

Red Storm Rising™

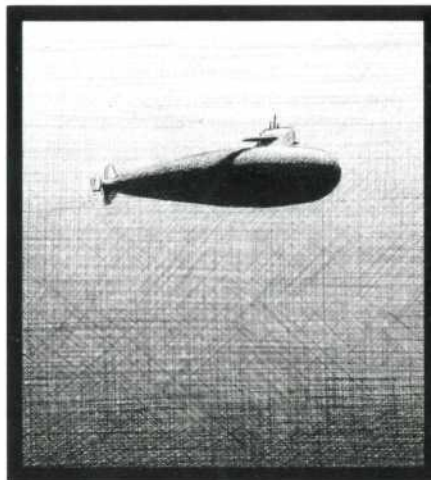


**The Gripping
Computer
Simulation.**

**Based On
The #1
Best-Selling
Book By
Tom Clancy.**

MICRO PROSE™
SIMULATION • SOFTWARE

Red Storm Rising™



Nuclear Attack Submarine Combat Operations

NAVEDCOM 443-M

Change 2 ; May 1989

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A Quick Start

The Manual: This manual is divided into three sections for convenient use. Part I gives specific instructions for all simulation displays and controls. Part II provides greater insight into the tactics, tricks and subtleties of the game. Part III provides background data on weapons, ships and boats involved.

When playing your first training scenario, you'll want to frequently reference the "Battle: Engaging the Enemy" section of this manual, on pages 11-30. This explains the meaning of each display, and how to operate your submarine in battle.

The Technical Supplement: The specific keys and other controllers used in RED STORM RISING vary with computer models. All terms printed in *italics* in this manual are defined in the Technical Supplement. Refer to the supplement for specific controls.

The Keyboard Overlay: This is provided for convenience in Battle. The keyboard overlay does NOT apply to Strategic Transit in the RED STORM RISING campaign.

Which Scenario?: We strongly recommend that you try a learning game before you tackle the full RED STORM RISING campaign.

What's Where

In your first game, you should make the following selections:

Year: 1992

Boat: Improved Los Angeles class

Challenge: Introductory

Scenario: Training Action (vs. either a November-class submarine or a Kashin-class destroyer; take your pick).

Getting Started: After a brief introduction, you'll find yourself in battle. Find the pause key (check the Technical Supplement or your Keyboard Overlay) and use it frequently as you learn. The Replay Battle key is also useful while learning — use it to review what happened to that point.

Experiment with Displays: Try each of the Primary Display and Secondary Display controls.

Find the Enemy: Next start looking for the enemy. Select Tactical Display and View Contacts. Read the section on Sensors (pages 14-20) for more information.

Sail Toward Him: Once you locate the enemy, move toward him. Try the navigation controls, referring to pages 12-14 in the manual for more details.

Fire Weapons: Now try firing weapons at the enemy. A Mark 48 torpedo is suggested. Make sure you're sailing "straight and level" at moderate speed (15 kts or less) before firing. Read the Weapons controls explanation on pages 21-27. Note that you can change commands and even directly control the torpedo unless its wire is cut or lost (page 24).

Further Training: Try a training scenario a few more times. Experiment with a surface ship opponent using Harpoon or Tomahawk missiles (page 25). Also experiment with evasion, learning to escape enemy torpedoes.

Learning Games

Battles & Campaigns

Battles: Once you've cut your teeth in the training scenarios, it's time to fight a "real" battle. Select one of the Battle simulations instead of a training action. Finding the enemy and identifying him can be challenging. In some cases, he may find you first. In extreme cases, you might sail right into an enemy attack (i.e., you are ambushed!). Don't get flustered. Evade enemy attacks as they come in, and meanwhile develop your contacts until you have sufficient information to launch a weapon.

After you've experimented with a variety of battles, you can select "a Chance Engagement", where you never know what you're up against. You may find adjusting your boat or the time period makes life more interesting here.

The Campaign: Although individual battles provide interesting, satisfying, and variable engagements, the ultimate RED STORM RISING experience is the campaign game. Here you experience the entire course of World War III.

The campaign includes the additional challenge of Strategic Transit. You receive various missions, must discern the enemy's intentions, which enemy force is your objective, and then maneuver into an advantageous attack position while avoiding detection. How well you maneuver in the Norwegian Sea Theater has a powerful effect on how the battle begins.

The campaign is arranged so that the Warsaw Pact's strategies and actions remain unpredictable. You can play the campaign again and again, experiencing new situations and challenges each time. There are literally billions of possible situations in the campaign game.

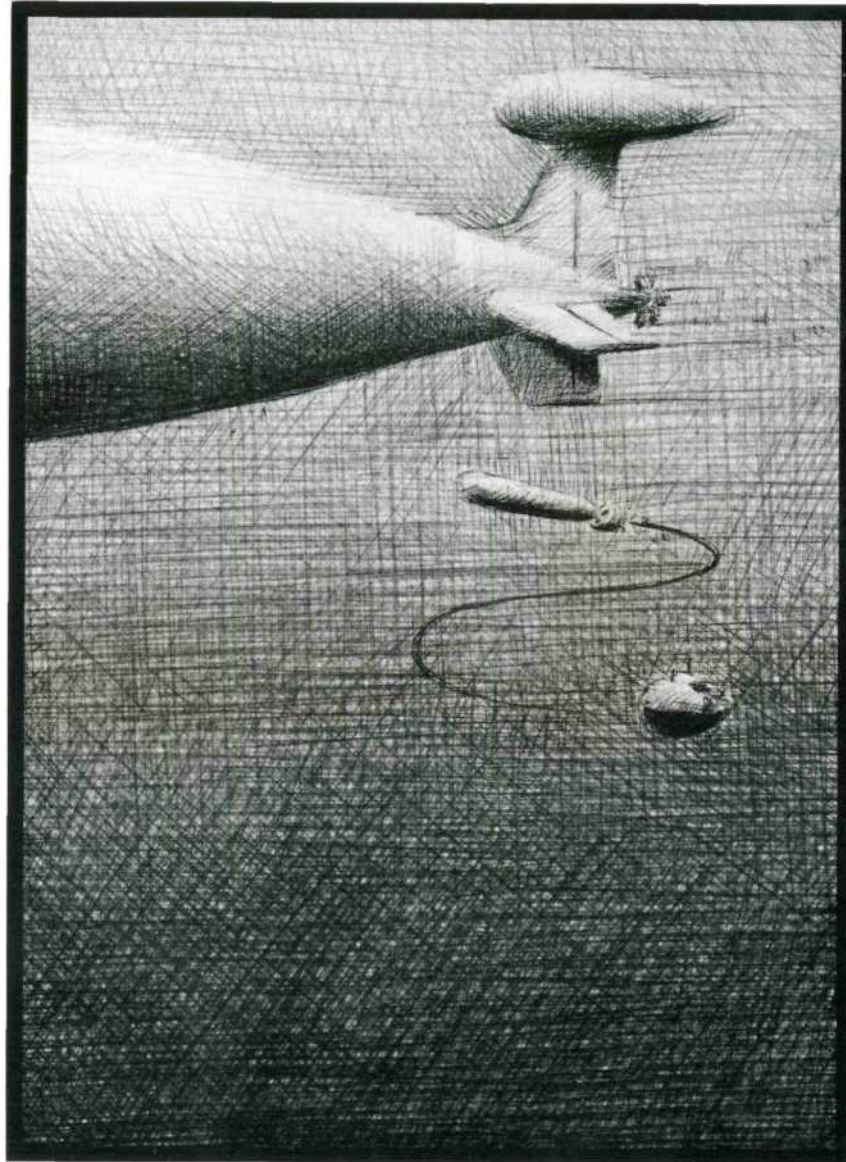
The Efficiency Rating, Medals, and Promotions

Efficiency Rating (ER): After each engagement RED STORM RISING updates your ER (Efficiency Rating) as a US Navy captain. The rating is the average of your performance to date. It takes into account the quality of the opposition including the specific types of ships engaged, as well as the type of boat you command, weapons available, and level of challenge. Successful completion of mission assignments in the "Red Storm Rising" campaign also improves your ER.

Decorations & Medals occur only in the campaign game, rewarding success in action. You need a high ER to qualify for a medal. In order from lowest to highest, the medals are: CM - Navy Commendation; BSV - Bronze Star for Valor; SS - Silver Star; DSM - Distinguished Service Medal; NC - Navy Cross; and CMOH - Congressional Medal of Honor.

Promotions: Modern submarine captains aren't promoted after each battle because a promotion means a new and bigger command. In wartime the navy prefers to keep experienced captains where they are, at their current rank, until either the war is over or a higher position opens up.

Part 3 The Reference Manual



US Submarine Weapons

Mark 48 Torpedo



Torpedo Performance:

Wire-guided, acoustic sensors
40 kts cruising speed
55 or 60 kts maximum speed
3000' maximum depth

Dimensions:

300 kg warhead
0.533 m (21") wide
5.8 m long

Notes:

In production since 1972, this is the standard torpedo of US Navy submarines. It is wire-guided, but includes active and passive sonars with search and homing logic. The torpedo can be fired from surface ships, but none are so equipped.

Original production models have been upgraded to Mod 4 standards, to permit attacks on Alfa-class submarines.

In the middle 1980s an improved model appeared, titled ADCAP, with higher speed (60 instead of 55 knots), greater endurance, and various mechanical improvements.

A future variant of this torpedo is the "swim out" version. It could leave an oversized torpedo tube under its own power. Such a torpedo would be the logical armament for the Seawolf class, and has no launch transient.

Harpoon UGM-84A Cruise Missile



Missile Performance:

Pre-programmed course
Terminal radar homing
Cruises at 560 kts
Min Flight Range: 6,000 yds
Max Flight Range: 120,000 yds

Missile Dimensions:

227 kg warhead
0.533 m (21") wide
4.6 m long

Notes:

Since 1977 the Harpoon has been the standard anti-ship missile of the US Fleet. In addition to the UGM submarine version, an RGM version for surface ships and an AGM version for aircraft exist. The missiles are reliable and have performed well in engagements with Libyan and Iranian craft.

In a typical attack run the missile cruises only a few feet above the water (using a radar altimeter) until it reaches its PAP. Then the terminal homing radar turns on, finds, and locks onto the target. The radar can jump frequencies to evade jamming attempts. In early versions, it "popped up" to make a final dive into the target. However, in later versions this became a programmable option, since it was easier to shoot down during the final "pop up". The weakness of this missile is its relatively short range and small warhead.

**Tomahawk TASM (BGM-109E) &
TLAM (BGM-109D)**
(available from 1988)

TASM Missile Performance:

Pre-programmed course
Terminal radar homing
Cruises at 475 kts
Min Flight Range: 6,000 yds
Max Flight Range: 500,000 yds

TASM Missile Dimensions:

454 kg warhead
0.533 m (21") wide
2.6m wingspan
6.15 m long



Notes:

Originally produced from 1982 as an air-launched cruise missile with a nuclear warhead, it has found a true home as America's most powerful conventional missile.

The TASM (Tomahawk Anti-Ship Missile) was modified for firing from submarines in 1983, including launch from torpedo tubes as well as the VLS tubes in the Improved Los Angeles class. The TLAM (Tomahawk Land Attack Missile) version modified for ship and submarine use appeared in 1984.

The TASM version uses the same guidance and homing equipment as the Harpoon. The TLAM uses the inertial guidance and computerized terrain contour matching system of the original air force weapon.

These missiles are much larger, longer ranged, and more destructive than the Harpoon. As of the late 1980s, only battleships, a few cruisers, and attack submarines carried them. The US Navy hopes to add them to other ships. Unfortunately, initial naval procurement for the TASM is a paltry 600 missiles for the entire fleet, compared to 3200 TLAMs and over 4000 Harpoons.

The weakness of this missile is a poorer terminal attack profile than the Harpoon, making it easier to shoot down.

Torpedo Performance:

40 kts cruising speed (estimated)
60 kts maximum speed (estimated)
2000' maximum depth (estimated)

Torpedo Dimensions:

45 kg warhead (estimated)
0.324 m diameter (12.75")
2.6 m length (estimated)

Missile Performance:

Pre-programmed course
Supersonic (over 625 kts)
Min Flight Range: 6,000 yds
Max Flight Range: 60,000 yds

Missile Dimensions:

1600-2000 kg weight (estimated)
0.533 m (21") wide
6.7 m long (estimated)

**The Sea Lance / Mark 50
ASW Missile (available from 1992)**



Notes:

This weapon, currently under development as the ASW-SOW (Stand-Off Weapon), is the first long-range ASW weapon for US submarines carrying a conventional warhead. Previously the only long-range missile weapon was the SUBROC, which had a nuclear depth charge. It should be ready for production in the early 1990s.

The missile flies a computer-programmed path to a specific point in space, where it decelerates, hits the water, and releases a lightweight homing torpedo.

The capabilities of this weapon are conjectural, since development continues. It is hoped that the Mark 50 torpedo warhead of the missile can be used also by aircraft and helicopters. This would replace the obsolescent Mark 46 in use since 1965.

Stinger FIM-92A (available from 1992)**Missile Performance:**

Passive Infra Red Homing 1260 kts
Min Flight Range: 200 yds
Max Flight Range: 6,000 yds

Missile Dimensions:

3 kg warhead (estimated)
0.052 m (2.75") wide
0.203 m (8") wingspan
1.5 m long

Notes:

Designed as a shoulder-launched SAM (surface-to-air missile) for infantrymen in the US Army, the Stinger has been attached to jeeps, helicopters, and many other platforms that desire a lightweight SAM. Designs have been proposed that would modify a mast and add a waterproof box launcher to SSNs. The SSN would raise the mast above water, activate the missile, and fire it at a nearby airplane or helicopter.

The Stinger successfully downed an Argentine aircraft in Britain's 1982 Falklands campaign, and has been used effectively by Afghan guerillas against Soviet helicopters in the mid-1980s. However, the range and warhead of this missile are quite small — perhaps too small for a naval weapon. However, any larger missile would probably need a tube launching system, as opposed to the fast and convenient mast launcher.

The Stinger mast launcher is conjectural. The US Navy has not (yet?) contracted for adding these weapons to submarines. If you prefer situations limited to hardware currently in development, do not carry Stingers, regardless of time period.

US Submarines

Dimensions: The displacement of a vessel, in tons, roughly indicates how difficult it is to sink. Auxiliary and merchant ships are, of course, much easier to sink than a military vessel of equivalent tonnage.

Size has a minor effect on sonar visibility (smaller vessels are harder to "see").

Speeds listed are designed or trials maximums. Most vessels cruise at much slower speeds, since they would quickly exhaust their fuel otherwise. Nuclear powered ships do not have this problem, and can cruise as fast as machinery maintenance permits (though running at top speed continuously leads to mechanical breakdowns).

Weapons: The list of weapons and launchers not only describes the capabilities of the vessel, but also suggests something of its purpose. Very few vessels carry a weapon for every possible purpose or need.

Sensors: Low frequency sonars are the most effective, high frequency the least effective.

About Warship Data

Weapons:

4x 21" torpedo tubes
Mk 48 21" torpedoes
Harpoon UGM missiles
Tomahawk TASM and TLAM theoretically-possible

Sensors:

BPS-15 mast-mounted search radar
BQQ-5 low frequency hull-mounted sonar
(active and passive modes)
Clip-on towed array

Notes:

These submarines originally joined the US fleet between 1962 and 67. They represent the first large class of advanced nuclear attack submarines. The first ("class") boat was the USS Thresher, which sank with all hands during diving trials in 1963. This was the worst submarine disaster in history. The class was renamed afterward.

These boats are quiet by Soviet standards, but inferior to the more sophisticated Sturgeon and Los Angeles classes. Like the Sturgeons (below), their equipment was upgraded in the 1970s. Now they are approaching the end of their "useful" service life. Although capable of carrying the Tomahawk missile with minor modifications, the Navy resists putting valuable and rare weapons aboard such old boats. In wartime, where every vessel counts, policy could change quickly.

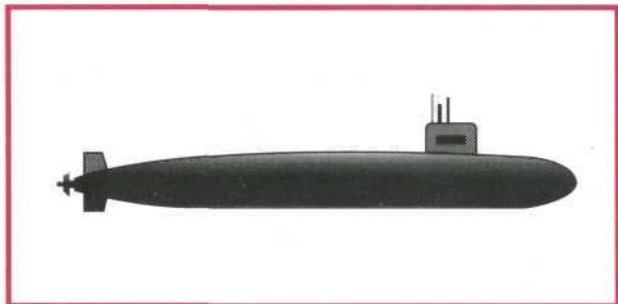
Dimensions:

3,780 tons submrgd
84.9m x 8.8m
30 kts, 127 men
Nuclear propulsion

SSN Permit



SSN Sturgeon



Weapons:

4x 21" torpedo tubes
Mk 48 21" torpedoes Harpoon UGM missiles
Tomahawk TASM and TLAM missiles
Sea Lance missiles when available

Dimensions:

4,960 tons submerged
92.1m x 9.6m
25 kts, 129 men
Nuclear propulsion

Sensors:

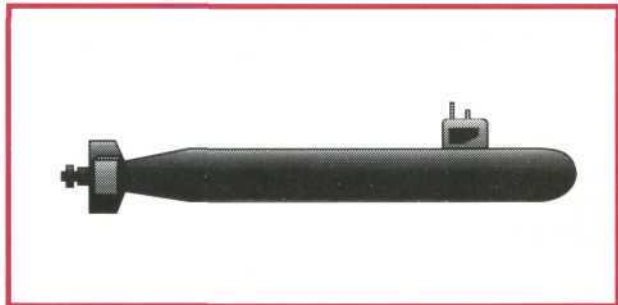
BPS-14/15 mast-mounted search radar
BQQ-5 low frequency hull-mounted sonar (active and passive modes)
TB-16 towed array

Notes:

From 1967 to 1975 no less than 37 submarines of this type joined the US Navy, where they remain popular boats, especially for under-ice operations.

During periodic overhauls the original BQQ-2 hull sonars were replaced with the much superior BQQ-5, while the fire control systems were updated with the addition of the Mk 117 computer suite. In quality these boats are close to the Los Angeles class, capable of acquitting themselves well against any but the very latest Soviet-built submarines.

SSN Los Angeles



Weapons:

4x 21" torpedo tubes
Mk 48 21" torpedoes
Harpoon UGM missiles
Tomahawk TASM and TLAM missiles
Sea Lance missiles when available

Dimensions:

6,927 tons submerged
109.7m x 10.1m
32 kts, 127 men
Nuclear propulsion

Sensors:

BPS-15A mast-mounted search radar
BQQ-5A low frequency hull-mounted sonar
(active and passive modes)
TB-16 towed array

Notes:

In service with the US Navy since 1976, this is the largest class of submarines built in America since WWII, and without doubt the finest. The first 31 built lacked vertical launch tubes. Subsequent versions, the "improved" Los Angeles, have them (see below).

Designed originally for anti-submarine warfare, these boats are believed to be the finest in the world for that task. The tube-launched Harpoon and later Tomahawk missile give the class a formidable anti-ship capability as well. Mast-mounted Stinger

SAMs are under consideration for self-defense against helicopters and patrol aircraft.

Weapons:

12x VLS tubes for Tomahawk TASM and TLAM missiles
4x 21" torpedo tubes
Mk 48 21" torpedoes
Harpoon UGM missiles
Tomahawk TASM and TLAM missiles
Sea Lance missiles when available

Dimensions:

6,927 tons submerged
109.7m x 10.1m
30+ kts, 127 men
Nuclear propulsion

Sensors:

BPS-15A mast-mounted search radar
BQQ-5A (later BSY-1) low frequency hull-mounted sonar
(active and passive modes)
TB-16 (later TB-16D) towed array

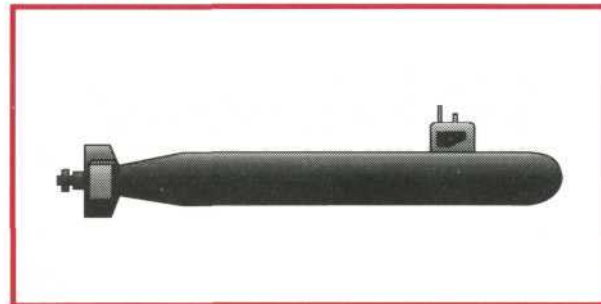
Notes:

In the early 1980s the US Navy added VLS Tomahawk tubes to the Los Angeles class, improving its anti-ship and anti-land target firepower considerably. In addition each new boat got an Anechoic (sound-absorbing) coating, like many of the new Russian boats. The first such improved boat (USS Providence, SSN 719) joined the fleet in 1985.

Additional improvements, including an improved sonar system and revised plane arrangements are planned for the USS San Juan (SSN 751).

The VLS tubes were added between the inner and outer hulls, so no crew or equipment space was lost. Therefore this group retains all the advantages of the original Los Angeles class. Of course, this design "feature" means that the VLS tubes are inaccessible from inside the boat, and therefore cannot be unloaded or reloaded by the crew at sea.

SSN Improved Los Angeles



Weapons:

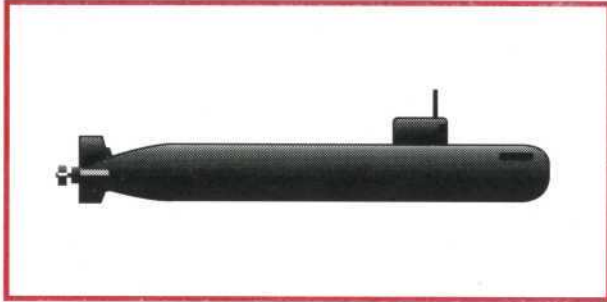
8x 30" torpedo tubes
Mk 48 21" Swimout torpedoes
Harpoon UGM missiles
Tomahawk TASM and TLAM missiles
Sea Lance missiles

Dimensions:

9,300 tons submerged
99.4m x 12.2m
35+ kts, 130 men
Nuclear propulsion

SSN Seawolf

SSN Seawolf



Sensors:

BPS mast-mounted search radar
BSY-2 low frequency hull-mounted sonar
TB-23 towed array

Notes:

Expected to join the US Navy in the middle 1990s, this submarine represents a quantum leap in design, with a new hull form, new weapons launchers, and a new, highly computerized sensor system. If all design specifications are met or exceeded, this class will be a dramatic improvement over the Los Angeles. Due to the USSR's ambitious construction program it is unclear whether the Seawolf will restore US technological superiority, or simply restore equality!

Meanwhile, even simple changes in design are valuable. For example, in combat eight torpedo tubes, instead of four, would be an invaluable asset. In addition, the oversize tubes permit the use of "swimout" torpedoes that have no launch transient.

USSR Warships

Type & Name: NATO and Soviet abbreviations are provided for all ships. Names are the NATO names in common use. Actual Russian class names are provided where available.

Dimensions: The displacement of a vessel, in tons, roughly indicates how difficult it is to sink. Auxiliary and merchant ships are, of course, much easier to sink than a military vessel of equivalent tonnage.

Size has a minor effect on sonar visibility (smaller vessels are harder to "see").

Speeds listed are designed or trials maximums. Most vessels cruise at much slower speeds, since they would quickly exhaust their fuel otherwise. Nuclear powered ships do not have this problem, and can cruise as fast as machinery maintenance permits (running at top speed continuously leads to mechanical breakdowns).

Weapons: The list of weapons and launchers not only describes the capabilities of the vessel, but also suggests something of its purpose. Very few vessels carry a weapon for every possible purpose or need. If a weapon is listed as a "launcher", then a considerable quantity of missile reloads are also carried. Otherwise reloads are rarely carried.

Sensors: Low frequency sonars are the most effective, high frequency the least effective.

About Warship Data

Defensive Weapons:

SA-N-6 long range SAM launchers
SA-N-9 short range SAM launchers
twin 76.2mm DP guns
sextuple 30mm point-defense guns

Dimensions:

70,000 tons
approx 305m long
30+ kts
Nuclear reactors

Offensive Weapons:

None

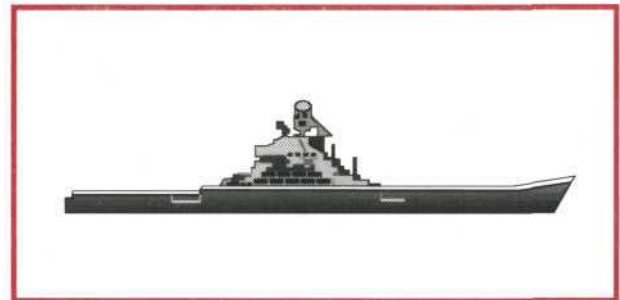
Sensors:

Search and tracking radar, ESM
No sonars

60-75 Aircraft:

Ka-25 "Hormone" or Ka-27 "Helix" helicopters
Su-27 "Flanker" jet fighters
MiG-29 "Fulcrum" jet fighter-bombers
Yak-38MP "Forger" V/STOL jet fighter-bombers

CVN Kremlin (or Brezhnev) (Nuclear Aircraft Carrier)

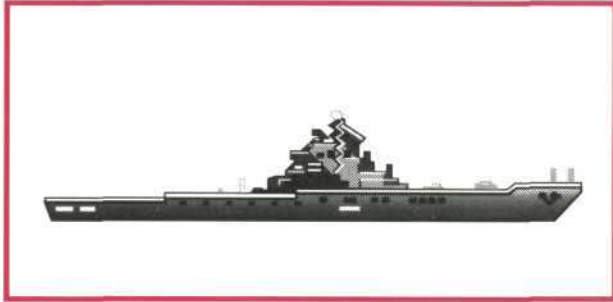


Notes:

This ship, Russia's first "fleet" nuclear aircraft carrier, should enter service in 1989. At the time of this writing, details on armament and aircraft are conjectural, since the first unit is still fitting out. Although built in the Black Sea's Crimean shipyards, most experts anticipate the first unit will transfer to the Northern Fleet after various flag-showing cruises.

CV Kiev

(TAKR- Tactical Aviation Carrying Cruiser)

**Defensive Weapons:**

2x twin SA-N-3 long range SAM launchers
2x twin SA-N-4 or -9 short range SAM launcher

Offensive Weapons:

8x SS-N-12 anti-ship missile launchers
1x twin SUW-N-1 nuclear ASW launcher
2x twin 76.2mm DP guns
2x quintuple 21" ASW torpedo tubes
2x dodecuple RBU-6000 ASW rocket launchers

Dimensions:

36,000 tons
273.0m x 47.2m
32 kts, 1200 men
Steam boilers

Sensors:

Search and tracking radar, ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
VDS, medium frequency

26-30 Aircraft:

14-17 Ka-25 "Hormone" or Ka-27 "Helix" helos
12-13 Yak-38MP "Forger" V/STOL jet fighter-bombers

Notes:

In service from 1975, these "V/STOL Carriers" operate helicopters and the relatively ineffective Forger "jump jets". However, in a fleet that never enjoyed jet fighter support at sea before, the Kiev class is an important ship. In addition, the ship has a formidable missile armament for long-range anti-ship and ASW capabilities, as well as an extensive and gradually improving array of missile and gun defenses.

Ships assigned to the Northern Fleet include the Kiev and possibly the Baku. The former has SA-N-4 SAMs, the latter newer SA-N-9 SAMs.

Red Banner Northern Fleet Order of Battle (c.1986)

Staff:

Admiral I.M. Kapitanets, commander in chief
Vice Admiral V.S. Kruglyakov, first deputy
Rear Admiral A.V. Akatov, deputy commander
Vice Admiral V.K. Korobov, chief of staff
Major General V.P. Potapov, commander, naval aviation

Submarines: 185 total

4 Typhoon class SSBNs
22 Delta class SSBNs
11 Yankee class SSBNs
1 Hotel III class SSBN
about 25 SSGN attack submarines
about 45 SSN attack submarines
1-3 special purpose submarines
1 Golf class SSBs
about 8 Juliet class SSGs
about 65 assorted diesel-electric SSs
about 8 assorted diesel-electric special purpose SSs

Surface Warships: 89 total

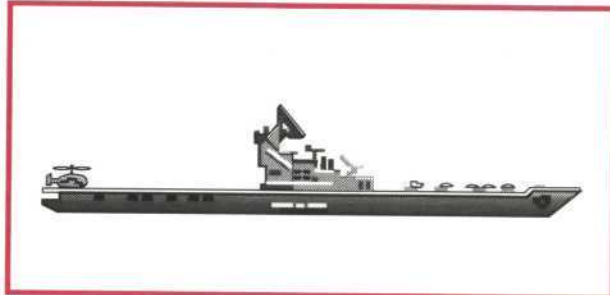
1 Kremlin class CVN anticipated
1 Kiev class CV, another anticipated
1 Moskva class CH periodically
11 Cruisers
16 Destroyers
7 Krivak class Frigates
40 other Frigates
13 Amphibious Warfare ships

Naval Aviation: 343 combat planes total

55 Reconnaissance & Electronic Warfare Aircraft,
including various models of the:
Tu-95 "Bear", Tu-16 "Badger", Tu-22 "Blinder",
An-22 "Cub", Il-18 "Coot"
70 Bombers,
including various models of the:
Tu-22M "Backfire", Tu-16 "Badger", Tu-22 "Blinder"
15 Attack Fighters,
including various models of the:
Yak-38MP "Forger"
18 In-flight Refueling Planes,
including various models of the:
Tu-16 "Badger"
80 ASW Bombers,
including various models of the:
Tu-142 "Bear", Il-38 "May", Be-12 "Mail"
105 Helicopters,
including various models of the:
Mi-8 "Hip", Mi-14 "Haze", Ka-25 "Hormone",
Ka-27 "Helix"

CH Moskva

(PKR- Anti-submarine Cruiser)



Defensive Weapons:

2x twin SA-N-3 long range SAM launchers
2x twin 57mm AA guns

Offensive Weapons:

1x twin SUW-N-1 nuclear ASW launcher
2x dodecuple RBU-6000 ASW rocket launchers

Sensors:

Search and tracking radar, ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
VDS, medium frequency

Dimensions:

14,500 tons
189m x 26m
31 kts, 850 men
Steam propulsion

14 Aircraft:

14 KA-25 "Hormone" helicopters

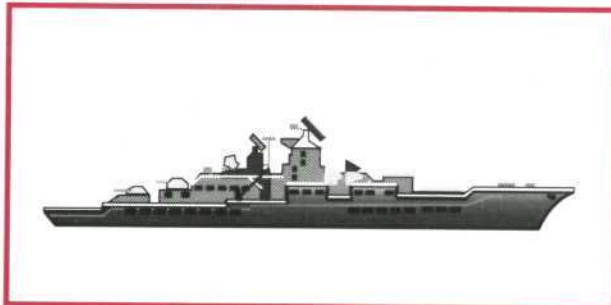
Notes:

The Moskva and Leningard joined the Soviet Fleet in 1967 and 1968. Their creative ASW has helicopters as the "main armament" of the ship. This was effective in the 1970s, when long-range "smart" ASW missiles like the SS-N-14 were just a dream.

Soviet strategists hoped these ships could lead ASW groups to find and sink American SSBNs. However, the idea was defeated by superior US submarine technology and longer ranged SSBN missiles. Today both operate in the Black Sea and Mediterranean, but on exercises have operated periodically in the Atlantic.

BCGN Kirov

(RKR- Missile Cruiser)



Defensive Weapons:

2x twin SA-N-4 long range SAM launchers
12x SA-N-6 long range SAM launchers
16x SA-N-9 short range SAM launchers*
8x sextuple 30mm point-defense guns

Offensive Weapons:

20x SS-N-19 anti-ship missiles
2x SS-N-14 ASW missile launcher*
2x twin 100mm DP guns†
1x dodecuple RBU-6000 ASW rocket launcher
2x sextuple RBU-1000 ASW rocket launchers
2x quadruple 21" ASW torpedoes

Dimensions:

24,000 tons
248m x 28m
32 kts, 800 men
Combined power plant:
Nuclear reactors and
steam boilers

Sensors:

Search and tracking radar, ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
VDS, low frequency

3 Aircraft:

3 Ka-25 "Hormone" or Ka-27 "Helix" helicopters

Notes:

*Atlantic fleet versions have SS-N-14, Pacific fleet SA-N-9 instead.

†1x twin 130mm DP guns instead on later units

Since 1980 two of these powerful surface warships have joined the Soviet fleet, with more under construction. These are the largest surface warships in the world built since World War II. Some are assigned to the Northern Fleet, others to the Pacific. The class is studded with sensors and missiles of the latest and most powerful design. Although the Atlantic fleet version is capable of ASW warfare, the real specialty of these ships is surface ship attack and air defense.

Defensive Weapons:

2x twin SA-N-3 long range SAM launchers
2x twin SA-N-4 short range SAM launchers
4x twin 76.2mm AA guns
4x sextuple 30mm point-defense guns

Dimensions:

8,200 tons
173m x 18.6m
34 knots, 525 men
Gas turbine propulsion

Offensive Weapons:

8x SS-N-14 ASW missiles
2x dodecuple RBU-6000 ASW rocket launchers
2x sextuple RBU-1000 ASW rocket launchers
2x quintuple 21" ASW torpedoes

Sensors:

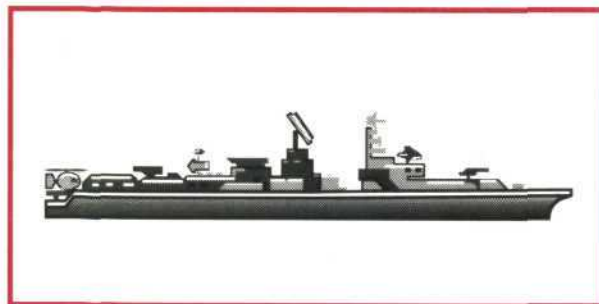
Search and tracking radar, ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
VDS, medium frequency

1 Aircraft:

1 Ka-25 "Hormone" ASW helicopter

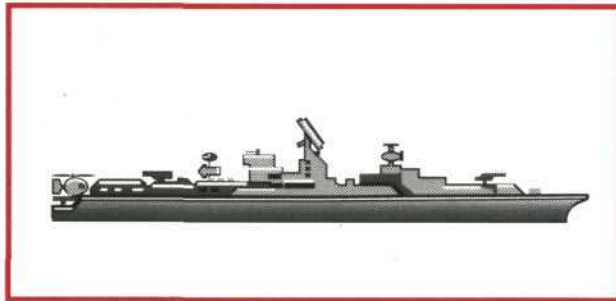
CG Kara

(BPK- Large Anti-Submarine Ship)



Notes:

Completed between 1973 and 1980, these cruisers refined the Kresta-style design optimized for air defense and anti-submarine warfare. However, the SS-N-14 and SA-N-3 can be used as anti-ship weapons if necessary. Although usually found in the Mediterranean or the Far East, they are ideal flagships in amphibious operations, or keystone ships in a carrier's defensive screen. Therefore, it's easy to see them transferred to the Northern Fleet in a RED STORM RISING scenario.

CG Kresta II
(BPK- Large Anti-Submarine Ship)**Defensive Weapons:**

2x twin SA-N-3 long range SAM launchers
2x twin 57mm AA guns
4x sextuple 30mm point-defense guns

Dimensions:

6,200 tons
159m x 17m
34 kts, 380 men
Steam turbine

Offensive Weapons:

8x SS-N-14 ASW missiles
2x quintuple 21" ASW torpedo tubes
2x dodecuple RBU-6000 ASW rocket launchers
2x sextuple RBU-1000 ASW rocket launchers

Sensors:

Search and tracking radar, ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted

1 Aircraft:

1 Ka-25 "Hormone" ASW helicopter

Notes:

Between 1968 and 1979 ten of these cruisers joined the Soviet fleet, half of them with the Northern Fleet. The original and less sophisticated Kresta I was optimized with anti-ship weaponry. This class was redesigned to specialize in ASW, with reasonably good SAMs as well. At its time the class was very successful, and remains one of the ASW backbones in the Northern Fleet. The main weakness is the lack of VDS equipment.

Defensive Weapons:

16x twin 37mm AA guns
8x twin 30mm point-defense guns

Offensive Weapons:

4x triple 152mm (5.9") LA guns
6x twin 100mm (4") DP guns

Sensors:

Search and tracking radar, ESM
No sonars

Aircraft:

None.

Notes:

Originally finished in 1951-55, these were Russia's last "old style" gun warships. The term "light" cruiser is a WWII term and indicates that the main battery is approximately 6" size ("heavy" cruisers had 8" guns). These large, heavily armored ships are useful as fleet flagships and amphibious support ships. An attempt to add modern SAMs failed, so further armament changes are unlikely. Of course, a wise captain would probably sneak on board numerous shoulder-fired infantry SAMs (such as the SA-7 or SA-14 "Grail" missile) to supplement the antiquated 100mm and 37mm AA guns.

Nine of the original 20 ships remain in active service, and should remain so for years to come. Due to their great age in continual service, any voyage of significant length must result in a nightmare of mechanical problems and breakdowns.

Dimensions:

12,900 tons
210m x 21.6m
32- kts, 1,000 men
Steam turbines

CL Sverdlov

(KR- Cruiser)

**Defensive Weapons:**

8x SA-N-9 short range SAM launchers
4x sextuple 30mm point-defense guns

Offensive Weapons:

2x single 100mm DP guns
8x SS-N-14 ASW missiles
2x dodecuplet RBU-6000 ASW rocket launchers
2x quadruple 21"torpedo tubes

Sensors:

Search and tracking radar, ESM

Dimensions:

6,200-6,700 tons
162.0m x 19.3m
34 kts, 300 men
Gas turbines

DDG Udaloy

(BPK- Large Anti-Submarine Ship)



Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
VDS, low frequency

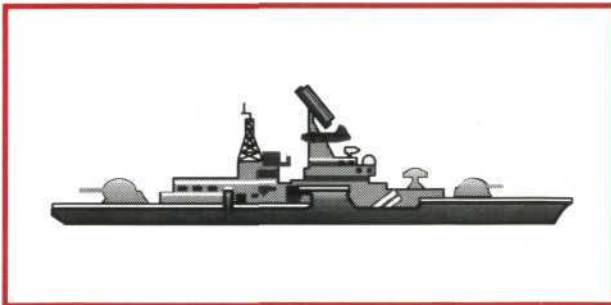
2 Aircraft:

2x Ka-27 "Helix" ASW helicopters

Notes:

The class ship joined the Northern Fleet in 1980, and more have been building at one per year since then. Though termed destroyers by NATO, they are actually small cruisers. Functionally they are optimized for ASW, with formidable modern equipment, including no less than two of the new Helix helicopters (most ships have just one). Class name "Udaloy" means, in Russian, "Courageous" or "Daring".

DDG Sovremenny
(EM- Destroyer)



Defensive Weapons:

8x SA-N-7 medium range SAM launchers
4x sextuple 30mm point-defense guns

Offensive Weapons:

8x SS-N-22 anti-ship missiles
2x twin 130mm DP guns
2x sextuple RBU-1000 ASW rocket launchers
2x twin 21" ASW torpedo tubes

Sensors:

Search and tracking radar, ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted

Dimensions:

6,300 tons
156m x 17m
34 kts, 380 men
Steam turbines

1 Aircraft:

1 Ka-25B "Hormone" missile control helicopter (no ASW)

Notes:

Six of these destroyers joined the Russian fleet between 1981 and 1986, with more building. Like the Udaloy, they are more akin to small cruisers than destroyers in size, and in fact are using the assembly line where the Kresta II class was built. The design is optimized for anti-ship warfare, with relatively weak ASW weapons. This ship will be found primarily in surface warfare groups, and very rarely in ASW groups or defensive screens.

Defensive Weapons:

2x twin SA-N-1 medium range SAM launchers
2x twin 76.2mm AA guns
4x sextuple 30mm point-defense guns

Offensive Weapons:

4x SS-N-2c "Styx" anti-ship missiles
2x dodectuple RBU-6000 ASW rocket launchers
1x quintuple 21" ASW torpedo tubes

Sensors:

Search and tracking radar, ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted
VDS, medium frequency

Aircraft:

Helicopter landing pad on stern

Notes:

These six large destroyers of the Kashin class were first completed between 1964 and 1973, but from 1973 to 1980 underwent major systems upgrades that added better SS-N-2 missiles, the 30mm guns, VDS sonar, and improved radars. Designed as all-purpose destroyers, they can perform any mission, but lack the punch to be outstanding in a single task. They and their obsolescent cousins make "low" ships in a naval group using a "high-low" mix.

Dimensions:

3,950 tons
146m x 15.8m
38 kts, 300 men
Gas turbines

DDG Modified Kashin
(BPK- Large Anti-Submarine Ship)**Defensive Weapons:**

1x twin SA-N-1 medium range SAM launchers
2x quadruple 57mm AA guns
4x sextuple 30mm point-defense guns

Offensive Weapons:

3x dodectuple RBU-6000 ASW rocket launchers
2x quintuple 21" ASW torpedo tubes

Sensors:

Search and tracking radar, ESM

Dimensions:

3,700 tons
139m x 15m
34 kts, 300 men
Steam turbines

DDG Kanin
(BPK- Large Anti-Submarine Ship)

Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted

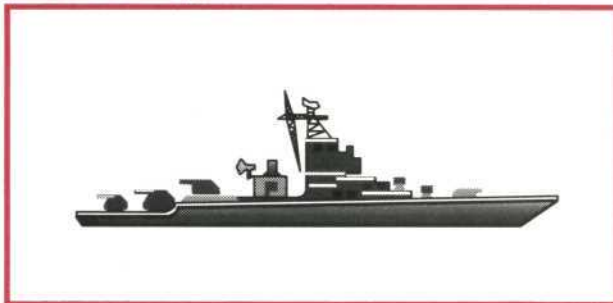
Aircraft:

Helicopter landing pad on stern

Notes:

Completed in 1959 to 1961, this class was upgraded into a purely ASW role in 1968-1977 (they had been general-purpose destroyers until then). Even with these modifications, the ships remain lightly armed for their size. Overall they are now second-rate ships suited for supporting roles only.

FFG Krivak II
(SKR- Patrol Ship)



Defensive Weapons:

2x twin SA-N-4 short range SAM launchers

Offensive Weapons:

4x SS-N-14 ASW Missiles

2x single 100mm DP guns

2x dodecuple RBU-6000 ASW rocket launchers

2x quadruple 21" ASW torpedo tubes

Dimensions:

3,800 tons

123.5m x 14.1m

32 kts, 200 men

Dual gas turbines

Sensors:

Search and tracking radar, ESM

Active sonar, medium frequency, hull-mounted

Passive sonar, medium frequency, hull-mounted

VDS, medium frequency

Aircraft:

None.

Notes:

Built between 1975 and 1982, these "lightweight" ASW ships are nonetheless quite capable of giving NATO submarines a considerable difficulty. The earlier Krivak I design used twin 76mm AA gun turrets instead of the heavier, more flexible 100mm DP (dual-purpose) turrets. Interestingly enough, these ships lack the 30mm point defense guns found on most modern Soviet warships.

FFL Grisha III
(MPK- Small Anti-Submarine Ship)

Defensive Weapons:

1x twin SA-N-4 short range SAM launcher

1x twin 57mm AA gun

1x sextuple 30mm point-defense gun

Dimensions:

950 tons

71.6m x 9.8m

30 kts, 60 men

Diesel/gas turbines

Offensive Weapons:

2x dodecuple RBU-6000 ASW rocket launchers
2x depth charge racks
2x twin 21" ASW torpedo tubes

Sensors:

Search and tracking radar, ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted
VDS, high frequency

Aircraft:

None.

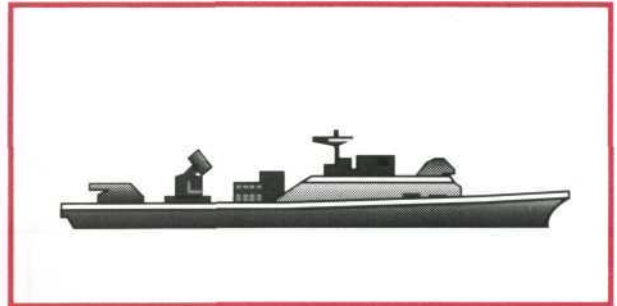
Notes:

Built in various forms from 1968 to 1988, the numerous Grisha III version first went to sea in 1975. This class has one of the longest "production lives" of any modern warship. The main gun armament varies from one model to another, and the Grisha II's have no SA-N-4 SAMs. As of this writing, Grisha IV and V variants are still under construction.

Inexpensive but remarkably well-armed, these ships are not large enough to operate with the fleet. They have very small fuel bunkers and are difficult to refuel, so they must remain near port. They handle heavy seas poorly. They are found primarily in short-range amphibious or supply operations, or in coastal defense ASW groups.

FFL Grisha III

(MPK- Small Anti-Submarine Ship)

**Defensive Weapons:**

4x quad SA-N-5 short range SAM launchers
2x twin 57mm AA guns

Offensive Weapons:

None.

Sensors:

Search radar
No sonar

Aircraft:

None

Notes:

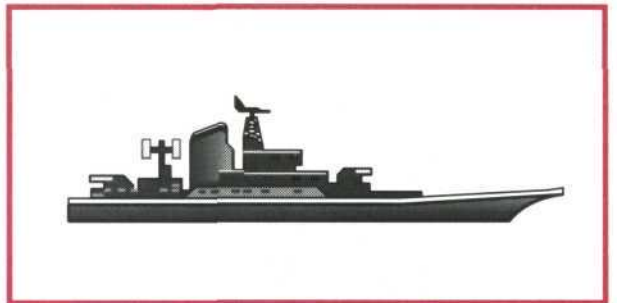
Nineteen of these ships were completed between 1975 and 1985. Each one can

Dimensions:

2,200 tons
2,650 tons loaded
113m x 14m
18 kts, 70 men
Diesel propulsion

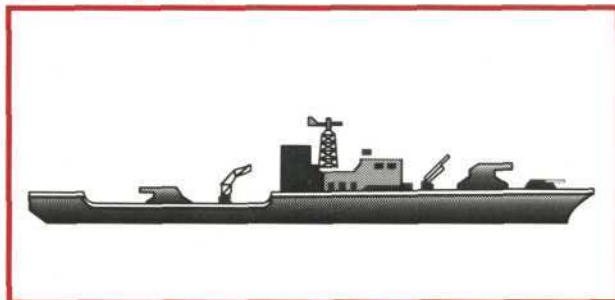
LST Ropucha

(BDK- Large Landing Ship)



carry about 25 armored vehicles and roughly 230 troops, representing all the vehicles and 25% of the men of an infantry battalion (the remaining troops would be embarked on larger but more conventional transports). The ship has both bow and stern doors for "roll-on/roll-off" cargo, as well as a shallow draft so it can nose up onto a beach to deliver vehicles directly.

AS Urga (PB- Floating Base)



Defensive Weapons:

2x quad SA-N-5 short range SAM launchers

4x twin 57mm AA guns

Offensive Weapons:

None.

Sensors:

Warning radars

No sonars.

Aircraft:

Helicopter landing pad on stern

Dimensions:

6,750 tons

9,600 tons loaded

145m x 17.7m

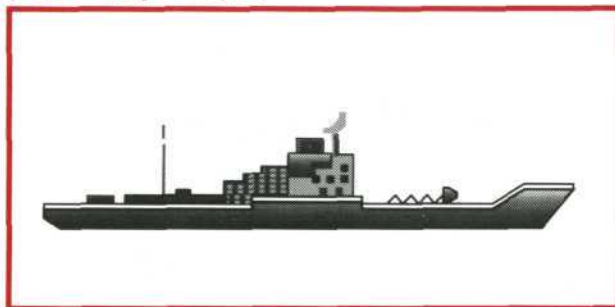
17 kts, 450 men

Diesel propulsion

Notes:

Completed between 1963 and 1972, these ships are designed to maintain and support submarines at sea. They supply food, fuel, water, torpedoes, and workshop facilities for repairs. Six are still in service, each with various modifications to its superstructure, giving each one a unique appearance. Two more serve as training ships.

AE Modified Andizhan (VTR- Military Transport)



Defensive Weapons:

None.

Offensive Weapons:

None.

Sensors:

Warning radar

No sonars.

Aircraft:

Helicopter landing pad on stern

Dimensions:

4,500 tons

6,740 tons loaded

104.0m x 14.4m

13.5 kts, 100 men

Diesel propulsion

Notes:

Originally built as cargo ships in 1958-60, these ships were revised in the 1970s to carry replenishment missiles for warships that expended their ammunition. Another forty without missile-stowage modifications exist in the Soviet merchant marine.

Defensive Weapons:

None.

Offensive Weapons:

None.

Sensors:

Warning radar
No sonars.

Aircraft:

None.

Notes:

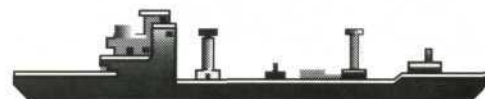
These are common small replenishment/refueling ships; the four in this class were completed between 1974 and 1979. The ship is outfitted for underway replenishment to three ships simultaneously, as well as having extra berths for replacement sailors.

Dimensions:

4,300 tons
11,100 tons loaded
130.1m x 20.0m
16 kts, 60 men
Diesel propulsion

AOR Dubna

(VT- Military Tanker)

**Defensive Weapons:**

Removed.

Offensive Weapons:

None.

Sensors:

Warning radar
No sonars

Aircraft:

None.

Notes:

Typical large replenishment/refueling ships, the six fleet ships in this class were completed between 1967 and 1978. The ship is outfitted to replenish two ships

Dimensions:

8,750 tons
24,500 tons loaded
162.3m x 21.4m
16.5 kts, 380 men
Diesel propulsion

AOR Boris Chilikin

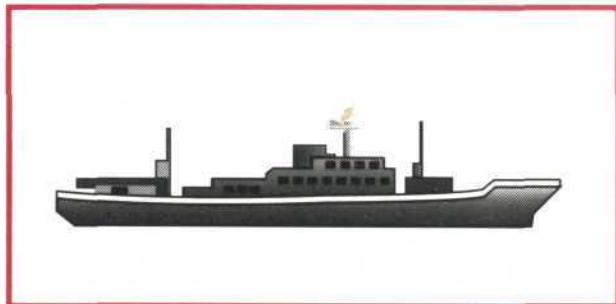
(VT- Military Tanker)



simultaneously. Originally fitted with 57mm guns, these were later removed as unnecessarily increasing the crew and maintenance costs, with no equivalent increase in military capability.

AP Amguema

(VTR- Military Transport)



Defensive Weapons:

None.

Offensive Weapons:

None.

Sensors:

Navigation radar only.
No sonars.

Aircraft:

None.

Dimensions:

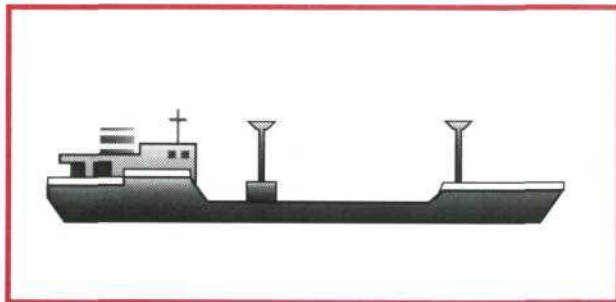
9,050 tons
15,700 tons loaded
133.1m x 18.9m
15 kts, 75 men
Diesel propulsion

Notes:

This class of medium-sized icebreaking passenger ships operates in northern climates. Only one, the Yauza, completed in 1975, is officially part of the Soviet Navy. The other fourteen are in civilian service. In wartime, though, they would immediately become troop transports. Carrying capacity is a respectable 6,600 tons.

AK Yuniy Partuzab

(VTR- Military Transport)



Defensive Weapons:

None.

Offensive Weapons:

None.

Sensors:

Navigation radar only.
No sonars.

Aircraft:

None.

Dimensions:

2,050 tons
3,950 tons loaded
88.7m x 12.8m
13 kts, 25 men
Diesel propulsion

Notes:

Four ships of this class of 24 joined the Soviet Navy in 1975-78. Small and of shallow draft, they are suited to carrying supplies, ammunition, etc. in amphibious operations. The remaining civilian ships would join the navy in wartime.

Weapons:

20x SS-N-20 nuclear missiles each with 6-9
MIRV warheads
SS-N-16 ASW missiles
26" torpedoes
21" torpedoes
4x 26" torpedo tubes
2x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
Towed array may be added later

Notes:

The first boat in this class was completed in 1983, with production continuing at about one per year thereafter. They are the world's largest submarines, and the USSR's very latest nuclear deterrent. The design is a considerable improvement over the ungainly Delta class. The boats can operate beneath the arctic icepack, where they break through to launch their missiles. In the open sea they can launch from underwater. The nuclear missile tubes are located forward of the sail, a unique but sensible feature.

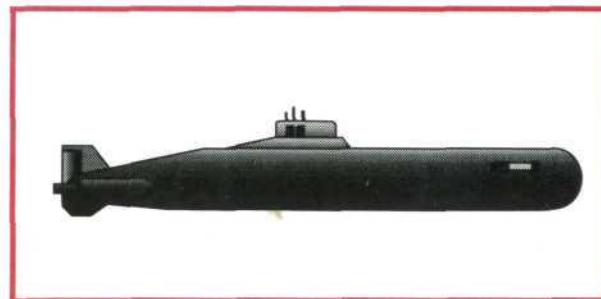
The SSBN Typhoon II class of the 1990's is a slightly improved version of this boat with additional quieting and slightly improved sonar systems. This class is hypothetical but a logical extension of the current design.

Dimensions:

25,000 tons submerged
170.0m x 25.0m
25 kts, about 150 men
Nuclear propulsion

SSBN Typhoon

(PLARB- Nuclear-powered Ballistic Missile Submarine)

**Weapons:**

16x SS-N-23 nuclear missiles each with 7
MIRV warheads
21" torpedoes
6x 21" torpedo tubes

Sensors:

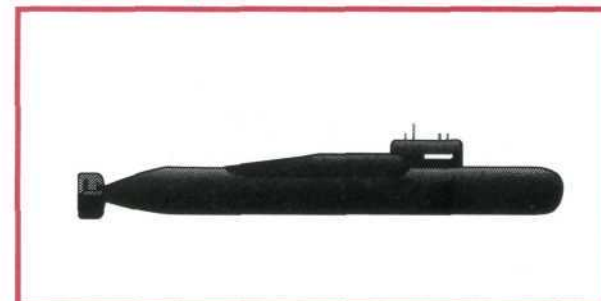
Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted

Dimensions:

13,550 tons submerged
155.0m x 12.0m
24 kts, about 120 men
Nuclear propulsion

SSBN Delta IV

(PLARB- Nuclear-powered Ballistic Missile Submarine)

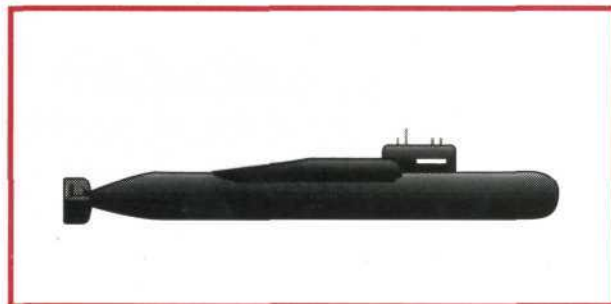


Notes:

This latest variant of the turtle-backed Delta class SSBNs began joining the Soviet fleet in 1984. Like the Typhoon, it is designed to operate under ice, rising through it to fire. The Delta design has been in production with various upgrades since 1972. The class was based closely on the Yankee class that appeared in 1967. All Delta class boats are remarkably loud SSBNs, although class revisions have improved them somewhat. Now that the Typhoon class is available, it's surprising that these boats remain in production.

SSBN Delta III

(PLARB- Nuclear-powered Ballistic Missile Submarine)

**Weapons:**

16x SS-N-18 nuclear missiles with 7 MIRV warheads
21" torpedoes
6x 21" torpedo tubes

Dimensions:

13,250 tons submerged
155.0m x 12.0m
24 kts, about 120 men
Nuclear propulsion

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted

Notes:

This portion of the large Delta class was completed between 1975 and 1982, and remains a significant part of the Soviet nuclear deterrent. These boats have the same weaknesses as the Delta IV group (see above), and in addition are not designed to surface through the icepack for firing.

SSGN Oscar

(PLARK- Nuclear-powered Cruise Missile Submarine)

**Weapons:**

24x SS-N-19 anti-ship missile tubes
SS-N-16 ASW missiles
26" torpedoes
21" torpedoes
4x 26" torpedo tubes
4x 21" torpedo tubes

Dimensions:

14,500 tons submerged
150.0m x 18.0m
35 kts, about 120 men
Nuclear propulsion

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
Towed array may be added in future

Notes:

The first boat in this class joined the fleet in 1982, with a follow-on ship appearing every other year. The Oscar is "state of the art" in heavy-hitting Soviet subs. The SS-N-19s are at least equal to the Tomahawk in range and power, and have their own launchers in addition to the eight torpedo tubes. This boat is designed to absorb considerable damage without sinking. In wartime these submarines would avoid NATO subs and seek out NATO surface ships instead. The dream of every Oscar captain must be to "bag" an American nuclear aircraft carrier.

Weapons:

8x SS-N-9 anti-ship missile tubes
21" torpedoes
6x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted

Dimensions:

5,400 tons submerged
102.0m x 10.0m
23 kts, 110 men
Nuclear propulsion

SSGN Charlie II

(PLARK- Nuclear-powered Cruise Missile Submarine)

**Notes:**

Only six of this class were completed between 1973 and 1982. Apparently they suffer from mechanical difficulties and design flaws, partly the result of using just a single nuclear reactor in the power plant (instead of two). As with the Oscar class, these boats are designed to attack surface ships. They are probably under orders to avoid contact with enemy submarines.

Weapons:

SS-N-16 ASW missiles
26" torpedoes
21" torpedoes
4x 26" torpedo tubes
4x 21" torpedo tubes

Dimensions:

7,550 tons submerged
110.0m x 12.0m
36 kts, about 90 men
Nuclear propulsion

SSN Sierra

(PLA- Nuclear-powered Submarine)

**Sensors:**

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
Towed array

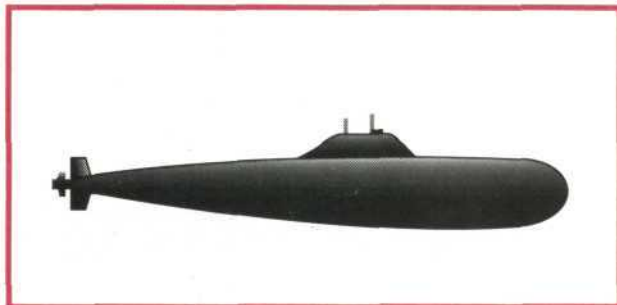
Notes:

Launched starting in 1983 for use in the Northern Fleet, this class is Russia's latest and most advanced attack submarine. Armament and sonars are the best models available. The anechoic (sonar-absorbent) coating and quiet design benefits from technology purchased and stolen from the West.

The Akula, another new class with similar features (but somewhat smaller), is produced in Siberia for the Far Eastern fleet.

SSN Alfa

(PLA- Nuclear-powered Submarine)

**Weapons:**

21" torpedoes
6x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull mount
Passive sonar, low frequency, hull-mounted

Dimensions:

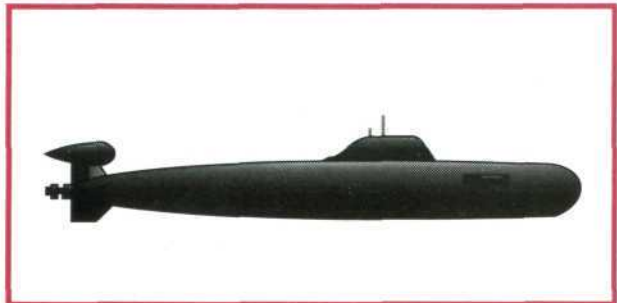
3,700 tons submerged
81.4m x 9.5m
45 kts, about 45 men
Nuclear propulsion

Notes:

This is the world's fastest and deepest-diving warship class, giving it enormously tactical advantages. It is also the most innovative and daring submarine design in 25 years. Six boats were completed between 1979 and 1983. The strong, light titanium hull is enormously expensive (the Soviets refer to these as the "zolotaya nyba" — golden fish). However, this hull not only gives the sub deep diving abilities, but also protects it from damage. The reactors use highly efficient liquid metal for heat exchange, but may not be as safe as Western designs. Compared to the new Sierras, this boat is extremely loud, especially at high speed.

SSN Victor III

(PLA- Nuclear-powered Submarine)

**Weapons:**

SS-N-16 ASW missiles
26" torpedoes
21" torpedoes
4x 26" torpedo tubes
2x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted
Towed array

Dimensions:

6,300 tons submerged
106.0m x 10.0m
29 kts, about 85 men
Nuclear propulsion

Notes:

The last and best of the Victor class, the 21 boats in this group were completed between 1979 and 1986. This class was the first to have a towed array. The propeller arrangements were originally unsatisfactory, and all have been upgraded with new Toshiba/Kongsberg-built props that turned a lemon into a star performer. SS-N-16 missile fire control was retrofitted in the middle 1980s to the entire group.

Weapons:

SS-N-16 ASW missiles
26" torpedoes
21" torpedoes
4x 26" torpedo tubes
2x 21" torpedo tubes

Dimensions:

5,700 tons submerged
100.0m x 10.0m
30 kts, about 80 men
Nuclear propulsion

SSN Victor II

(PLA- Nuclear-powered Submarine)

**Sensors:**

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted

Notes:

The seven boats in this group were designed as Victor I upgrades, and were completed between 1972 and 1978. They lack towed arrays, are somewhat louder and less sophisticated than Victor IIIs, but otherwise are capable and effective attack submarines

Weapons:

21" torpedoes
6x 21" torpedo tubes

Dimensions:

5,100 tons submerged
95.0m x 10.0m
30-32 kts, about 80 men
Nuclear propulsion

SSN Victor I

(PLA- Nuclear-powered Submarine)

**Sensors:**

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mount
Passive sonar, medium frequency, hull-mounted

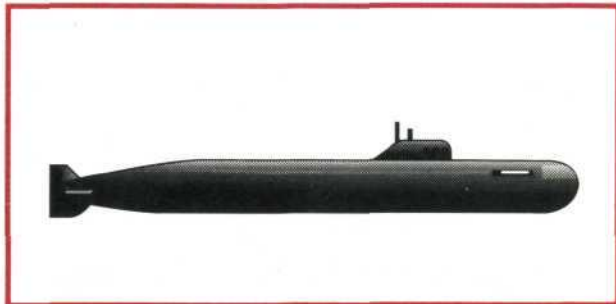
Notes:

The sixteen boats in this leading group of the Victor class were completed in 1968 to 1975. Designed for high speed, they are neither as sophisticated

nor as quiet as later models, but represent a major improvement over the November class. In fact, these improvements were so significant that this class remains in operational service, while the November's are being retired.

SSN November

(PLA- Nuclear-powered Submarine)



Weapons:

21" torpedoes
16" ASW torpedoes
4x 21" torpedo tubes
4x 16" torpedo tubes

Dimensions:

5,300 tons submerged
110.0m x 9.0m
30 kts, about 80 men
Nuclear propulsion

Sensors:

Mast-mounted search radar and ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted

Notes:

Built between 1959 and 1964, these were Russia's first nuclear submarines. Originally 15 Novembers were built, but only 12 remain in service. They are definitely second rate attack submarines and the remainder will probably be retired gradually over the next five to ten years. Compared to current designs they are loud, poorly armed, and nearly blind due to inferior sonar systems. No systems or weapons upgrades are likely this late in their operational life.

SSG Juliet

(PLRK- Conventional Cruise Missile Submarine)



Weapons:

4x SS-N-3a "Shaddock" anti-ship missiles
21" torpedoes
16" torpedoes
6x 21" torpedo tubes
4x 16" torpedo tubes

Dimensions:

3,750 tons submerged
90.0m x 10.0m
14 kts, about 80 men
Diesel/electric engines

Sensors:

Mast-mounted search radar, missile targeting radar, and ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, medium frequency, hull-mounted

Notes:

These diesel/electric cruise missile subs were finished between 1961 and 1969. They are conventionally-powered equivalents to the Echo class of SSGNs, and

remain in service despite serious weaknesses. They are very loud by diesel/electric standards. The boats must surface to target and fire their SS-N-3 missiles. The missiles themselves are not especially effective against ships with good defenses, but could wreak havoc if fired into a convoy of unarmed merchantmen.

Weapons:

SA-N-5(?) SAM missile launcher
21" torpedoes
6x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted

Notes:

This class first joined the Soviet fleet in 1982 and construction continues. They are the latest and most advanced diesel/electric subs in the fleet, with greater speed than earlier designs. Medium-sized and short-ranged, with inexpensive weapons systems, these boats have been offered for sale to India and various Soviet-aligned third-world powers.

Like all diesel/electric designs, their electric engines can run only for limited periods (a few hours to a few days, depending on speed). The diesel engine requires air to operate, demanding that the sub either run on the surface, or with a snorkel raised from periscope depth.

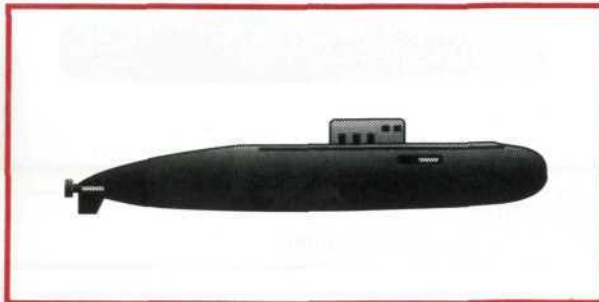
This class is the first operational submarine to carry a SAM system, an appropriate addition in a ship that regularly operates near the surface (when snorkeling).

Dimensions:

3,000 tons submerged
70.0m x 9.9m
25 kts, about 60 men
Diesel/electric engines

SS Kilo

(PL- Conventional Submarine)



Weapons:

SS-N-16 ASW missiles
21" torpedoes
10x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, low frequency, hull-mounted
Passive sonar, low frequency, hull-mounted

Dimensions:

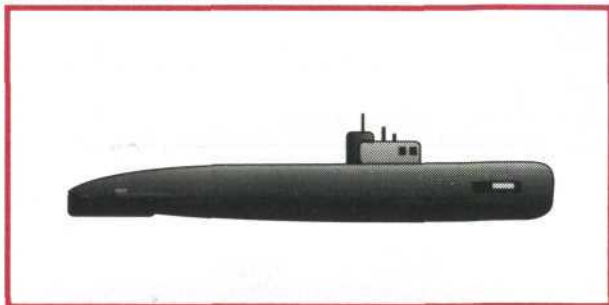
3,900 tons submerged
92.0m x 9.0m
20 kts, 72 men
Diesel/electric engines

SS Tango

(PL- Conventional Submarine)

SS Tango

(PL- Conventional Submarine)

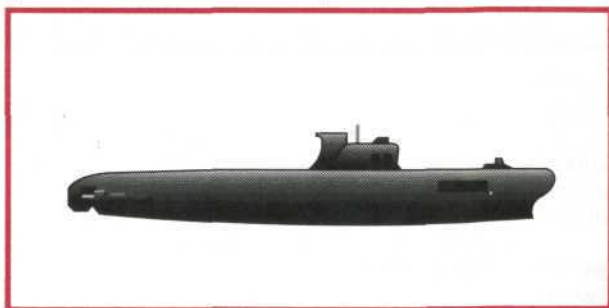


Notes:

Twenty of this class were built between 1972 and 1982. Although not as modern as the Kilos, these boats are the largest diesel/electric attack subs currently in Soviet service, and quite effective. The SS-N-16 fire control system is believed present in most, if not all, while a SAM launcher may be present in a few as an experimental installation.

SS Foxtrot

(PL- Conventional Submarine)



Weapons:

21" torpedoes
10x 21" torpedo tubes

Sensors:

Mast-mounted search radar and ESM
Active sonar, medium frequency, hull-mount
Passive sonar, medium frequency, hull-mount

Dimensions:

2,400 tons submerged
91.5m x 7.5m
16 kts, 75-80 men
Diesel/electric engines

Notes:

About 50 boats of this type were completed between 1958 and 1967. The Foxtrots were the last of the old, inexpensive, large-quantity diesel/electric subs. At their time they were an effective threat, but now they border on the second rate.

SS Whiskey

(PL- Conventional Submarine)

Weapons:

21" torpedoes
6x 21" torpedo tubes

Sensors:

Mast-mounted search radar, crude ESM
Active sonar, medium frequency, hull-mounted
Passive sonar, high frequency, hull-mounted

Dimensions:

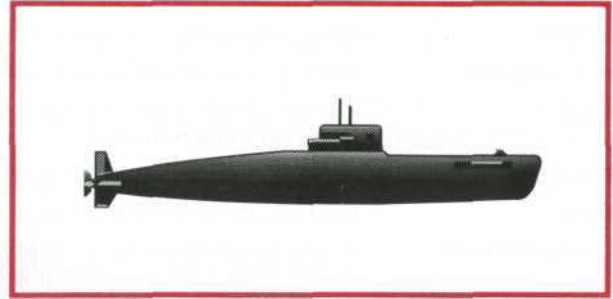
1,350 tons submerged
75.0m x 6.3m
13.5 kts, 50-55 men
Diesel/electric engines

SS Whiskey

(PL- Conventional Submarine)

Notes:

Designed during WWII, over 200 Whiskeys were built until 1957, when construction finally ceased. This makes them the most numerous submarine class ever built. About 50 to 70 still remain in service, plus dozens more owned by Soviet client states. Loud, slow, and poorly outfitted by modern standards, these boats require extremely skillful handling and plenty of luck to survive against modern Western warships.



Glossary

AA:	Anti-aircraft, a weapon capable of shooting down aircraft or (usually) missiles.
ABM:	Anti Ballistic Missile. The Russian ABM system includes radars and warning systems covering the borders of the nation, and special point-defense systems designed to protect Moscow.
ADCAP:	Added Capability, an improved version of the Mark 48 torpedo.
Arkhangel'sk:	Soviet port on the White Sea, sometimes written as Archangel.
Boat:	Correct US Navy term for any submarine, no matter how large. A submarine is never a "ship"; that term is limited to surface vessels.
Boomer:	Nickname for a nuclear ballistic missile submarine (SSBN).
Con:	Controls, the steering controls of a vessel.
Cruise Missile:	A long-range slowly flying missile. Shipboard versions usually have a rocket booster that accelerates the missile to cruising speed, after which a much more efficient air-breathing jet engine takes over. Depending on size and guidance equipment, such missiles can travel hundreds of miles.
Dodectuple:	Group of twelve, in this case a 12-tube launcher.
DP (Dual Purpose) Guns:	A naval gun designed to fire either at surface targets (LA) or at flying targets (AA). Flying targets can include both aircraft and missiles.
ELF:	Extremely Low Frequency, sound systems that use very low frequency waves transmitted through the earth itself. Used for coded messages from a nation to its ballistic missile submarines at sea.
ER:	Efficiency Rating; a numerical performance evaluation of a US Navy officer.
ESM:	Electronic sensing measures; passive receivers of electronic signals, especially radar signals.
GIUK Gap:	Greenland - Iceland - United Kingdom Gap, the various straits that connect the Norwegian Sea to the North Atlantic Ocean.
Helm:	Movement controls for a naval vessel.
Helo:	Common naval abbreviation for helicopter.
HF:	High Frequency sonars operate using high-frequency sound. They are the least effective of all modern sonars.
Kyds:	Thousands of yards; for example, 6 Kyds is 6,000 yards.
Laser:	A beam of coherent light, generally invisible to the human eye, although certain types can damage the eye.
LA (Low Angle) Guns:	Guns designed to fire at surface targets, such as other ships or the land. The weapons cannot elevate or train fast enough to hit airborne targets, and usually lack sufficient rate of fire and fire control devices as well.
Launch Transient:	Sound of a weapon being launched from an underwater torpedo tube. The sound is caused by compressed air (used to launch all but "swimout" weapons).
LF:	Low Frequency, sonars that operate using low-frequency sound. These are the best of all modern sonars.
Mast:	A long telescoping pole that can be raised above the conning tower of a sub. A periscope is a mast with mirrors and lenses. Other masts have radar sets, ESM gear, radio antennae, snorkels, or a Stinger SAM launcher.

MF:	Medium Frequency, sonars that operate using medium-frequency sounds. These sonars are superior to high frequency (HF), but inferior to low frequency (LF) models.
OTH:	Over The Horizon, a type of very large radar set that can bounce radar signals far over the horizon, allowing it to "see" hundreds of miles out to sea.
Point Defense Guns:	A multiple-barrel "Gatling gun" that fires thousands of rounds per second. These guns, often with computerized radar control, are designed to shoot down cruise missiles a few seconds before they hit the ship. Their range is too small to be useful as AA weapons.
Radar:	Radio frequency waves directed into the air, whose reflections are used to determine the location of objects.
RBU:	A multiple-tube ASW rocket launcher (in Russian, "Raketnaya Bombometnaya Ustanovka"). The weapon fires all tubes simultaneously. The rockets scatter into a pre-planned pattern and explode at a pre-planned depth. The model number indicates maximum range (RBU-6000 has 6,000 yard maximum range, etc.).
RN:	Royal Navy, the fleet of the United Kingdom.
SAM:	Surface-to-Air Missile, a guided missile designed to shoot down airplanes and/or helicopters.
Sonar:	Sound waves travelling through water, the analysis of which is used to determine the location of objects in the water.
SOSUS:	Sound Surveillance System, a network of FFQ-10(V) sound sensors about 10 to 30 Kyds apart on the seabed, linked by cables to a computerized command center ashore.
TASM:	Tomahawk Anti-Ship Missile, a version of the Tomahawk missile designed for use against naval targets.
TLAM:	Tomahawk Land Attack Missile, a version of the Tomahawk designed for use against land targets.
TMA:	Target Motion Analysis, the use of sound patterns to completely identify and locate enemy vessels. The concept is often extended to all incoming data, including radar and laser.
Transient:	see Launch Transient.
Transit:	To pass through an area, generally used to describe a vessel moving through restricted waters (such as a strait, passage between islands, etc.).
UGM:	Underwater Guided Missile, a version of the Harpoon designed to be launched from torpedo tubes.
USN:	United States Navy, the navy of the United States of America.
USS:	United States Ship, used as name prefix for all ships of the USN.
VDS:	Variable Dipping Sonar, a sonar device that a ship lowers over its stern by cable, to "stream" in the water behind and below it.
V/STOL:	Vertical/Short Takeoff and Landing, a type of aircraft that can direct its jets downward to "jump" into the air and hover for a landing. Often the aircraft use a short rolling start up a "ski jump" type ramp to increase their load at takeoff. Aircraft of this type are common on small aircraft carriers, such as the British "Sea Harrier" on the Invincible class, or the Russian Yak-38 "Forger" on the Kiev class.
XO:	Executive Officer, a standard US Navy abbreviation.

US Navy Warship Abbreviations

BB: Battleship, conventionally powered.
BBG: Guided missile battleship, conventionally powered.
BC: Battlecruiser (lightweight battleship), conventionally powered.
BCGN: Guided missile battlecruiser, nuclear powered.
CV: Aircraft carrier, conventionally powered.
CVN: Aircraft carrier, nuclear powered.
CH: Helicopter cruiser, conventionally powered.
CG: Guided missile cruiser, conventionally powered.
CGN: Guided missile cruiser, nuclear powered.
CL: Light cruiser (despite the name, it has numerous large-caliber guns), conventionally powered.
DD: Destroyer, conventionally powered.
DDG: Guided missile destroyer, conventionally powered.
FF: Frigate, conventionally powered.
FFG: Guided missile frigate, conventionally powered.
SS: Attack submarine, diesel/electric powered.
SSG: Guided missile (cruise missiles) submarine, diesel/electric powered.
SSGN: Guided missile (cruise missiles) submarine, nuclear powered.
SSN: Attack submarine, nuclear powered.
SSBN: Ballistic missile submarine, nuclear powered.

Soviet Navy Warship Abbreviations

BDK: Large Landing Ship (Bol'shoy Desantnyy Korabl').
BPK: Large ASW Ship (Bol'shoy Protivolodochnyy Korabl').
BRK: Large Missile Ship (Bol'shoy Raketnyy Korabl').
DK: Landing Ship (Desantnyy Korabl').
EM: Destroyer (Eskadrennyy Minonosets).
KR: Cruiser (Kreyser).
MPK: Small ASW Ship (Malyy Protivolodochnyy).
MRK: Small Missile Ship (Malyy Raketnyy).
PKR: ASW Cruiser (Protivolodochnyy Kreyser).
PL: Submarine (Podvodnaya Lodka).
PLA: Nuclear Submarine (Podvodnaya Lodka Atomnaya).
PLARB: Nuclear Ballistic Missile Submarine (Podvodnaya Lodka Atomnaya Raketnaya Ballisticheskaya).
PLARK: Nuclear Cruise Missile Submarine (Podvodnaya Lodka Atomnaya Raketnaya Krylataya).
PLRB: Ballistic Missile Submarine (Podvodnaya Lodka Raketnaya Ballisticheskaya).
PLRK: Cruise Missile Submarine (Podvodnaya Lodka Raketnaya Krylataya).
RKA: Missile Cruiser (Raketnyy Kreyser).
SDK: Medium Landing Ship (Srednyy Desantnyy Korabl').
TAKR: Tactical Aircraft Carrying Cruiser (Takticheskoye Avianosnyy Kreyser).
VT: Military Tanker (Volenny Tanker).
VTR: Military Transport (Volenny Transport).

Designers' Notes

RED STORM RISING was developed in MPS Labs, the official name of the development group of MPS Technologies (formerly MicroProse Software). Although MPS Labs has many well-known members, and many who deserve wider acclaim, the most famous is Sid Meier, joint founder of MPS Technologies and its most prolific game designer/programmer.

In 1986, a year after he finished the best-selling WWII submarine simulation "Silent Service", Sid Meier contemplated an equivalent game about modern submarine warfare. The idea languished until a meeting was suggested between him and Tom Clancy, author of the best-selling novel of World War III, *Red Storm Rising*. Not only were his books full of interesting situations, but Mr. Clancy himself was full of ideas, advice and suggestions. Furthermore, his co-author Larry Bond proved to be a fountain of data, algorithms, and technical information about modern naval warfare.

Armed with this, Sid developed a detailed and accurate simulation of a modern submarine in combat. At times we were worried that realism would work against us, since the traditional "look through the periscope and shoot the torpedo" image of submarine combat is gone from modern warfare. But strangely, each time someone took the helm of this program, they were quickly caught up in the high-tech world of TMAs, missiles, and wire-guided torpedoes.

In addition to realism and accuracy, Tom Clancy provided another invaluable asset: a vision of what might happen in a "conventional" (non-nuclear) World War III. This is the setting for submarine operations here, especially the campaign, with its various missions and sometimes surprising events. Of course, to keep each game fresh and interesting, events may not follow those in the novel (otherwise you'd know what was going to happen). However, both the Warsaw Pact and NATO follow the political and strategic thinking of the novel. Clancy readers will find familiar situations appearing frequently, if sometimes unexpectedly.

Contemporary news events suddenly came home to us as the simulation design progressed. The importance of the Toshiba/Kongsberg propeller scandal became very obvious. Advances in oceanographic research showed that early 1970s models of sound in water were much too simplistic — recent work about undersea "weather" became important, and was incorporated into the game. Naturally, the latest books and magazines about military equipment around the world were of crucial importance.

Most of all, this simulation lets you play through "scenarios" just like Navy and civilian design staffs do, analyzing the value of various "platforms" (ships) and weapon systems. Were the VLS tube additions worthwhile in the Los Angeles? Play the game and see. Currently only SSBNs carry decoys, but we assume wartime SSNs will use them too. What if they don't? Play the game and see.

Furthermore, the game gives you insight into funding debates in Congress today. Is the new Seawolf class worthwhile? Do we really need a weapon like the

Sea Lance? Now you can understand these issues from a military viewpoint. Formerly esoteric newspaper articles may prove much more interesting, now that you understand the implications in procurement decisions.

Success in RED STORM RISING comes in two flavors. The first challenge is mastering the job of fast-attack sub captain. After training and a few battle simulations, you're ready for the full "Red Storm Rising" campaign in the Norwegian Sea. Emerging victorious from this campaign, preferably in victory parade with a promotion to Admiral, proves you've mastered this challenge.

The second challenge is improving your ER. Winning the war is one thing. Winning the war and looking like the hottest sub driver in the USN is something else! Striving to constantly improve your ER does have its rewards — with higher ERs come the more prestigious medals, up to and including the most coveted decoration of all, the Congressional Medal of Honor.

As in all MPS Labs products, in RED STORM RISING we followed our standing policy of using unclassified sources only. At times we made educated guesses, especially regarding Russian equipment quality. We tried to maintain a balanced viewpoint in this. For example, in areas where American "official" figures are probably underestimates, we took a similar view of data about Russian equipment. In the past our flight simulators GUNSHIP and PROJECT: STEALTH FIGHTER inspired knowledgeable military officers to commend us on their accuracy. Apparently our educated "guesses" about unmentioned or secret equipment were close to the mark! We feel confident that submariners will be pleased with this simulation.

As always, MPS Labsi has no particular political viewpoint, nor do we promote antipathy toward any nationality or race. RED STORM RISING uses the setting of a novel, and as such is fiction. If anything, it's tragic that Mr. Clancy's portrayal of World War III is so believable. Here at MPS Labs we would prefer that all war machines be used only in imaginative computer simulations, never in real life.

The entire team involved in this project found the world of RED STORM RISING exciting and educational. It is an ideal device for the "armchair admiral" to experiment with state-of-the-art naval systems. We enjoyed spending over a year putting it together. We're confident you'll enjoy sailing it into the dangerous waters of the Norwegian Sea Theater, in Tom Clancy's vision of World War III.

Credits

A PRODUCT OF MPS LABS

Game Design

Sid Meier
with Arnold Hendrick

Original C-64 Programming

Sid Meier and Richard Orban
with Silas Warner

Original Computer Graphics

Murray Taylor
with Max Remington

Original Music & Sound Effects

Ken Lagace
with Sid Meier

Manual

written by Arnold Hendrick

Manual Graphics

graphics by Murray Taylor
with Barbara Bents and Jackie Ross

Technical Advice & Research

Larry Bond and Tom Clancy

Original Version Quality Assurance

Chris Taormino

Original Version Playtesting

Chris Taormino, Alan Roireau, Roy Gibson,
Bill Stealey, Vicki Smith, Larry Martin,
Pete Simonetti, Silas Warner, Arnold Hendrick,
Sid Meier, Steve Meyer, Larry Bond,
Chris Carlson, Jim Baker, Sam Baker,
Pat Slocomb, Dave Markov

Packaging

Design by Mark Ciola and John Emory
Copy by Jack Kammer and Gary Almes

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Congressional Medal of Honor



Navy Cross



Distinguished Service Medal



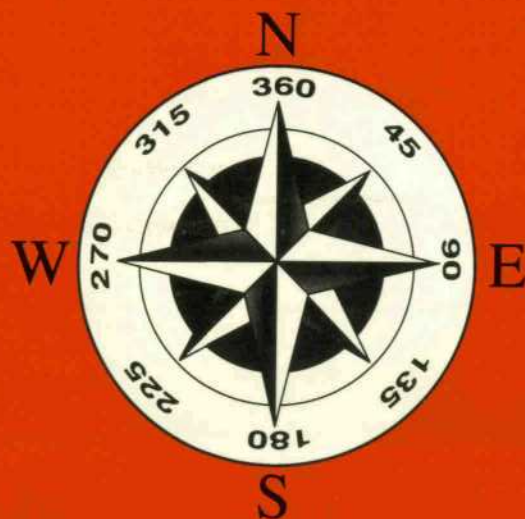
Silver Star



Bronze Star for Valor



Navy Commendation



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