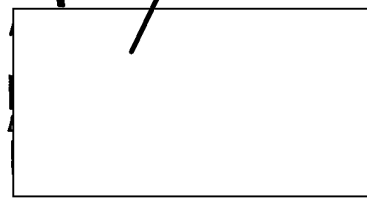


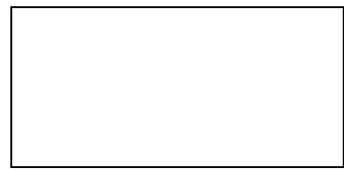
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DIRECTORATE OF INTELLIGENCE

**The Soviet Navy:
Strategy, Growth, and Capabilities**



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SR WP 72-2

June 1972

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
June 1972

WORKING PAPER

The Soviet Navy:
Strategy, Growth, and Capabilities

Introduction

The Soviet Navy of 1972 reflects nearly two decades of effort on the part of the Soviet Union to extend its defense perimeters away from the Soviet coastline and to achieve sufficient mobile capability to counter US and NATO naval forces in distant areas. To support these national goals, the Soviet Navy has developed operational capabilities for anticarrier defense, strategic attack, and distant deployments. To a lesser extent, the Soviets have worked toward acquiring an antisubmarine warfare capability, while preserving their interdiction and coastal defense forces.

The US and Soviet navies are now competitors in overall size and in technical advances in the fields of weapons, propulsion systems, and sensors. This fact and the rapidity with which the Soviet Navy has improved its capabilities during the past ten years have provoked questions regarding Soviet naval strength and intentions.

This report describes the background and current status of the Soviet Navy in terms of its strategic concerns, force composition, construction programs, and distant operations. To place these characteristics of the Soviet Navy in a clearer perspective, a comparison of US and Soviet fleet structures, design and construction efforts, and deployed operations is included.

Note: This paper was produced solely by CIA in the Office of Strategic Research.

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Soviet Naval Strategy

The Postwar Period, 1945-1953

The Soviet Navy's strategy in the postwar period concentrated on coastal defense, support of the army's flanks, and interdiction of the sea lines of communication to Europe. In executing these missions, major surface ships and naval aircraft were to combat enemy naval units in coastal areas, and an attack submarine force of as many as 1,000 units was to cut the sea lines and to assist in coastal defense. Some naval leaders, who probably desired to extend the defense barriers further to sea, advocated the construction of carriers. One reliable source reported that Stalin actually accepted a plan for construction of four aircraft carriers in 1950. Stalin's death and a major reorganization of the navy terminated the large submarine program at about 300 units and ended plans for acquiring carriers.

New Directions, 1953-1965

The political events of the mid-Fifties--including Khrushchev's rise to power in 1955, the replacement of Admiral Kuznetsov by Admiral Gorshkov as commander in chief of the navy in 1956, and the ouster of Marshal Zhukov in 1957--all had an impact on naval programs. These events, along with the emergence of the new threat--carrier-based aircraft armed with nuclear weapons--prompted a sweeping reexamination of naval programs and affected the shape of the future forces.

Khrushchev and Gorshkov quickly exerted their influence to shape the new Soviet Navy. In response to the carrier threat, they authorized the development of cruise missile launch systems, emphasizing submarines and aircraft. Khrushchev and Gorshkov were proponents of submarines and it was under their leadership that the first ballistic missile submarines appeared. Khrushchev believed that conventional surface warships were of little use and stopped the construction of large

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gun-armed ships. Some of the ships already under construction were completed, but others were scrapped. In compliance with the new policy, the Soviets built only a few surface ships, and these were armed with missiles.

In the early Sixties, with the deployment of the Polaris submarine, the Soviets realized that the aircraft carrier was becoming relatively less important as a nuclear weapons delivery system, although they still regarded the carrier as a threat to the Soviet periphery, to their own naval forces, and to "national liberation" movements. As a result the development of anticarrier weapons, such as submerged-launched cruise missile submarines, continued into the Seventies.

The Current Period, 1965-1972

Soviet naval strategy now emphasizes five primary missions: strategic attack, defense against aircraft carriers, distant deployments, strategic antisubmarine defense, and interdiction.

Strategic Attack. The Soviet Navy concentrated its naval strategic strike and deterrence weapons in ballistic missile submarines. The G (diesel-powered, with three missile tubes) and the H (nuclear-powered, with three missile tubes) submarines were constructed in 1958-1962, followed by the Y class (nuclear-powered, with 16 tubes for a 1,300-nm missile) after 1967. Regular Y class patrols are conducted in the North Atlantic and Pacific. The Y class submarine is still in production and it is estimated that about 32-34 units will have been constructed by the end of 1972. A lengthened Y class has recently appeared, equipped with 12 missiles having an estimated range of 3,000 nm.

Defense Against Aircraft Carriers. Although continuing to improve their anticarrier capabilities, the Soviets appear reasonably satisfied that they can handle the threat. From 1965 to 1972 the number of

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Soviet cruise missile launch rails, including launchers on small patrol craft, grew from 1,050 to 1,460. At present the Soviets have 40 nuclear and 28 diesel cruise missile submarines, 275 Badger medium bombers with air-to-surface missiles and about 20 surface ships with cruise missiles. These forces give the Soviet Navy a stand-off attack capability and have replaced the traditional concept of massive numbers of ships in face-to-face confrontations.

Distant Operations. Admiral Gorshkov's emphasis in 1964 on distant operations broadened the scope of the Soviet Navy's operations militarily and politically. Militarily, distant operations allow the Soviet Navy to extend its defense perimeter outward from the Soviet land mass. They also permit more flexible responses to an international crisis such as the Indo-Pakistan War. Politically, they provide a counter to US forces in the Third World. By means of distant naval operations, the Soviet Union has extended its presence into areas where it traditionally has had little or no influence, such as the Caribbean and Mediterranean areas, the Indian Ocean, and West Africa.

At the same time, problems associated with distant operations limit Soviet naval capabilities in a hostile situation. Because Soviet aircraft are land-based in the USSR, except for a few stationed in Egypt, the Soviets lack air cover for most of their distant operations. This shortcoming has been partially compensated for by equipping ships with surface-to-air missile capabilities--typified by the continuation of Kashin class construction and the Kanin class conversion.

Logistic support is weak. At present the navy draws in part upon the merchant fleet for its logistical effort, an option that might not be available in a hostile situation. The lack of out-of-area port facilities is also a potential problem, as the Soviets have no means to effect major repairs or overhauls without returning to the Soviet Union. In

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addition, long transit distances from major Soviet naval bases could act as a limiting factor on naval out-of-area deployments.

Strategic ASW. The Soviets quickly recognized the threat posed by nuclear submarines in the late Fifties when the Polaris program was inaugurated by the US. They apparently did not appreciate the full implications of Polaris until the mid-Sixties, when they found their attempts at counterweapons were short of the mark. At about the same time, the threat of Western nuclear attack submarines became a reality as the Soviets deployed their fleets to distant operating areas. The focus of antisubmarine warfare efforts apparently shifted from strategic (anti-Polaris) to the more manageable tactical problem. Improved sonars and antisubmarine weapons were developed and deployed, while increased research and development efforts were undertaken to find a solution to the Polaris problem.

Despite these continuing efforts, the Soviet Navy's ASW capability is limited. Current Soviet ASW forces do not pose a serious threat to the US ballistic missile submarine force because the Soviets do not possess an ocean surveillance system capable of tracking Polaris and do not have sensors adequate for initial detection of quiet nuclear submarines. It is unlikely that there will be any substantial improvement in the near term. Soviet submarines are noisier and have less effective sonar equipment than their US counterparts, and airborne and surface-ship ASW systems lag behind US standards. The general lack of a capability for initial detection of submarines also represents an important tactical vulnerability in the Soviet Navy. This vulnerability has become more important with the increase in distant operations by Soviet surface combatants and auxiliaries.

Interdiction. The Soviets, in their writings, continue to recognize the interdiction of sea routes as a viable mission. The importance of interdiction, however, depends on the nature of any future conflict

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in Europe. In a short, intense conventional war or a rapid escalation to nuclear war between the Warsaw Pact and NATO countries, interdiction will not be a major naval mission.

A nuclear or conventional war protracted beyond 30 days, however, would require the deployment of Soviet combatants in an interdiction posture, and the Soviet Navy probably has contingency plans for such an eventuality. [redacted] of Soviet naval operations [redacted] definitive information [redacted]

[redacted] In general, the size of the Soviet submarine force and the antiship capabilities of its surface combatants give the Soviet Navy a significant interdiction capability.

Soviet Naval Strategy in Perspective

Since the mid-Sixties the Soviet Navy has expanded its area and style of operations but it remains primarily a defensive force. Perhaps one reason for the seeming shifts in Soviet strategy has been the emergence of a nuclear and ballistic missile environment. The longer ranges of the weapons systems arrayed against the USSR require that the Soviet Navy be able to detect, localize, and neutralize hostile forces farther from the Soviet land mass. For an effective defense, attack carriers must be destroyed before their aircraft are aloft and ballistic missile submarines stopped before their missiles are launched.

Soviet naval strategy, although more positive, has not drastically changed. The Soviet Navy continues to develop systems to better achieve its missions of strategic deterrence, antisubmarine and anticarrier warfare, interdiction of sea routes, and preparedness for military or political contingencies in distant areas. The overall thrust of Soviet strategy remains defensive--the Soviet Navy lacks the air defense, amphibious forces, and

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logistic capabilities needed to support an offensive posture.

The more outward-looking posture of Soviet naval strategy is demonstrated by current Soviet naval construction and operations. For example, the rate at which the Soviets have built their new ballistic missile submarines attests to the value they put on a strategic deterrent system. New construction programs including the Krivak destroyer, the new 445-B cruiser and the new Boris Chilikin replenishment ship, appear to be designed in part to achieve a more balanced capability for open-ocean operations in distant regions. Expansion of Soviet naval operations into the Caribbean and near West Africa, along with the sustained operations in the Mediterranean Sea and the Indian Ocean, are examples of this more forward posture.

The military effectiveness of Soviet ships in distant operations is still limited by logistic support deficiencies, inadequate antisubmarine defenses, and poor air defense capabilities. These deployments have proved fruitful in the political sense, however, and probably will remain an important element of Soviet strategy as Soviet interests increase throughout the world.

Changes in Force Composition and Size

The changing operational needs of the Soviet Navy have resulted in a shift in the structure of the total force over the years. This change is reflected in Tables 1-8 (appended). The size of the submarine force, for example, has decreased about 25 percent since 1956, and the number of surface ships has increased about 35 percent. Naval aircraft declined about 65 percent since 1956, largely through the removal of fighter aircraft and light bombers from naval jurisdiction in 1959. The PVO (air defense) forces assumed the coastal air defense mission at that time.

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Rather than making substantial quantitative increases in the size of its naval force, the Soviet Union has concentrated on making qualitative improvements. The submarine force, for example, has decreased in size through the years, but its capabilities have improved through technological changes. In 1956, Soviet submarines consisted entirely of diesel-powered torpedo attack classes of World War II design. By 1965, 10 percent of the force was armed with ballistic missiles and another 10 percent carried cruise missiles. This trend has continued, and today 17 percent of Soviet submarines carry ballistic missiles and 20 percent, cruise missiles.

The shift to nuclear propulsion of submarines is another example of technological improvements. In 1960, 2 percent of the force had nuclear propulsion, but by 1972, over 30 percent was nuclear powered. In the four-year period 1969 through 1972, the Soviet Union will have built only 9 diesel-powered submarines (some of these for export) compared with 48 nuclear-powered units.

The size of the Soviet surface forces has increased over the years, but this results primarily from an increase in the numbers of minor combatants from 1956 through 1965 and the addition of amphibious landing and auxiliary ships from 1960 to the present. The number of major combatants is about the same today as it was in 1956.

The composition of the surface combatant force has altered through the years, reflecting the concern of the Soviet Navy about its anticarrier and anti-submarine missions as well as its ability to conduct distant operations. The Soviets have put increasing emphasis on missiles--antiship and antiaircraft--in arming their surface combatants. In 1956 the Soviet Navy had no missile capability. Today about one-fourth of its surface combatants are missile equipped.

After 1960, the Soviets improved their amphibious landing capability, but this effort remains

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minor. The fledgling naval infantry consists of about 15,000 troops and 75 amphibious ships. The largest of these ships, with a capacity of about 560 personnel, are small by US standards. The naval infantry is probably intended for coastal operations in the event of war or to secure areas of special naval interest, such as the ingress and egress routes of the various Soviet fleets. Its utility in distant areas is limited, for without air cover it probably would not be effective against well-defended beaches.

Soviet naval aviation has undergone the most pronounced numerical changes of any naval element during the period. The transfer of the coastal air defense role to the PVO forces in 1959 resulted in a marked reduction in the number of aircraft assigned to the navy, and the current force is only one-third the size of the force before 1959. Since 1959, naval aviation has concentrated on its anticarrier and anti-submarine missions, and has increased its missile-carrying strike force by about 65 percent, its reconnaissance and bomber force by about 135 percent and its ASW aircraft and helicopters by almost 75 percent.

Soviet Naval Deployments

The general-purpose ships of the Soviet Navy spent about 6,300 days in out-of-area deployments in 1965 and 35,000 in 1971. As shown in Table 9, approximately half the increase in distant operations was a result of greater use of naval auxiliaries in support of fleet deployments and one-third of the change was a consequence of a greater number of surface combatant deployments. The remainder was due to an increase in submarine patrols.

The greatest annual increases in Soviet out-of-area ship-days occurred in 1967 and 1970. Two-thirds of the increase of 6,500 ship-days in 1967 was a result of the expansion of the Soviet Mediter-

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anean squadron during and after the Arab-Israeli War. The jump of 7,900 ship-days in 1970 was primarily a consequence of Exercise Ocean which directly involved the deployment of over 200 ships.

Ballistic missile submarine operations have grown from 400 days in 1965 to 2,300 days in 1971, accounting for about 6 percent of strategic and general purpose naval deployments combined. (See Table 10.)

Soviet deployments to the Mediterranean Sea in 1971 accounted for about 18,000 ship-days, about half of the general purpose out-of-area deployments. When the Soviet Mediterranean squadron was established in 1964, it consisted of one to four diesel submarines, one to four surface combatants, and up to six auxiliaries. Following the June war in 1967, the Soviets quadrupled their submarine and surface combatant strengths and introduced cruise missile submarines, amphibious ships, and naval aircraft. Since 1967, the Soviet Mediterranean squadron has grown by roughly one-third to its present average level of approximately 50 ships--about equal in numbers to the US Sixth Fleet. This total normally includes 15 to 20 surface combatants, 10 to 12 submarines, and over 20 auxiliaries.

The Soviets probably view their present Mediterranean force as approaching the optimum level to counter the US Sixth Fleet, provide a limited interdiction force in crisis situations, gather intelligence, demonstrate support for their friends, and constrain the political and military options of other countries.

Atlantic Ocean deployments accounted for 9,600 ship-days, approximately one-fourth of the Soviet Navy's general purpose ship-days in out-of-area operations in 1971. Ships transiting from Northern and Baltic Fleet ports to the Mediterranean Sea and South Atlantic have contributed heavily to the Atlantic ship-day totals. Soviet deployments to the Caribbean Sea and the West African area comprised

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less than 15 percent of Atlantic ship-days in 1971. The USSR appears to be making efforts to establish a small, continuous naval presence in the Caribbean and off West Africa which might slightly increase the level of Soviet operations in the Atlantic as a whole.

In 1971, 12 percent, or 4,100 ship-days, of the Soviet Navy's out-of-area operations were spent in the Pacific Ocean. Most of this activity involved general purpose submarine operations throughout the West Pacific, fleet training exercises in the Northern Pacific, and intelligence collection activity. Since 1969, a growing portion of Soviet ship-days in the Pacific Ocean has been a consequence of the transits of ships to and from the Indian Ocean.

In 1971, 9 percent of the Soviet Navy's deployed ship-days were in the Indian Ocean. Between 1968 when Soviet naval deployments to the Indian Ocean began and December 1971, the Soviet force in the area grew to include an average of four surface combatants, including an amphibious ship, one or two submarines, and up to 10 auxiliaries. During the India-Pakistan War, the Soviets built their Indian Ocean naval forces up to a peak level of 25 ships, including 11 combatants.

The current force is about one-half this size, but it now includes one more submarine equipped with cruise missiles and two more surface combatants than were there prior to December 1971. Unless the US increases its naval forces in the area or the Suez Canal is opened, the Soviets will probably maintain their Indian Ocean force near its present level.

The Soviets have attempted to redress their logistic problems through the acquisition of naval operating bases abroad. They have been most successful to date in the Mediterranean, where Egypt has made the port of Mersa Matruh and an associated airfield available to Soviet naval forces of the Mediterranean squadron. The Soviets also have use of Port Said and the shipyard and harbor at Alexandria.

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In the Indian Ocean, reports indicate that the Soviets may have obtained access to the Iraqi port of Umm Qasr on the Persian Gulf. Such a facility would relieve the long Soviet sea lines of communication. In addition, the Soviets maintain small forces at Cuban and Guinean facilities. These facilities do not support major Soviet fleet deployments of the sort which exist in the Mediterranean or Indian Ocean. Rather they appear to be designed for local political impact-- in Cuba to acclimate the US to a Soviet Caribbean presence, and in Guinea to demonstrate Soviet support for Guinea against Portugal.

Soviet naval air operations have expanded along with the operations of the surface and submarine forces. In 1965 the naval air forces received Bear D reconnaissance aircraft and began to conduct long-range missions over the open ocean. In 1968 a Soviet naval air squadron was established in Egypt, and in 1970 naval reconnaissance aircraft began to make brief visits to Cuba.

Current Construction Activity

Surface Ships

The USSR is continuing the construction of small cruisers, destroyers, large patrol craft, and a new class of large naval auxiliary. A single unit of a large unidentified ship also is under construction, and several destroyer modification programs are under way.

Cruisers. The first unit of the new 445-B class missile cruiser is on sea trials, a second unit is fitting out, and the third unit is on the ways. Construction of this 9,000-ton vessel at Nikolayev has been accompanied by an apparent end to the Kresta II program at Leningrad. The seventh unit of the 6,800-ton Kresta II class is now fitting out, and no further units are on the ways. The 445-B units will probably

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be turned out at a slightly lower rate than the one-per-year average for the Kresta class.*

Destroyers. Construction of the 3,800-ton Krivak class continues at both Kaliningrad and Kerch. Three units of this class are already at sea and a fourth unit is fitting out. Four more units are on the ways, in the early or middle stages of construction. The sixth unit at Kaliningrad was begun about February of this year, and a third unit probably will appear at Kerch soon. Krivak construction is expected to continue for several years, reaching a rate of four or five units per year.

Construction of the 4,500-ton Kashin class appears to have ended with the launching of the 20th unit at Nikolayev. This unit has several changes from earlier units, however, and may be serving as a prototype for a follow-on class.

Modification activity continues to be an important factor in current Soviet destroyer programs. Three of the last four Krupnyy class units are under conversion to the Kanin class configuration. A similar modification, involving the replacement of obsolescent cruise missiles by surface-to-air missiles, has begun on two of the four Kildin class units. An older Kashin class destroyer also is receiving minor modifications, suggesting a possible program to upgrade this class which first entered service in 1963.

* *The 445-B and Kresta classes and the earlier Kynda class are commonly identified as light cruisers because of their surface-to-surface missiles, but they are about the same size as a US guided missile frigate. US cruisers range from about 15,000 to over 20,000 tons, and US frigates range from 5,800 to 9,000 tons. The displacement tonnages of the three Soviet ships, in comparison, range from 5,600 to about 9,000 tons. The last large Soviet cruiser was the Sverdlov class, of 17,200 tons, built in the early Fifties.*

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Patrol Craft. Major patrol craft programs are the 900-ton Grisha class and the 650-ton Nanuchka class. Both of these units are considerably larger than earlier patrol craft and fall in a category somewhere between ocean escorts and coastal patrol craft. The Grisha is under construction at two shipyards at a rate of five to six units per year. The Nanuchka is being built in only one shipyard at present, at an average of about two to three units per year. Nanuchka production is expected to increase, and both classes probably will be widely deployed.

Auxiliaries. A second unit of the Boris Chilikin class is now fitting out at Leningrad. This ship, displacing about 20,000 tons, is the largest underway replenishment vessel the Soviets have built, and reflects increased concern for the support of naval forces on distant operations. The extent of this program is not clear, but it may be the beginning of an effort to improve Soviet naval logistics capabilities.

Unidentified Class. A large unidentified ship of some 35,000 to 40,000 tons is under construction at Nikolayev. It is almost certainly a naval ship, and probably is designed to carry helicopters or possibly V/STOL aircraft. It could also be a naval auxiliary or some other kind of special-purpose vessel, but this is unlikely. It will be two or three years before the ship is ready for service. There is no evidence yet of the start of a second unit.

Submarines

The USSR continues to build submarines of the ballistic missile, cruise missile, and torpedo attack types emphasizing nuclear propulsion. At the same time, older units are involved in major conversion programs.

Ballistic Missile Types. Highest priority has been given to the Y class nuclear-power ballistic

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missile submarine. This submarine is being built at two shipyards--Severodvinsk in the northwestern USSR and Komsomol'sk in the Soviet Far East. Twelve units are being assembled simultaneously on the building ways, eight at Severodvinsk and four at Komsomol'sk. The rate of construction is about seven units per year and about 26-28 units are operational. The Y class has a surface displacement of about 7,500 tons.

Of the older ballistic missile submarines--the H and G classes--31 were originally built to launch missiles from the surface but are now being converted to launch missiles from a submerged position. About 20 units have been converted.

Cruise Missile Types. There are two new types of nuclear-powered cruise missile submarines, the C class and the P class. The C class is being built in the western USSR at Gor'kiy at the rate of two per year. The C class carries eight SS-N-7 antiship cruise missiles. The C class has a surface displacement of about 4,400 tons and 10 units have been launched.

At present, only one unit of the P class has been completed. It was built at Severodvinsk and has 10 to 12 probably submerged-launched cruise missiles. The missile carried on the P class is unknown, but because the launch tubes apparently are of greater diameter and length than those of the C class, the missile probably has a longer range than that carried on the C class. The P class has a surface displacement of about 5,400 tons.

A program to convert five older nuclear-powered cruise missile submarines of the E-I class to torpedo attack units has been under way for several years at Petrovka, near Vladivostok in the Soviet Far East. This program involves removal of their missile launch tubes and probably the addition of new sonar. Three units have now been converted and the fourth is in the conversion process. The surface displacement of the converted E-I is about 4,600 tons.

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Torpedo Attack Types. The V class nuclear-powered attack submarine is under construction in the western part of the Soviet Union at the Leningrad Admiralty Shipyard. The construction rate is two units per year and 11 units have been launched. The V class is the world's fastest operational submarine, with a speed of about 32 knots. Its surface displacement is about 4,300 tons.

Only one unit of the A class nuclear-powered attack submarine has been completed to date. It was built at the Sudomekh Shipyard in Leningrad from hull sections that are highly reflective and of similar diameters--unlike the sections seen for most other submarines. The reflectivity of these sections may indicate use of unconventional material, possibly titanium-clad steel. The similar diameters of these sections possibly suggest an effort to achieve greater diving depths. The A class unit is also about 50 feet shorter than the other new-generation nuclear submarines. The A class took more than 2½ years to fit out--the longest period recorded for any Soviet submarine. It has a surface displacement of about 3,400 tons or about 900 tons less than the V class.

The ultimate mission of the A class is presently unknown. It could be a one-of-a-kind research submarine or a new ASW submarine intended for series construction.

Because of the many anomalies in the construction of the P and A classes of submarines--only one unit of each, much longer than usual fitting-out periods, highly reflective pressure hull sections, hull configuration and size, and a new missile for the P--the Soviets may regard them as prototypes requiring operational evaluation tests prior to entering into a production program for each class.

Aircraft

In late 1967 the Soviets began series production of their first long-range ASW patrol aircraft, the

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IL-38 May. In late 1969 or 1970 the Soviets also began making an ASW version of the TU-95 Bear heavy bomber, the TU-142. The IL-38 continues in production, but at a rate of only about 10 aircraft per year. The status of the TU-142 program is uncertain-- fewer than 15 of these aircraft have been identified and it is not clear whether these were obtained by modifying existing Bear bombers or by a limited production program.

About 1967 the Soviets also began producing the KA-25 Hormone ASW helicopter for use aboard the Moskva class ASW cruisers and a few other ships. The Soviets had employed land-based Hound helicopters for coastal ASW missions since the mid-Fifties, but did not make any significant use of shipborne helicopters until the appearance of the Hormone. Production of the Hormone continues at a modest rate of about 25 aircraft per year.

In sum, the Soviets in the late Sixties began series production of new ASW aircraft, two of which--the IL-38 and the TU-142--were a marked departure from past patterns, but most of which simply replaced older aircraft in coastal ASW.

Technical Developments

Surface Ships

The USSR has taken an independent and innovative approach to the development of many of its surface combatants. In many respects, in fact, new Soviet combatants are more advanced than their Western counterparts.

Weapons Systems. Nearly all new major combatants are armed with antiship cruise missiles. The 25-nm SS-N-10 is the latest such Soviet missile. A longer range cruise missile, the 150-nm SS-N-9, has been installed on the Nanuchka. All

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new major combatants and some minor combatants are being fitted with surface-to-air missiles and improved anti-aircraft gun systems such as the SA-N-4 point defense SAM. Less innovation has been devoted to antisubmarine weapons, but all major combatants carry short-range ASW rockets and ASW torpedoes. A longer range ASW rocket launcher is installed on the Moskva class, but not on later combatants.

Sensors. New classes of major and minor combatants are being fitted with improved low-frequency sonars operating at 8 kHz and below. Variable-depth sonars have been deployed on the Moskva class, the new Krivak class destroyer, and some Petya class escorts. As a whole, however, the ASW sensors of Soviet combatants are inferior to those of Western navies.

Improved air defense radar systems are being installed on new large combatants, with an increasing number of ships acquiring a capability to control fighters for air defense missions.

The Soviets have continued to place emphasis on electronic warfare capabilities--both offensive and defensive--and have provided their surface forces with increasingly secure communications systems, including advanced underwater systems.

Propulsion. The USSR has taken a substantial lead in naval applications of gas turbine propulsion systems. The Kashin class destroyer, first deployed in 1963, is still the world's largest gas turbine combatant. Gas turbines also are used on four classes of escorts and patrol ships as well as on the new Krivak class destroyer, and may be used on the new light cruiser 445-B class. The Soviets have not, however, applied nuclear propulsion systems to their surface combatants.

Submarines

Technical advances have been evident in recent Soviet submarine design, but the predominant emphasis

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has been on greater speed and improved weapons systems capabilities.

Weapons Systems. The SS-NX-8 is the latest development in Soviet naval ballistic missiles. A Y class submarine modified to carry this missile would gain 1,700 nautical miles in range over those equipped with the 1,300-nm SS-N-6. This increased range capability would enable Y class submarines to operate over a much greater ocean area, increasing their potential time on station and making their detection more difficult.

The SS-N-7 cruise missile carried on the C class submarines is the first Soviet cruise missile capable of submerged launch. Unlike the SS-N-3 missile, carried by earlier cruise missile submarines, the SS-N-7 may receive complete targeting information from the submarine's sonar and thus require no external targeting assistance. The SS-N-3s may be replaced with another cruise missile system, the SS-NX-12.

Another possibly naval-related missile is the KY-9--a ballistic missile with a probable range of less than 400 nm and an apogee of over 100 nm. The KY-9 has undergone testing since December 1969 at the Kapustin Yar missile test center. Its high, short trajectory, coupled with target sensors, an onboard computer, and a maneuverable reentry vehicle--which allows course alterations of up to 20 nm--suggest that the missile is meant for use against moving targets such as carrier forces. Little is known about the missile and nothing about its launch platform. A lengthened G class submarine, designated 402-K, may be its test platform.

Sensors. During the past four years, the Soviets have introduced a new generation of low-frequency active and passive submarine sonar systems. These systems, installed on C and V class submarines, operate in the 3-kHz frequency range and are probably

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powerful enough in the active mode to utilize bottom bounce and convergence zone detection paths. The Soviets are unable to capitalize fully on these advances in sonar technology, however, [REDACTED]

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Propulsion. Advances are also apparent in Soviet submarine propulsion. The first nuclear submarines built in the late Fifties and early Sixties were of questionable operational reliability and were observed under tow several times. The most recent propulsion casualty occurred aboard an H class SSBN in the North Atlantic in the spring of 1972. It was towed back to a Northern Fleet operating base. There have been no known operational casualties in any of the newer Y, C, and V class units now being built, indicating that they are more reliable. The newest Soviet attack submarines achieve speeds of 27 to 32 knots, about one to six knots faster than US attack units. In their quest for speed, the Soviets have installed more machinery per unit volume in their submarines than has the US, at the expense of propulsion plant quietness.

Aircraft

Soviet naval aviation has been characterized by technical advances in weaponry, new platforms, and ASW sensors. The USSR has put most of its emphasis on the construction of longer range aircraft and more advanced detection devices.

Weapons Systems. The AS-6 missile, introduced into the inventory in 1970, continues to be deployed with Soviet naval air forces. The missile has a speed of about Mach 3 and a range of about 300 nm, more than double that of previous naval air systems. The missile is carried on the Badger G, but modification of some Badger Cs to an AS-6 configuration

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[REDACTED]

suggests that the missile may be a replacement for the AS-2.

[REDACTED]

[REDACTED]

New Platforms. The ASM strike force of Soviet naval aviation presently consists of TU-16 Badgers. The Soviets may plan to introduce the swing-wing Backfire into the inventory to replace their aging Badgers. The Mach 2 Backfire will probably be produced in two versions--a free-fall bomber and an ASM carrier. The aircraft probably will not become operational with naval aviation until 1974 or 1975, and it will be even later before the Backfire inventory reaches substantial levels.

The Soviets are improving the capabilities of the shipborne KA-25/Hormone ASW helicopter. For example, in January 1972, an advanced air-to-air and air-to-ground measuring device--Tie Rod--was associated with the Hormone. The deployment of this system will provide better control and positioning capabilities for helicopter ASW operations. Anticipated continued emphasis on perfecting the autohover system of the Hormone would allow an all-weather and night airborne ASW capability which has not been noted up to now.

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Comparison of US and Soviet Naval Forces

Differences between the missions of the US and Soviet navies make a comparison of their composition and operations difficult. The US is a maritime power and has economic and military needs for maintaining oceanic lines of communication to its allies in Europe, Asia, and South America. The missions of the US Navy include the protection of sea lines of communication, the projection of power ashore, strategic attack, and maintenance of a presence in distant areas.

The Soviet Navy shares with its US counterpart a strategic attack mission and the task of maintaining a presence in distant areas. Its remaining missions reflect traditional Soviet concern for coastal defense and support of the Soviet Army. Accordingly, the Soviet Navy is tasked with countering Western strike and amphibious forces and with disrupting US and allied sea lines of communication.

Fleet Structures

To satisfy the requirement that it project power ashore in support of US overseas commitments, the US Navy has 17 attack aircraft carriers (excluding one training unit) and 76 amphibious ships. To protect these forces and to preserve American lines of communication, the US Navy has built forces with antisubmarine and antiair warfare as their principal aims. To support worldwide fleet operations, the United States has built large auxiliary forces which in turn impose their own needs for escorts.

The lack of aircraft carriers, the still nascent amphibious capability, and the modest, though growing, logistic support forces reflect the fact that the Soviet Navy does not have US-style missions. Instead, the Soviets have built a fleet which reflects an antinavy and antishipping orientation. It includes the world's largest submarine force,

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US and USSR: Naval Ships and Aircraft, Mid-1972

Major Surface Combatants

<u>US</u>	<u>USSR</u>
244	222

The Soviets have no counterpart to the attack aircraft carrier. The US has a greater number of cruisers and frigates than the USSR, but about half the Soviets ships in this class carry surface-to-surface missiles whereas none of the US ships do. US major combatants have better ASW equipment and a total of about twice as many SAM launchers as the Soviet Navy. The US also has four nuclear-powered surface combatants, with more under construction, and the USSR has none.

These forces break down as follows:

	<u>US</u>	<u>USSR</u>
Aircraft carriers	17*	0
ASW helicopter cruisers	0	2
Cruisers and frigates	37	28
Destroyers and escorts	190	192

* Excludes one training carrier that is classified as an auxiliary.

Ballistic Missile Submarines

<u>US</u>	<u>USSR</u>
41	57

The 57 Soviet ballistic missile submarines carry 516 missiles (see Tables 2 and 5). None is known to be armed with multiple warheads. The 41 US SSBNs carry a total of 656 missiles, 160 of which can deliver 6 to 14 independently targeted warheads and others of which can deliver three warheads.

Attack Submarines

<u>US</u>	<u>USSR</u>
95	282

The Soviets have 68 cruise missile submarines in their attack submarine force, 40 of them nuclear powered. The US has none. More than half the Soviet torpedo attack assets are obsolescent, short-range, diesel units which are more than 15 years old.

Amphibious Ships

<u>US</u>	<u>USSR</u>
76	75

Soviet amphibious ships are not as large as US amphibious ships. Most of the Soviet ships displace less than 1,000 tons, and the largest of them is less than half the size of similar US ships.

**Naval Aircraft
(including helicopters)**

<u>US</u>	<u>USSR</u>
3,300	1,000

The Soviets have 275 aging missile armed strike aircraft, about 295 reconnaissance and bomber aircraft, 50 light bombers, and 380 ASW fixed-wing aircraft and helicopters. The US force—including Marine Corps aircraft—consists of about 1,900 fighter and attack aircraft, about 1,000 helicopters over half of which are troop transports, as well as over 400 fixed-wing ASW aircraft (these figures do not include transport and utility aircraft).

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as well as long-range reconnaissance and ASW aircraft, antiship-missile-equipped medium bombers, and multi-purpose ships with antiship and antiair missiles.

The chart at left summarizes the midyear 1972 composition and some of the differences of the two navies.

Construction Programs

Soviet and US construction programs indicate that the structures of the two navies will not significantly change in the near term. Neither construction program will replace more than 10 percent of the submarines and surface combatants per year and the composition of the fleets will not be altered significantly, as net additions are in rough proportion to the existing forces. The Soviets have continued to build ballistic missile submarines in an effort to reach at least numerical parity with the US and continue to augment their amphibious ship levels. US shipbuilding programs are focused on sea control ships, more sophisticated submarines, and modernization of the amphibious force.

As a result of limited retirement of older ships, there has been an upward trend in Soviet force levels since 1962. At the same time, the US has retired surface ships and submarines at a faster rate than they have been constructed. Consequently, the percentage of Soviet ships 10 years old or less has declined from nearly 90 percent to about 50 percent, while for the US the percentage of ships 10 years old or less has risen from about 20 to nearly 40 percent.

During 1962-1971 the USSR built and commissioned some 242 ships compared with 207 for the US. The US ships, however, were larger, amounting to 1,650,000 tons in contrast to only 955,000 tons for the Soviets, demonstrating the US tendency to build ships of greater average size than the Soviets. The average

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US surface combatant constructed during the past decade displaced 6,800 tons while its Soviet counterpart displaced 3,600 tons. These differences are illustrated in the chart at right.

Design Emphasis

Soviet surface combatants usually operate in small multipurpose groups closely tied to shore or sea-based logistic support. US ships more frequently operate in large self-contained task forces where each unit plays a specialized role. These practices are reflected in differing design philosophies, outlined below.

Surface Ships

US design practice

Tendency to optimize ship designs for specific missions.

Large number of reloads for weapons (emphasis on sustained combat.)

Emphasis on range and endurance at expense of speed and armament.

Extensive provision for underway replenishment and highly developed logistic forces.

Relatively large crews with good capabilities for self-repair of ship and systems.

High concern for habitability.

Soviet design practice

Strong preference for ships with multipurpose roles.

Limited or no reloads for major weapons.

Emphasis on speed and armament at expense of range and endurance.

Marginal capability for underway replenishment and limited provision of logistic support forces.

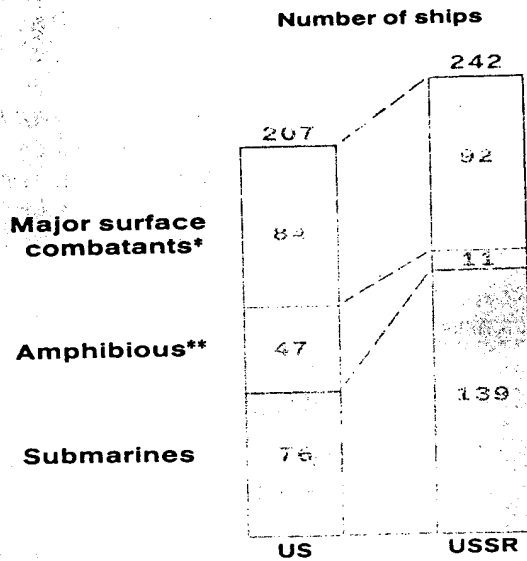
Relatively small crews with limited capability for self-repair of ship and systems.

Low concern for habitability.

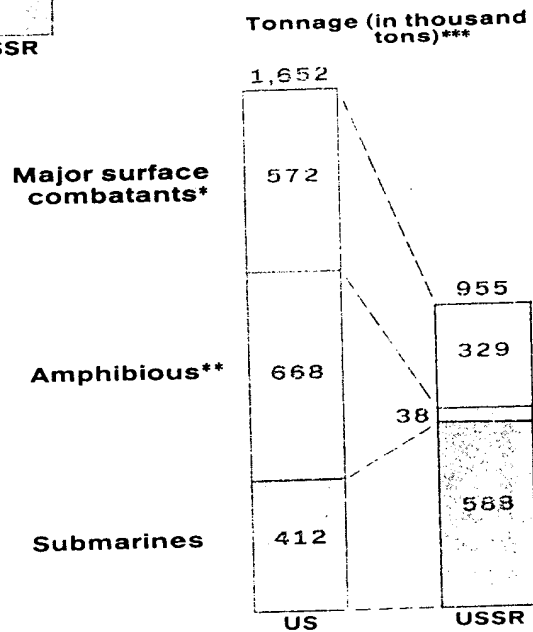
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US and USSR: Naval Ships Commissioned, by Type, 1962-1971

The USSR commissioned more ships between 1962 and 1971 ...



but the US ships were larger.



Note: Data refer to ships constructed and do not include conversions and recommissionings.

*Destroyer escort size and larger.

**Excluding 55 Polnocny class ships in the Soviet naval forces, totaling 42,000 full-load displacement tons, constructed in Poland.

***Full-load displacement for surface ships and surface displacement for submarines.



US design practice

Constant growth in ship size to accommodate desired capabilities for sustained combat (but new trend in thinking is to smaller ships.)

Soviet design practice

Determined efforts to obtain maximum firepower in relatively small ships at expense of other characteristics.

The Soviet emphasis on a large fleet of fast multipurpose submarines for antiship capabilities and the US emphasis on specialized submarines to counter other submarines are reflected in their respective design practices.

Submarines

US practice

Emphasis on quiet operations.

Complex sonar installations with long-range acquisition capabilities.

Preference for torpedo and SUBROC weapons systems.

No diesel designs since late Fifties.

Soviet practice

Preference for high speeds over quietness.

Limited sonar capabilities, further degraded by self-noise.

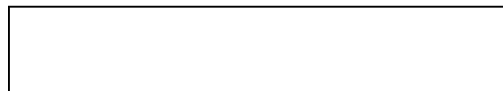
Extensive use of cruise missiles on submarines.

Until recently, design and conversion of diesel units.

Fleet Operations

Any comparison of Soviet and US fleet operations highlights the fact that the US Navy deploys its ships far more extensively than do the Soviets. The US Navy has approximately 640 general-purpose ships and submarines capable of out-of-area deployments.* In

* Excluding patrol craft, minor auxiliaries, missile and torpedo patrol boats, intelligence ships, ballistic missile submarines, and support craft.



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1971, the US Navy accrued roughly 93,000 out-of-area ship-days, indicating that the average ship was deployed for about 140 days. In comparison, the USSR has roughly 900 deployable units,* which spent a total of approximately 35,000 days away from their home ports in 1971, indicating that the average Soviet ship spent about 40 days out of area. This comparison of deployment times also indicates US advantages in having ships of larger size with greater endurance, supported by forward area bases and large, long-range logistic support ships.

Perhaps the most prominent example of the differences in US and Soviet deployment practice occurs in the operations of ballistic missile submarines. Some 24 of the 26-28 operational Soviet Y class SSBNs probably are capable of deployment. Of these, five are at sea at any one time. The US force currently consists of 27 deployable units of which about 20 are usually deployed at once. The Soviet deployment rate is less than 20 percent, compared with the US rate of about 65 percent.

The Soviets have sufficient surface combatants, submarines, and manpower resources to operate on a level comparable to that of the US, but are hampered by their lack of foreign bases and large supply ships.

In terms of ship-days, the Soviet and US navies have spent roughly similar amounts of time in the Mediterranean Sea and the Indian Ocean during the past three years. In the Atlantic, the US had an average of two to three times as many ship-days as the Soviets, while in the Pacific, US activity has been 13 times that of the Soviets. The fact that 50 percent of all US deployments since 1965 have been in the Pacific is a reflection of naval support for the Vietnam effort.

Manpower

The dissimilar structures of the Soviet and US navies are reflected in their different distributions

* See footnote on page 28.

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of manpower. Of the men in the Soviet Navy, 85 percent man or support general-purpose ships, whereas the US Navy uses only 50 percent of its men for this purpose. US naval and Marine Corps aviation involve approximately four times as many people as does Soviet naval aviation, and the US Fleet Marine Force is six times the size of the Soviet naval infantry force. Strategic forces consume less than 5 percent of the total manpower in both the US and Soviet navies.

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Table 1
Soviet Naval Order-of-Battle for Surface Ships
Selected Years 1956-1972

	Midyear					
	1956	1960	1965	1970	1971	1972
<u>Major surface ships</u>	210	226	191	211	215	222
Battleships	2	0	0	0	0	0
Helicopter cruisers	0	0	0	2	2	2
Cruisers	25	23	11	10	12	12
Missile cruisers	0	1	5	11	11	16
Missile destroyers	0	6	18	35	37	42
Destroyers ^a	124	130	70	44	42	41
Destroyer escorts	59	66	87	109	111	109
<u>Minor surface ships</u>	564	722	823	776	758	735
Missile ships	0	23	148	160	170	180
Minecraft	358	373	317	331	316	298
Patrol craft	206	326	358	285	272	257
<u>Amphibious ships</u>	0	0	14	59	71	75
<u>Auxiliary ships</u>	0	4	10	17	19	21
Total surface ships	774	952	1,038	1,063	1,063	1,053

Note: The table includes only those naval surface ships deemed of operational significance. It does not include old or miscellaneous small patrol craft, motor gunboats, motor torpedo boats, old minecraft and minesweeping boats, small amphibious ships and craft, intelligence collectors, small submarine tenders, repair ships, oilers, air cushion vehicles, and other support or auxiliary ships.

- a. Includes old units of the following classes: *Otlichnyy*, *Stinyy*, *Gordyy*, *Leningrad*, and *Soldati* classes.

Table 2
Soviet Naval Order-Of-Battle for Submarines
Selected Years 1956-1972

	Midyear					
	1956	1960	1965	1970	1971	1972
<u>Ballistic missile submarines</u>	0	19	38	46	53	59 ^c
Diesel	0	15	29	25	25	24
Nuclear	0	4	9	21	28	35
<u>Cruise missile submarines</u>	0	0	40	64	66	68
Diesel	0	0	21	28	28	28
Nuclear	0	0	20	36	38	40
<u>Torpedo attack submarines</u>	449	342	310	242	221	214
Diesel	449	339	297	220	196	186
Nuclear	0	3	13	22	25	28
<u>Total submarines</u>	449	361	388	352	340	341

- a. Including two Z-V class conversion units that are used for training. Operational Y class submarines range between 26 and 28 units.
- b. For the years 1956, 1960, and 1965, the following old classes of submarines are included: M-I, II, III, IV, V, VI, and VII, K-I, S-I, L-II and III, V-VIII and IX, SHCH-II, III, and IV, P and types XXI and XXIII.



Table 3
Soviet Naval Order-of-Battle for Aircraft
Selected Years 1956-1972

	Midyear					
	<u>1956</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
Missile-carrying aircraft	0	165	260	285	275	275
Long-range reconnaissance and bomber aircraft	35	110	205	295	300	295
Light bomber and attack aircraft	900	35	105	60	60	50
Fighter aircraft	1,900	0	0	0	0	0
Patrol and ASW aircraft	160	110	65	105	115	145
ASW helicopters	85	110	120	215	235	235
Total naval aviation aircraft	<u>3,080</u>	<u>530</u>	<u>755</u>	<u>960</u>	<u>985</u>	<u>1,000</u>



Table 4

Soviet Naval Order-of-Battle for Surface Ships and
Basic Measures of Combat Capabilities
1956 and 1972

	Units		Manpower ^{a*}		Tonnage ^b	
	Mid- 1956	Mid- 1972	Mid- 1956	Mid- 1972	Mid- 1956	Mid- 1972
<u>Major surface ships</u>						
Battleships	2	0	1,400	0	46,000	0
Helicopter cruisers	0	2	0	2,000	0	40,000
Cruisers	25	12	23,320	11,590	370,100	185,720
Missile cruisers	0	16	0	8,365	0	137,000
Missile destroyers	0	42	0	13,780	0	173,300
Destroyers	124	41	32,290	11,810	354,990	132,450
Destroyer escorts	59	109	10,780	17,690	79,320	130,860
<u>Minor surface ships</u>						
Missile ships	0	180	0	5,895	0	48,495
Minecraft	358	298	17,530	17,610	125,210	139,000
Patrol craft	206	257	9,270	14,140	67,980	83,910
<u>Amphibious ships</u>	0	75	0	3,700	0	93,240
<u>Auxiliary ships</u>	0	21	0	6,860	0	144,220
Total	<u>774</u>	<u>1,053</u>	<u>94,590</u>	<u>113,440</u>	<u>1,043,600</u>	<u>1,308,195</u>

* Footnotes appear on following page.

continued

Soviet Naval Order-of-Battle for Surface Ships and
Basic Measures of Combat Capabilities
1956 and 1972
(continued)

	Missile launchers			Torpedo tubes			ASW rockets	
	SAM		SSM	ASW		Antiship	Mid-1956	Mid-1972
	Mid-1956	Mid-1972	Mid-1956	Mid-1972	Mid-1956	Mid-1972	Mid-1956	Mid-1972
<u>Major surface ships</u>								
Battleships	0	0	0	0	0	0	No	-- ^c
Helicopter cruisers	0	8	0	0	0	0	--	Yes
Cruisers	0	0	0	0	0	0	No	No
Missile cruisers	0	54	0	88	0	114	--	Yes
Missile destroyers	0	114	0	26	0	198	--	Yes
Destroyers	0	0	0	0	10	10	Yes	No ^d
Destroyer escorts	0	0	0	0	0	500	Yes	Yes ^e
<u>Minor surface ships</u>								
Missile ships	0	46	0	616	0	60	--	No
Minecraft	0	0	0	0	0	0	Yes	Yes ^f
Patrol craft	0	0	0	0	0	458	Yes	Yes
<u>Amphibious ships</u>	0	0	0	0	0	0	--	No
<u>Auxiliary ships</u>	0	0	0	0	0	0	--	No
Total	0	222	0	730	10	1,360	1,085	546

- a. Ships' crews only.
b. Full-load displacement tons.
c. The two helicopter carriers have one twin-launcher ASW missile each.
d. A few modified destroyers do have ASW rockets.
e. One destroyer escort has a twin-launcher ASW missile.
f. Only 30 minecraft have ASW rockets.

Table 5

Soviet Naval Order-of-Battle for Submarines and
Basic Measures of Combat Capabilities
1956 and 1972

	Units		Manpower ^a		Tonnage ^b		Missile Launchers				Torpedoes/Mines ^c			
	Mid- 1956	Mid- 1972	Mid- 1956	Mid- 1972	Mid- 1956	Mid- 1972	Ballistic 1956	Mid- 1972	Cruise 1956	Mid- 1972	Torpedoes 1956	Mid- 1972	Mines 1956	Mid- 1972
<u>Ballistic missile</u>														
Diesel	0	24 ^d	0	2,030	0	55,700	0	70	--	--	0	528	0	1,056
Nuclear	0	35 ^e	0	3,760	0	239,700	0	446	--	--	0	666	0	1,332
<u>Cruise missile</u>														
Diesel	0	28	0	1,965	0	58,700	--	--	0	102	0	482	0	964
Nuclear	0	40	0	3,900	0	194,700	--	--	0	318	0	842	0	1,444
<u>Torpedo attack</u>														
Diesel	449	186	18,530	11,810	371,640	265,805	--	--	--	--	4,519	3,060	9,038	6,120
Nuclear	0	28	0	2,550	0	123,200	--	--	--	--	0	856	0	1,688
Total	449	341	18,530	26,015	371,640	397,805	0	516	0	420	4,519	6,434	9,038	12,604

a. Ships' crews only.

b. Surface displacement tons.

c. The number of mines is equal to twice the number of torpedoes in all submarines except in the case of certain nuclear types. Old units built prior to 1950 are arbitrarily given a mine capability of twice the number of torpedoes.

d. Including two Z-V class conversion units that are used for training.

e. Operational Y class submarines range between 26 and 28 units (416 and 448 launchers).

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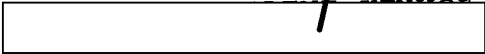


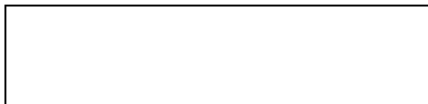
Table 6

Manpower of the Soviet Naval Forces
1956 and 1972

	Mid- 1956	Mid- 1972
Total ^a	614,000	427,000
Naval aviation ^b	94,000	44,000
General purpose forces	520,000	356,000
Of which:		
Major surface ships ^c	137,000	129,000
Minor surface ships ^c	90,000	102,000
Submarines ^c	37,000	40,000
Joint support	256,000	85,000
Ground forces (Marines) ^d	0	15,000
Strategic attack forces	Negl.	12,000

- a. The decline in manpower after 1956 was largely due to Khrushchev's cutback in the general purpose forces in the late Fifties.
- b. The Soviets have no counterpart to US attack aircraft carriers.
- c. Includes shore support, reserve units, and minor auxiliary and miscellaneous ships that are not included in the order-of-battle and combat capabilities tables.
- d. Includes naval infantry brigades.

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Table 7
Construction and Conversion of Soviet Surface Ships
1956-1972

	1956	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	1972 (Estimated)	Total 1956-1972	
<u>Major Surface Ships</u>																			
<u>Helicopter carriers</u>																			
Moskva												1		1				2	
CHG											1			1				2	
<u>Missile cruisers</u>																			
Sverdlov																			
Kynda																			
Kresta I																			
Kresta II																			
445 B class																			
CLG ^a																			
CLGM																			
CLGM																			
CLGM																			
CLGM																			
<u>Missile destroyers</u>																			
Kildin																			
Krupnyy																			
Kotlin																			
Kashin																			
Kanin																			
Krivak																			
DDGS ^a																			
DDGS																			
DDG ^a																			
DLG																			
DDG ^a																			
DDGSP																			
<u>Destroyers</u>																			
Kotlin																			
<u>Destroyer escorts</u>																			
Riga																			
Petya																			
Mirka																			

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Construction and Conversion of Soviet Surface Ships
1956-1972
(continued)

	1956	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	1972 (Estimated)	Total 1956-1972	
<u>Minor Surface Ships</u>																			
<u>Missile Ships</u>																			
Osa			12	40	51	30	25	24	22	20	21	14	12	17	15		14	317	
PTG			1	13	26	17	17	16	15	15	15	10	10	10	5		5	175	
PCBP			11	27	25	13	8	8	7	5	4	2	2	1	5	5	5	20	
Nanuchka											2	2	1	2	5	5	4	12	
																		282	
<u>Minecraft</u>	40	8	14	11	12	11	16	14	14	17	15	17	20	21	20	15	17		
T-301	13																	13	
T-43	24	1	8	5	5	1	4	6	7	7	7	7	7	7	7	7	7	25	
T-58		1				1				1								20	
Yurka											1							74	
Alesha											2	3	3	3	3		3	3	
Natya																		14	
Sasha	3	6	6	6	6	3	3	8	7	10	7	8	8	8	8	3	5	36	
Vanya					1	3	9	8	7	10	7	2	2	2	2	2	2	85	
Zhenya																		12	
																		292	
<u>Patrol craft</u>	20	30	45	43	33	5	14	15	13	8	8	18	15	8	7	5	5		
Kronshtadt	10																	10	
SO-1	10	25	15	18	17		5	5	5									100	
MO-VI		5	30	25	10													70	
Poti						6	5	9	10	8	8	8	5	10	8	7	5	67	
Stenka												10	10	8	7	5		45	

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Construction and Conversion of Soviet Surface Ships
1956-1972
(continued)

	1956	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	1972 (Estimated)	Total 1956-1972	
<u>Amphibious Ships</u>																			
Polnocny LSM ^b						3	6	5	2	12	9	9	9	6	2	7	12	80	
Alligator LST						3	6	5	8	10	7	7	4	2	2	5	10	65	
									1	2	2	2	2	2	2	2	2	15	
<u>Auxiliary Ships</u>																			
Lama AEM		1	2	1	2	1	1	2	2	1	2	2	2	1	2	2	2	25	
Boris AOR							1	1	1	1	1	1			1			6	
Chilikin AS		1	2	1	2	1										1	1	2	
Don AS																		7	
Ugra AS									1	1	1	1	2	1	1	1	1	10	
Total	75	48	65	69	91	83	75	68	69	69	72	81	70	57	54	53	61	1,160	

a. Conversion units.
b. Built in Poland for the USSR.

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Table 8
Construction and Conversion of Soviet Submarines
1956-1972

	1956	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	1972 (Estimated)	Total 1956-1972
<u>Ballistic missile submarines</u>	3	5	7	10	9	3	0	2	1	3	4	3	8	7	11	8-9	7		90-92
Diesel																			
Z-V	3	2	6	7	6	1													5
G-I		3					1			2	2	3	1			2	1		23
G-II																			12
Nuclear																			
H		1	3	3	2		1	1	3	2									9
H-II																			8
H-III																			1
Y											1	5	6	8-9	6-7		6		32-34
<u>Cruise missile submarines</u>	0	0	0	0	4	6	10	11	9	8	7	5	5	2	3	2	2		74
Diesel																			
W conversion					2	4	4	2	1	2	2	2	2	3					13
J							2	3	2	2	2	2	3						16
Nuclear																			
E-I					2	2	1												5
E-II							3	6	6	6	5	2	1	2	2	2	2		28
C																			11
P/New class																			1

a. Conversion units.

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Construction and Conversion of Soviet Submarines
1956-1972
(continued)

	1956	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72 (Estimated)	Total 1956-1972
<u>Torpedo attack submarines</u>	69	10																79
W	4	4																8
Z	12	5																17
Q																		54
F			2	5	6	6	9	4	5	5	6		1	3	2			20
R			2	3	5	9	1											4
B									1	2	1							
Diesel																		
Nuclear																		
N			1	2	2	2	2	2	2	1	1	2	2	2	2	2	2	15
V																		12
E-I conversion																		3
A/New class																	1	1
Total	88	24	12	20	26	26	22	19	17	17	18	10	16	15	20-21	15-16	12	377-379

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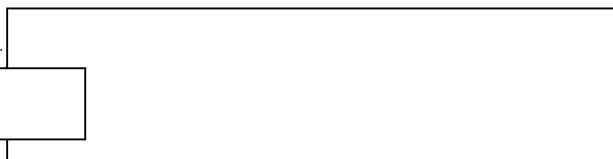
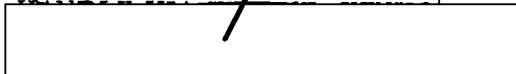
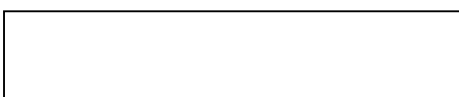


Table 9
Deployments of Soviet Naval General Purpose Forces
1965-1971

	Cumulative Ship-days ^a						
	1965	1966	1967	1968	1969	1970	1971
<u>Mediterranean</u>	<u>4,207</u>	<u>4,314</u>	<u>8,663</u>	<u>12,157</u>	<u>14,092</u>	<u>17,669</u>	<u>18,111</u>
Surface combatants	758	1,321	3,309	4,758	5,656	6,353	6,290
Submarines	1,000	900	1,924	2,973	3,494	3,830	4,016
Naval auxiliaries	2,449	2,093	3,430	4,426	4,942	7,486	7,805
<u>Atlantic Ocean</u>	<u>1,150</u>	<u>2,320</u>	<u>3,784</u>	<u>4,334</u>	<u>6,904</u>	<u>8,911</u>	<u>9,647</u>
Surface combatants	100	130	71	454	1,058	1,555	1,938
Submarines	900	1,700	2,210	2,343	4,518	3,649	2,976
Naval auxiliaries	150	490	1,503	1,537	1,328	3,707	4,733
<u>Pacific Ocean</u>	<u>915</u>	<u>1,220</u>	<u>1,875</u>	<u>2,567</u>	<u>3,252</u>	<u>4,859</u>	<u>4,126</u>
Surface combatants	115	150	109	226	505	803	618
Submarines	700	900	727	956	1,629	1,171	887
Naval auxiliaries	100	170	1,039	1,385	1,118	2,885	2,621
<u>Indian Ocean</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,106</u>	<u>2,095</u>	<u>2,800</u>	<u>3,149</u>
Surface combatants	0	0	0	403	750	1,090	1,319
Submarines	0	0	0	160	460	610	169
Naval auxiliaries	0	0	0	543	885	1,100	1,661
<u>Totals</u>	<u>6,272</u>	<u>7,854</u>	<u>14,322</u>	<u>20,164</u>	<u>26,343</u>	<u>34,239</u>	<u>35,033</u>
By force:							
Surface combatants	973	1,601	3,489	5,841	7,969	9,801	10,165
Submarines	2,600	3,500	4,861	6,432	10,101	9,260	8,048
Naval auxiliaries	2,699	2,753	5,972	7,891	8,273	15,178	16,820

a. Excluding ballistic missile submarines, oceanographic and space support operations.

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Table 10

Deployments of Soviet Naval Forces, by Mission
1965-1971

	<u>Cumulative Ship-days</u>						
	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Strategic Forces ^a	440	1,107	726	864	1,141	1,672	2,328
General Purpose Forces	6,272	7,854	14,322	20,164	26,343	34,239	35,033

a. Ballistic missile submarine patrols.

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