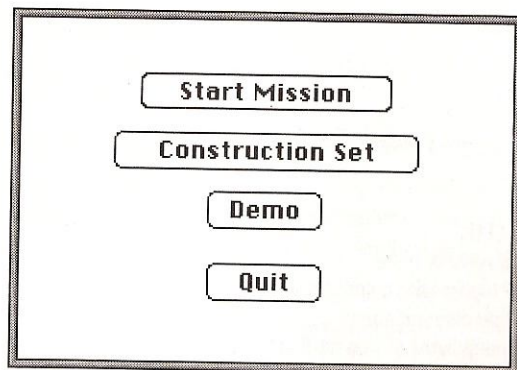
Click and drag the "**Recommended**" icon to the drive (shown on the right of the window) where you want your *Wolfpack Folder* installed. You will be notified if the installation was successful. Click **Quit** and you're ready to play.

Open *Wolfpack* by double-clicking on the *Wolfpack* icon.

Quick Start

If you are familiar with games and your computer, you might want to follow this section in order to get up and running in a minimum amount of time.

After you have installed, configured and run *Wolfpack* as per the instructions above, you will be presented with the **Startup Menu**.



Startup Menu Selections

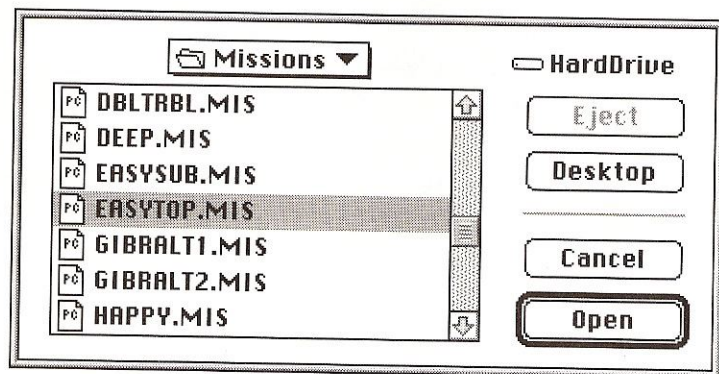
After the Title Screen has been displayed for a few moments, the Startup Menu Selections will be displayed. At this point, you will be able to choose one of the following options:

1. Start Mission

Clicking on this box will bring up the **Load Mission Dialog Box** as in the example shown below.

 **Keyboard:** Press **S** to bring up *Load Mission Dialog Box*.

If you choose this option, you will be able to play any of the 36 available missions that come with the game or you can load a mission that you have created and saved.



Acquaint yourself with the game by selecting **HAPPY.MIS**, **EASYSUB.MIS** and **EASYTOP.MIS**, referring to this manual for specific details as you go along.

Read the manual once you get the basic feel for the game so that you can experience all of the details included in this simulation.

2. Construction Set

This option will bring you to the command screen where you may create your own missions. See page 33.

 **Keyboard:** Press **C**


3. Demo Mission

This option will run a demonstration of the game. It is intended to give you a look at the possibilities you'll have with *Wolfpack*. Clicking anywhere on the screen or pressing almost any key will take you back to the Main Menu.

 **Keyboard:** Press **D** to run *Wolfpack* demo.

4. Quit

If you have loaded the game to this point and decide not to go any further, you may select this choice to exit *Wolfpack*.

 **Keyboard:** Press **Q** to exit the game.

WOLFPACK

Object of the Game

The game is played by either loading a predefined mission off the disk or creating one with the *Construction Set* (page 33). If you are playing the submarine side, the object is to defeat the Allied side by inflicting as much damage as possible and avoiding damage to your U-boat. If you are in charge of the surface fleet, you want to fend off the enemy attacks and protect your merchant ships. For the most part, the best way to do this is to sink as many submarines as possible, preferably the ones that pose immediate threats to your ships.

The game ends in 4 ways:

1. The mission time limit expires.
2. The convoy reaches its destination.
3. One side is completely killed off.
4. "38 A" is pressed. If this option is chosen, the game can be resumed by selecting **GO** from the construction set.

(For more tips on tactics for both sides, see pages 45 and 46.)

Scoring

The scoring system is based on a zero-sum approach. Whatever the number of ships on the surface, they always equal 50% of the total ship units. Likewise, all of the submarines add up to 50% of the total ship units. For instance, if you start off with 20 surface ships and 10 submarines, each submarine sunk, will equal 2 surface ships. A further ten percent of the scoring is influenced by overall fleet damage. A tied score will result in a loss for the submarines' side. Keep in mind that, through the use of the construction set, one could build extremely unbalanced scenarios, yet the scoring system will still reflect the outcome accurately.

Clicking

Clicking refers to the action of moving the pointer over some portion of the screen and pressing the selector button.

Clicking the button means pressing the mouse button.

For example, placing the pointer over the Periscope Up icon (shown on the right) and clicking the button raises the periscope.



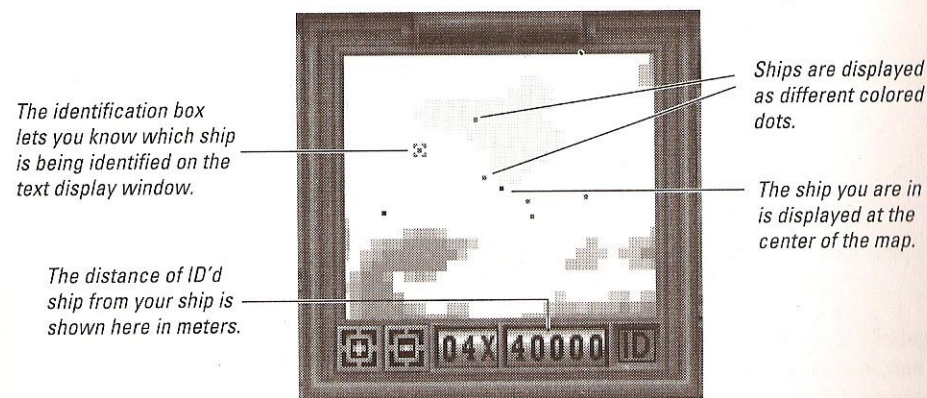
Shortcut Keys

One of the most useful features of *Wolfpack* is the **Shortcut Keys Mode**. This mode operates in conjunction with the mouse, thereby making some operations simpler to access. In **Shortcut Keys Mode**, different keys on the keyboard have different meanings. For example, pressing the "A" key sets the command mode for the current ship to **Auto** and pressing the "U" key sets the command mode to **User Control**. Sometimes you will be asked to press two keys. For example, pressing the "P" key first and then the "+" key will cause the periscope to be raised. Pressing the "P" key first and then the "-" key will cause the periscope to be lowered.

Appendix C on page 54 describes all of the keyboard equivalents.

COMMON DISPLAYS AND CONTROLS

TACTICAL MAP



The *Tactical Map* is displayed at all times during game play. It is analogous to the map table maintained by the yeoman. It helps the captain make informed decisions. The ship you are currently in usually appears as a flashing dot at the center of the map. Ships leave light colored wakes behind them. The wakes are useful in determining what the different ships' rudder settings are. Depending on the **Recon** (Reconnaissance) mode setting, it will display ships according to the following rules:

Day Mode

- Map displays all ships on your side.
- Map displays any opponents ships that show up on your sensors such as SONAR and RADAR.
- Map displays opponent ships that can be spotted visually as per the tables in *Appendix A* on page 50.
- Map displays the location of all opponent ships that have been observed by other ships on your side and their position transmitted by radio to your current ship.

Night Mode

- Same rules as in Day Mode but with reduced vision as per the visual tables in *Appendix A*.

Aerial Mode

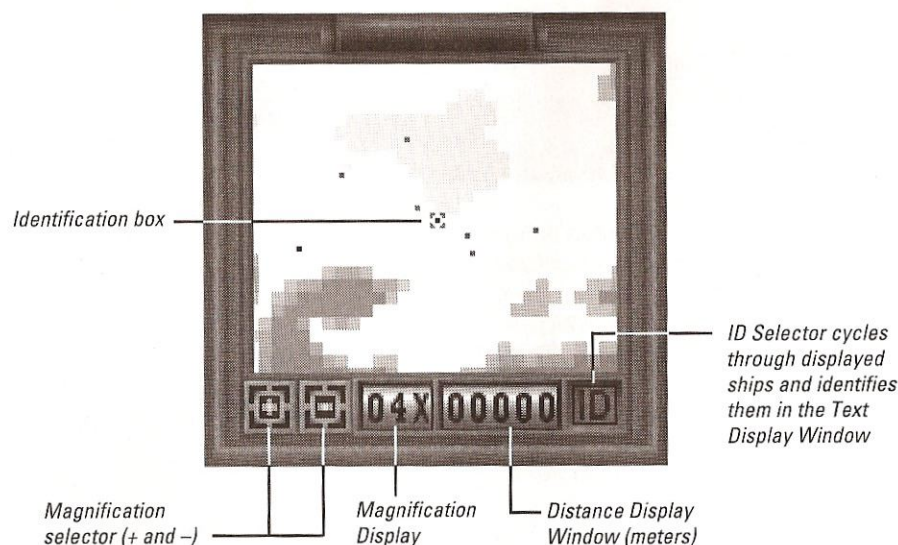
- Displays all ships on all sides at all distances. This is meant as a simple way to orient the new game player.

Color Coding on Tactical Map

Ships appear as colored dots on the Tactical Map. The colors are:

Subs	Blue
Destroyers	Red
Freighters	Yellow
Tankers	Black

Tactical Map Magnification and ID Selector



Magnification Selector

This selector (see picture above) allows the magnification of the map to be altered to accommodate the current action area. The magnification can be set in single step increments from 1X to 20X.

- Clicking on the + *magnify icon* magnifies a single step.
- Clicking on the - *magnify icon* zooms out one step.

Keyboard: "Z +" magnifies a single step. Pressing "Z -" reduces one step. "Shift Z +" gives the maximum magnification; "Shift Z -" gives you the maximum zoom out on the *Tactical Map*.

ID Selector

This selector allows the user to identify and range all of the ships displayed on the *Tactical Map*.

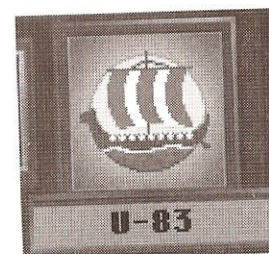
- Clicking over the selection button labeled **ID**, located at the lower right hand corner of the **Tactical Map**, cycles through all of the ships visible on the map and temporarily puts an identification box around the selected ship. The distance from your ship (meters) to the selected ship is displayed on the **Distance Display Window**, and the name of the ship is given in the **Text Display Window**. If the selected ship is on your side, then you can jump to it by clicking on it while the **Option** key is depressed.

Keyboard: Pressing the "I" key will cycle you through the displayed ships as above. Pressing "**Option I**" allows you to jump to that ship (if it is on your side).

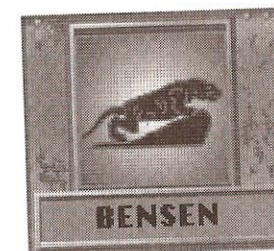
Moving from Ship to Ship

One of the most interesting features of *Wolfpack* is its ability to let you control any ship on your side. You can jump to the bridge of any of your ships by selecting it in one of several ways:

- Sequential.** You can cycle through all of the ships on your side by pressing the "**TAB**" key or clicking on the ship's insignia directly. This will sequentially take you through all of the available ships on your side. You can tell which ship you are in by looking at the ship's insignia and name. While this is a very easy way to move from ship to ship, you will move in a preset order and you can not directly access any specific ship. **Option-Clicking** or **Option-Tabbing** will move you sequentially backwards.



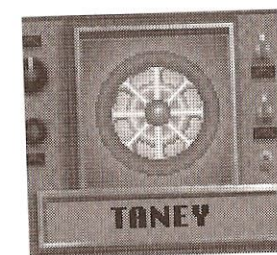
U-boat Insignia



Destroyer Insignia



Tanker Insignia



Freighter Insignia

Note: U-boats and destroyers all have individual insignias, but tankers and freighters have just one insignia per type.

2. *Via the Window or Periscope.* If the ship that you want to jump to can be seen through the window or periscope and it is on your side, you can click on it while depressing the "**Option**" key and be transported directly to its bridge. Clicking on the same spot (without the *Option* key) will just ID the ship from either side on the **Text Display Window**.

3. *Via the Tactical or Strategic Map.* If the ship that you want to jump to is displayed on the tactical or strategic map and it is on your side, you can click where it appears on the map with your "**Option**" key depressed and be transported to its bridge directly. Clicking on the same spot without the *Option* key down will just ID the ship.

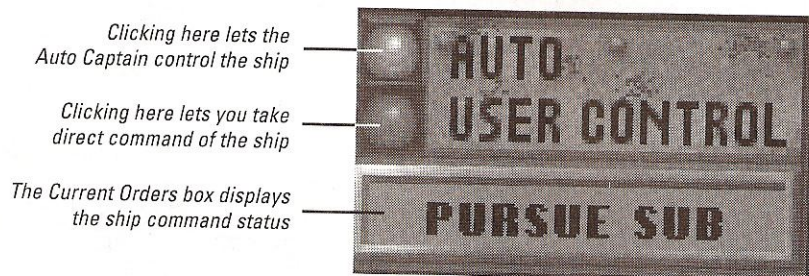
4. *From ID.* If you have used the ID function in the **Tactical Map** and an *Identification Box* currently surrounds the ship that you want to go to, you can jump to it by pressing the "**Option**" key or "**38 I**" (see **ID Selector** commands on page 13).

5. *Via the Status Display.* To jump to any ship on your side, you can bring down the *Status Screen* (see page 17) and click on the left-most column of the row corresponding to the ship you wish to select. Using this method ensures that you can always directly access any ship on your side provided that it has not been destroyed.

All of the methods described above will have the same effect. However, some might be easier to use at different points of the game. Try different ways of doing this and you will soon get the hang of it. Note that your ship's insignia, located below the tactical map, changes as you execute the jump and simultaneously, if the sound is ON, you will hear a characteristic sound to indicate that the jump has occurred.

Command Group: Auto or User Control

The **Command Group** lets the user select what control mode the ship is operating in. The **Current Orders** box lets the user know which orders are currently being executed by the ship's crew.

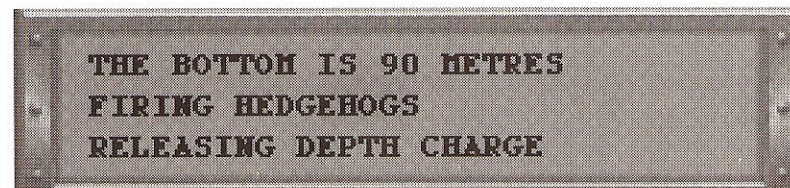


In **Auto** mode, the ships will follow their preset courses and they will be under the control of the captain assigned to that ship when the mission was created (the current captain can be seen by activating the **Status** display). While in **Auto** mode, the user can activate controls which do not alter the ships heading, depth or speed. **Altering speed, heading or depth will place the ship under User Control.**

* **User Control** can be selected directly by clicking on the *User Control* icon. **Auto Mode** is selected by clicking on the *Auto* icon.

Keyboard: Select **Auto Mode** by pressing "**A**"; **User Control** by pressing "**U**".

Text Display Window

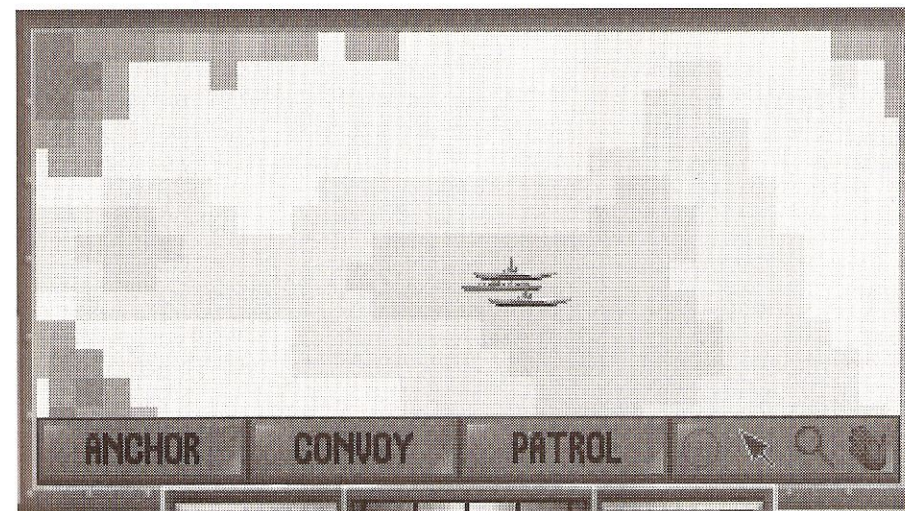


The Text Display Window appears in all of the ships' bridges. Informative messages appear in this window. Warning sounds accompany some of the more important messages.

* Clicking anywhere on the text box will clear the text box of all previous messages.

Keyboard: Pressing the **Spacebar** will clear the text box.

Strategic Map



The **Strategic Map** is similar to the **Tactical Map** and directly available from a running game.


This map is displayed by selecting it with the **Map Selection Button** found above the *Viewport* on the submarine bridge (see page 16) and above the *Tactical Map* on the destroyer and merchant ship bridges (see page 11). The map displays all available map information using the same rules as the *Tactical Map*. The *Strategic Map* also displays torpedoes. They show up as relatively fast moving dots.

Strategic Map Tools

The **Strategic Map** can be manipulated with controls which operate similarly to those used in the *Construction Set* (discussed on pages 41–44). They are as follows:



The CENTERING TOOL. Clicking on this icon centers your current ship on the map.

 **Keyboard:** Press "." to center your current ship on the strategic map.



The POINTER TOOL. Selecting this tool allows you to click over any displayed ship and ID it on the **Text Display Window**. Clicking on the ID'd ship while the "Option" key is depressed allows you to jump to that ship, provided it is on your side.



The MAGNIFICATION TOOL. Selecting this tool and clicking it over any desired part of the map will cause the map to be magnified and centered over that spot. Clicking while the "Option" key is depressed causes the map to be scaled down.



The MOVEMENT TOOL. Selecting this tool allows you to move the map in any direction. Your cursor changes to an open-hand cursor when you move it within the map screen. Clicking and dragging changes it to a "grabbing-hand" cursor (☞) and the map will move directly with the cursor.

Order Selection Buttons

The *Order Selection Buttons* are located at the bottom of the Strategic Map on the same row as the **Strategic Map Tools**. These buttons determine what orders the current captain will follow. Order options for submarines are: ANCHOR, SHADOW, PATROL. For destroyers they are: ANCHOR, CONVOY, PATROL. For merchants they are: ANCHOR, JOIN CONVOY, LEADER. These orders are described in detail in the sections pertaining to the different ships below.

(Note: The **Order Selection Buttons** cannot be accessed by the **Shortcut Keys**.)

ANCHOR: This selection will leave the ship where it is currently located unless it is engaged, in which case, most captains will take over and will either attack or take evasive action. Captains O. Nemenz, Bockman, Acker and Morton will stay anchored under all circumstances.

SHADOW: The submarine will retain its relative position to a moving convoy. **Shadow** will only operate if the U-Boat is between 4 km. and 10 km. from the convoy. If the distance is greater than 10 km. the convoy will not be spotted. If the

distance is less than 4 km., the U-boat captain will start an attack run on an individual target. *By-the-Book* Captains O. Nemenz and Bockman are exceptions and will not attack, so **Shadow** will work for them at any distance less than 10 km.

PATROL: Will allow the user to reset the **Ocean Patrol Waypoints** for the current ship.

CONVOY: Will put destroyer in **Convoy Patrol** mode and allow user to reset waypoints.


JOIN CONVOY: Will allow any merchant including a convoy leader to become a convoy follower. There are two reasons for doing this: first, to have an anchored ship become a member of the convoy, or, secondly, if you have a damaged leader, you might want to replace him with an undamaged one (a damaged leader might not be able to reach full speed, etc.). If you use this selection on the current leader, a new leader will be chosen at random.

LEADER: Will set current merchant as the convoy leader. This is used to replace a damaged leader.

Status Screen

NAME	TYPE	CAPTAIN	DAMAGE
PORCUPINE	TANKER	CONVOY	0%
KENTUCKY	TANKER	CONVOY	0%
OKLAHOMA	TANKER	CONVOY	0%
DORCHESTER	FREIGHTER	CONVOY	0%
DAN MORGAN	FREIGHTER	CONVOY	0%
H. F. BROWN	FREIGHTER	CONVOY	0%
ALCOA CADET	FREIGHTER	CONVOY	0%
PLUNKETT	DESTROYER	GARCIA	0%
* USS KIDD	DESTROYER	ACKER	0%
TOTAL DAMAGE:			0%

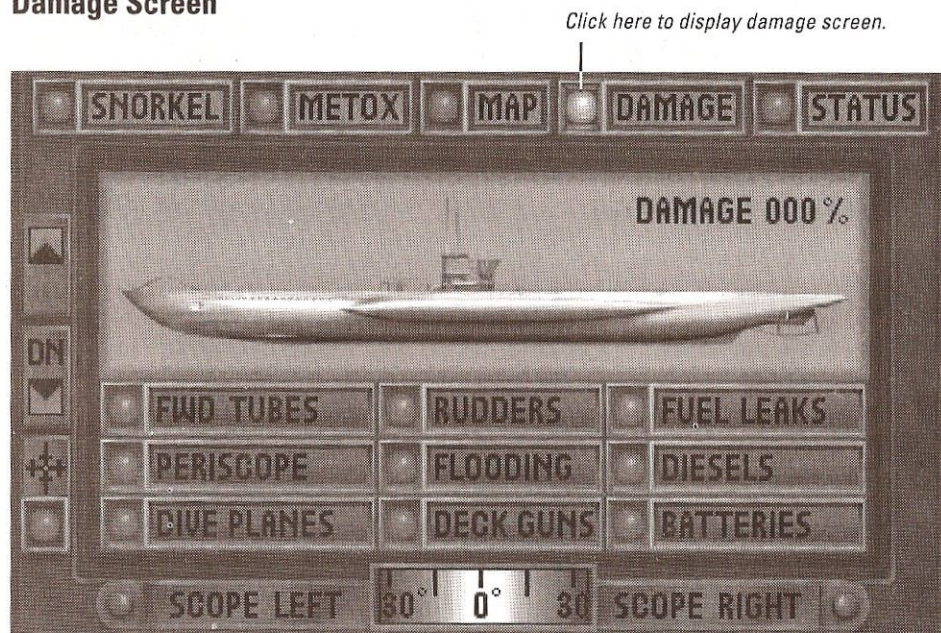
The **Status Screen** allows the player to review his entire fleet at a glance. All of the ships on your side are displayed in a tabular format. The ship you are in is indicated by an asterisk on the left-most column of the display. The ship's name, type, captain and percent damage are also shown. At the bottom of the display, the total fleet damage is displayed.

 The *Status Screen* is toggled in and out by clicking on the button labeled STATUS or STAT. Once the *Status Screen* is displayed, you can jump directly to any ship which has less than 100% damage by clicking on the left-most column of the corresponding row. Since you may have more ships than

can be displayed at one time, clicking on the arrows at the right side of the display will either scroll the roster up or down.

 **Keyboard:** Pressing "S" will toggle the **Status Screen** in and out.

Damage Screen




The **Damage Screen** lets the player know what the current percent of damage is for the current ship. Additionally, there is a visual representation of damage to specific systems. Note that the ship can have a great deal of general damage with no specific system being out of commission.

For the most part, if a specific system is damaged such as a periscope, it will stop functioning. Other systems might degrade performance in more subtle ways. Flooding in a submarine will eventually cause it to sink unless it is taken up to the surface immediately. In such a case, it would probably be best if the sub could be taken away from action so that it would at least count in the final score (see *Scoring* on page 8). Fuel leaks will make the sub more visible to the enemy. Dive plane and rudder damage will make it difficult to maintain correct depth and heading.

For surface ships, fire and flooding damage will deteriorate the overall performance of the vessel. Radio damage will make it harder for ships to radio enemy locations, so less information will be available to the captain. Depth charge damage on destroyers usually lengthens reload time.


 The **Damage Screen** is toggled in and out by clicking on the button labeled DAMAGE or DAM.


 **Keyboard:** The **Damage Screen** is toggled in and out by pressing "W"

Timing Selector

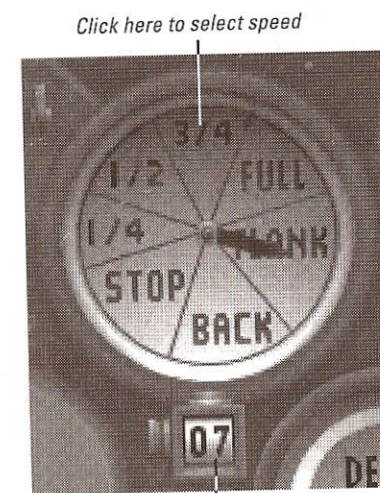


This control allows the user to change the time base of the game being played. Normally (**Timing 01**), the simulation runs in real time, that is, one second in the real world corresponds to one second in the computer. If the **Timing** is increased to **02**, then the simulation executes twice as fast as things would happen in the real world. For instance, a ship that would normally take 1 hour to get to its destination will now only take 30 minutes to get there. This is a good feature to use when large distances are to be crossed or searched. The maximum setting is 64. The game will automatically slow down to 1 anytime a weapon is fired. On slower computers, the actual maximum timing increase might be limited.

 Clicking on either Timing Selector arrow will increase or decrease the rate of play. Clicking on the center of the numerical display, will reduce the **Timing** to 1. Clicking over the center of the numerical display with the **Option** key depressed will set the **Timing** to 64.

 **Keyboard:** Pressing "T" followed by either the "+" or "-" keys, will increase or decrease the rate of play respectively.
Pressing "T" and "0" (zero) will set **Timing** to 1.
Pressing "T" and "1" will increase **Timing** to 64.

Repeater Telegraph



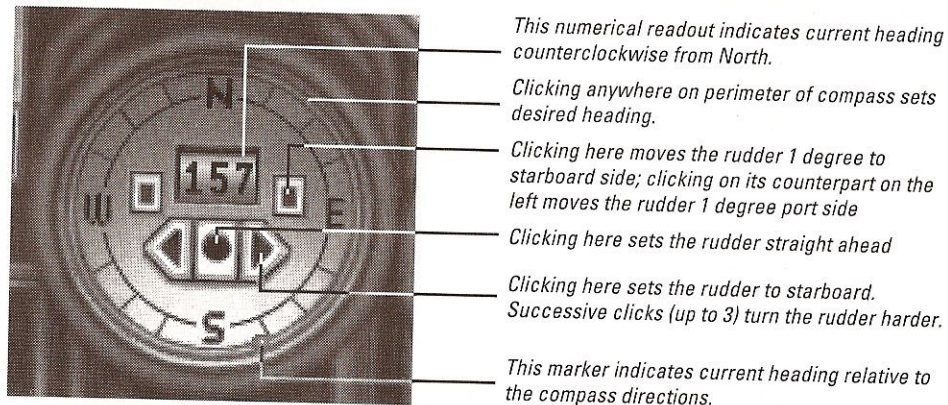
This control is used to set the ship's speed when under **User Control**. (*User Control will be automatically selected if the **Telegraph** is activated.*) It transmits the captain's desired speed to the engine room. The engines are then adjusted to match this speed. In the case of the submarine bridge, the **Speed Indicator Window** is also included at the bottom of the **Telegraph** housing.

Clicking on the desired speed setting on the face of the **Telegraph** will request that speed and force the command mode to switch to **User Control** if not already set that way.

Keyboard: Pressing the number keys "0", "1", "2", "3", "4", "5" will set the speed to **Stop**, **1/4**, **1/2**, **3/4**, **Full** and **Flank** respectively. Pressing "B" will set the speed to **Back** which is the same as 1/4 speed in reverse.

Compass/Rudder Control

This is a combination control that displays the current heading and when under **User Control** allows the user to either automatically set the desired heading or to manipulate the rudder directly.

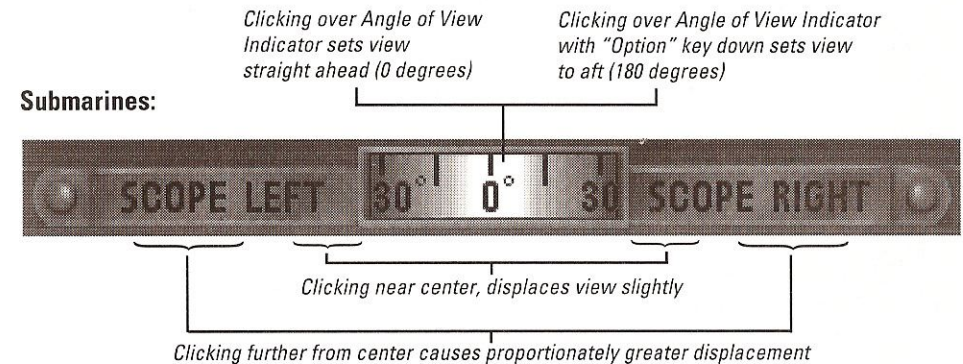


Clicking on the circumference of the control sets the desired heading, and the ship will turn until it reaches this heading, provided the engines are moving the ship forward. For close in maneuvering, it might be more desirable to operate the rudder directly by clicking on the rudder control arrows.

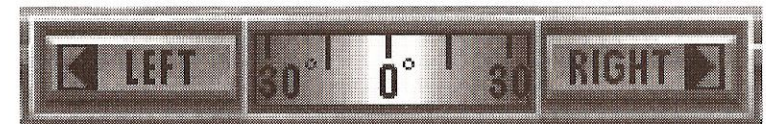
Keyboard: While the direct setting of heading is not available through the **Shortcut Keys Mode**, the rudder can be set directly by pressing "Option L" or "Option R". Doing either will turn the rudder respectively to the left or right. Repeating the command up to 3 times will turn the rudder harder in that direction. Pressing "Option C" centers the rudder.

Viewport Right/Left Controls and Angle of View Indicator

These controls located below the **Viewport** allow the user to look either to the right or to the left of the current heading. Aiming of deck guns and torpedoes is also accomplished by lining up the target with the center of the viewport. The **Angle of View Indicator** shows how many degrees from the bow the view is displaced.



Destroyers & Merchant Ships:



The controls respond proportionately. Clicking on the alignment areas will cause the view to change. The further away from the **Angle of View Indicator** that the user clicks on the control, the more that the view will be displaced. For very fine adjustment of the viewport, clicking very near the indicator will cause a small change of view. To move quickly, the user should click further away from the indicator. To align the view with the ship's heading, the middle of the **Angle of View Indicator** (numerical display) can be clicked. This will automatically center the view at 0 degrees. Clicking on the center of the **Angle of View Indicator** with the **Option** key depressed will set the view to 180 degrees (straight back). This is a good thing to do if you are in a destroyer and want to see the depth charges being dropped.

Keyboard: Pressing the "V" and the "+" keys simultaneously will cause the viewport to look to the right. Pressing the "V" and the "-" keys simultaneously will cause the viewport to look to the left. Pressing the "V" and the "0" (zero) keys simultaneously will cause the viewport to align the view with the ship's heading. Pressing the "V" and the "1" keys simultaneously will cause the viewport to face directly aft (180 degrees).

Viewport Magnification Lever



This device allows the user to select a normal viewing angle (1.5X) or a telephoto view (6X). The normal view is useful for general orientation, while the 6X view is useful for aiming at far away targets.

- Clicking on the **1.5 Icon** displays a **normal view**.
Clicking on the **6X Icon** shows a **magnified view**.

Keyboard: Pressing "**X +**" keys displays a **magnified** view. Pressing the "**X -**" keys shows the **normal** view.

Reticule Control

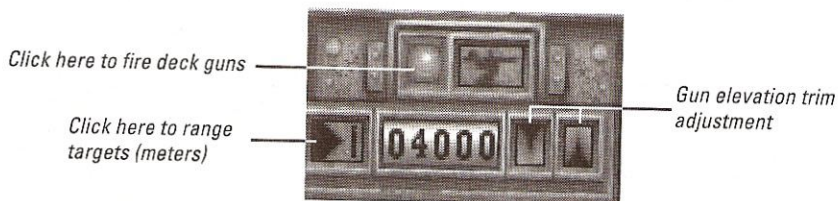


By selecting the reticule, an aiming mark is displayed on the viewport. The reticule is useful in aiming deck guns and torpedoes. The reticule is particularly useful under 6X magnification.

- Clicking on the **Reticule Icon** displays the aiming reticule.
Clicking on the **Reticule Icon** again removes the reticule.

Keyboard: pressing the "**0**" key displays the reticule. Pressing the "**0**" key again, removes the reticule.

Deck Guns



All ships except Type XXI U-boats have deck guns. The reload time reflects the number of guns actually carried by the specific ship. Destroyers reload quickly while merchant ships and submarines, which

normally carried only one deck gun, take longer before the gun can be fired again. Submarines must be completely surfaced before they can fire the deck gun.

*Note: Deck guns must be both **aimed and ranged** before they have much chance of being effective.*

- Clicking on the **Gun Ranging Icon** while a target ship is centered on the **Viewport** (the target reticule might be helpful) displays the range to the target ship in meters on the **Gun Range Indicator Window**. Simultaneously, the name of the ship being ranged is displayed on the **Text Display Window**. The range derived from this action is automatically fed into the deck gun's elevation mechanism. The Deck Gun can then be fired by clicking on the **Gun Icon**. Under most circumstances, this range is very accurate, but the elevation of the gun can further be adjusted by clicking on the **Elevation Trim Controls**. The gun ranging device can also be used to generally provide range and ID information on any ship centered on the aiming reticule.

Keyboard: Gun ranging is performed by pressing "**R**". Firing the deck gun is accomplished by pressing "**G**". The gun can be trimmed up by pressing "**E +**" and trimmed down by pressing "**E -**".

Note: Remember, not all submarines have deck guns. Those that do have the light to the left of the deck gun icon lit, either red (ready) or yellow (not ready). So don't get frustrated when you are in a sub and the deck gun doesn't seem to work. You're most probably in a Type XXI U-boat.

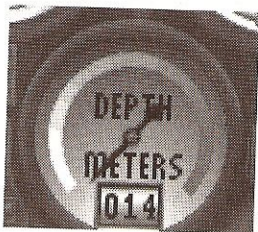
Bottom Depth Indicator



All vessels have a **Bottom Depth Indicator**. The depth to the bottom is indicated in meters. Knowing the bottom depth is important for all ships. All ships have to be careful not to run aground. When maneuvering at shallow depths, the captain should keep a close eye on the map to make sure that the ship will not collide with the bottom. This situation is particularly critical for submarines. A forward-looking depth meter constantly scans the bottom and warns the captain, through the **Text Display Window**, of an impending upward change in depth. The captain should take immediate corrective action if this happens.

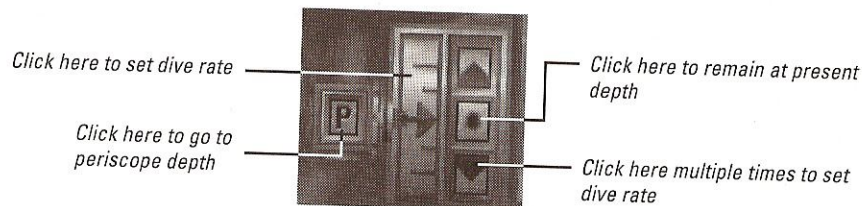
SUBMARINE DISPLAYS AND CONTROLS

Depth Gauge



In the submarines, the *Depth Gauge* tells the user what the current depth of the submarine is in meters. Depth is indicated both in digital form and by the analogue needle.

Dive Control



While under *User Control*, submarines can be made to dive or surface by manipulating the *Dive Control* shown above. The left side of the gauge indicates the rate at which the submarine is diving or surfacing as well as allowing the user to set this rate. The right side of the gauge is also used to control the dive rate.

Clicking on the left hand central area of the control will cause the sub to stop diving or surfacing. Clicking the scale marks above or below the central portion will make the sub dive or surface respectively in a proportional fashion. Clicking on the indicator arrows on the right hand side of the control will make the sub dive or surface respectively at a rate proportional to the number of times that the arrow has been clicked. Clicking on the **Periscope Depth Icon (P)** will bring the sub to periscope depth and keep it there until there is further intervention by the user.

Keyboard: Pressing "**D +**", will cause the sub to surface. Pressing this combination more than one time will have a cumulative effect and will cause the sub to surface more rapidly. Pressing "**D -**" will cause the sub to dive. Pressing this combination more than one time will have a cumulative effect and will cause the sub to dive more rapidly. Pressing the "**D**" key and the "**1**" keys simultaneously, will cause the sub to stop diving or surfacing. Pressing the "**P**" key twice will cause the sub to go to periscope depth.

Periscope Up/Down Control

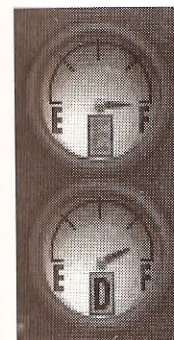


These controls raise or lower the submarine periscope. The periscope is effective at 15 meters. It is a good idea to lower the periscope whenever submerged. Otherwise, it is highly prone to be damaged.

Clicking on the **UP Button** raises the periscope. Clicking on the **DN Button** lowers the periscope.

Keyboard: Pressing "**P +**", will cause the periscope to be raised. Pressing "**P -**" will cause the periscope to be lowered.

Fuel Gauges

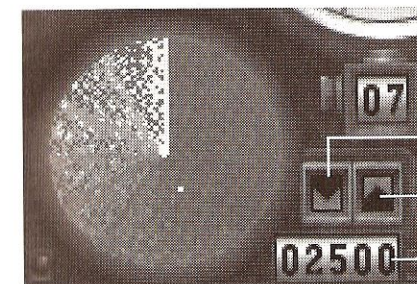


There are two fuel gauges in the submarine bridge. The gauge on top is the **Electric Power Gauge**; the one below is the **Diesel Fuel Gauge**. The Electric Power Gauge lets the user know how much power remains for the electric motors. There is one hour of running time under electric power, and it takes 1 hour of running under Diesel power to recharge the batteries to their full capacity. **Type XXI's can run indefinitely under electric power**. The Diesel Fuel Gauge always remains at full. (U-Boats of these classes had ranges of over 3000 miles on Diesel). Switching to electric power is always done automatically by the crew whenever the U-Boat or its snorkel (if so equipped) goes below water level. The crew, however, will not switch the engines to diesel after surfacing from a dive.

Clicking on the "**E**" icon on the gauge will switch the sub to **electric** power. Clicking on the "**D**" icon will turn on the **diesel** power if the submarine is at a depth where it can get intake air for the engines.

Keyboard: Pressing the "**Option E**" keys will switch the sub to **electric** power. Pressing the "**Option D**" keys will switch the sub to **diesel** power.

Hydrophone Display



Click here to decrease display range

Click here to increase display range

Current hydrophone display range in meters

This gauge allows the operator to hear any ships that have their engines running, with the exception of submarines running on electric power. This device works by listening to faint sounds transmitted by the

water. If your Diesel engines are running, they will mask these faint sounds and the Hydrophone will not work. The range of the display can be adjusted by clicking on the arrows to the right of the *Hydrophone Range Display Window*. Range is as per the tables in *Appendix A* on page 51. Colors of contacts correspond to the colors of the *Tactical Map* shown on page 10. Additionally, however, torpedoes are also visible on this display as brown dots on the color monitor.

Clicking on the **up arrow** icon will **increase the range** of the *Hydrophone Display*. Clicking on the **down arrow** icon will **decrease the range** of the *Hydrophone Display*.

Keyboard: Pressing "**K +**" will **increase** the range of the display; pressing "**K -**" will **reduce** the range of the display.

Snorkel Indicator



The **Snorkel Indicator** lights up whenever the snorkel tube is being used to run the Diesel engines. The snorkel is raised automatically whenever the following three conditions occur: the year is **1943 or greater**, the *sub* is *below the surface at periscope depth or higher* and the *diesel engines are*

selected. **Running with the snorkel up allows the sub to run on diesel engines** with only the relatively small snorkel intake above the surface. This is a good way of recharging the batteries or crossing large distances without running the batteries down. The noise of the Diesel engines, however, make the sub relatively vulnerable to destroyers. And radar can usually see a snorkel tube.

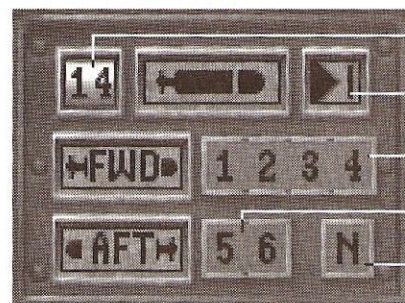
Metox/Naxos Indicator



The **METOX Indicator** (or from 1944 on: **NAXOS**) will flash whenever the sub is being painted by Allied radar. Essentially, these devices acted like today's automotive radar detectors. When this indicator lights up, the submarine is in danger of immediate attack. METOX was introduced in 1942

and it was replaced in 1944 by NAXOS when Allied centimetric radar made METOX ineffective.

Torpedo Control Group



Number of torpedoes remaining

Click here to compute torpedo lead

Click here to release torpedo from forward tubes

Click here to release torpedo from aft tubes

Click here to release decoy noisemaker

The **Torpedo Control Group** lets the user *select*, *compute firing solutions* (lead), and *fire torpedoes*. The numerical window indicates how many torpedoes are remaining at any given time. The number includes the torpedoes loaded into the front and aft tubes.

By clicking on the lead computation icon (firing solution) while the closest target is lined up within 2 degrees of the aiming reticule, the torpedo gyro-steering mechanism will be set to lead the torpedo accordingly.

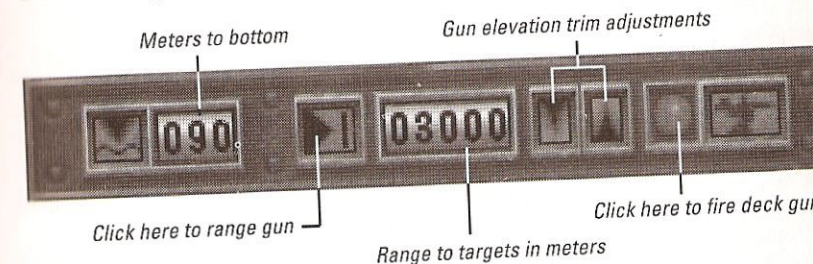
Once the lead is computed, the icon will flash to indicate that it will be fired with a lead. The lead computation will be maintained for 12 seconds or until a torpedo is fired. Using the lead computation is extremely effective if the ship that is sighted continues on the same course during the travel time of the torpedoes. If, however, the target ship changes its direction during that period such as might be the case if the target ship is on a zigzag course, then it might be more effective if the captain sights and leads the torpedo visually by using the periscope reticule and his intuition instead of using this device.

Clicking on any of the forward tube icons or the aft icons, releases the corresponding torpedo. Once a torpedo is fired, additional torpedoes take a set time to be reloaded into the tube. Torpedoes have a + or - 90 degree steering range. Thus torpedoes shot from the forward tubes can cover the forward 180 degrees and the aft torpedoes can only cover the rear 180 degrees of the ship.

The decoy noisemaker or Pillenwerfer can be deployed during evasive maneuvers. If the submarine is being chased by destroyers, the captain might choose to run very silently, release a noisemaker and make an unpredictable turn. The "bright" sound image of the noisemaker might fool the enemy captains into chasing it rather than their intended target. Pillenwerfers were available as of 1942.

Keyboard: "****" fires **Forward** torpedoes. "**Shift **" fires **Aft** torpedoes. "**Option N**" fires **Noisemakers**. **Lead computation** is performed by pressing "**Option M**".

Bottom Depth Indicator / Deck Gun Control Group

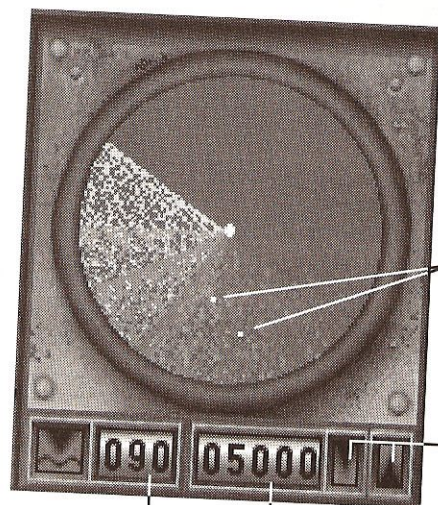


By clicking on the **Gun Ranging Icon** while a target ship is lined up in the reticule crosshairs or is generally centered on the screen, the range to the target ship will be displayed in meters on the **Gun Range Indicator Window**. Simultaneously, the name of the ship being ranged is displayed on the *Text Display Window* (see page 13). The range derived from this action is automatically fed into the deck gun's elevation mechanism. The **Deck Gun** can then be fired by clicking on the **Gun Icon**. Under most circumstances, this range is very accurate, but the elevation of the gun can further be adjusted by clicking on the **Elevation Trim Controls**. The gun ranging device can also be used to generally provide range and ID information on any ship centered on the aiming reticule.

Keyboard: Gun ranging is performed by pressing "**R**". Firing the deck gun is accomplished by pressing "**G**". The gun can be trimmed up by pressing "**E +**" and trimmed down by pressing "**E -**".

DESTROYER DISPLAYS AND CONTROLS

RADAR



Radar display is installed in Allied destroyers beginning in 1942.

Blips indicate surface contacts. Bearing relative to your ship's heading.

Radar range adjustments

Meters to bottom

Current radar range in meters

Radar only appears in ships in a mission that takes place in 1942 or greater war year. Otherwise, a metallic plate covers the area where the radar display would otherwise be. The range of the radar also improves in later war years. Radar can be very useful in locating submarines, even their snorkel or periscope, particularly in later war years. Display colors for the radar blips correspond to those of the *Tactical Map* outlined on page 10.

On the base of the radar display, the **Radar Range Indicator** displays the range that the unit is set to. This range can be adjusted by clicking on the range adjustment arrows as shown in the figure above.

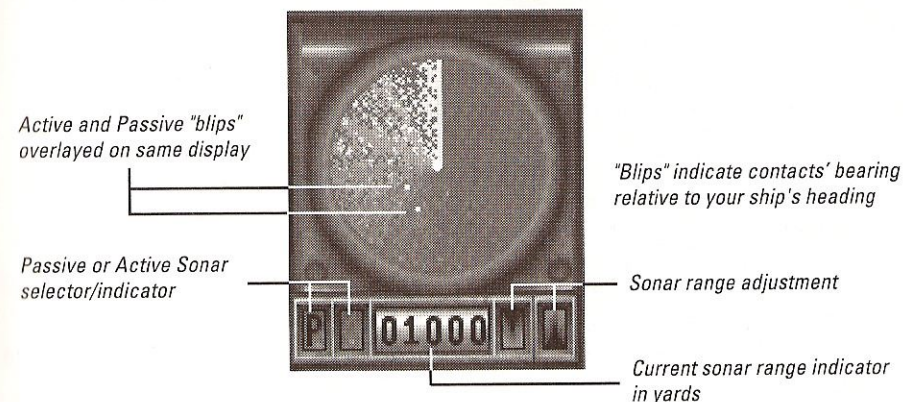
* Clicking on the **up arrow** icon will **increase the range** of the Radar Display. Clicking on the **down arrow** icon will **decrease the range** of the Radar Display.

Keyboard: The display range of the radar may be adjusted up by pressing "**Q +**", and down by pressing "**Q -**".

BOTTOM DEPTH INDICATOR

Also located at the base of the Radar Display shown above is the **Depth Indicator Window**. Ships continuously display the bottom depth (from sea level to bottom) on this window. The destroyer captain can use this reading to help him estimate at what depth to set the detonation depth of depth charges.

SONAR



Active and Passive "blips" overlaid on same display

"Blips" indicate contacts' bearing relative to your ship's heading

Passive or Active Sonar selector/indicator

Sonar range adjustment

Current sonar range indicator in yards

Passive Sonar

Wolfpack's Sonar Display is actually two instruments combined into one. The output of the Passive Sonar is always displayed on the Sonar Display. The output of the Active Sonar is superimposed on the same display whenever the **Active** selector is clicked (see picture above).

* On the base of the Sonar Display, the **Sonar Range Indicator** displays the range that the unit is set to. This range can be adjusted by clicking on the range adjustment arrows as shown in the figure above.

Keyboard: The Sonar Display range may be adjusted up by pressing "**K +**" and down by pressing "**K -**".

Passive Sonar, called a **hydrophone**, is always on. It can detect the sound of any ship moving on the surface under turbine or Diesel power. The main weaknesses of the hydrophone are that if your engines are on or if the submarine is running under quiet electric power, you probably won't detect any of the faint sounds.

Active Sonar

Active sonar is true sonar. The device works by generating sonic "pings" which bounce off metallic targets such as submarines. By measuring the time that it takes for the "ping" echo to return to the ship, the location of the submarine can be estimated. Active sonar works under most conditions but has different probabilities of detecting submerged U-boats depending on the distance to the target. Beyond a certain range, the probability of detecting someone actually decreases.

Range in yards	Probability of a return
0-100	5%
250-500	25%
500-750	50%
750-1000	75%
1000-1250	50%
1250-1600	25%

If more than one destroyer is "pinging" the same target, the probability of seeing the target increases. The probability of hearing the target decreases with target depth.

The major disadvantage of using the active sonar is that the target submarines can also hear the "ping" (usually at a greater range than they can be detected) and they might take evasive action. A captain should use active sonar judiciously.

✎ **Active Sonar** can be selected from 1943 on by clicking on the "A" icon (shown in illustration on previous page). When Active Sonar is operative, the passive hydrophone is still operational and its output is overlaid on the same instrument face.

☐ **Keyboard:** Press "Option S" to toggle Active Sonar on or off. (The year must be '43 or greater.)

Hedgehogs

Click here to fire Hedgehogs
(forward facing mortars)



Hedgehog forward-firing spigot mortars became available in 1940. A metal grille occupies their location prior to this year. Unlike depth charges, they explode on contact with the submarine, thus making the need to set the detonation depth unnecessary. They fire a 130 foot circular pattern 200 yards in front of the destroyer. This is one of the most effective weapons at the captain's disposal.

✎ Hedgehogs are fired by clicking on the Hedgehog Icon. The indicator flashes whenever the weapon is loaded and available.

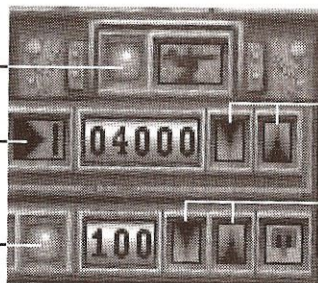
☐ **Keyboard:** Hedgehogs can be fired by pressing "H".

Deck Guns

Click here to fire
deck guns

Click here to range
target (meters)

Click here to release
depth charges



Gun elevation
trim adjustment

Adjust depth charge
detonation depth
(meters)

✎ A target can be ranged by clicking on the *Gun Ranging Icon* (🎯) while a target ship is lined up in the reticule crosshairs. The range to the target ship will be displayed in meters on the **Gun Range**

Indicator Window. Simultaneously, the name of the ship being ranged is displayed on the Text Display Window. *The range derived from this action is automatically fed into the deck gun's elevation mechanism.* The deck gun can then be fired by clicking on the **Gun Icon**. Under most circumstances, this range is very accurate, but the elevation of the gun can further be adjusted by clicking on the **Elevation Trim Controls**. *The gun ranging device can also be used to generally provide range and ID information on any ship centered on the aiming reticule.*

☐ **Keyboard:** The gun can be ranged by pressing "R". Elevation can be adjusted up or down by pressing "E+" or "E-" respectively.

Depth Charges

✎ The depth charges are fired from the stern of the destroyers by clicking on the *Depth Charge Release Button* shown below the *Deck Gun* controls on previous page. *Note that pressing the Option key will fire a salvo of 4 depth charges.* The detonation depth should be set prior to releasing the depth charges. Estimating the depth at which the charges should detonate is a trial-and-error procedure. The charges should be set to detonate above the sea bottom (see Destroyer's *Bottom Depth Indicator* on page 26). A submarine seen diving will be relatively near the surface. An explosion at 25 yards from the U-boat will cause a submarine to sink. Explosions at greater distances, will cause less damage. Depth charge explosions will also cause both active and passive SONAR contact to be lost for a period of time.

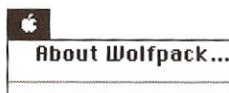
☐ **Keyboard:** Pressing "C" releases a depth charge.
Pressing "C" followed by "Ins" will release a salvo of 4 depth charges.
Pressing "J+" or "J-" will respectively increase or decrease the detonation depth of the depth charges.

WOLFPACK MENUS

At any time during gameplay, you can pause the game by pressing **⌘ P**. Then, the *Pull-down Menu Bar* will appear. It will also appear while you are on the *Construction Set Screen* if you press **⌘ P** but you will not be able to access the options within the *Construction Set* until you press **⌘ P** again. Accessing the *Pull-down Menu Bar* is especially convenient when you want to temporarily pause the game or your mission construction and work with another Mac application (in Multifinder mode for 6.0 or higher systems) or to simply access something from the Desktop.

APPLE MENU

Copyright and version information is in the menu.



FILE MENU

Construction Set is enabled during gameplay and disabled when the Construction Set screen is up. It takes you from the game screen to the Construction Set Screen without aborting the current mission. See *Construction Set* section on page 33.

Resume unpauses the game.

Play Mission is enabled when in the Construction Set Screen and is equivalent to clicking on the "Go" button.

Abort Mission is enabled during gameplay. It aborts the current mission, displays end-of-game stats, and opens up the Construction Set.

Load Mission, which allows you to choose one of the available missions, brings up the *Load Mission Dialog Box* (see page 43). This selection is accessible only from the Construction Set mode.

Save Mission allows you to save the mission you have modified or created from the Construction Set screen. (See page 44)

Quit exits the game.

File	
Construction Set	
Resume	⌘ P
Play Mission	⌘ G
Abort Mission	⌘ A
Load Mission	
Save Mission	⌘ S
Quit	
	⌘ Q

EDIT MENU

The **Edit Menu** is not used in *Wolfpack*.

Edit	
Undo	⌘ Z
Cut	⌘ H
Copy	⌘ C
Paste	⌘ V

GAME MENU

Game	
✓ Sound Effects	⌘ F
✓ Engine Sound	⌘ E
✓ Music	⌘ M
Preferences...	

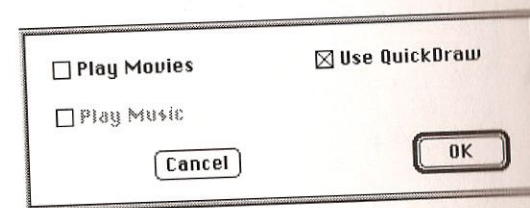
Sound Effects alternately turns the sound effects ON and OFF.

Engine Sound toggles engine sounds ON and OFF.

Music toggles the animation music ON and OFF.

(A check mark in front of any of these *Game* menu selections indicates that the item is ON; no check mark means it is OFF.)

Preferences brings up the *Preferences Dialog Box* shown at right.



- Selecting *Play Movies* will work only if you have the CD version of *Wolfpack*. With this ON, short animated movies will play at *Wolfpack* startup and at the end of missions. It also enables you to choose to play or not to play the music score that goes with the movies.
- Selecting *QuickDraw* makes the game more compatible with most Macintoshes.

CREATING OR MODIFYING A MISSION

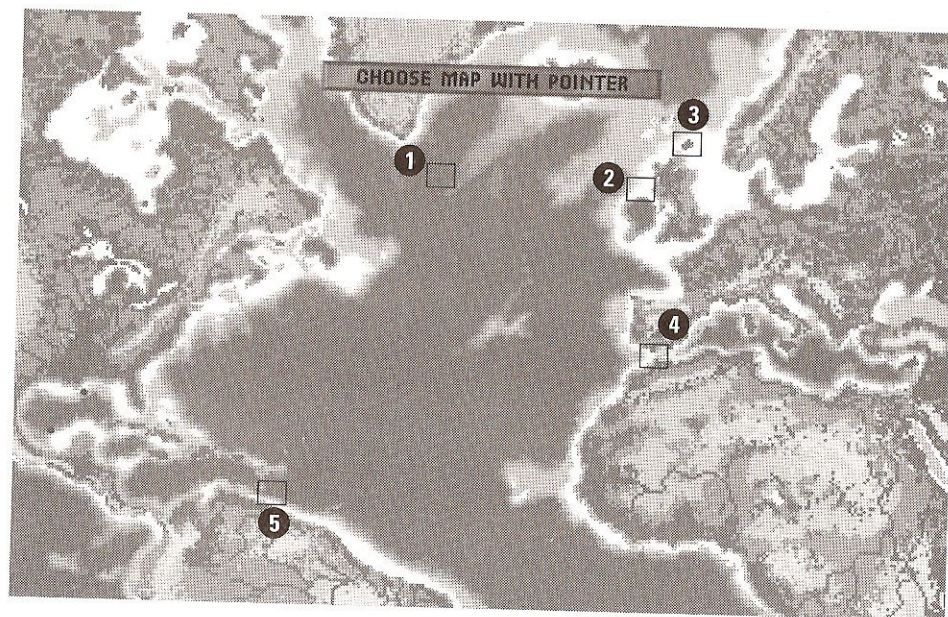
Master Map

The *Master Map* comes up in two ways:

- if you select the *Construction Set* option on the *Startup Menu*, or
- if you clicked on **NEW** in the *Construction Set Menu Bar* and chose the *New Map* option in the dialog box that pops up.

It contains a general view of the North Atlantic. Within the *Master Map*, selection rectangles indicate available playfields which can be selected by the player.

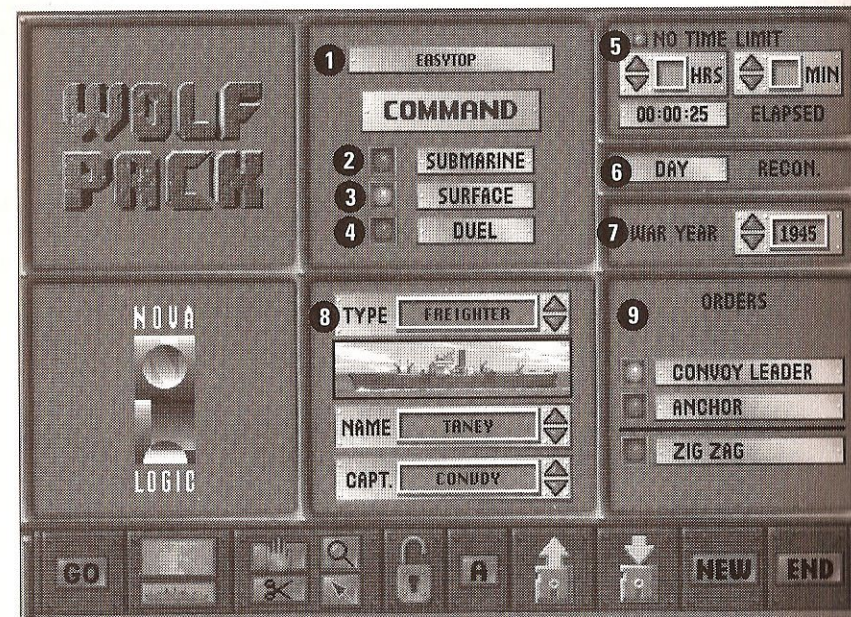
- ☞ ☐ Selection is performed by either *clicking* on the appropriate rectangle, or by cycling through the selection rectangles by *pressing the Tab key*, and accepting the selection by *pressing the Return key*. Either of these actions will load the selected map into memory, thereby replacing the *Master Map* and initiating the *scenario building phase*.



1. Atlantic Gap 2. North Channel 3. Scapa Flow 4. Gibraltar 5. Caribbean

The Construction Set

Players can set up their own missions or modify unlocked saved missions through the use of the *Construction Set*. You can get to it by selecting **Construction Set** from the *Startup Menu*. During gameplay, pressing the "**Esc**" key will also bring you to this mode.



The **Construction Set** screen allows the player(s) to select how the game is to be set up. The categories of choices, as marked from 1 to 9 in the illustration above, are described below. (See pages 41-44 for the description of selections in the *Construction Set Menu Bar* located below the *Construction Set Screen*.)

1. MISSION NAME

This is the name of the currently loaded mission

2. SUBMARINE

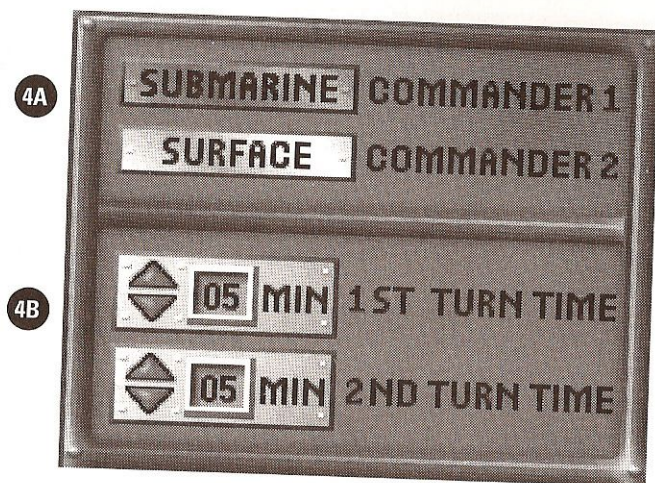
If you select this, you will assume the role of *Wolfpack* Commander and command up to several German IX U-boats, XXI U-boats and a U-boat resupply submarine (Milk Cow). The primary mission is to sink as much Allied tonnage as possible and/or to keep the convoy from reaching its final destination. The computer plays the Convoy Destroyer Commander.

3. SURFACE

If you select this, you will assume the role of the Convoy Destroyer Commander. You'll control destroyers, tankers and freighters. Your primary mission is to defend the convoy against German submarines. The computer plays the *Wolfpack* Commander.

4. DUEL

In this selection, one player assumes the role of *Wolfpack* Commander, the other is the Convoy Destroyer Commander. The time allotted to each player is user definable and the computer sequentially allows each player to have his turn. The time for each player's turn is set individually when the game is set up.



- When choosing the *Duel* (two-player mode) timeshare mode, the players are then asked to choose which fleet they will command (**Command Toggle**). Clicking on one of the two options on **4A**, shown above, will select which side goes first. When playing, the computer will keep track of each players turn time, and will switch sides at the correct point. A warning in the *Text Display Box* is given 30 seconds before the switch takes place.

Duel Turn Time Adjustments:

- In *Duel Mode*, each player gets to set his turn time individually. This is done by clicking on the corresponding up/down arrow icons, as shown above in **4B** above.
- Keyboard:** For player 1, pressing "+" will increase his turn time, pressing "-" will decrease the time. Player 2 will get the same effect by pressing "Shift +" and "Shift -".

5. MISSION TIME LIMIT

Missions can be played with or without a time limit.

- Clicking on the *Mission Time Limit Button* will toggle between time limit or no time limit. If a time limit is chosen, the mission will end when the preset time is reached. If a time limit has been chosen, clicking on the corresponding up/down arrow icons will set the desired time.
- Keyboard:** Pressing "[" or "]" will increase or decrease play hours. Pressing "Shift [" and "Shift]" will increase or decrease play minutes respectively.

6. RECON (Reconnaissance)

This mode determines the rules that govern the display of ships on the **Tactical** and **Strategic Maps** during game play. Clicking on plate (where default mode appears) cycles through the three setting which are as follows:

Day Mode

- a) Map displays all ships on your side.
- b) Map displays any opponents ships that show up on your sensors such as *sonar* and *radar*.
- c) Map displays opponent ships that can be spotted visually as per the distance table in *Appendix A* on page 50.
- d) Map displays the location of all opponent ships that have been observed by other ships on your side and their position transmitted by radio to your current ship.

Night Mode

Same rules as in *Day Mode* but due to reduced visibility, it favors U-boats, particularly prior to the introduction of radar in 1942.

Aerial Mode

Displays all ships on all sides. This is meant as a simple way to orient the new game player.

7. WAR YEAR

Ships rely on the weaponry and sensors of the period. The war year of the mission is very important because it determines which side has the technological advantage and thus the best chance of winning. 1939 to 1942 were good years for U-boats since the Allies had not yet perfected radar and sonar, and their anti-submarine tactics were not fully developed. This meant that during a night attack, the submarines could actually surface in the middle of a convoy and fire at will with virtual impunity.

By 1943 through 1945 things had changed dramatically. Allied advances in sensor technology such as radar and sonar as well as in weapons such as improved depth charges and Hedgehog mortars led to a 96% kill rate on submarines. As an additional point of interest to the submarine player, setting the war year at 1945 allows the use of type XXI submarines in game play. While there were only 12 type XXI's in service at the end of the war, these improved U-boats could operate at greater depths, stay submerged indefinitely and were fast underwater. Had the type XXI been deployed in greater numbers earlier in the war, they would once again have turned the tables in the Battle of the Atlantic.

- Clicking on the corresponding up/down indicator arrows sets the year of conflict for the mission. The war year can be set from 1939 to 1945.

Keyboard: Press "Y +" for earlier years and "Y -" for later years.

8. SHIP TYPES AND SELECTION

The **Ship Icons** can easily be manipulated to arrange the ships prior to laying them down on the **Mission Map**. There are six different types of ships: *Destroyers*, *Freighters*, *Tankers*, *Type IX U-boats*, *Type XXI U-boats*, *Type VII U-boats*, and *Milk Cow U-boats*. Each one of these ships has a set of mission orders associated with it.

- The type of ship can be selected by clicking on the arrow icons in the uppermost box (above the ship's image). Successive clicks cycle through the available ship types.

Clicking on the up/down arrow icons in the box below the ship's image cycles through the available ships of that particular type. Captains for the ships are selected with the *Captain Selection* arrows. Captains have different personalities and avail themselves of different tactics when in combat. It is important to take this into consideration when choosing a captain. See the **Captain Types** section on pages 47 and 48 for a more in-depth description of this feature.

9. ORDERS SELECTOR

The Ship Orders Selector is located at the right-hand third of the **Ship Selection Dialogue Area**.

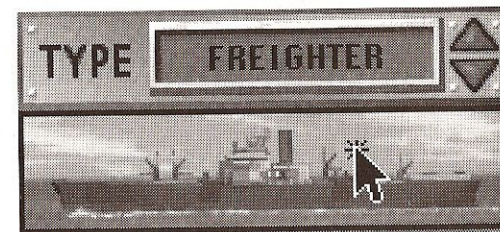
Clicking on the individual selections allows you to give the particular ship a general set of orders that will be followed under most circumstances. The orders chosen can be changed during game play through the use of the **Order Selection Buttons** accessible from the *Strategic Map* (see page 13) or they can be completely overridden by the **User Control Mode**. The available orders correspond to each type of ship. Once contact is established with the enemy, destroyer and submarine captains will take over with their own tactics and override the selected orders. The "By The Book" captains (see page 48) are the exceptions and will not deviate from the orders under any circumstances. These captains are useful as milk cow captains, damaged ship captains that you might want to keep out of trouble for scoring reasons or reserve ships which you do not want to engage in combat.

Keyboard: For the various types of ships, the different orders can be selected by pressing the corresponding keys shown below:

SHIP TYPE / ORDER	KEY
Merchants	
Convoy leader/Follow Convoy	1
Anchor	2
Zigzag	3
Destroyers	
Ocean patrol	1
Convoy patrol	2
Anchor	3
Zigzag	4
Submarines	
Ocean patrol	1
Anchor	2
Surface	3
Periscope depth	4
Maximum depth	5

Once you have selected a ship **Type**, **Name** and **Captain**, you are ready to lay it down on the *Mission Map* (shown on page 37). If the mission is to have a convoy, it makes the most sense to pick a freighter

first since the first merchant ship that you select will have **Convoy Leader** selected as the default orders. All other members of the convoy will automatically follow this ship throughout the game. It might also be a good idea to select **Zigzag**. This will make the entire convoy more difficult to hit with torpedoes.

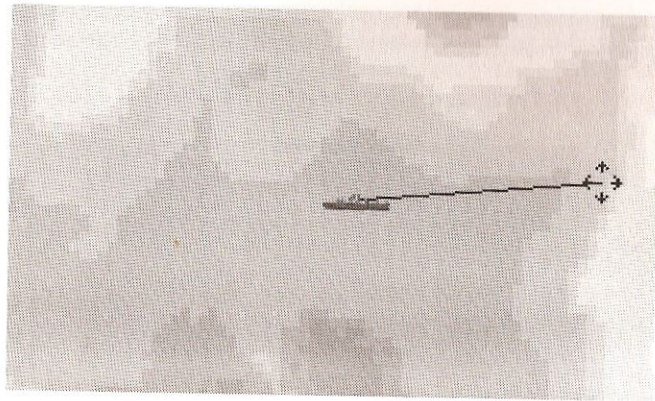



Click on the ship icon on the *Command Screen* and the **Mission Map**, like the one shown below, will now replace the top portion of the *Construction Set Screen*.



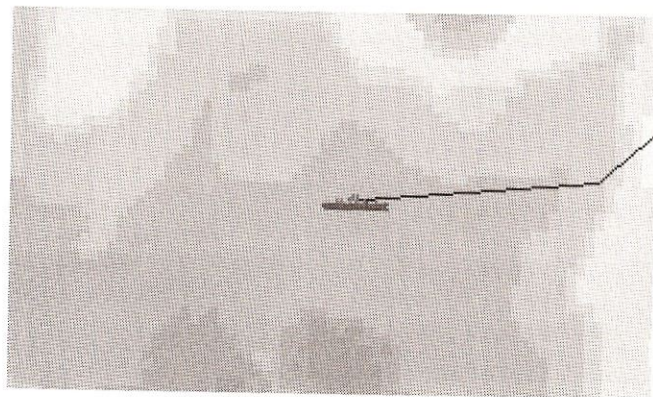
The scale of the *Mission Map* is shown in meters on the upper left hand portion of the map. At this stage, it is best to magnify the map to the greatest magnification possible. You can do this by pressing "Option +". Note that the scale of the map at the upper left hand corner will change accordingly if you do this.


Keyboard: At any time during this process, you can you can press "+" or "-" and enlarge or reduce the size of the map. Pressing "Option +" or "Option -" will enlarge to the maximum or minimum scale respectively.

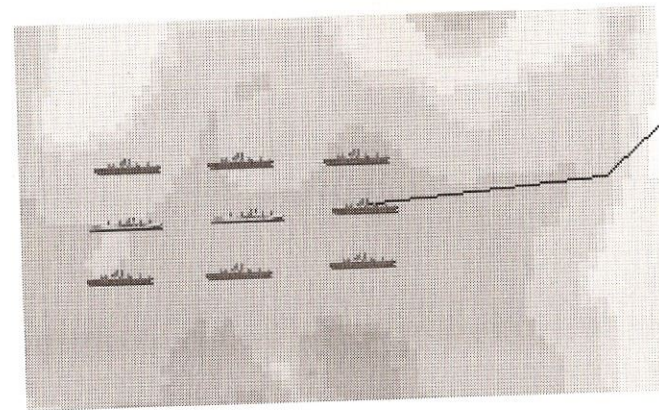


 Position your cursor over the area where you would like the convoy to start. Click the button and the ship's icon will appear on that point of the map. Your cursor now becomes the end of a "rubber band" line with its other end attached to the ship icon.

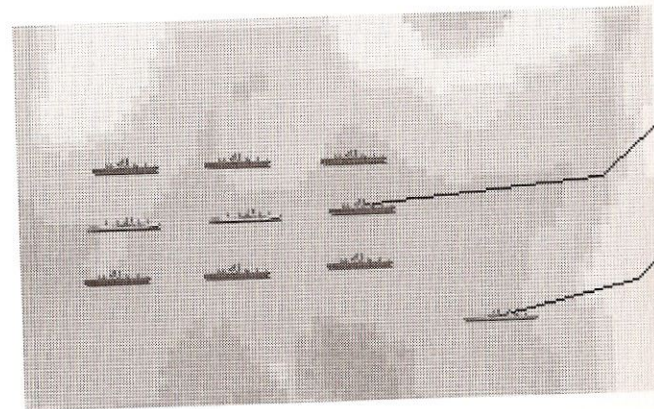
 **Keyboard:** Pressing the "**Esc**" key at any time during this process will erase any ship which has been partially laid down.



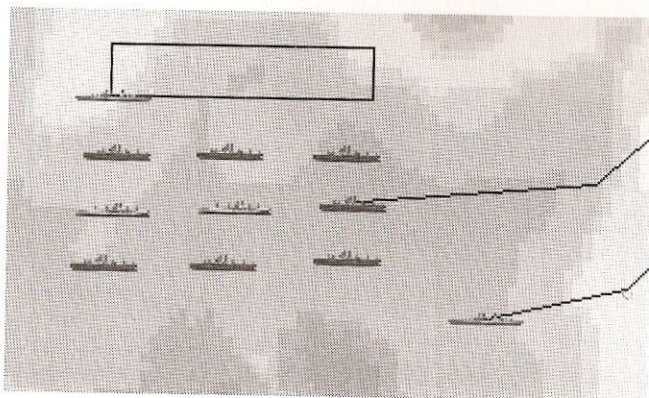
 By sequentially clicking on other locations on the map, you can define up to 9 additional waypoints in this manner. You can also terminate the sequence at any time by clicking your last waypoint while pressing the **Option** key. Clicking your cursor outside of the map will cancel the placement of the "active" ship. The last waypoint set for the **Convoy Leader** will be the convoy's destination. *The game will end once the **Convoy Leader** reaches the destination.*



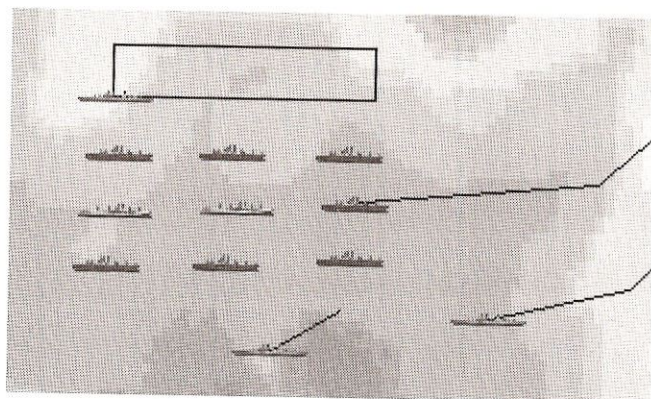
Once you have laid down the convoy route as described above, you can add more ships to form a convoy. You do this by picking up additional merchants (note that their **Orders** now say "**Join Convoy**") and placing their icons on an area near the leader. It is a good idea to put freighters on the perimeter of the convoy, and tankers on the more protected inner rows. You should also take into consideration the ship-to-ship distance, which can easily be determined by looking at the map scale located at the upper left of the map. Distances between 300 and 1000 meters between convoy ships work well. *On slower computers, you might want to limit the number of ships that you put down. The more ships, the slower the simulation will run.*



Once you have laid down the merchant ships, you can lay down the destroyers. Destroyers can be set in one of 2 different ways: **Ocean Patrol** and **Convoy Patrol**. If you select **Ocean Patrol** from the **Orders Selection Buttons**, waypoints are set in the same way as above. The destroyer will move independently of the convoy and follow its own set of waypoints. If the first waypoint is set near to the last waypoint, then the computer will beep and join the paths into a loop. The destroyer will now travel in that loop as long as there are no enemy contacts.

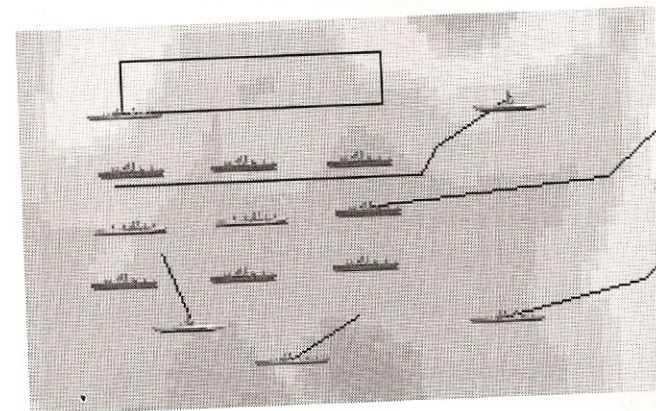


Choosing "**Convoy Patrol**" will allow the user to set waypoints the same as above. In this mode, the path should be made into a closed loop. The destroyer will now follow this patrol loop, however, the loop will also move relative to the convoy's movement. Thus, convoys can be escorted through their entire route.



Any ship can be set down at anchor. This is done by selecting the **Anchor** button from the **Orders Selection Buttons** prior to pasting the ship on the **Mission Map**. After the ship is clicked on to the desired location on the map, a short line will extend from it's icon. This line can be moved in a circular fashion so that it points to any desired angle. Clicking the button again, will set the line at that angle. *The angle of the line corresponds to the direction that the ship will be facing while laying at anchor.*

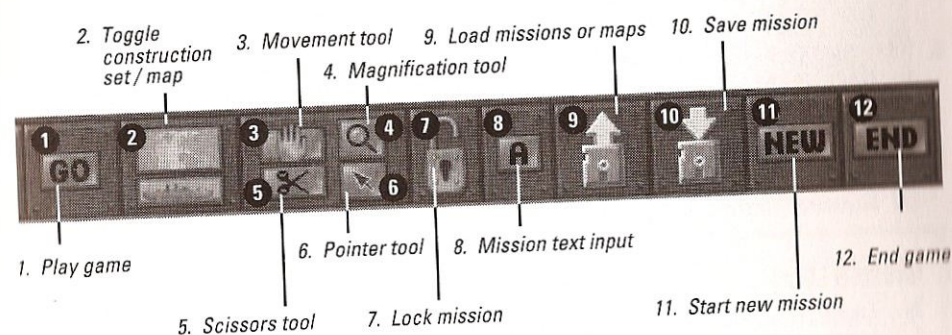
*Note: A ship set at **Anchor**, with the exception of the "**By The Book**" captains, will still revert to the selected captain's control if it becomes engaged with the enemy.*



Submarines are selected and placed in the same way as destroyers on **Ocean Patrol** or at **Anchor**. Additionally, submarines can be set at one of three depths: **Surface**, **Periscope Depth**, **Maximum Depth**. Submarines placed on the surface have a very high probability of being attacked. So, for the most part, they should be set at either *Periscope Depth* or at *Maximum Depth*. At *Maximum Depth*, the U-boat will be positioned either at its nominal maximum dive depth, or a few feet from the bottom, whichever comes first.

The Mission Construction Set Menu Bar

The **Mission Construction Set Menu Bar** gives the user a great deal of control over many *Construction Set* features.



1. GO

Clicking here starts the game with the parameters that are currently displayed. While playing the game, the user can at any time press "**Esc**" or move the cursor to the upper left hand corner of the screen and press the mouse button. He will be returned to the *Construction Set Screen*. The player is then free to change any parameters (if the mission is not locked) and resume the game by clicking on **GO**.

Keyboard: Press "**G**" to resume game.

2. MAP/CONSTRUCTION SET

Clicking here toggles the view from the **Construction Set** to the **Mission Map**. This feature is not available if the mission is locked.

Keyboard: Press "**M**" to toggle from *Construction Set* to *Mission Map* or vice versa.

3. THE MOVEMENT TOOL

Selecting this tool allows you to move the map in any direction. Your cursor changes to an open-hand cursor when you move it within the map screen. Clicking and dragging changes it to a "grabbing-hand" cursor and the map will move directly with the cursor.

Keyboard: Press "**H**" to access this tool. You still have to use the mouse to "grab and drag" the map.

4. THE MAGNIFICATION TOOL

Picking up this tool and clicking it over any desired part of the map will cause the map to be magnified and centered over that spot. Clicking with the **Option** key depressed causes the map to be scaled down.

Keyboard: Press "**X**" to select the magnification tool.

5. THE SCISSORS TOOL

With the scissors selected, clicking over a ship that appears on the **Mission Map** will remove it along with its associated waypoints, and add it back to the **Construction Set** so that it can be reused.

Keyboard: Pressing "**C**" will select the scissors tool.

6. THE POINTER TOOL

Selecting this tool allows you to click over any displayed ship and ID it at the bottom of the screen. The ship's *Type*, *Name*, *Captain*, *Orders* and *Depth* will be shown. This is a useful feature for editing a mission.

Keyboard: Pressing "**P**" selects the pointer tool.

7. MISSION LOCK

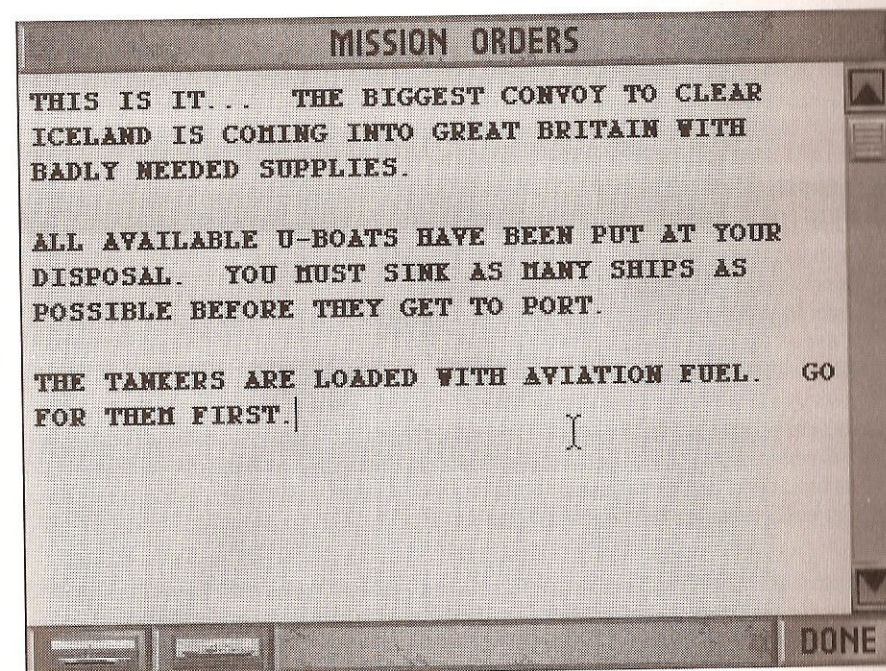
Clicking on this icon will lock a mission. This is useful if you do not want people who will be playing the mission to alter its parameters or view the **Mission Map**. While in the **Construction Set**, the mission can be unlocked by clicking on the icon again. However, once the mission has been saved in the locked mode, it can never be unlocked again! Some of the missions included with the game are locked.

Keyboard: Press "**K**" to lock a mission.

8. TEXT INPUT

At the start of any mission, **Mission Text** is displayed by a typewriter located in the **Viewport**. This text usually includes a description of the mission about to be played. The Surface Commander is shown a different message than the *Wolfpack* Commander. Since missions can be created by the player through the use of the *Construction Set*, the user is also provided with a means for inputting the associated mission text for the missions that he has created through the **Text Entry Box**.

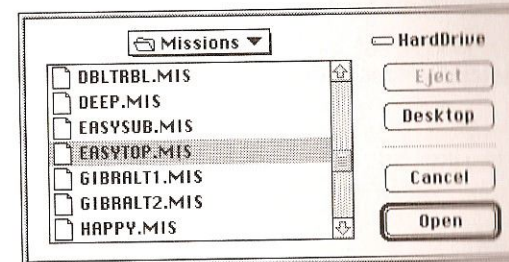
Clicking on this icon (depicted by the letter **A**) brings up the *Text Entry Box*.



9. LOAD MISSION

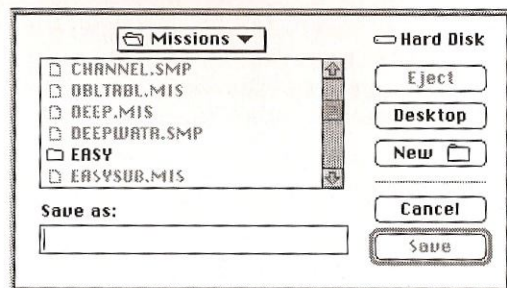
This option allows the user to either load a mission that has been previously saved by bringing up the *Load Mission Dialog Box*.

To load a new mission, click on the mission name which you wish to load and then click on "**Open**" or hit **Return**. Double-clicking on the mission name will give you the same result.



10. SAVE MISSION

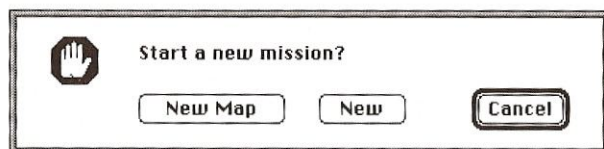
Clicking on this icon lets the user save the current mission by bringing up the *Save Mission Dialog Box*. Missions can be saved after they are created and played several times, or they can be saved in the middle of game play, to be played at a later time. Keep in mind that if a mission is saved with the *Lock* option ON in the *Construction Set Menu Bar*, you will not be able to modify it from that point on.



Keyboard: Press "**⌘ S**" to bring up the *Save Mission Dialog Box*.

11. NEW MISSION

Clicking here will bring up a dialog box which will prompt you to choose from **New Map**, **New** or **Cancel**. Clicking on **New Map** will clear the current mission and will bring up the *Master Map* which allows you to choose from the five available map locations. Clicking on **New** will clear the current mission and bring you back to the *Construction Set*. From there, you can either load a saved mission and then play it as is or make some modifications before playing, or construct a new one from scratch. **Cancel** will bring you back to the *Construction Set* without clearing the current mission.



Keyboard: Press "**N**" to bring up the "Start a new mission?" dialog box. Press "**L**" or "**⌘ O**" to bring up the *Load Mission Dialog Box*.

12. END GAME

Clicking here will bring up the *Quit* confirmation dialogue box. If you chose *Quit*, *Wolfpack* will close down and bring up a credits screen. Clicking the mouse will remove the screen. If you chose *Cancel*, it will bring you back to where you were in the *Construction Set*.

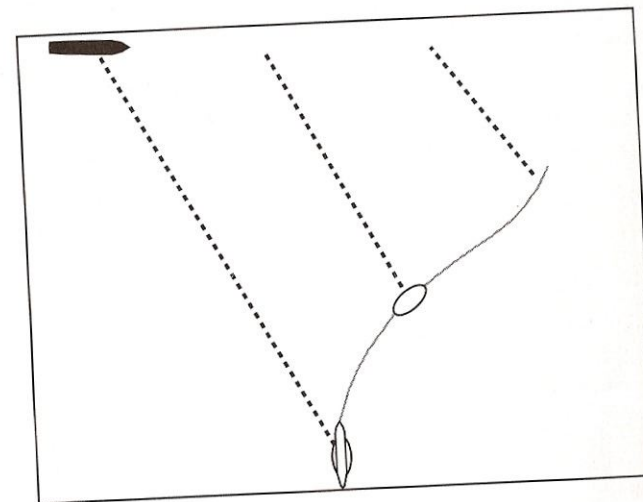
Keyboard: Press "**⌘ Q**" to bring up the *Quit* confirmation dialog box.

SUBMARINE TACTICS

For the most part, your job is to maneuver into firing position and dispatch the transports before the escorts drive you to evasive action. Try to keep your periscope up for the shortest time possible to locate your targets. Get out of visual or radar range and use diesel engines to maneuver into favorable positions in front of the convoy.

When attacked by a destroyer, try to run and line up a stern shot "down the throat" when he gets close. This can be deadly to either one of you, so be prepared to dive deep and evade once you have fired your torpedoes! Try running at less than full speed underwater while you are being tracked and you will have a better chance of escaping. The torpedoes have a range of 4000 meters and you might fire at this range. However, historically, captains would close to no more than 1800 meters if they wanted to be sure of a hit.

When you have the opportunity, have one of your subs (preferably out of torpedoes) make a lot of noise and draw off the escorts while the rest of the wolfpack attacks from another quarter. In the same manner, if several destroyers are attacking a submerged sub, another sub can sneak up and try to kill the circling destroyers as they drop depth charges.

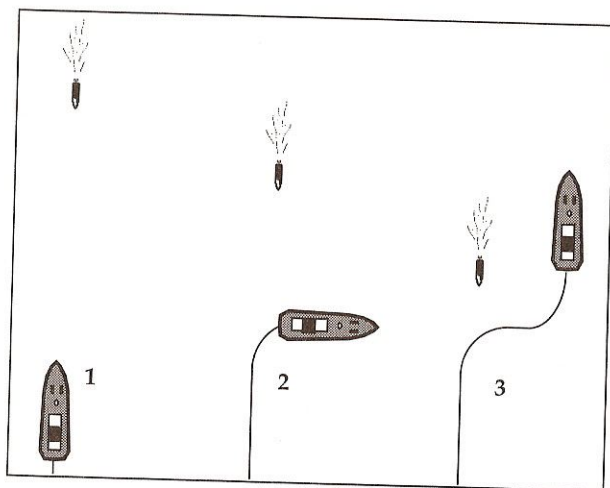


The preceding diagram shows the typical way that a submarine stalked a surface ship. The ship was sighted from maximum distance. Once the enemy was sighted, the submerged U-boat would calculate an interception course and proceed towards the target. A good captain, would infrequently raise the periscope for not more than 5 to 7 seconds until he was within firing range. The U-boat would approach to firing distance at anywhere between 90 and 120 degrees to the target. Once in place, the sub would compute a firing solution, feed it into the torpedoes' gyros and let out a salvo, the exact number determined by the importance of the target and its contents.

DESTROYER TACTICS

For the destroyer captain, the primary consideration is the disruption of the submarine attack on the transport ships he is escorting. Try to anticipate where the subs are going to be waiting and head them off before they can set up their torpedo runs. Several destroyers traveling back and forth in front of the advancing convoy will make it more difficult for the sub commander. In the pre-1942 missions, the only way that you can find the submarines is by using "sprint and drift" techniques. This means cutting your engines to full stop and listening for the subs on your hydrophones. After you locate a sub, head for it at maximum speed, after traveling for 500 to 1000 yards stop your engines and search again.

When attacking a sub on the surface, fire as soon as possible. Any damage that you inflict will help diminish your opponent's chances for victory. If you are attacking a submerged sub, watch to see if he has fired any torpedoes as this will give you an indication that he is still near the surface. If not, then set your depth charges to go off at 200 meters or at the bottom depth (whichever is less) since that is the most likely depth to find an evading submarine. Watch for any decoys that might be used to confuse you. Decoys don't move once they are released! If your sound man announces that high speed screws are in the water, be prepared to take evasive action to avoid being torpedoed in the line of duty. Skillful ship handling might allow you to dodge them. Steer a course 90 degrees to the torpedoes for a few moments and then turn back into them so as to sidestep or "comb the wakes," then charge down their trail and try to destroy the submarine before he can get off another salvo.



The preceding torpedo avoidance maneuver is called "Combing the Wakes." Once an incoming torpedo is detected (1), the ship makes a sharp 90 degree turn at maximum speed (2). The ship maintains this course for as long as it takes to get off the torpedoes course. Once this is done, the ship turns directly into the oncoming torpedo, so as to present a narrower profile to the incoming torpedo (3).

MISCELLANEOUS DESCRIPTIONS

Milk Cow Submarines

Because of their massive displacement and slow response, all type IX U-boats were known as Sea Cows. This is why the derivative resupply U-boats came to be called Milk Cows (Milchkuh). Fitted with as many torpedoes as they could carry (38), they would resupply other U-boats on the high seas.

In game play, a Milk Cow can be deployed so as to resupply other submarines. In order to transfer torpedoes and Pillenwerfers to a depleted U-boat, you must do the following:

- Bring the sub to be resupplied to within 50 meters of the Milk Cow.
- The engines on both subs must be stopped. Torpedoes will be transferred every 25 seconds.
- After all the torpedoes have been transferred, Pillenwerfers will be loaded. Be careful, this is a tricky operation, and you become very vulnerable to enemy attack.

Pillenwerfers

In 1942, some U-boats were outfitted with decoy noisemakers, known as Pillenwerfers. A canister containing calcium hydride was released. This canister floated at a depth of about 30 meters and emitted a large number of hydrogen bubbles. These bubbles produced a sound similar to that of a submarine, and could be mistaken for a submarine.

In game play, the Pillenwerfers are always released from tubes at the rear of the U-boat. A smart destroyer captain will observe that the noise makers remain stationary, therefore giving a clue to their true nature.

Captain Types

Since it is difficult to command every ship at once, you assign default captains of differing personalities to each of the vessels in the game. This is primarily important when you are creating your own missions in the *Mission Construction Set*. (Missions included in *Wolfpack* already contain assigned captains.) Listed below are the personality types for each of the captains.

RELENTLESS - This personality type will engage enemy vessels on contact and will not break loose until its target is lost or destroyed. Other traits include the use of sprint and drift tactics when on the surface (destroyer and submarine under diesel engines). Submarines attack destroyers first. If this captain is placed in charge of a destroyer, he will leave the convoy to hunt and kill a submarine. These Captains are:

Destroyer

BROOKS
ENRIGHT
GLENNON
REED

U-boat

STADLBAUER
KRATZ
RADDATZ
KAISER
BERGER
ISBRUCHT
EGEN

RESOURCEFUL - Captains who fall under this category will be more conservative than the **Relentless**. They also use radio contacts. If this personality is assigned to a Submarine Captain, he will chase merchant ships first and only attack destroyers if there are no other contacts. Usually he will use evade techniques to avoid destroyers. These Captains are:

Destroyer

DISSETTE
KOSOY
RATCLIFF
SEEHOLZER
MAGGRUDER
MASSEY
BRUTON
DYKERS
TILLMAN
SHUBRICK
TALBOT

U-boat

SAGEBRECHT
V WATZDORF
BOCKMEIER
M HOCHBERG
H FRITSCH
KENDERK
SCHUG
SCHULTE

CAUTIOUS - This personality only attacks when attacked first or contact is within easy striking distance. He will not break away from the convoy or wolfpack. This is a good personality type to use if you are low on destroyers and have a lot of merchants to protect. If he is a Submarine Captain he will never attack destroyers. These Captains are:

Destroyer

GARCIA
KOSOY
BUTROVICH
SIMON
BECKTON
SHEA
MCCLUSKY
CARMICK
COWIE

U-boat

KAUFMANN
ROLFE
KORBER
SCHLEIF
STEINHOFF
ROMBERGER
MUTZELBURG
HINDERKS
ROLFE

BY THE BOOK - Will not attack or deviate from his original orders. He will do absolutely nothing except carry out the orders you issued him. This personality type is especially good for milk cows or reserve convoy escorts. These Captains are:

Destroyer

ACKER
MORTON

U-boat

O.NEMENZ
BOCKMAN

MISSIONS

Wolfpack comes with 36 missions that you can play right out of the box. After you become familiar with the game, you can build more missions through the use of the *Mission Construction Set*.

Load the missions by either selecting **Start Mission** from the *Start-up Menu* or with the *Load Dialogue Box* from the *Construction Set Menu Bar* (see page 41). After the mission has loaded, you will see the *Mission Construction Set* screen, and if the mission is not locked, you will be able to alter all of the parameters and/or look at the *Mission Map*.

Missions have been set up so that they are challenging if played from the default side. Missions that are not locked can be played from either side. At any time you can get your current score by pressing "Ctrl Q". This action will show you the current score and put you in the *Construction Set*. You can then resume the game by pressing "G". In general, you should play missions to completion in order to get a score that reflects the difficulty of playing the entire game.

Missions in progress can be saved via the *Save* function and resumed at a later time. You can also start out with an unlocked mission, modify it at will and save it under a different name.

Missions have a high level of randomness. Every time that you play the mission, results will likely differ. But in general, the level of difficulty will remain constant, i.e., a difficult mission will always be difficult. Winning a mission is not enough. A good commander will try to get the highest possible score for that mission.

We included several locked missions because we feel that, in a simulation in which strategy is a significant factor, it is important to keep some knowledge from the player. Otherwise the game may not be fun. Keep this in mind especially when constructing 2-player *Duel* missions. The amount of information that the individual players have makes a big difference to the outcome of the game.

Appendix A: TABLES

VISIBILITY

Ships are visible at the following distances:

After firing weapon	10,500 meters
Surface ship-day	10,000 meters
Surface ship-night	2,000 meters
Submarine-day	3000 meters
Submarine-night	800 meters
Periscope-day	800 meters
Periscope-night	100 meters

RADAR

Radar use started in 1940 but was inaccurate and unreliable until mid 1942 when decimetric radar was introduced. In early '43 centimetric radar was introduced which in particular could see periscopes much more accurately.

METOX could detect radar in 1942 only. From 44 on, NAXOS could detect Allied radar.

Maximum radar distances for surfaced U-boats :

Distance (meters)	Year
1,000	1940
2,000	1941
5,000	1942
6,000	1943
7,000	1944
7,500	1945

Maximum radar distances to detect periscopes :

Distance (meters)	Year
1,000	1943
1,400	1944
1,700	1945

Maximum radar distances to detect surface ships :

Distance (meters)	Year
1,000	1940
2,000	1941
40,000	1942
45,000	1943
50,000	1944
55,000	1945

HYDROPHONE

Hydrophone only works if diesel engines are stopped.

Hydrophone Ranges:

	Back-1/4	STOP	1/4	1/2	3/4	FULL	FLANK
Surface Ships	20K	N/A	20K	40K	50K	70K	80K
Subs-Diesel	10K	N/A	10K	15K	20K	K50K	60K
Subs-Electric	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SONAR (Active)

Active SONAR works under all conditions but has different probabilities of detecting submerged ships. The probability of hearing the target grows down with depth.

Active sonar probability of detection:

5%	at	100 meters
25%	at	500 meters
50%	at	750 meters
75%	at	1000 meters
50%	at	1250 meters
25%	at	1600 meters
5%	at	2500 meters

Active sonar characteristics at different depths:

-0% to 50 meters
 -5% to 100 meters
 No response below 122 meters

MISCELLANEOUS TECHNICAL DATA

Milk cow logic:

Both subs must be:

- 1) stopped
- 2) on surface
- 3) within 50 meters of each other

then every 25 seconds, a torpedo will be passed over to the receiving submarine.

Torpedoes carried:

Type VII	14
Type IX 22	22
Type XXI	23
Milk Cows (Type IX)	38

Years specific systems become available:

Hedgehogs	1942
Pillenwerfer (noisemaker)	1942
Snorkels	1943
Noise Makers	1942
Active SONAR	1943
RADAR	1942
METOX	1942
NAXOS	1944
Type XXI U-boats	1945

Appendix B: PULL-DOWN MENUS CHART

Menu Item	Key	Description
MENU		
About <i>Wolfpack</i>		PICT image as background; copyright and version info printed as text; "OK" button.
FILE Menu		
Construction Set	Esc	Enabled during gameplay; disabled in construction set screen. Goes from the game screen to the construction set screen without aborting the current mission.
Pause / Resume	⌘ P	Pauses and unpauses the game. Because the menu bar only appears when the game is paused, this should always say "Resume."
Play Mission	⌘ G	Enabled during the construction screen; disabled during gameplay. Equivalent to clicking on the "GO" button.
Abort Mission	⌘ A	Enabled during gameplay only. Aborts the current mission, displays end of game stats and goes to the construction set.
Load Mission	⌘ O	Enabled from the construction set only. Loads mission from disk.
Save Mission	⌘ S	Enabled from the construction set only. Saves mission to disk.
Quit	⌘ Q	Quits the game.
EDIT Menu		<i>Disabled during game.</i>
OPTIONS / SETTINGS Menu		
Sound Effects	⌘ F	Toggles sound effects on and off.
Engine Sound	⌘ E	Toggles engine sounds on and off.
Music	⌘ M	Toggles music on and off.
Preferences...		Brings up preferences.

Appendix C: SHORTCUT KEYS

Action	Key
STARTUP MENU	
Start Mission	S
Bring up Construction Set	C
Run Demo	D
Quit Game	⌘ Q or E
ALL SHIPS	
Exit game to construction set	Esc
Sequentially jump from ship to ship	Tab
Auto Mode	A
User Control	U
1.5 X magnification	X -
6X magnification	X +
Damage screen toggle	W
Strategic map screen toggle	M
Status screen toggle	S
Move outside to port (left)	V -
Move outside view to starboard (right)	V +
Align view to 0 degrees	V 0 (zero)
Align view to 180 degrees	V 1
Timing up	T +
Timing down	T -
1/1 timing	T 0 (zero)
1/64 timing	T 1
Range deck gun	R
Fire deck gun	G
Elevate deck gun	E +
Tilt deck gun down	E -
Zoom out (Tactical Map)	Z +
Zoom in (Tactical Map)	Z -
Maximum zoom out (Tactical Map)	Shift Z +
Maximum zoom out (Tactical Map)	Shift Z -
Sequentially ID ships displayed on Tactical Map	I

Action	Key
Jump to currently ID'd ship	Option I
Aiming reticule on/off	O
Clear the Text Window	Spacebar
Heading left 1 degree	←
Heading right 1 degree	→
Rudder left (cumulative up to 3 times)	Shift ←
Rudder right (cumulative up to 3 times)	Shift →
Center rudder	↑
Engines Stop	0
Engines 1/4	1
Engines 1/2	2
Engines 3/4	3
Engines Full	4
Engines Flank	5
Engines Back	B
Center View	. (period)

SUBMARINES	
Go to periscope depth	P P (double)
Periscope Up	P +
Periscope Down	P -
Hydrophone Range Increased	K +
Hydrophone Range Decreased	K -
Compute Torpedo Lead	Option M
Fire Torpedo from Forward Tube	\
Fire Torpedo from Aft Tube	Shift \
Fire Noise Maker	Option N
Run on Electric Engines	Option E
Run on Diesel Engines	Option D
Surface one notch up	D +
Center dive plane	D 1
Dive one notch down	D -

Action	Key
DESTROYERS	
Fire hedgehogs	H
Release Depth Charges	C
Depth Charge: Greater Depth	J +
Depth Charge: Less Depth	J -
SONAR Range Increase	K +
SONAR Range Decrease	K -
RADAR Range Increase	Q +
RADAR Range Decrease	Q -
Active SONAR On/Off	Option S

CONSTRUCTION SET SCREEN	
Play Game	⌘ G
Lock Game	⌘ L
Load Mission	⌘ O
Save Mission	⌘ S
New Game	⌘ N
Exit Construction Set Screen	E or ⌘ Q
Map/Construction Set	M
Positioning (Movement Tool)	H
Scissors	C
Magnifier	X
Pointer Tool	P
Text Input	A
Mission Time Hours +	[
Mission Time Hours -]
Mission Time Minutes +	Shift [
Mission Time Minutes -	Shift]
Recon: Day/Night/Aerial	Option R
War Year +	Y +
War Year -	Y -

TWO-PLAYER MODE (DUEL)	
First Player Toggle	F
Player One Turn Time +	+
Player One Turn Time -	-
Player Two Turn Time +	Shift +
Player Two Turn Time -	Shift -

Action	Key
ORDERS	
Merchants	
Convoy Leader / Follow Convoy	1
Anchor	2
Zigzag	3
Destroyers	
Ocean Patrol	1
Convoy Patrol	2
Anchor	3
Zigzag	4
Submarine	
Ocean Patrol	1
Anchor	2
Surface	3
Periscope Depth	4
Maximum Depth	5

A

Abort Mission 30
Active Sonar 27
Aerial Mode 9, 35
Anchor 14, 40
Angle-of-View Indicator 19
Apple Menu 30
Auto mode 12

B

Background music 31
Bottom Depth Indicator 21, 25, 26
By-the-Book Captain 40, 48

C

Captain Types 47
Cautious 48
CD Installation 5
Centering Tool 14
Clicking 8
Color Coding 10
"Combing the Wakes" maneuver 46
Command Group 12
Compass/Rudder Control 18
Construction Set 30, 33
Construction Set Menu Bar 41
CONVOY *See* Order Selection
Convoy Patrol 40
Credits 4
Current Orders box 12

D

Damage Screen 16
Day Mode 9, 35
Deck Guns 20, 25, 28
Deck Gun Control Group 25
Decoy noisemaker 25, 25, 47
Demo Mission 7
Depth charge damage 16
Depth Charge Release Button 29
Depth Gauge 22
Depth Indicator Window 26
Destroyer Displays and Controls 26
Destroyer Tactics 46

Destroyer shortcut keys 55
Diesel Fuel Gauge 23
Disk Replacement 59
Displays and Controls 9
Dive Control 22
Dive plane and rudder damage 16
Duel 34

E

Edit Menu 30
Electric Power Gauge 23
Elevation Trim Controls 21, 25
End Game 44
Engine sounds 31

F

File menu 30
Fire and flooding damage 16
Floppy Disk Installation 5
Fuel Gauges 23

G

Game ends 8
Game Menu 31
"Getting Started" 5
GO 41
Gun Icon 21, 25, 28
Gun Range Indicator 21
window 25
icon 25, 28

H

Hedgehogs 28
Hydrophone 27, 51
display 23
range 24, 51

I

ID Selector 10

J

JOIN CONVOY *See* Order Selection

K

Knot Indicator Window 17

L

LEADER *See* Order Selection
License 58
Load Mission 6, 30
dialog box 6, 43
Locked missions 49

M

Magnification Selector 10
Magnification Tool 14, 42
Map Selection Button 13
Map/Construction Set 42
Master Map 32
Merchants 36
METOX 50
Metox/Naxos Indicator 24
Milk Cow Submarines 47
Milk cow logic 52
Miscellaneous 52
Mission Lock 42
Mission Map 37
Mission Name 33
Mission Time Limit 34
Missions 49
Mode setting 9
Modifying a mission 32
Movement Tool 14, 42
Moving from Ship to Ship 11

N

NAXOS 50
New Mission 44
Night Mode 9, 35

O

Object of the game 8
Ocean Patrol 39
Ocean Patrol Waypoints 15
Order Selection 14

P

Passive Sonar 27

PATROL *See* Order Selection
Periscope Depth Icon 22
Periscope Up/Down Control 23
Pillenwerfers 47
Play Mission 30
Pointer Tool 14, 42
Preferences dialog box. 31
Pull-down menus chart 53

Q

Quick start 5
Quit 7, 30

R

Radar 26, 50
distances 50
range indicator 26
Radio damage 16
Recon (Reconnaissance) 9, 35
Relentless 47
Repeater Telegraph 17
Resourceful 48
Resume 30
Reticule Control 20

S

Save Dialogue Box 44
Save Mission 30
Scissors Tool 42
Scoring 8
SHADOW *See* Order Selection
Ship Orders Selector 36
Ship Types 35
Shortcut keys 54
Snorkel Indicator 24
Snorkel up 24
Sonar 27, 51
characteristics 51
probability of detection 51
range indicator 27
sound effects 31
"sprint and drift" techniques 46
Start Mission 6
Startup Menu 6
Status Screen 15
Strategic Map 13
Strategic Map Tools 14

Submarine 33
displays and controls 22
tactics 45
Surface 33
System Requirements 5

T

Tables 50
Tactical Map 9
magnification 10
Telegraph 17
Text Display Window 13, 27
Text Input 42, 54
Tie 8
Timing Selector 17
Torpedo Control Group 24
Torpedoes 25, 52
Turn time adjustment (Duel) 34
Two-player mode 54
Type XXI U-boats 20, 25

U

User Control 12, 19

V

Viewport 19
Viewport Magnification Lever 20
Visibility 50

W

Wakes 9
War Year 35
Warranty 58
Waypoints 38, 39, 40

NovaLogic's Limited Ninety-Day Warranty and License Provisions

The license granted by this agreement is effective upon opening this package. You may terminate it at any time by destroying the program and all program copies and printed materials included herewith (including all unlawful copies, if any, of these items). The license grant will terminate upon your failure to comply with any term of condition of this agreement. You agree, upon such termination, to destroy the program and all copies, as stated above, or to return them to NovaLogic, Inc., at 26010 Mureau Rd., Suite 200, Calabasas, CA 91302.

NovaLogic warrants for a period of ninety (90) days following the original retail purchase of this copy of this product that the program is free from substantial errors or defects that will materially interfere with the operation of the program as described in the enclosed user documentation. This policy applies to the initial purchaser only.

If you believe you have found any such error or defect in the program during the warranty period, call NovaLogic's Technical Support Department at (818) 878-0325 between the hours of 9 a.m. and 5 p.m. (Pacific Time), Monday through Friday. NovaLogic technical personnel will attempt to help you correct or avoid the problem. If any such error or defect cannot be corrected or reasonably avoided, NovaLogic will inform you how to obtain a corrected program disk (or, at NovaLogic's option, NovaLogic may authorize a refund of your purchase price).

This warranty gives you specific legal rights, and you may also have rights which vary from state to state.

Disk Replacement Policy

If any disk supplied with this product fails within ninety (90) days of purchase for any reason other than accident or misuse, please return the defective disk together with a dated proof of purchase to NovaLogic, Inc., 26010 Mureau Rd., Suite 200, Calabasas, CA 91302, for a free replacement. This policy applies to the original purchaser only.

NovaLogic will replace program disks damaged for any reason, whether during or after the ninety (90) day free replacement period, for \$5.00 per disk plus a postage and handling charge of \$2.50 per request, as long as the program is still being manufactured by NovaLogic.

Limitations on Warranty

Unauthorized representations: NovaLogic warrants only that the program will perform as described in the user documentation. No other advertising, description or representation, whether made by a NovaLogic dealer, distributor, agent or employee, shall be binding upon NovaLogic or shall change the terms of this warranty.

AS A CONDITION PRECEDENT TO THE WARRANTY COVERAGE PROVIDED BY NOVALOGIC AND TO ENSURE IDENTIFICATION, THE ORIGINAL PURCHASER MUST COMPLETE AND MAIL TO NOVALOGIC, AT THE ADDRESS GIVEN BELOW, WITHIN THIRTY (30) DAYS AFTER PURCHASE, THE WARRANTY REGISTRATION CARD ENCLOSED IN THIS PRODUCT.

IMPLIED WARRANTIES LIMITED: EXCEPT AS STATED ABOVE, NOVALOGIC MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, REGARDING THIS PRODUCT. NOVALOGIC DISCLAIMS ANY WARRANTY THAT THE SOFTWARE IS FIT FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTY OF MERCHANTABILITY SHALL BE LIMITED TO THE NINETY (90) DAY DURATION OF THIS LIMITED EXPRESS WARRANTY AND IS OTHERWISE EXPRESSLY AND SPECIFICALLY DISCLAIMED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

NO CONSEQUENTIAL DAMAGES: NOVALOGIC SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES, EVEN IF NOVALOGIC IS ADVISED OF OR AWARE OF THE POSSIBILITY OF SUCH DAMAGES. THIS MEANS THAT NOVALOGIC SHALL NOT BE RESPONSIBLE OR LIABLE FOR LOST PROFITS OR REVENUES, OR FOR DAMAGES OR COSTS INCURRED AS A RESULT OF LOSS OF TIME, DATA OR USE OF THE SOFTWARE, OR FROM ANY OTHER CAUSE EXCEPT THE ACTUAL COST OF THE PRODUCT. IN NO EVENT SHALL NOVALOGIC'S LIABILITY EXCEED THE PURCHASE PRICE OF THIS PRODUCT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

License

NovaLogic, Inc. grants you a nonexclusive, nontransferable license as follows. You are entitled to use this product for your own use, but may not make (except for backup), sell or transfer reproductions of the software or manual to other parties in any way, nor rent, lease, or preview the product to others without the prior written permission of NovaLogic. You may use one copy of the product on a single terminal connected to one particular computer. You may not network the product or otherwise use it on other than one particular computer. You may not reverse engineer or disassemble the product.

For technical support, on this product, call (818) 878-0325.