

TM

GATO



WW II GATO-Class Submarine Simulation

Spectrum HoloByte Inc.™

GATO

CLASS SUBMARINE

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USER'S GUIDE for GATO on the Macintosh

THE ENCLOSED WARRANTY/REGISTRATION CARD MUST BE RETURNED TO SPECTRUM HOLOBYTE AS SOON AS POSSIBLE TO ENSURE REPLACEMENT OF DEFECTIVE MATERIALS AND RECEIPT OF UPDATE INFORMATION. (Spectrum HoloByte, Inc., 1050 Walnut, Suite 325, Boulder, CO 80302, U.S.A.)

We have created this manual with the idea that experience is the best teacher, and that many of you will want to spend time playing the game instead of reading documentation. However, to get a full appreciation of the many facets of GATO, we recommend reading the entire manual once you have mastered the fundamentals of beginning the game and operating your submarine, the Growler. Many questions may come up during play that, we hope, will be answered to your satisfaction in this manual.

To learn how to use your GATO program, you first need to know how to use the Macintosh. In particular, you will need to know how to use the mouse, keyboard, and pull-down menus. Refer to Macintosh, your owner's guide, to learn the various functions of the computer.

This manual is divided into 6 sections:

User's Guide and Introduction.

Submarine Instrument Panel - instruments used in sub operation. Mouse and Keyboard commands used to control the sub.

Getting Started - "booting" the game, receiving your orders and beginning the game.

Operating Information - submarine operation and navigation, in detail; pull-down menus, and playing options.

Strategy and Tactics - strategic and tactical methods in WWII submarine warfare.

Mission Creator - designing your own missions.

INTRODUCTION

GATO is a real-time simulation of a World War II attack submarine. "Three-dimensional" object perspective provides depth of field and realistic offensive and evasive ship movement. The enemy may evade and flee – or attack the sub – if you are detected.

Each mission begins with a coded radio message assigning your objective. Then, you are somewhere in your patrol area in the Pacific – and you are on your own! The success of your mission, and the safety of your submarine and its crew, are in your hands.

You will navigate the submarine in a patrol area divided into 20 quadrants, some of which contain islands, as shown on your Patrol Area Chart and Quadrant Chart screens. Your primary strategic objective is to efficiently complete as many missions as possible with the supplies you carry on each patrol.

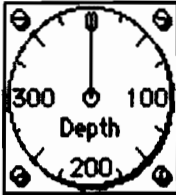
You may set the level of technical difficulty, and chance will play some small part at critical moments. But the main factor for success is the captain's skill in operating and navigating the submarine to achieve mission objectives. You learn and use the strategic, tactical, and operational skills of a GATO-class submarine captain to win.

Your record of enemy tonnage sunk is automatically entered in the Captain's Log. It all goes into your efficiency rating at COMSUBPAC - Commander Submarine Force Pacific Fleet - if you return from your mission...

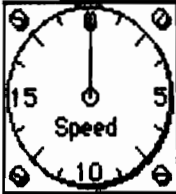
INSTRUMENT PANEL

For exact layout of instruments, see your first playing screen after booting GATO.

Instrument:



Depth indicator
-shows current depth in feet



Speed indicator
-shows current speed in knots.



Heading indicator
-shows current heading in degrees

Controls:



-Surface
-Center dive planes
-Dive



-All ahead flank
-All ahead Full
-All ahead 2/3
-All ahead 1/3
-All Stop
-Reverse



Rudder
Left - Center - Right



Periscope/bridge viewing direction
Periscope up/down



Power source

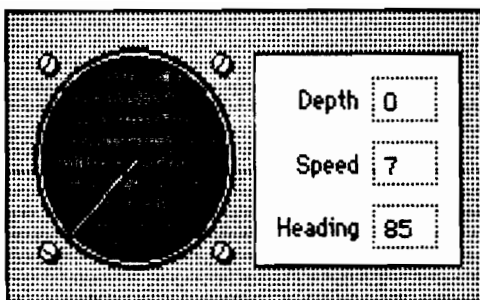


Oxygen level

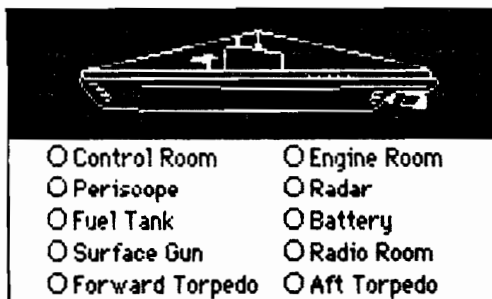
-Low O₂

○ Batt: 1000	Charge
○ Fuel: 400	Damage
○	7 8 19
○	9 10
○	1 2 3
○	4 5 6

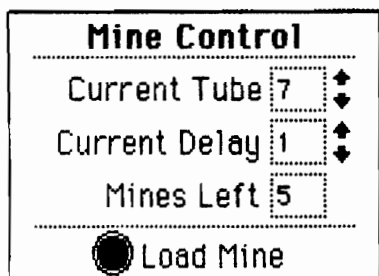
Battery charge - units of charge available - charging.
Fuel consumption - units of fuel available - damage
Aft torpedo door - torpedo tube number (7 - 10)
-Available torpedoes
Forward torpedo door - torp. tube number (1 - 6)



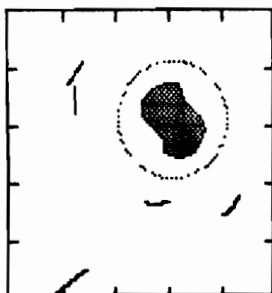
Radar window



Damage report window



Underwater mine settings



Quadrant map window (divided into 5000 units -1000 per tic mark each - on the quadrant boundaries)

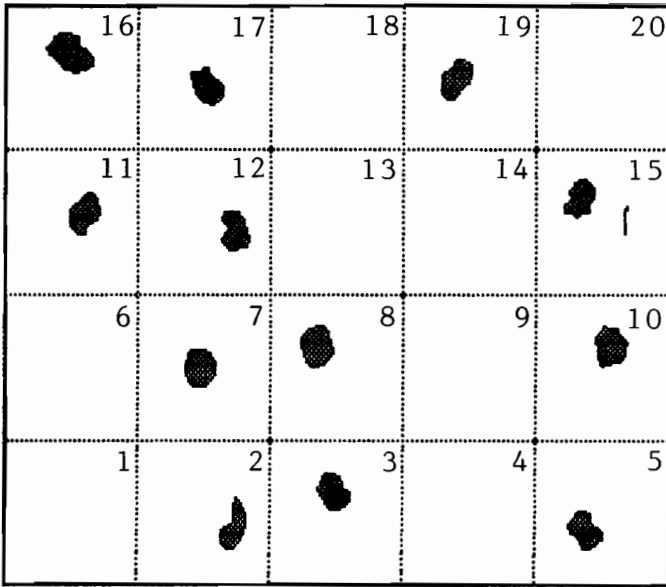
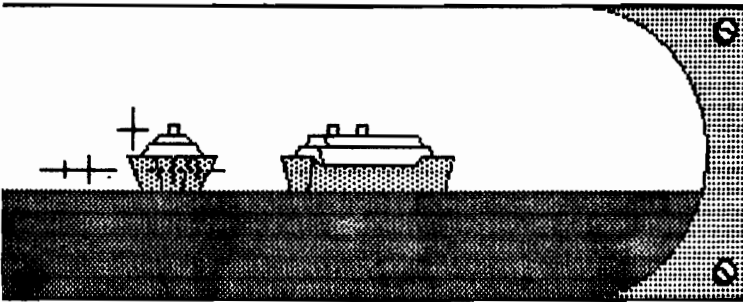
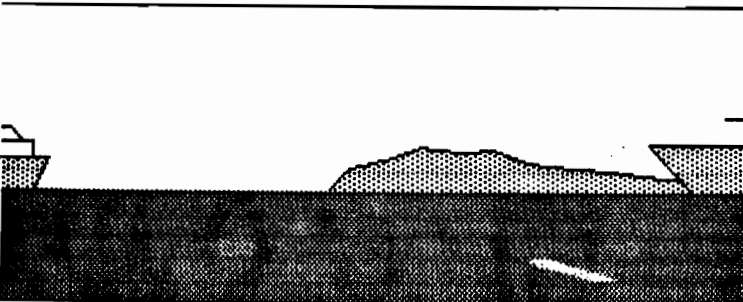


Chart map window. Quadrants are numbered from 1 to 20 as shown at left.



Periscope view with crosshairs



Bridge view window

MOUSE CONTROLLED INSTRUMENTS

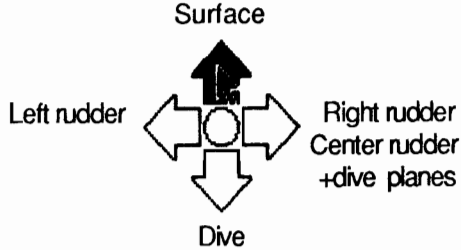
(refer to your Macintosh manual for instructions on the select and click method)

SPEED:



- All ahead flank
- All ahead Full
- All ahead 2/3
- All ahead 1/3
- All Stop
- Reverse

DEPTH/HEADING:



PERISCOPE/BRIDGE:



-Up/down



-Forward view



-Port view (left)



-Starboard view (right)



-Aft view (rear)

POWER:



- Electric motors
- Off
- Diesel engines

click the mouse in the viewing window to change view between periscope and bridge.

TORPEDOES:

○	7	M	21
	9	10	
●	M	3	
	4	5	6

- Aft tubes - Number of torpedoes remaining

- Forward tubes

MINES

Mine Control

Current Tube 7 ↑
↓

Current Delay 1 ↑
↓

Mines Left 5

Load Mine

- Torpedo ejection tube number (1- 10)
(arrows select higher/lower number)
- Number of minutes till armed (1 - 10)
(arrows select more/less time)
- Number of mines remaining
- Load/unload mine into torpedo tube.

To get a Radar report without using the **Reports** menu, click the mouse in any section of the radar window.

To get the Exec damage report without using the **Reports** menu, click the mouse in any section of the damage report window.

To change viewing screens between Quadrant and Chart, click the mouse in any section of the map window you are presently in.

KEYBOARD CONTROLS

(Keyboard functions are limited and may be used in conjunction with, or instead of, the mouse. Control character keys are shown in the Game Menu section.)

Torpedo tubes:

Forward door 1 2 3 4 5 6 7 8 9 0 - Aft door
tube numbers

Throttle:

Reverse q-w-e-r-t-y All ahead Flank
< ----- >

Power mode:

B/b = Battery **O/o** = Off **D/d** = Diesel

Sub depth/heading:

i = Surface **j** = Left rudder **k** = Center rudder
l = Right rudder comma (,) = Dive

Periscope:

I = Forward **J** = Left **K** = Up/down scope
L = Right carrot (<) = Rear

Views:

P/p = Periscope **C/c** = Conning tower
M/m = Map (chart)

GETTING STARTED

This section may be used if you prefer to get into the game right away, before thoroughly reading the manual.

To boot GATO, insert the GATO disk in the internal drive and press the "reset" button, or turn the computer on. Or, you may open the "Finder" file from the GATO icon. Set Caps Lock key to OFF. The first screen to appear after the introductory screens will be your main control panel. A dialog (window-insert) will appear on the screen prompting you to make a decision about your **Torpedo to Mine ratio**.

Torpedo to Mine ratio

24:0 23:2 22:4

21:6 20:8 19:10

You are allowed a certain combination of torpedoes and mines. Select a quantity by "pointing" to the circle (referred to as a radio

button) next to the desired ratio and clicking the mouse. Then select **OK** to accept your selection, or **Cancel**, which will default to 24:0.

Since you have not asked to receive a mission assignment as yet, and are in friendly waters, this may be a good time to get a feel for operating your sub. Refer to the Instrument Panel and Mouse/Keyboard Controls section for a quick reference of sub and game operations.

To begin an assignment, pull down the **Mission** menu and select **Radio new**. A dialog box will appear with a message (using actual Morse code) describing your orders from COMSUBPAC (Commander Submarine Force Pacific Fleet). Click the dialog box to clear the message from the screen...and the game begins!

To plot your course and see where the enemy is located, click the mouse on the Quadrant window (or press the **M** key), and the main Chart window will come into view (refer to the Instrument Panel section for quadrant identification). To locate and identify your own sub, **Growler**, press and hold down the **G** key and your position will flash on the map.

Your **Subtender** may be identified in the same manner by pressing the **S** key. The enemy ships are everyone else! You can cause the game to pause by pulling down the **Game** menu and selecting **Suspend**.

You are now on your own. You can either "sink or sail" at this point, or read the Operating Information section to better acquaint yourself with the full potential of this exciting simulation.

OPERATING INFORMATION

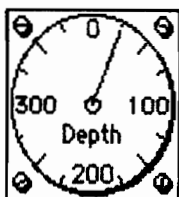
1. Keyboard/Mouse.

Before starting the game, make sure the Caps Lock Key is OFF. When using the keyboard *you only need to press a key once to enter a command*; in most cases, with both the mouse and keyboard, your selection will be highlighted to show it has been activated. Refer to your Macintosh user's manual for instructions on general use of the mouse.

2. Screens.

The GATO title screens are followed by your Main Control Screen, and the **Torpedo to Mine ratio** dialog. The main screen shows the submarine instrument panel, with the view above it from the bridge or through the periscope (which has crosshairs), as well as the radar, damage report, and quadrant displays. The Chart map window includes all of the instruments of the main screen, with the addition of the Mine Control window, but does not show the damage report and quadrant map.

The instrument panel displays:



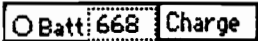
Depth: down to 399 feet, as measured from the sub's deck. The gauge and radar screen will show actual depth reached, but the sub will be crushed by water pressure if depths below 300 feet are maintained for an extended period of time.



Speed: between 0 and 20 knots, or nautical miles, per hour (1 nautical mile = 1.15 land miles). See the radar display for a digital read-out.



Heading: present course in degrees (magnetic compass bearing). The sub's direction is due North at a heading of 0 degrees, due East at 90, due South at 180, and due West at 270. See the radar display for a digital read-out.



Batt: current charge of batteries for electric motors. A light indicates when the battery charge is dangerously low. **Charge:** the charge light indicates that the batteries are charging.






Fuel: remaining diesel fuel in tons. A light indicates when the fuel level is critically low. **Damage:** the damage light and a beep indicate that the submarine has sustained damage.

The sub's damage can be checked by viewing the damage screen, which will show a trouble light next to the name of the damaged area on a checklist, by clicking the mouse on the damage screen to view the exec report of damage, or by checking the **Report** menu, **Exec** report. Damaged submarine functions are crippled or rendered useless. There are certain areas which are more critical than others, such as the control room, torpedo room, or the bridge. When heavy damage accumulates, chances of survival are slim and you should return to the subtender for repairs.

○	M	8	21
	9	10	
○	1	2	3
	4	5	6

-Aft tubes (above, 7-10), Forward tubes (below, 1-6). Before firing a torpedo you must open the outside torpedo doors. Open and close the forward torpedo doors by pressing the grave accent (‘) key, or by

clicking the mouse on the forward door radio button. Open and close the aft doors by pressing the dash (-) key, or by clicking the mouse on the aft door radio button. A light indicates when the outer torpedo doors are open. (Your speed will then diminish slightly due to an increase in drag.) Rectangular indicators to the right show which torpedo tubes (1-10) are ready to be fired. An **M** will appear in the tube in which a mine has been loaded. Fire torpedoes and release mines by pressing the number (1-0) keys corresponding to the tube number, or by clicking the mouse on the number of the tube to be fired. After each torpedo is fired the tube darkens (or, inverts), and is temporarily out of commission until the crew in the torpedo room can reload it. The number reappears indicating when each of the tubes is loaded. Maximum depth for launching torpedoes and mines is 59 feet. The number to the right of the aft tubes shows the quantity of torpedoes remaining.

Mine Control	
Current Tube	7 
Current Delay	1 
Mines Left	5
 Load Mine	

Mine control indicates:
 Current tube - torpedo tube number in which mine is loaded (use up or down arrows to change tube number from 1 to 10).
 Current Delay - how much time you have until the mine is

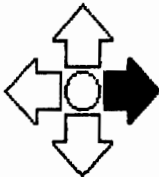
armed (use up or down arrows to select from 1 to 10 minutes). Also indicated are the number of mines left in supply and whether mines are loaded. Load or unload the

mine in the torpedo tube by clicking the mouse on the radio button, it will light when loaded (an M will appear in the corresponding torpedo tube). Once ejected and armed, the mines will appear as flashing dots on the Chart map window (at levels 0 to 2, so that you may keep track of their locations), and will explode upon impact with an object.



-Throttle: shows current speed setting and may be controlled by using the **Q,W,E,R,T,Y** keys, or by clicking the mouse on the desired throttle setting. With each increase in speed, especially when submerged and under electric power, a greater increase in drag occurs and battery

or fuel consumption increases dramatically. (Silent running underwater is possible only at 1/3 speed, with low noise at 2/3 speed.)



-Rudder/Dive Planes: shows when sub is surfacing, diving, using left or right rudder, or has rudder and dive planes centered. Depth is controlled by using the **i, k** or comma (,) keys, or by clicking

the mouse on the down arrow, up arrow, or center mark. Heading is controlled by using the **j, k,** or **l** keys, or by clicking the mouse on the left arrow, center mark, or right arrow.



-The highlighted area represents your viewing direction (top shows you are looking forward, bottom shows aft, etc.). The symbol to the right represents the periscope in the up or down position. Control the viewing direction by pressing **Shift** and **I, J, L** or comma (,), or by clicking the mouse on the view indicator. The scope view

is 90 degrees wide, and each command turns the scope by 90 degrees. Control periscope setting (up/down) by pressing the **Shift** and **K** keys, or by clicking the mouse on the periscope indicator. You can use the periscope at depths above 50 feet.

Periscope view or Conning tower view may be selected by clicking the mouse on the viewing screen you are currently in. Press the **C** key for conning tower view and **P** for Periscope view.



-Power: shows which power source is in use (**BATT** = battery, **OFF** = no power, **DIESEL** = diesel engines). You have a much greater range and speed while

using diesel power, but you cannot run the diesel engines at a depth below 20 feet (unless you have changed the **settings**). If you don't switch to electric power when diving below 20 feet, power goes off.



O₂: remaining air (bottled oxygen), which is used at a constant rate when the sub is below 20 feet. The triangular pointer slides up or down to show the amount of air in the tanks. The indicator inverts when oxygen is dangerously low. When you surface and

turn on the diesel engines, the air compressor starts automatically and refills the tanks within a few minutes.

3. Navigation.

Radar:

Radar range is 3500 units (as measured on the Quadrant map) and shows the relative angle and range from the sub to other ships. Ships are tracked as "blips" (beeps and dots) which appear on the screen and then fade after the

radar sweep passes by them. The top of the screen shows what is in front of you, what is on the right of the screen is to the right of the sub, and so on. (Remember, both you and the other ships may be moving.)

The sub's radar has a range approximately 10 percent longer than that of visual sighting from the conning tower or periscope. It is positioned atop its own mounting tube and may be used to a maximum depth of 45 feet.

Chart of Patrol Area:

The patrol area chart (large map) displays your position and traces your present course within the entire patrol area, and is divided into 20 quadrants. Of these, 1, 2, 6, and 7 are occupied by allied forces, while quadrants 11 and 16 are relatively neutral, meaning enemy ships are not often found there. The rest of the area is dominated by the enemy. It is most useful to see which quadrant you are in and how deep you are into enemy territory, as well as island positions and general patrol area geography. Use the chart to determine the course necessary to reach your objective. *Maps are NOT to scale !*

To view the Chart map press the **M** key or click the mouse on the Quadrant map. To locate and identify your own sub, **Growler**, press and hold down the **G** key and your position will flash on the map. Your **Subtender** may be identified in the same manner by pressing the **S** key. Enemy ship traces are displayed on the Chart map at game difficulty levels less than 3.

Quadrant Operations:

The quadrant map traces your position and course in the quadrant where you are currently located. Enemy positions are shown at a game difficulty level of 5 or lower.

The position of any island is also shown. Shoals and reefs are indicated by a dotted line. The map changes automatically when the sub moves from one quadrant to another.

Mission Assignment Messages:

Pulling down the **Missions** menu and selecting **Radio new** will bring a random new mission assignment message (see section on **Menu Selections** for more detailed instructions). This is normally done when your current mission is complete, but you may call for a new mission during the mission you are in as long as you have not been under enemy sonar surveillance for at least one minute. The patrol area situation will change accordingly. If you must complete your mission in a given amount of time, you may keep track of **Time left** by referring to the **Reports** menu.

Note: the enemy may break Allied code at some point. Some messages may be enemy fakes designed to trap you. These message types increase with the game difficulty setting. You must use your experience, judgment, and knowledge of the patrol area situation in deciding how to react to these messages. The general principles of strategy and tactics will be your guide.

Islands:

Take care when approaching islands. If you get too close you may run aground on a shoal (the deeper you are, the sooner you run aground). In that event, reverse engines to back away from the island before going forward on a new course. If you proceed too far into the shoal area the sub may sink due to hull damage.

Damage repair and resupply:

When you have accumulated significant damage or are low on supplies, you should return to the Allied subtender, which cruises among the four Allied-controlled quadrants (1, 2, 6, and 7). When you approach and are close enough on a parallel course and speed (best approach is from the rear), damage will be repaired, torpedoes replaced, and fuel and air tanks refilled. Should the sub be "dead in the water," you may send a Mayday message by pulling down the **Special** menu and selecting **Radio for help**; the subtender will then come to you. Use this tactic only in extreme emergencies as the subtender will be entering hostile waters and is likely to be attacked and sunk.

Do not shoot your own subtender. In that event you would have no source of resupply, and you would be in big trouble with COMSUBPAC!

Captain's Log:

Use the **Reports** menu to display the **Captain's log** – the record of each ship sunk and the total tonnage accumulated for all the sub's missions since the log was last cleared. The Log is not reset unless you have been sunk or load a game previously saved. The log then begins with the totals from the saved game.

Missions Completed:

For a display of how many missions you have completed, pull down the **Reports** menu and select **Growler's flag**. This dialog will show the three types of mission assignments (search and destroy, rescue, and mining), how many of each type you have completed, and total missions completed.

Game Settings:

You may set different modes of play - i.e., level of difficulty, sound on/off, day/night, and submarine and ships' settings - by pulling down the **Settings** menu and clicking the mouse on your selection. (See the section on **Menu Selections** for more detailed instructions.)

Saving and Loading a game:

To save your current position in a game during play (before you go any further and possibly get sunk), or to quit the game and save your place for another time, pull down the **File** menu and make a selection to save the game as **Game 1, 2, 3, 4, or 5**. A dialog will then appear asking whether you want to Load, Cancel, or Save the game; select **Save**. Choosing to save a game in a file where another is already stored will erase the original file and replace it with the new one.

To load a game which was previously saved, pull down the **File** menu, select the appropriate **Game #**, and select **Load** from the dialog.

New Game:

To begin a new game (whether to escape the beating you're getting from the one you are currently in, or to simply start all over again), press the **Control** and **N** keys, or pull down the **File** menu and select **New game**. You will begin with a newly repaired and resupplied sub. You may then ask for a new mission as explained in the **Mission Assignment Messages** section.

Quitting the Game:

To quit GATO, press the **Control** and **Q** keys or pull down the **File** menu and select **Quit**. A dialog will appear

asking whether you really want to quit or not, in case you change your mind. Refer to the section on saving your game if you wish to return to it later.

4. Game Menus.

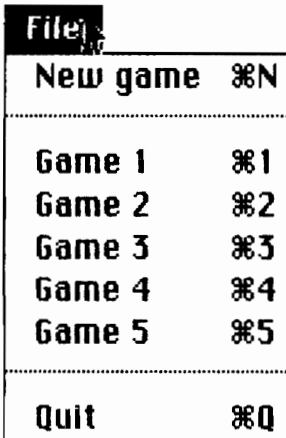
The following section describes the game menus (from left to right on the screen), and the menu item options. (Refer to your Macintosh manual for instructions on selecting menu items.)



Apple menu

About Gato... game credits and copyright information.

Refer to your Macintosh manual for instructions on use of the other utilities shown.

A screenshot of a Macintosh menu bar. The 'File' menu is highlighted in a dark box. Below it, a menu is open showing the following options: 'New game' with a keyboard shortcut symbol and 'N', 'Game 1' with '1', 'Game 2' with '2', 'Game 3' with '3', 'Game 4' with '4', 'Game 5' with '5', and 'Quit' with 'Q'. Dotted lines separate the 'New game' option from the 'Game' options, and the 'Game' options from the 'Quit' option.

New game	⌘N
Game 1	⌘1
Game 2	⌘2
Game 3	⌘3
Game 4	⌘4
Game 5	⌘5
Quit	⌘Q

File menu

New game - starting from scratch, with a newly supplied and repaired sub. It will be necessary to ask for a mission assignment after selecting this item. *Dialog* box - will appear giving you the option to start a new game or cancel the new game selection.

Game 1, 2, 3, 4, 5 - you may assign a number to the game you are currently in if you wish to save your place for future play. You may then recall that game by selecting it by number.

Dialog box - after selecting a game # you will be asked whether you want to Load that game, Cancel the option to load or save, or Save the game as the game number which you selected.

Quit - you may quit GATO at any time, but quitting will erase the current game unless you have saved it as instructed in the previous paragraph.

Dialog box - before quitting the game, you are given the option to select or cancel the quit option.

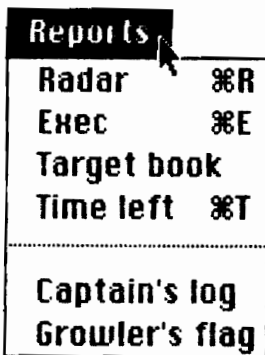


Game menu

Suspend - freezes the game in mid- action (useful when the phone rings

or you want a snack from the galley).

Continue - unfreezes the action.



Reports menu

Radar - gives Radar Operator's Report: number of objects on the scope, if any, with the current heading, speed, and range of the nearest object. (See **Strategy and Tactics** for best use of this information.)

Exec - gives the Executive's report on detection by the enemy and degree of damage to the sub.

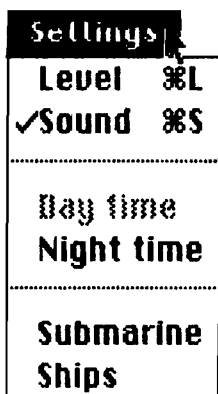
Click the mouse on the "Carry on" box to clear reports from the screen.

Target book - pictures and types of enemy ships.

Time left - information on the time allowed, time elapsed, and time remaining to complete your mission. This option will not be available on missions with no time limitations.

Captain's log - shows names of ships sunk, tonnage, date sunk, current month and day, the year (which will appear as 1943), and total tonnage sunk by your sub. (The ship names used in this game are of ships actually sunk during WWII.) The log is cleared when the Growler gets sunk -- it goes down with the ship.

Growler's flag - this is the log of types of missions assigned and completed. The flag represents seek and destroy missions, the parachute, rescue missions, and the mine represents underwater mining missions. The number to the right of the symbol shows the number of missions of that type which have been completed. A total of all missions completed appears below the symbols.



Settings menu

Level - a *dialog* box will appear showing the current difficulty level of the game, from 0 to 9 (0 = easiest; 9 = most difficult - defaults to 0 if no selection is made). Select a new level by clicking the mouse on the radio button next

to your choice, and then on the *OK* box. Selecting *Cancel*

will default to the level set previously. Enemy ship traces show on the quadrant map at difficulty level 5 or lower, and on the Chart map only at levels 2 or lower. At levels above 7, the Morse code message is not printed and you can only listen. (It helps if you know Morse code - refer to the **Special** menu for a tutorial.) The level option may also be selected by pressing **Control** and **L** on the keyboard.

Sound - select this option to turn the sound off or on. When the sound is set to **ON**, a check mark will appear in front of the option.

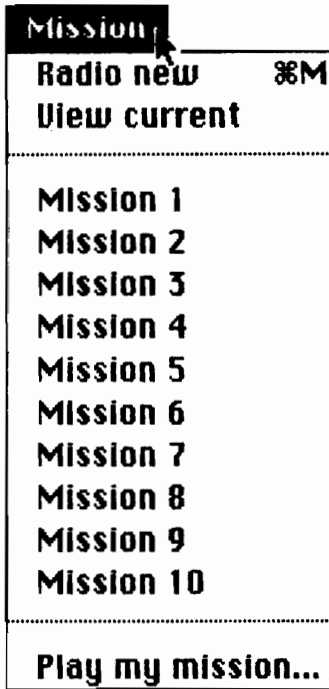
Day time -

Night time - select day or night, depending on your preference, or as recommended by your mission assignment. The default option is day.

Submarine - the *dialog* box for this option will show Growler's current mode of operations (defaults to standard settings when no selection is made). New settings may be selected by clicking the mouse on the radio button next to your choice.

Ships - this option shows the mode of operations for each of the 5 types of enemy vessels. You may change the settings for each type by clicking the mouse on the radio button next to the desired setting.

Experience is the best teacher in using the different settings available for each ship type...so experiment with them. You can't hurt anything and it will make the game more interesting.



Mission menu

Radio new - will randomly bring up a new mission from any one of 30 possible assignments. Depending on your playing level, you will have a choice of 20 predefined missions (15 at levels below 6, and 5 advanced missions for level 6 and above), or playing any one of 10 missions you may have created. (If you have not designed any missions, the 10 user-defined files will default to those created by the programmers.)

View current - displays your current mission orders, as text.

Mission 1-10 - this option brings up the Mission Creator dialog. You may either view the mission currently resident in the program, or select your own type of mission, complete with mission text. See the **Mission Creator** section for details.

Play my mission - if you have designed your own mission, or want a particular one from the selection listed, you may select the one you wish to play by choosing this option.

Dialog box - after choosing **Play my mission**, select the number of the mission to be played.

Special

Rapid sub deployment ⌘D
History
Shortcuts
Morse code tutorial
Radio for help

Special menu

Rapid sub deployment - (RSD -better known as "getting to there from here, quickly"). This option speeds up

the game action by about 10 times the normal pace. It is particularly useful when you want to get to a quadrant on the opposite end of the map in a hurry.

Remember, EVERYTHING speeds up, including the enemy and fuel or battery and air consumption. You may use the RSD only if you have not been within enemy sonar range , or have been out of range, for at least one minute. (The option item will show in gray or dimmed print on the screen if it is not in the active mode. The item will show in black print when you may use it again.)

Game play during RSD is the same as at normal speeds. You can still run aground, crash into shoals and sink, run into your subtender or mines, and run out of fuel, battery charge, and air. If spotted during RSD, aggressive enemy ships will chase you at 10 x their normal speed so this may not be a "great escape" ploy. To stop the RSD, click the mouse on the RSD option in the Special menu. Or, the RSD will quit if you have been detected on the enemy's sonar.

History - this selection will give you a brief description of the GATO class of submarine, its specifications and function during World War II.

Shortcuts - displays the keyboard commands.

Morse code tutorial - with this option you may set up a self-regulated tutorial to help you learn Morse code. A dialog box will appear with an empty text line and you may type in text letter-by-letter to acquaint yourself with the corresponding sound of the dahs (dashes, or long sounds), and dits (dots, or short, staccato sounds). You may also type in words or whole sentences, depending on your skill level. The tutorial does not "test" your skill, the test comes when you get into difficulty levels 8 and 9, where your messages are received in Morse code only.

Radio for help - selecting this option will relay a "mayday" message to your subtender, which will come to your aid in the event that you are stranded. Use this option in extreme emergencies only, or your only means of repair and resupply could be lost to Davy Jones' locker.

STRATEGY and TACTICS

This section discusses strategic and tactical methods which will aid in survival and the best performance of your missions. It also contains additional useful facts about the sub's operation.

Strategic Notes.

Resource conservation:

Your primary strategic objective is to complete as many missions as possible with the supplies you carry on each patrol. Generally, this requires efficient tactical use of such expendable supplies as fuel and torpedoes. For each mission (at a given game difficulty level), there is a minimum expenditure of resources with which the mission may be accomplished.

This is the principle guideline to remember (besides survival) when making difficult tactical choices, such as whether to chase a convoy at full speed or try to outmaneuver it, or wait for another one, or whether to expend a torpedo on a distant target. Also, if you are attacked when your supplies are low, your chances of survival are accordingly lower, especially if you are a long way from friendly waters.

Your ability to accomplish this primary strategic objective is the best overall measure of skill and success in the game.

Target selection:

You will need good judgment in selecting targets according to the resource conservation principle. For example, expending a torpedo on a patrol boat early in your patrol may mean not being able to sink a tanker later. But if you are heading for home with one torpedo left and your fuel is low, and you encounter an enemy destroyer, a successful shot with that torpedo may mean your survival.

Other target selection problems are more subtle. A choice between a destroyer and a freighter at a difficult game level may involve how many torpedoes you think it will take to sink each ship, whether you think you can risk firing again after reloading, etc.

These targeting choices will become easier as you gain experience and skill in developing your patrol strategies.

Balancing risk and gain:

Every action in the patrol area involves some degree of risk, small or great, which must be balanced against the action's potential gain. Every situation you play will add to your ability to foresee the future risk-gain balance created

by your current decisions. The more favorable you make the balance of risk and gain, the better your chances for long-term success.

Notes on Operations and Tactics.

Reconnaissance.

Radar:

Radar is most useful for reconnaissance of the area just beyond the visual horizon, for early warning and target tracking at minimum risk, and for navigation at night or in dense weather. (It is also more easily detected by the enemy than the periscope.)

Periscope and bridge:

When the sub is surfaced, the bridge view is controlled in the same manner as the periscope. When the enemy may be in your area it is important to continually check the view around the entire sub (360 degrees) as long as any part of the sub or periscope is exposed above the surface. Any time the radar or the periscope is above the surface when enemy ships are in view, the risk of detection increases with time and speed. The standard procedure to minimize this risk is to keep the scope up (ideally at a depth of 40 to 45 feet) only long enough to observe the positions and headings of the ships around you or to fire torpedoes.

If you pass under another ship, remember that a safe depth must allow for the 20 or 25 feet which the downed periscope and radar project above the top deck, plus the bottom depth (draft) of the surface ship. If your periscope/radar assembly is damaged in enemy waters, you have serious trouble.

Fleet and convoy formations:

Your radar and periscope are your most important tools in one of the most critical attack procedures – discovering the formation and composition of enemy fleets and convoys before you attack them. The tactical plan for an attack should be based on this reconnaissance.

Efficient sub attack patterns.

The main factor in planning an attack pattern are the positions of the primary targets (gain) and the deployment of enemy ships and patrol boats. You will usually (but not necessarily always) want to choose a position for your initial attack that will allow you to fire at the greatest number of primary targets in the shortest possible time, while keeping as far as possible from the threat of enemy warcraft.

Suppose, for instance, that your reconnaissance of a convoy shows a randomly dispersed group of three large freighters and two smaller ones, with a destroyer escort on the right flank and patrol boats leading and trailing toward the left flank. Your best position would be off the convoy's left flank, forward of center.

You might then adjust your position or timing to give the best chance of hitting all three large freighters with one spread of torpedoes launched in fast sequence, so as to strike each ship as nearly as possible at the same time.

You should also weigh the risk and difficulty of getting in close enough for a sure shot. The probability of a hit decreases with the distance the torpedo travels.

Enemy anti-sub tactics and sub defense.

Once you torpedo a ship, or if you are sighted by the enemy under other circumstances, it is almost certain that nearby warships will be sent to seek and destroy you. If there are nearby warships you can hear them trying to detect you with their sonar. At that point you have

essentially two tactical choices: 1) destroy the enemy ships attacking you, or 2) run as silently and deeply as possible until they have no chance of spotting you when you surface – as you eventually must.

Your chances of being detected in any situation depend mostly on your depth, distance from the enemy, whether it is day or night, and somewhat on luck. You must anticipate the following hazards:

Enemy warships:

Patrol Boats are faster and more maneuverable than the sub, so they are hard to hit and impossible to evade on the surface. They carry deck guns, and torpedoes and depth charges in small quantities. Generally they are best avoided, although you might be able to sink one by surprise, or escape in deep water.

The usual attack procedure for patrol boats is to come straight in fast with a torpedo run on the sub's flank, or to make one or two depth charge runs over an area where a sub has just dived.

The standard sub defense is a crash dive with a hard turn away from the attacking vessel.

Destroyers are essentially your most dangerous adversaries. One hit from their guns or depth charges is usually fatal, they carry a large ammunition supply which allows them to sustain a long engagement against you, and they usually have sonar which can only be evaded with very cunning tactics. They are nearly as maneuverable as the sub, are faster, and have longer range.

If a destroyer attacks you while you are on the surface or in shallow water, it will use guns with up to twice the range of your torpedoes. (In reality, there are different size destroyers with varying capabilities.) If you don't maneuver effectively or dive, it will almost always hit you after the first salvo. Generally, unless you are much smarter or luckier than the destroyer captain, your only chance to sink him will be with a head-on bow shot, while under fire.

Once you dive, he will attempt to track you with his sonar and with acoustic gear which picks up propeller noise, internal sub noise, etc. You must attempt to evade him by running quietly and maneuvering away from his course. If he finds you, he will begin depth charge runs based on estimates of your course, speed and depth. You must either run silently, deep, play dead close to the sea bottom, or maneuver through the depth charge patterns in three dimensions until you can escape.

Depth charges:

These are set to explode at a certain depth, which is set before they are dropped. This means the captain of the enemy ship must bracket your position in three dimensions, instead of two as with surface gunnery. This is your advantage in evasive maneuvering. A charge must explode fairly close to the sub's hull to do fatal damage.

Risk control.

The following methods of controlling risk are recommended for success in your patrols and your record in the Captain's Log. 1) Stay within your resources, especially with fuel and battery reserves. 2) Give yourself the necessary time and distance to escape after an attack on the enemy. 3) When in doubt, dive. 4) When under

enemy attack by depth charge, either go dead in deep water or keep maneuvering. When escaping enemy search, run silent, run deep. 5) Avoid coastal waters and shallow areas whenever possible. These are the worst possible places to be caught.

Remember, an accumulation of damage works against you with time, even if it is initially far from fatal. When assessing damage effects and risks, you must evaluate your entire situation including time, distance from home, possible future attacks, etc.

Rescue and covert missions.

Rescue missions are accomplished by navigating to the position specified by the assignment message and stopping, or maintaining the slowest possible speed, on the surface, right next to the shoal, for the necessary time. For certain missions, you must arrive within a certain time and accomplish other tasks, such as laying mines, before the mission can be completed. A message will appear on the screen informing you when certain tasks have been accomplished and it is time to go back to Allied waters.

MISSION CREATOR

This new feature in GATO is for those of you who would like to design your own missions. Mission Creator is available on the Macintosh version only. It is not difficult, but may require some practice until you get the hang of it. Remember...experience is the best teacher, so experiment. We will show you the steps necessary to design your own missions, but they wouldn't be YOUR missions if we did all of the work.

Before attempting to design missions, it is recommended (though not necessary) that you gain proficiency in using the **Submarine** and **Ships** options from the **Settings** menu, and that you complete several missions in each of the three mission types (destroy, rescue, and mining), since some knowledge of convoy formations, ships' speeds, and course headings will be helpful.

Boot up GATO and follow these instructions while in the game, for a step-by-step tutorial of Mission Creator.

1. Select the **Mission 1** option from the **Mission** menu. (This was chosen for use in the tutorial only. Once on your own, you may choose any of the 10 missions.) The dialog box "**Mission Creator**" will appear on the screen.
2. This dialog box is divided into 6 fields (or sections): **Number of ships**, **Mission text**, **Quadrant to reach**, **Mission type**, **Time limit**, and **ships-sink/mines-lay** (number of ships to sink or mines to lay). Each field has a set of options from which to choose.

Note that for the mission type, *Destroy*, the **Quadrant to reach** field options are dimmed. Options which are highlighted are eligible for selection.

3. Move your mouse so that the arrow (cursor) points to the **Mission type** field, and select *Rescue*. Notice that in the **Quadrant to reach** field, you now have some of the options highlighted. These represent quadrants which have islands. For rescue missions you must select a quadrant with an island.

4. Next, select *Mine* from the **Mission type** field and notice that all options are eligible for selection. Let's go back to the *Destroy* option to design the first mission.

5. The first thing you must decide, after selecting the mission type, is what your orders will be.

The **Mission text** field shows the flashing cursor at the beginning of the text to be changed. Type in this message:

SINK TANKERS RESUPPLYING AIRFIELD IN QUADRANT
5. WATCH FOR DESTROYER ESCORT.

To erase the text which is left over from the previous message, drag the mouse across this text to highlight it, and press the space bar to erase what is highlighted. Or, position the cursor at the end of the text and "backspace" to remove the text a letter at a time.

6. Now you must decide how many ships there will be in the enemy's convoy. You are allowed a maximum of 8. Let's make it easy for the first try. We'll have two tankers and one destroyer, so select "3" ships (i.e., click the mouse on the radio button to the left of the number 3).

7. For the **Time limit**, the options are measured in minutes - give yourself at least 30 minutes. This means

that you must sink the tankers and return to Allied waters within a 30 minute time period in order to log a "mission completed."

8. For the **Ships-sink/Mines-lay** field, enter the total number of ships to sink in order to complete your mission. (If you enter more ships here than what you selected in the **Number of ships** field, you will never be able to complete a mission since the program will expect you to sink more ships than you have plotted.) If you entered "2" in this field, sinking any two ship types, such as a destroyer and a tanker, would complete the requirement to accomplish your mission since GATO cannot tell the difference between ship types during a mission.

9. Now that you have entered as much data as this mission type will allow, select the **Edit Ships** option at the bottom of the dialog.

10. The dialog **Now Editing** will show on the screen. This box has 2 fields and a total of 6 options.

11. First go to the **Current ship** field and select the *tanker* option. The **Current ship** field will keep track of which number ship you are plotting.

12. The **Current point** field keeps track of how many points have been plotted (see #13) when selecting the course heading of the enemy ships on the chart. (Up to 20 points may be plotted.)

13. Using the mouse to plot the course, put the cursor near the island in quadrant 19 and click the button. In doing so, you have set the first point of the course for the

first tanker. Plot the next point by clicking the mouse in the lower right-hand corner of quadrant 19 (approximately 135° compass bearing, or South-East). The first point is now connected by a straight line to the 2nd point. Keep plotting points, in a fairly straight line, until you get to quadrant 9 or 10 (making sure you do not plot the course through any islands).

14. If you have gotten all the way to quadrant 5 without using up all of the points on the **Current point** field, you may start a course heading to take the tanker back to the original quadrant (or wherever you like), until you have plotted all 20 points. (Plotting all 20 points is not necessary, but we will do so for the purpose of this exercise.) If Growler does not intercept tanker #1 during play, it will revert back to its original starting point - the first point you plotted - and will recreate its course . Or, you may have the tanker "loop" back to a different point on the original heading. Let's do that with the next tanker.

15. After plotting all 20 points of the first tanker's course, click the mouse on the **Next ship** box and select the *Tanker* option again.

16. Start plotting the course to run alongside the course of tanker #1. When you get about half-way toward quadrant 5, click the mouse on the *Loop back to here* option and an "x" will appear in the box. This creates a new beginning point on tanker #2's heading.

17. Continue plotting tanker #2's course parallel to tanker #1 until you get to the airstrip in quadrant 5. (You can either plot all 20 points on whatever return course you choose, or select the **Next ship** box before all 20 points are used up.)

Now, if Growler does not intercept tanker #2 during play, it will start to recreate its course from the point where you selected the *Loop back to here* option. (Remember, practice and experiment with those features with which you are least familiar.)

18. When you have finished the course heading from tanker #2, go to the **Next ship**, in this case, the third and final ship. From the **Current ship** option, select *Destroyer*.

19. Plot the course for the destroyer so that it stays close to the tankers. Also, keep to the open water side on the left (West) of the chart. The enemy knows that this is where you will probably be coming from (unless you choose the "around the world" course, and sneak in from the right side of the screen).

20. When you have completed plotting the whole course for the destroyer, click the mouse on the **Next ship** box. Once you have completed the course for the third ship (we have chosen 3 as the number of enemy ships to appear in this mission), the dialog will clear from the screen and your mission will be stored in memory as **Mission 1**. You can now play your own mission.

21. To play your first mission, pull down the **Mission** menu, and select **Play my mission**. A dialog box will appear prompting you to select the number of the mission you wish to play. The default option is #1, so click the mouse on **OK**, and you begin your first self-designed mission.

Guidelines:

Check your **Submarine** and **Ships** options from the **Settings** menu so that you know the cruise speed of each type of ship. It's difficult to keep a convoy together if some of the ships cruise at a speed of 15 knots, while others are doing 30.

Drawing paths too close to shoals and islands will cause the ships to either run aground or change their course to skirt the obstacles.

Enemy ships will go off-course once they have detected you. The aggressive ships will come after you and the others will run. Once they have lost track of you, they will attempt to correct their heading and get back on course.