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DIRECTORATE OF
INTELLIGENCE

# Intelligence Report

*Soviet Capabilities to Counter US Aircraft Carriers*

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INTELLIGENCE REPORT

# Soviet Capabilities to Counter US Aircraft Carriers

## Introduction

Major elements of the Soviet naval forces are designed specifically to counter the aircraft carrier. The Soviets began to develop their anticarrier forces in the mid-Fifties, when the nuclear-armed aircraft based on US carriers became a potential threat to the Soviet homeland. Anticarrier capabilities continued to grow during the Sixties as Soviet naval operations expanded beyond coastal waters. The Soviets recognized that deployed naval forces had to be protected from carrier-based air power.

The Soviets chose to counter Western carrier forces primarily with antiship cruise missiles, rather than attempting to build their own carriers. Cruise missiles have become the main armament on Soviet submarines, aircraft, and surface ships designed to combat Western surface forces.

This report describes the Soviet response to the US carrier threat. It traces the development of anticarrier forces and describes their operations. It examines recent improvements in these forces and assesses the anticarrier capabilities of the USSR.

A summary of the report begins on page 37.

*Note: This report was prepared by the Office of Strategic Research and coordinated within CIA.*

## Contents



## Illustrations

## Soviet Perception of the Carrier Threat

The Soviets view US carriers as a threat to the Soviet mainland and to Soviet forces at sea, and as weapons used in support of foreign interventions. Their public statements tend to disparage the aircraft carrier as an antiquated and vulnerable weapon system, but the efforts devoted to anticarrier warfare capabilities clearly indicate respect for the combat potential of modern carrier forces.*

## Potential for Strikes on Soviet Territory

The importance of carrier-based aircraft in a strategic strike role has declined since the advent of intercontinental ballistic missile systems, but the Soviets still consider the carrier a strategic threat. In the Strategic Arms Limitation Talks (SALT), for example, they have insisted that the strategic attack capabilities of US carrier forces be considered. They have shown little concern, however, for the threat of carriers operating in support of amphibious landings on Soviet territory.

## Vulnerability of Soviet Naval Forces at Sea

US attack carriers pose a threat to the operations of Soviet naval surface forces, and antisubmarine warfare (ASW) carriers threaten the large Soviet submarine force.

The USSR does not have aircraft carriers, and its surface forces operate without air cover while on the open ocean. During the Fifties, Soviet naval forces rarely ventured far from their own coasts and could rely to a degree on land-based aircraft. Since the early Sixties, however, the Soviet surface forces

** The US currently has 14 attack carriers, three antisubmarine warfare carriers, and one carrier used in a training role.*

have established a permanent presence in the Mediterranean Sea and conducted regular operations in the Atlantic, Pacific, and Indian oceans. Without a counter to US carriers, these forces are vulnerable.

The USSR has limited access to the open seas, and its submarine fleet must pass through restricted waters to reach operating areas. Soviet writings note that in war the US would establish ASW barriers in such restricted passages, and that carrier forces could form a portion of the defenses. The problem of forcing such barriers is a major concern of Soviet planners.

## Support of Foreign Interventions

The Soviets have long recognized, and condemned, the role of US carriers in peacetime interventions and limited war situations. Criticism of the carrier as a means of projecting US power in the Third World is a recurring theme in Soviet publications. US carrier operations against North Korea and North Vietnam, for example, have been vigorously denounced.

Behind the propaganda barrage against the carrier as an "oppressor of national liberation movements" lies a tacit admission of the effectiveness of the carrier in supporting US foreign policy interests.

## Soviet Strategy for Anticarrier Warfare

In the mid-Fifties, with the appearance of nuclear-armed strike aircraft on carriers, the Soviet Navy was assigned the mission of destroying carriers before they could come within striking distance of the USSR. The alternative of relying solely on air defenses was rejected because the Soviets were not confident that air defenses could stop all attacking aircraft. Destruction of the carriers before they launched their aircraft would, on the other hand, provide an absolute defense.

The Soviets considered building aircraft carriers to provide sea-based air defenses. They had no experience with aircraft carriers, however, and probably at least six to eight years would have been needed to develop the first Soviet carrier forces--carriers, suitable aircraft, escorts, and auxiliaries. Such a program, moreover, would have challenged Western fleets in their area of greatest strength--the Soviets would have had difficulty overcoming the qualitative and quantitative superiority of the Western forces.

The decision to develop anticarrier forces reflected a major change in Soviet naval policy. Previously the Soviet Navy had been primarily a coastal defense force. The new anticarrier mission, although also defensive, required that the Soviet Navy actively seek out and attack naval forces on the high seas.

A major factor in the decision to adopt the anticarrier concept was the development of cruise missile technology. The Soviets considered the long-range antiship cruise missile a "revolutionary" weapon, particularly when armed with a nuclear warhead. Just as the airplane had made the battleship obsolete, they contended, the cruise missile would make the aircraft carrier obsolete--missiles could be launched from outside the carrier's protective screen, and saturation tactics would assure that at least one missile reached the target.*

Instead of attempting to match the carrier forces of the West, therefore, the Soviets decided to rely primarily on missile-armed submarines and shore-based aircraft. The types of aircraft and submarines available to the Soviet Navy in the mid-Fifties had sufficient range to engage a carrier before it came within striking distance of the USSR. Surface ships

* *More detailed information on antiship cruise missiles is contained in SR IR 71-19,* The Soviet Naval Cruise Missile Force: Development and Operational Employment, *December 1971*

were considered less suitable for this task because of their vulnerability to air attack.

The Soviets also believed that they could destroy some carriers in port. This was one of the missions assigned to the ballistic missile submarine forces which the Soviets began to develop in the mid-Fifties. (Such operations, considered a form of strategic attack mission, are not discussed in this report.)

## Anticarrier Forces

The requirement for anticarrier defenses was the major influence on the development of the Soviet general purpose naval forces from the mid-Fifties through the mid-Sixties. During this period deployment of new weapon systems designed for the anticarrier mission was given priority over systems intended mainly for coastal operations. The most significant changes were:

-- the deployment of long-range diesel- and nuclear-powered submarines,

-- the reequipment of naval aviation with long-range aircraft, and

-- the adoption of the cruise missile as the primary antiship weapon for submarines, aircraft, and some surface ships.

In the mid-Sixties, the Soviets began to place more emphasis on ASW capabilities, but continued to strengthen the anticarrier forces as well. New anticarrier weapons were developed and force levels steadily increased. Submarines and aircraft continued to form the principal anticarrier forces, but the anticarrier capabilities of the surface forces were also improved.

Tables showing the development of the anticarrier forces and a detailed order of battle for the current forces are contained in Annex A, appended. The main elements of the anticarrier forces as of 1 May 1972 are summarized at right.

## Main Elements of Soviet Anticarrier Forces

### Cruise missile submarines

40 nuclear-powered
28 diesel-powered

Of these, 58 submarines carry missiles which can be launched only when the submarine is surfaced--most have the 220-nm SS-N-3, but some possibly are changing to the new 150-nm SS-N-9 missile. Nine submarines are armed with the 30-nm SS-N-7 submerged-launch missile, and one carries an unidentified missile which is believed to be submerged-launched and to have a range of over 100 nm.

### Missile-armed aircraft

275 Badger medium bombers

Of these, 165 carry the 110-nm AS-2 missile, and 110 carry the 120-nm AS-5 missile or the new 300-nm AS-6 missile.

### Missile-armed surface ships

8 cruisers armed with a 150-nm version of the SS-N-3 missile
3 patrol craft with the 150-nm SS-N-9
5 ships with the 25-nm SS-N-10

Another eight ships have the obsolescent [redacted] SS-N-1 missile, which is being phased out.

### Other naval forces

About 300 long-range reconnaissance aircraft and free-fall bombers

These aircraft operate in direct support of the primary anticarrier strike forces.

About 200 gun-armed surface ships of destroyer escort size or larger
Over 200 torpedo attack submarines

These forces have a variety of missions in addition to their role in anticarrier warfare.

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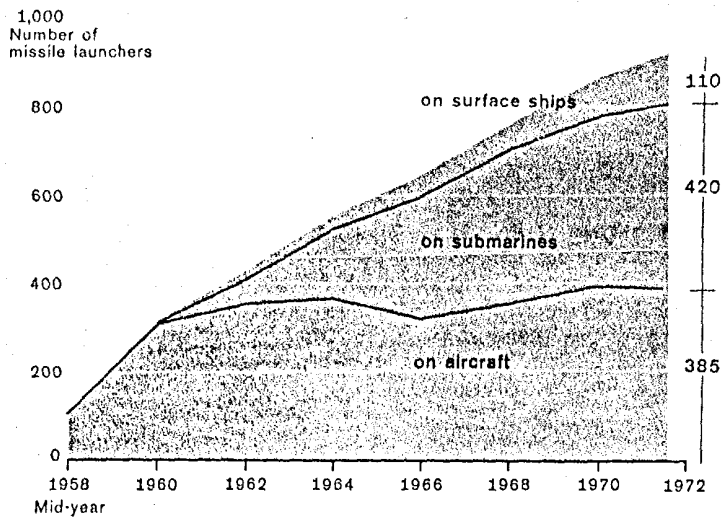
*Technical characteristics of these forces are summarized in Annex B. Table B-5 provides a reference list of antiship missiles and launch platforms.*

# Growth and Deployment of Soviet Anticarrier Forces




**Baltic Sea Fleet**
*132 cruise missile launchers*
35 diesel submarines
192 recon/strike aircraft
48 surface combatants

**Northern Fleet**
*337 cruise missile launchers*
43 nuclear submarines
93 diesel submarines
132 recon/strike aircraft
52 surface combatants

**Black Sea Fleet**
*119 cruise missile launchers*
26 diesel submarines
129 recon/strike aircraft
71 surface combatants

**Pacific Fleet**
*327 cruise missile launchers*
24 nuclear submarines
65 diesel submarines
182 recon/strike aircraft
53 surface combatants

Forces shown include all Soviet attack submarines, naval reconnaissance and strike aircraft, major surface combatants, and Nanuchka class patrol craft. Naval forces deployed outside home waters—units in the Mediterranean squadron, for example—are included in the totals for their home fleets.

## Missile Systems

The forces described on page 7 have a total of 915 launchers for nine different antiship missiles. The graph at left shows the growth of this force since the mid-Fifties.

Additional missiles with anticarrier capabilities are deployed with the strategic bomber forces (see page 19). The Soviets also adopted cruise missiles for coastal defense, using both shore-based launchers and small patrol boats. (These systems would not normally be used in an anticarrier role and are not discussed in this report.)

## Deployment Patterns

Forces with anticarrier capabilities are assigned to all four fleet areas--Northern, Baltic, Black Sea, and Pacific. The main concentrations of anticarrier forces are in the Northern and Pacific fleet areas. The Soviets also maintain a permanent deployment of anticarrier forces in the Mediterranean. The deployment pattern is shown in the map at left, and a detailed breakdown of the deployment of individual weapon systems is contained in Annex A.

# Anticarrier Operations and Training

## Reconnaissance and Surveillance Activity

The Soviets obtain general information on carrier activity by intercepting electronic emissions from the carriers. They rely mainly on long-range radio direction finding for the initial location of carrier forces at sea, although efforts to monitor carrier activity probably begin with intelligence operations directed against carriers in port.

For reliable and detailed coverage of carrier movements, the Soviets employ a combination of aerial reconnaissance and close surveillance by surface ships and submarines. Reconnaissance and surveillance activity becomes progressively more intense as carrier forces approach the USSR. Carriers operating within launch range of Soviet territory are subjected to nearly continuous observation.

Naval Air Reactions to Carrier Operations

Since the navy acquired TU-95 Bear D long-range reconnaissance aircraft in 1965, about percent of all aircraft carrier transits in the Atlantic and Pacific have been subjected to aerial reconnaissance. Bears and M-type Bisons of the strategic bomber forces have also been involved in reactions to carrier transits, notably in the early Sixties before the navy was equipped with the Bear D (see photograph on page 14). Some of these operations probably are for training purposes, but many are flown to collect intelligence on the carrier forces.

A typical reconnaissance of a carrier transit is performed by one pair of Bear aircraft, with another pair assigned as backup. Some missions include direct overflights of the carrier for visual and photographic coverage. In other cases the Bears approach no closer than 100 to 200 nautical miles, relying on radar and passive sensors for information. The Bear D is fitted with a variety of Elint (electronic intelligence) equipment,

Aerial reconnaissance missions usually are not launched unless the approximate position of the carrier is known. The purpose of most missions is not to search the ocean for a carrier, but to define the exact location and composition of a carrier force previously identified by the radio direction finding network or

other sources. The fact that these missions are almost always successful in "finding" the carrier, therefore, reflects the capabilities of other intelligence gathering systems rather than the naval air reconnaissance capability.

An example of a true search mission by Soviet naval aviation occurred during "Exercise Ocean" in April 1970. Six Bear aircraft performed an extended mission in the North Atlantic, sweeping from the Norwegian Sea to the vicinity of Newfoundland and the Azores. There were no carrier forces in the area searched, but the mission is representative of the type of operation that would be needed to search for naval forces not previously located.

Most missions against carrier transits have taken place in the western North Pacific and the eastern North Atlantic. Some operations have been conducted in the Philippine Sea, and one carrier was overflown in the western North Atlantic by a naval Bear returning to the USSR from a visit to Cuba.

Carrier operations in the Norwegian Sea, the Sea of Japan, and the eastern Mediterranean are usually subjected to intensive aerial reconnaissance. Badger medium bombers figure prominently in this activity in all three areas, especially in the Mediterranean. Carriers of the US Sixth Fleet are regularly subjected to reconnaissance in the eastern Mediterranean and in fact are the primary target of Soviet naval Badgers based in Egypt.

Surveillance of Carriers by Surface Ships and Submarines

Soviet intelligence collection ships (AGIs) provide some information on carrier operations. They are fitted with a variety of Elint and Comint equipment and are deployed world-wide. They have monitored US carrier operations in the Gulf of Tonkin, for example, and have reported the departure of carriers from US home ports. The AGIs

are not armed and do not have sufficient speed to trail a fast-moving carrier force.

Surface combatants frequently trail carriers operating within strike range of Soviet territory. They provide information on flight operations and other carrier activities, as well as continuous position data.

Nuclear submarines have been used to trail carrier task forces only occasionally on the open ocean, but frequently in the eastern Mediterranean. Although a surface ship is better equipped to observe carrier operations, a submarine is less vulnerable to counterattack under combat conditions. Submarines are also employed to establish barrier patrols in areas through which a carrier force is expected to pass. Both diesel and nuclear submarines have been used for such operations, primarily in the Norwegian Sea, the northwest Pacific and the Mediterranean.

## Anticarrier Strike Tactics

Soviet writings and exercise activity indicate that anticarrier forces would try to attack before carrier-based aircraft could be launched against the USSR. Coordinated strikes by different systems would be used to saturate the carrier's defenses. The Soviets recognize, however, that independent attacks by small forces may be necessary in the attempt to destroy or disable a carrier before it can launch its strike aircraft.

### Submarines*

some information on strike tactics for the

* *Additional information on these forces is contained in SR IM 71-11,* The Soviet Attack Submarine Force: Evolution and Operations, *June 1971*

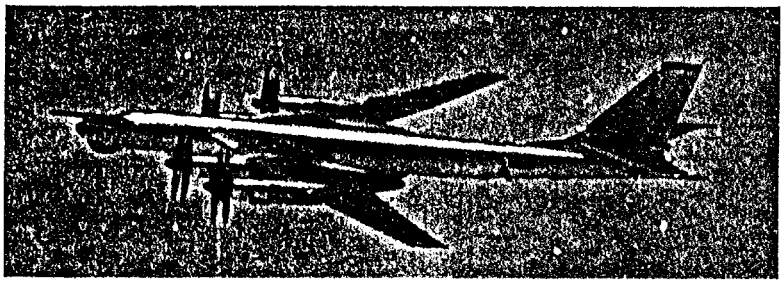
surface-launched SS-N-3 missile system carried by the E, J, and some W class submarines. Although targeting information for SS-N-3 firings can be supplied by any appropriately positioned aircraft, surface ship, or submarine, the preferred tactic involves the use of a Bear D to provide targeting data for a submarine located about 150 nm from the target. When possible, firings from two or more submarines would be coordinated so that the missiles arrive on target nearly simultaneously and from different directions.

SS-N-3 missiles could be launched at ranges up to about 220 nm. Vulnerability of the submarine would generally decrease with an increase in range, but the target acquisition problem would be further complicated and the coordination of strikes by widely separated forces would be more difficult. In addition, missile flight time would be increased and the defending forces would have a better chance for interception.

Attacks from shorter ranges would be more vulnerable to counterattack, because the submarine needs at least several minutes to surface, launch, and provide initial guidance to the SS-N-3 missile. A surfaced submarine could be defended by a surface combatant armed with surface-to-air missiles, and SAM-armed ships have operated in conjunction with cruise missile submarines. This tactic would not always be practicable, however, and the presence of the surface ship could be counterproductive if it attracted the attention of defending forces.

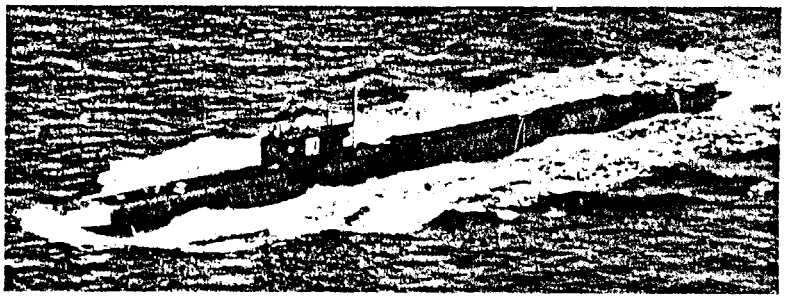
Strike tactics for the new C class submarine armed with the submerged-launched 30-nm SS-N-7 missile are different from those employed by the SS-N-3 units. The nuclear-powered C class has sufficient speed and endurance to intercept and trail a carrier task force under most circumstances. The maximum speed of US carriers is [redacted] greater than the 27 knots of the C class, but conventionally powered

## Typical Weapons Systems



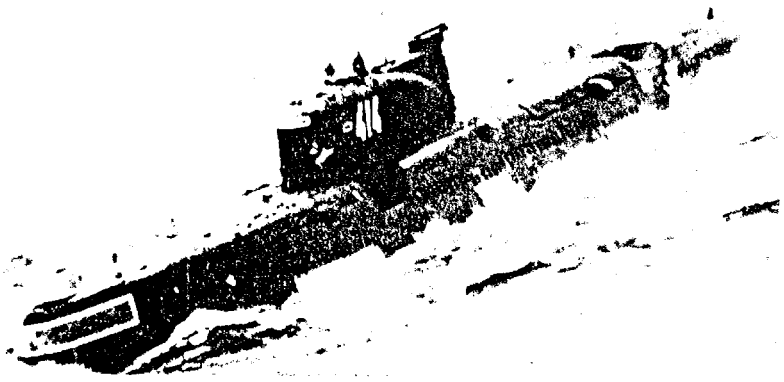
### Bear D

The Bear D is a maritime reconnaissance variant of the TU-95 heavy bomber. It is specially equipped to provide targeting data for cruise missile submarines and surface ships. About 50 are in service.



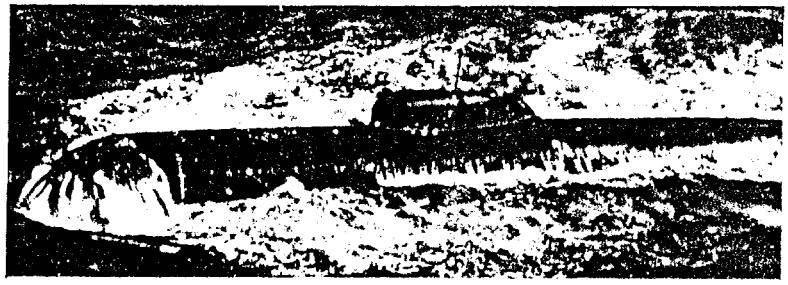
### E-II Class

The E-II class nuclear-powered submarine carries eight SS-N-3 missiles. The Soviets have 28 submarines of this class, plus two units of the earlier E-I version carrying six missiles each. The maximum range of the SS-N-3 is 220 nm. It can be launched only when the submarine is on the surface.



### J Class

The diesel-powered J class submarine carries four SS-N-3 missiles. Sixteen of these submarines are in service, including some that are being equipped with new SS-N-9 missiles, also launched from the surface. The Soviets also have a dozen older W class diesel-powered submarines that carry two or four SS-N-3 missiles.



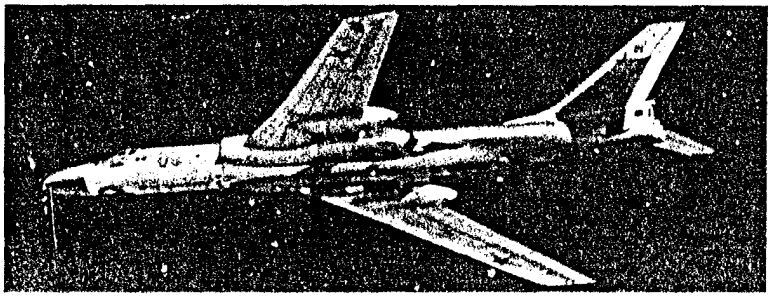
### C Class

The nuclear-powered C class is the first submarine capable of firing cruise missiles while submerged. It carries eight SS-N-7 missiles with a range of about 30 nm. Nine units are now in service.

## of Soviet Anticarrier Forces

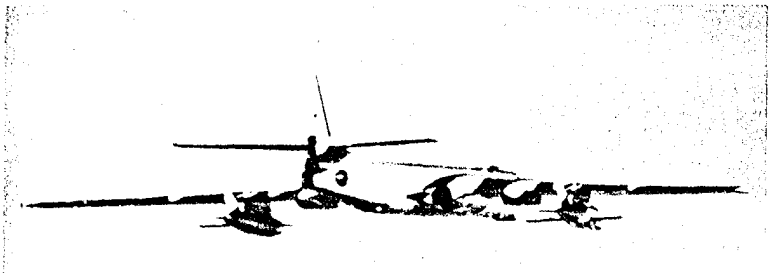
### Badger C With AS-2

The AS-2 Kipper missile carried by the TU-16 Badger C has a maximum range of about 110 nm. About 165 Badgers are equipped to carry the AS-2, which has been in service since 1960.



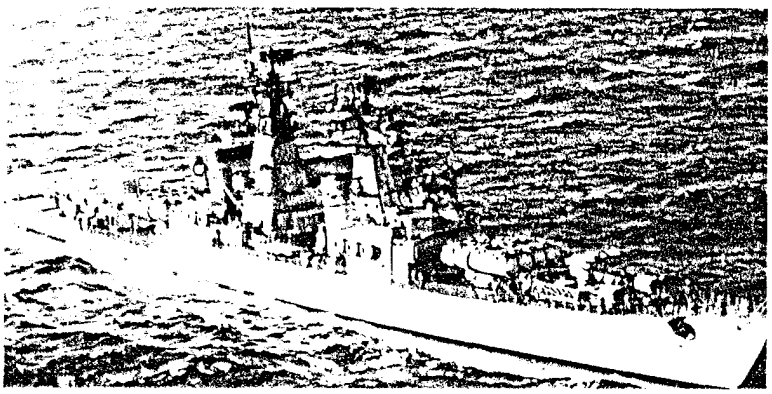
### Badger G With AS-5s

The AS-5 Kelt missile is carried in pairs by the TU-16 Badger G. The AS-5 entered service in 1965 and has a range of up to 120 nm. About 110 Badger G aircraft are in service. Some of these have been re-equipped with a newer missile, the 300-nm AS-6.



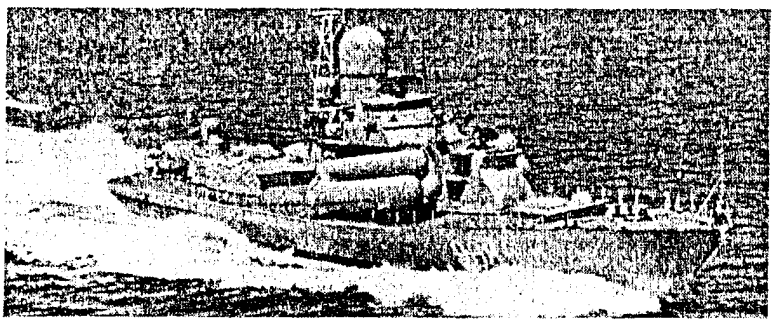
### Kynda Cruiser

The Kynda class light cruiser carries 16 missiles for its eight SS-N-3 launchers. Four Kyndas were built in the early Sixties. Another four missile cruisers, with four SS-N-3 launchers—the Kresta I class—were built in the late Sixties.



### Nanuchka Patrol Craft

The small Nanuchka class guided missile patrol craft is a threat to some carrier operations. It carries six SS-N-9 missiles with a range of up to 150 nm. Three units are now in service and production continues.



carriers and escorts have limited endurance at high speeds and only nuclear-powered units can maintain high speeds over extended periods.

The sonar and Elint sensors of the C class submarine probably are capable of passively detecting a carrier within missile range, permitting targeting without external assistance. A C class submarine probably could launch all eight of its SS-N-7 missiles in rapid succession--a Soviet press article probably referring to the C class describes the missiles as leaving the water like a "flight of geese." The missiles themselves are believed to be self-guiding, freeing the submarine for evasive action after launch.

Under some circumstances a C class unit might receive targeting assistance to supplement its sensors. Soviet operations in the Mediterranean have included simultaneous activity in the vicinity of a US carrier by a C class submarine and a Soviet surface combatant. In such a case, the surface combatant could pass target information to the submarine via underwater communications systems. This tactic could be employed for preemptive strikes, but probably would not be feasible under combat conditions. The basic concept for C class operations, therefore, probably emphasizes independent attack.

No information is available on the strike tactics that would be employed by the single P class submarine, which has not yet deployed beyond home waters. The missiles carried by the P class are believed to be launched under water and to have a range of over 100 nm. Tactics for this system may be a mixture of SS-N-3 and SS-N-7 tactics--relying on external targeting at long range but using an independent attack capability at close range.

Torpedo-attack submarines have participated in some anticarrier strike exercises, and Soviet writings have discussed torpedo attacks against carriers.

The majority of Soviet torpedo-attack submarines are diesel-powered units with limited capabilities against a modern carrier task force. The newer nuclear-powered units would have greater capabilities, but are probably oriented more to ASW than to anticarrier operations. Thus, torpedo attack submarines can be expected to engage carrier forces as opportunities arise, but in wartime their role would be minor in comparison with that of cruise missile units.

Aircraft

Frequent training exercises--some using US aircraft carriers as targets--indicate that anti-carrier strikes by Soviet naval aviation would involve mass attacks by ASM-carriers, supported by aircraft carrying electronic countermeasures (ECM) gear and by reconnaissance aircraft.

An exercise against a simulated carrier illustrates Soviet anti-carrier strike tactics. One part of this exercise involved a simulated missile attack by a force of Badgers:

Other exercises have involved larger aircraft forces, with several groups attacking simultaneously from different directions. Such strikes have been conducted independently or as part of a coordinated operation with surface and submarine forces.

Some aircraft of the strategic bomber forces--Long Range Aviation--also participate in anticarrier strike exercises. Naval activity by these aircraft is a secondary mission, Exercises indicate,

however, that the Soviets are prepared to use these aircraft for anticarrier missions if necessary:

-- TU-95 Bears armed with the AS-3 missile are usually employed in small groups of two or three aircraft. This differs from the saturation tactics favored by the Soviets, and the probable intention is to use a few of these long-range aircraft against carrier forces located outside the strike range of other forces. The AS-3 missile is not believed to have an antiship homing system, but it carries a large nuclear warhead that could be effective without a direct hit. In the anticarrier role it could be launched at ranges up to about 180 nm. Even if such an attack did not destroy the carrier, it could cause considerable damage, leaving the carrier more vulnerable to attacks by other forces.

-- Badgers of the strategic bomber forces equipped to carry AS-5 or AS-6 missiles regularly participate in anticarrier exercises, using the same tactics as similar naval aircraft. Participation is usually limited to major exercises, with small groups of these aircraft being used to supplement larger naval air forces.

-- Blinders armed with the 300-nm AS-4 missile [redacted] Although the AS-4 missile has a theoretical antiship capability, the Soviets apparently do not plan to use it for anticarrier missions.

[redacted]

Electronic countermeasures are integral to anticarrier tactics for both naval aviation and the strategic bomber forces. Aircraft in these forces can carry antiradar chaff and electronic equipment designed to disrupt Western radar and communications systems.

Surface Ships

Kresta I and Kynda class cruisers are regular participants in anticarrier strike exercises. Both are equipped with the SS-N-3 missile, and the tactics employed by these ships are generally similar to those used by the SS-N-3 missile submarines.

On a few occasions a Kresta I cruiser has carried a Hormone B helicopter equipped with radar and video data systems of the type used by the Bear D reconnaissance aircraft, providing a capability for target acquisition at extended ranges. It is not clear whether this practice will become routine, as the Kresta I has also carried the ASW version of the Hormone.

Although not suitable for extended operations on the high seas, the Nanuchka could operate effectively in the Mediterranean and other closed sea areas. The 150-nm maximum range of the SS-N-9 missile would permit anticarrier strike tactics similar to those used by the larger missile ships.

The trailing of carriers by missile-armed surface ships is becoming routine in the eastern Mediterranean, and is frequently employed against carriers approaching the USSR in the Atlantic and Pacific oceans Kildin and Krupnyy destroyers, armed with the SS-N-1 missile, have frequently performed this function. The new Kresta II cruiser also has been used for

trailing, and this probably will be one of the tasks of the new Krivak destroyer and the Nanuchka patrol craft. The trailing ship normally maintains radar or visual contact with the carrier, and is capable of launching an attack at any time. These units also provide continuous targeting data for other anticarrier strike forces.

The surface forces would also have a role in ECM support for anticarrier operations. Soviet surface combatants, especially the newer classes, are fitted with a variety of ECM equipment.

Coordinated Exercises Against Simulated Carriers

Major annual exercises in the Atlantic and Pacific the movement of a US carrier task force into the Norwegian Sea, Sea of Japan, or northwestern Pacific Ocean, and the primary mission of the Soviet anticarrier forces is to prevent the carrier from launching attacks against Soviet territory. The composition of the defending force varies, and there is no set pattern for the execution of these exercises. The US carrier force ordinarily is simulated by Soviet surface forces, although major exercises have been mounted against US carriers operating in these waters.

A Northern Fleet exercise held in mid-1971, summarized on the next page, provides an example of coordinated anticarrier activity. In this exercise a surface force consisting of a Sverdlov class cruiser and two missile destroyers simulated a carrier task force moving into the Norwegian Sea from a point south of Iceland. This exercise continued over a period of several days and included antisubmarine warfare operations and an amphibious landing in addition to the anticarrier activity.

## Summary of Northern Fleet Anticarrier Exercise in 1971

**25 June** Simulated carrier task force begins northeastward movement into the Norwegian Sea. Defending naval forces consisting of a Kresta I cruiser, a C class submarine, and three E-II class submarines begin deployment from home waters.

**26 June** Four naval Bear D aircraft make a reconnaissance sweep presumably in an attempt to locate the carrier task force. Naval Badgers also active in Norwegian Sea area.

**27 June** Carrier task force refuels at sea as opposing forces draw closer. Apparent lack of associated naval air activity is possibly explained by antisubmarine warfare exercise being conducted by separate group of forces farther north.

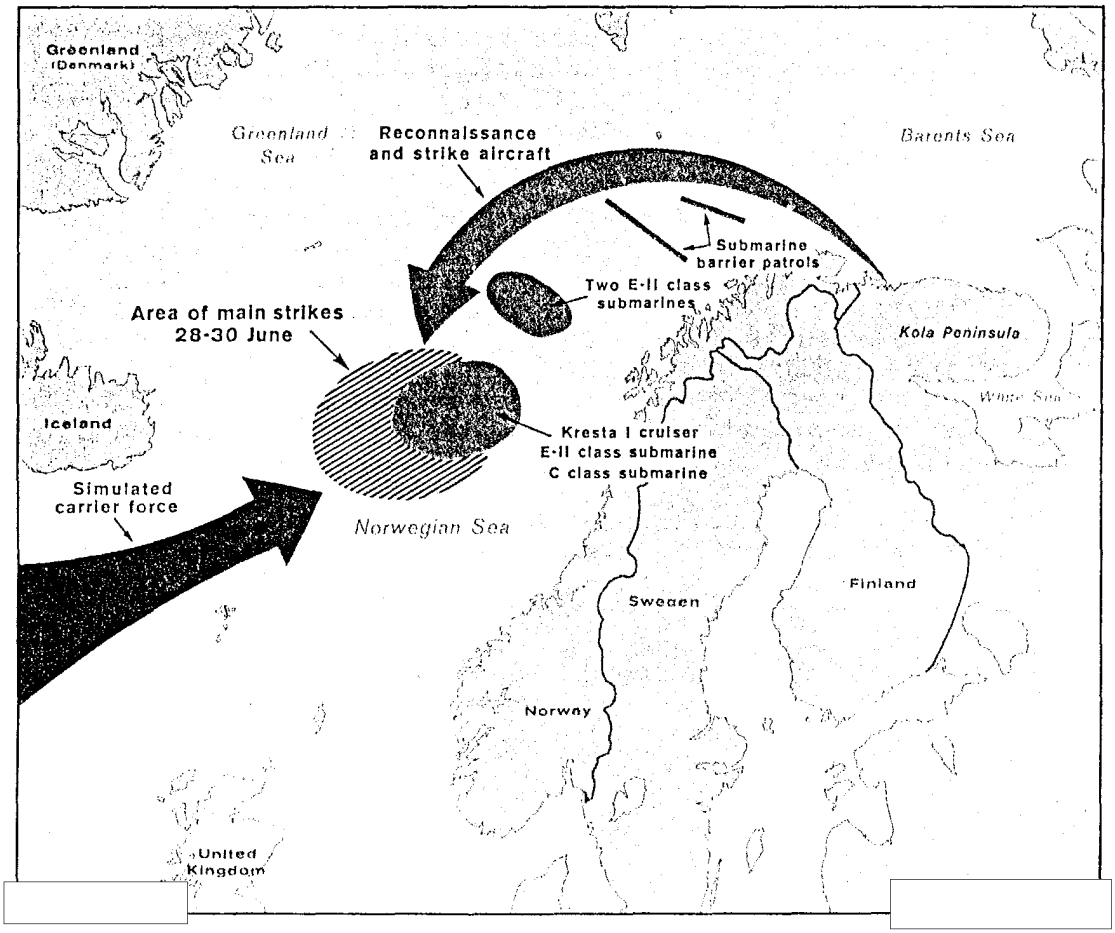
**28 June** Reconnaissance missions by Bear aircraft of the navy and the strategic bomber forces. Naval Badgers are also noted in the vicinity of opposing forces. Defending force split into two groups: Kresta I, C class, and one E-II class continue to close on carrier task force; the other two E-II class submarines appear to establish a barrier patrol across the force's probable path northeastward along the Norwegian coast (see map, page 23). The carrier force makes radical course changes in late afternoon and the C class turns to parallel courses. Information on movements is probably furnished by naval Bear Ds in the area.

**29 June** Flight by two Bears of strategic bomber force in early morning possibly simulates AS-3 strikes. Kresta I and E-II probably simulate SS-N-3 strikes later in the morning, followed by heavy ASM strikes in the afternoon. Aircraft involved include at least 32 naval Badgers and 11 Badgers from the strategic bomber forces. These aircraft probably simulate strikes with AS-2 and AS-5 missiles. By mid-afternoon the C class closes on the carrier task force and apparently joins in the attacks. Simulated strikes by aircraft and the SS-N-3 forces apparently continue in the evening.

**30 June** Simulated missile strikes probably continue. At one point in the afternoon a surfaced E-II is seen 145 nm west of the carrier task force. This submarine has four of its eight SS-N-3 launchers elevated to firing position and heads toward the force. Two Bear Ds in area possibly provide targeting data. The Kresta I is located about 10 nm from the surfaced E-II, engaged in undetermined activity with its Hormone helicopter. The C class possibly is operating in the vicinity of the carrier task force. By this time the carrier group is also within the maximum range of the two E-II submarines that established the barrier to the northeast.

**1 July** Major portion of anticarrier exercise is completed . As carrier task force continues northeastward it passes through the area where the two E-IIs have been stationed since 28 June. At about this time the Kresta I is observed preparing for helicopter operations, which could provide targeting data Later, as the force passes from the Norwegian Sea into the Barents Sea it crosses two submarine barriers formed by at least 11 diesel-powered torpedo attack submarines. At least one or two of these submarines apparently conducts attacks on the force.

## Northern Fleet Anticarrier Exercise
## 25 June-1 July 1971




This "defense of the homeland" exercise simulated repeated strikes by cruise missile submarines, missile-armed aircraft, and a missile cruiser.

Anticarrier exercises in the Mediterranean follow a different pattern. The usual target of simulated strikes in the Mediterranean is a carrier of the US Sixth Fleet. These carriers are routinely trailed by Soviet surface combatants during operations in the eastern Mediterranean,

This pattern suggests a preemptive strategy, as such trailing is possible only in peacetime.

Simulated strikes against carriers in the Mediterranean normally have involved only surface ships and submarines. Naval Badgers based in Egypt have provided reconnaissance support for some exercises,

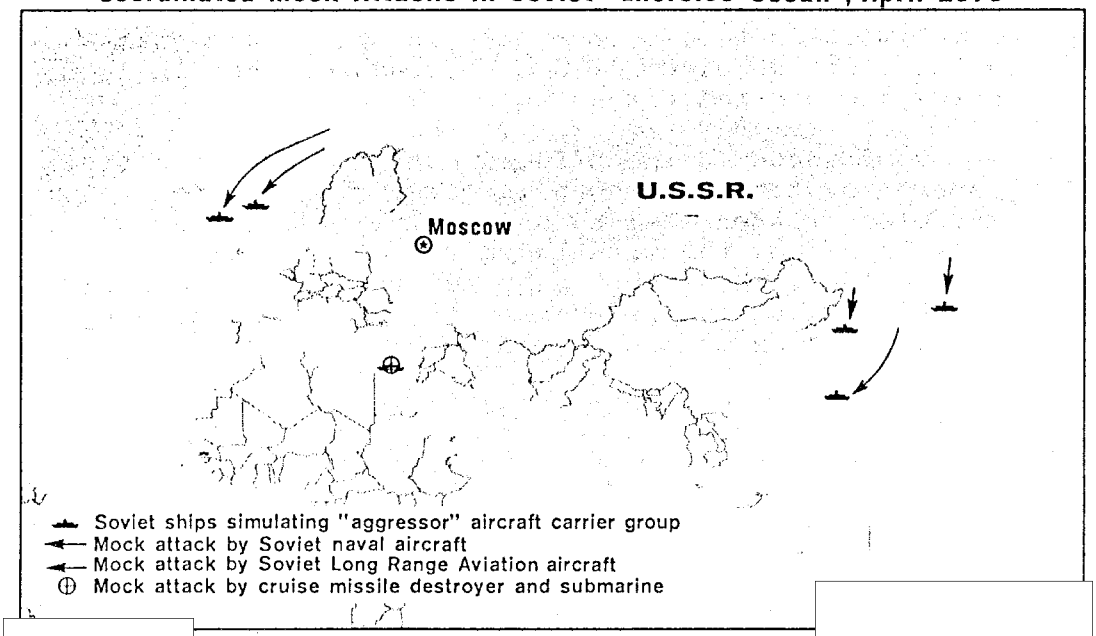
An example of high-level interfleet coordination for anticarrier strikes was demonstrated during Exercise Ocean in April 1970. This exercise included nearly simultaneous strikes against six widely separated simulated carriers. In this operation, naval TU-16s carried out ASM attacks in the Norwegian Sea, Sea of Japan, and North Pacific, while TU-95s of the strategic bomber forces attacked targets in the North

* *Additional information on these forces is contained in SR IM 72-11,* Soviet Naval Air Strike Capability in Egypt, *May 1972* .

Atlantic and the Philippine Sea (see map below).

At the same time a cruise missile submarine and surface ships made a mock attack in the Mediterranean.

**Coordinated Mock Attacks in Soviet "Exercise Ocean", April 1970**



## Soviet Capabilities Against Carrier Forces

The Soviets have acquired a large number and variety of missiles and launch platforms to counter US aircraft carriers, and the increasingly sophisticated tactics demonstrated in training exercises indicate that the Soviets are learning to make full use of their anticarrier weapons systems. The Soviets may well believe that they could defeat the US carrier forces under most circumstances.

### Anticarrier Strike Capabilities

High-ranking Soviet naval officers consistently refer to the aircraft carrier in terms indicating that they consider it vulnerable to their nuclear-armed missile forces, not only in open statements which might be discounted as propaganda, but in private conversations as well.

Confidence in the effectiveness of Soviet anticarrier systems was shown in classified journal articles written in 1960 and 1961 by Admiral V. A. Kasatonov, now the first deputy commander in chief of the navy. Kasatonov reported the following capabilities against carrier task forces, even allowing for the action of the carrier's air defenses:

- a salvo of six to eight missiles from a dispersed group of submarines would guarantee one nuclear missile on target
- a salvo of six ASMs with nuclear warheads would be sufficient to destroy a carrier (that is, at least one missile would penetrate the defenses and hit the target)
- two simultaneous salvos of six ASMs from different directions would destroy two major targets (a carrier and a cruiser) even if only six or seven of the missiles had nuclear warheads.

The missiles referred to in these articles probably were the submarine-launched SS-N-3 and the air-launched AS-1 or AS-2. The AS-1 was the first antiship missile deployed by the USSR, and has been phased out of the active inventory. Both the SS-N-3 and the AS-2 were just entering service in the 1960-1961 period, and have since been joined by a variety of new improved systems.

The validity of these Soviet estimates cannot be determined precisely. The conclusion that at least one of each six to eight missiles would penetrate defenses, however, appears reasonably conservative. Training manuals have indicated that the Soviets expect hit probabilities of 60 to 90 percent for antiship missiles, so the examples cited by Kasatonov evidently allow for large losses to the carrier's defenses.

Even if Soviet antiship missiles were only half as effective as suggested, the large numbers deployed would still be a major threat. The current anti-carrier forces include 68 cruise-missile submarines with 420 launchers, and 275 naval aircraft with 385 launchers. This provides an average of almost 4 submarines and 15 aircraft--with 45 missile launchers --for each of the 18 US aircraft carriers, which are the primary target of these forces.

The missile threat to the carrier is augmented by launchers on surface ships and strategic bombers. Additional anticarrier capabilities of secondary importance include torpedo attacks by submarines, free-fall bombing by naval aircraft and strategic bombers, and in some cases, naval gunfire.

Dependence on Reconnaissance Systems

Maritime reconnaissance is the weakest link in the Soviet anticarrier effort. The Soviets can maintain close surveillance of carrier operations in the sea approaches to the USSR, but their ability to monitor activity in other areas is limited. The effectiveness of the anticarrier strike forces would

be seriously degraded without reliable targeting data.

A carrier on the open ocean probably could avoid surveillance, at least during the initial stages of hostilities. Strict control of communications and other electronic emissions would prevent tracking by the Soviet radio direction finding network, and the efforts of Soviet reconnaissance aircraft could be defeated by a combination of air defenses and the extensive area to be searched. Soviet aircraft flying peacetime reconnaissance missions, for example, are frequently intercepted by fighters based in Iceland, the United Kingdom, and Japan, as well as by carrier-based aircraft. Although aerial reconnaissance efforts are supplemented by the use of surface ships and submarines in some areas, this tactic is less feasible on the open ocean.

Another problem for the Soviets is that breakdowns in command and control systems could seriously hamper anticarrier operations, which depend on the coordination of dispersed forces for effectiveness.

Limited Conventional Warfare Capability

An engagement limited to conventional weapons would place the Soviets at a disadvantage. While an aircraft carrier could be destroyed by a single nulcear weapon, it might be able to continue flight

* *Detailed information on naval command and control is contained in SR IR 71-17,* Soviet Command and Control of Distant Naval Operations, *October 1971*

operations after being struck by several missiles with conventional warheads. The smaller warships used by the Soviets would be more vulnerable to destruction by conventional weapons.

Most of the missiles in the anticarrier forces probably have nuclear warheads, and Soviet capabilities for quickly changing the mix of nuclear and conventional weapons are limited. Naval aircraft have the most flexibility, and could select either type of weapon before takeoff. Submarines are not believed to have a capability for changing warheads at sea. Some surface ships might be able to change warheads at sea, although this is doubtful. Carrier forces, on the other hand, have the option of arming their strike aircraft with either nuclear or conventional weapons.

Another advantage for carrier forces is that their aircraft can be used for repetitive strikes. Cruise missiles are strictly single-shot devices, and the Soviet Navy has only a limited capability to provide replacement missiles to deployed forces.

Defense of Soviet Territory

Carrier forces within or near launch range of Soviet territory at the outbreak of hostilities probably would be attacked almost immediately. Such forces are routinely under surveillance and would be closely monitored in a period of tension. The location of the carrier would be known, eliminating the need for prestrike reconnaissance. A surface combatant trailing the carrier could be ready to fire and probably would be supported by other surface ships and submarines within missile range.

If the Soviets deliberately initiated hostilities, coordinated missile attacks could be launched without warning. The trailing ship--sometimes a missile-armed unit--probably would open fire first. This attack might be accompanied by short-range

missiles launched from submerged submarines and possibly gunfire or short-range missiles from other surface ships.

Long-range missiles from surface ships and submarines would follow. Aircraft strikes could be timed to coincide with attacks by surface ship and submarine missiles, but air strikes would complicate the coordination of the attack as the approaching aircraft might alert the carrier. In some cases, therefore, aircraft might be withheld from the initial strike of a preemptive attack. Aircraft could be used to mount preemptive attacks on carriers not within range of other forces, however, as part of a general attack on the carrier forces.

Even if the Soviets were not expecting hostilities, carriers within or near launch range of Soviet territory could quickly be brought under attack. Such operations would not be as well coordinated as the preemptive attack described above, but would contain essentially the same elements.

Carrier forces located on the open ocean at the outbreak of hostilities would pose a different problem. Although the Soviets would have more time to respond, as such forces would not be an immediate threat to Soviet territory, they would also have the problem of finding them. The probability of a carrier being detected by reconnaissance aircraft, submarine patrols, or other forces would increase as the carrier approached Soviet territory. If the Soviets succeeded in finding the carrier in time, they could deploy forces for coordinated attacks such as they practice during exercises (see page 21). It is possible, however, that a carrier could reach a position to launch strikes against Soviet territory without being detected, or at least before major strikes could be mounted against it.

## Defense of Soviet Naval Forces

Soviet naval forces are vulnerable to air attack, and their main defense against carriers is their

offensive strike capability. Deployed naval forces could successfully defend themselves by a preemptive attack, but would be in a difficult position if the carrier forces had the initiative.

The Soviet naval forces have only limited air defenses. Some of the surface ships are armed with surface-to-air missiles, but the ability of these forces to survive determined air attacks is doubtful. Most of the cruise-missile submarines must surface to launch their missiles, and only the relatively few newer submarines with submerged-launched missiles are free from the threat of attack aircraft. In addition, all submarines are subject to attack by ASW aircraft as well as other ASW forces.

In some cases the Soviet naval forces could be exposed to air attacks without being able to strike back at the carriers. Carrier-based aircraft outrange the antiship missiles carried by Soviet surface ships and submarines. The carriers would have more freedom of action in an attack on naval forces than in an attack on Soviet territory, and possibly could maneuver to keep out of range of the Soviet forces.

If an engagement took place in an area remote from the USSR, such as the Indian Ocean, the circumstances would be even less favorable for the Soviets. They would be deprived of the support of their land-based strike aircraft, and they would have little or no aerial reconnaissance capability.

## Counterbalance to Carrier Forces in Peacetime

The Soviet Mediterranean squadron is the prime example of an attempt to counterbalance the presence of a US carrier force. The squadron can engage the US forces in the event of war, it demonstrates Soviet concern for affairs in the Middle East, and it acts as a deterrent to Western naval moves.

The Soviet force regularly deployed in the Mediterranean averages 8 to 10 major combatants and

10 to 12 submarines, including 2 or 3 submarines and one or more combatants armed with cruise missiles. Air support is provided by a detachment of about 30 aircraft based in Egypt.

The Soviet capability to counter US carrier forces in other areas is less impressive. When a US carrier task force deployed to the Indian Ocean in December 1971, for example, the USSR moved in additional naval forces. The US carrier force was in the area about 10 days, however, before the major elements of the Soviet reinforcements arrived. The augmented Soviet force included two missile cruisers, a missile destroyer, and two cruise missile submarines. It had a substantial anticarrier capability, including a total of 24 SS-N-3 launchers, but it was without air support for reconnaissance or strike missions.

The combat capability of a deployed Soviet force, however, might be less important than its presence. Third parties might not recognize the disparity in the forces, or might view the Soviet force as a forerunner of a greater Soviet involvement.

## Outlook for Anticarrier Forces

Current and projected programs will provide a general improvement in Soviet anticarrier capabilities over the next several years. In addition to providing a better defense of Soviet territory, the emerging forces will have a capability for extended deployments to counter US carrier operations elsewhere.

The deployment of new weapons systems in place of older, less effective systems will be the major factor in the improvement of anticarrier capabilities. In addition, the total number of anticarrier missile launchers is expected to increase. The table at right shows the basic anticarrier forces projected

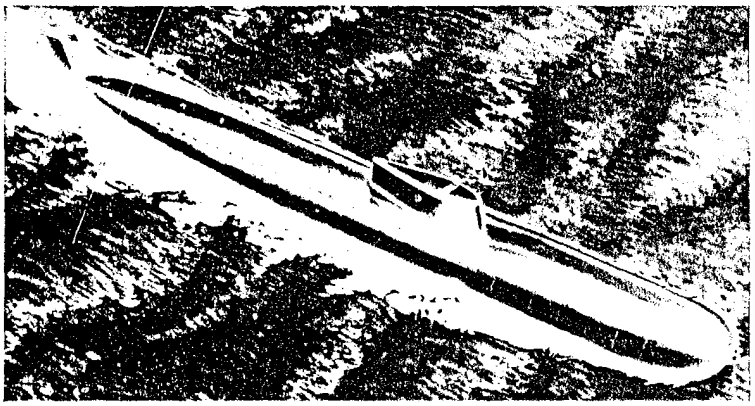
Selected Soviet Naval Forces*

| | 1 May 1972 | Projected mid-1975 |
|---|---|---|
| Cruise missile submarines | | |
| nuclear-powered | 40 | 47 |
| diesel-powered | 28 | 20 |
| Naval aircraft | | |
| missile carriers | 275 | 270 |
| long-range reconnaissance aircraft and bombers | 300 | 250 |
| Surface ships** | | |
| with cruise missiles | 24 | 60 |
| with surface-to-air missiles | 50 | 102 |
| Cruise missile launchers | | |
| on submarines | 420 | 468 |
| on aircraft | 385 | 380 |
| on surface ships** | 110 | 328 |

* *A more complete listing of forces is given in Annex A.*

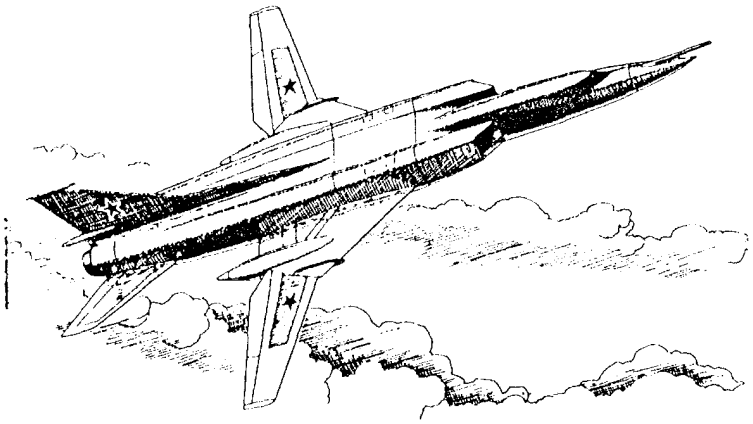
** *Figures cover all major combatants and the Nanuchka class patrol craft. Additional missiles are carried by other minor combatants.*

## Systems Under Development



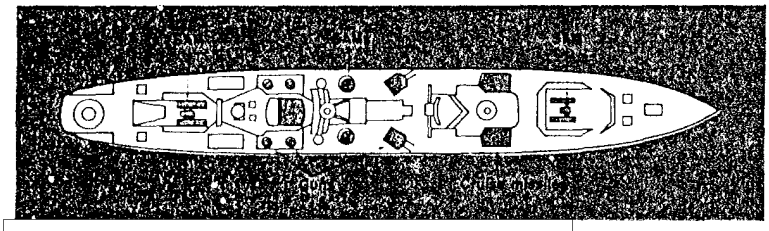
### P Class Submarine

The P class submarine carries 10 to 12 submerged-launch missiles with a range of over 100 nm. One P class unit is already in service and an estimated four units will be completed by 1975.



### Backfire Bomber

The Backfire swing-wing bomber could be ready for naval service by about 1974. It probably will be deployed as a follow-on to the aging Badgers now in service.



### 445-B Cruiser

The 445-B cruiser now undergoing sea trials illustrates the emphasis being given to air defenses for surface combatants. This ship carries four twin launchers for two different SAM systems, plus a variety of antiaircraft guns.

for mid-1975. The most significant changes expected during 1972-1975 are as follows:

-- The total number of missile launchers on submarines will increase by about 10 percent, and the number of underwater launchers will double.

-- A decline in the number of older ASM-carrying aircraft will be offset by the introduction of the new Backfire bomber about 1974, and the total number of launchers on aircraft will remain almost constant.

-- The number of cruise missile launchers on surface ships will nearly triple, and the number of SAM launchers will more than double.

The growing submarine threat to the carrier is a good example of the impact of qualitative improvements. The new nuclear-powered submarines entering service have far greater combat capabilities than the diesel-powered units they are replacing. This alone more than offsets a projected reduction in the total submarine force. In addition, the new submarines are armed with submerged-launched missiles and are less vulnerable to detection and counter-attack than the older types which must surface to launch an attack.

The deployment of the new AS-6 missile for naval aircraft is another example of the improving capabilities of individual weapon systems. The AS-6 has approximately twice the speed and range of the other naval ASMs. Deployment of the new Backfire swing-wing bomber would provide a similar qualitative improvement over the aging Badger, which has been in service since the mid-Fifties.

The new missile-armed cruisers, destroyers, and patrol craft now entering service will improve anti-carrier capabilities of the surface forces. The number of ships armed with cruise missiles is expected

to increase from 24 to about 60 by 1975. In addition, the number of ships with surface-to-air missiles is expected to more than double, substantially increasing the capability of the surface forces to defend themselves.

The increasing number of nuclear-powered submarines and the growing quality of the surface forces will improve Soviet capabilities for distant operations. In addition to an increased strike capability, these forces will have better capabilities for monitoring carrier movements. An increased use of missile-armed surface ships and submarines for trailing US carriers would partly offset the limitations of Soviet maritime reconnaissance capabilities.

The growing strength of the Soviet anticarrier forces is compounded by programed decreases in the US carrier forces from the present 18 carriers to 13 in mid-1975.* The following tabulation shows the changing ratio of Soviet anticarrier forces to US carriers.

| | May 1972 | Projected mid-1975 |
|---|---|---|
| Soviet anticarrier forces per US carrier | | |
| cruise missile submarines | 4 | 5 |
| cruise missile armed surface ships | 1 | 5 |
| ASM-armed aircraft | 15 | 21 |
| long-range reconnaissance aircraft and bombers | 17 | 19 |
| Soviet missile launchers per US carrier | 51 | 90 |
| submarine, submerged-launched | 5 | 12 |
| submarine, surface-launched | 19 | 24 |
| aircraft | 21 | 29 |
| surface ship | 6 | 25 |

* *The US force includes one training carrier.*

## Summary

The Soviets recognize the aircraft carrier as a key element of US naval power. They have been concerned with the strategic attack potential of carrier forces since the early Fifties, when nuclear-armed strike aircraft were first deployed on US carriers. Later, as their own naval operations became more far-ranging, they found the aircraft carrier to be a serious threat to their surface and undersea fleets. They also became concerned over the use of carrier forces as a means of supporting US foreign policy interests.

The Soviets considered building carriers, but rejected them in favor of submarine and aircraft forces designed to attack and destroy enemy carriers. This decision was influenced by the development of cruise-missile technology in the Fifties. The Soviets considered the antiship cruise missile a revolutionary weapon making the aircraft carrier obsolete.

The requirement to counter US carrier forces resulted in major changes in the Soviet Navy. Through the early Fifties the navy was oriented basically to coastal defense missions. It has since acquired forces capable of operating on the open ocean as well as the distant sea approaches to the USSR. Long-range cruise missiles have been widely deployed as the primary armament of submarines, aircraft, and to a lesser extent, surface combatants.

The Soviets view the submarine as their primary naval weapon. They currently have a force of some 286 attack submarines. Most of the 68 cruise-missile submarines are armed with the SS-N-3, a surface-launched antiship missile with a maximum operational range of up to 220 nautical miles. Nine submarines are equipped with the SS-N-7 missile, which is submerged-launched and has a range of up to 30 nm. The unidentified missile system associated with the new P class submarine probably is submerged-

launched and is believed to have a range of 100 nm or more.

Aircraft also play a major role in anticarrier warfare. Soviet naval aviation currently has a force of over 600 bomber and reconnaissance aircraft, including about 275 armed with air-to-surface missiles. Most of the strike aircraft have 110-nm AS-2 or 120-nm AS-5 missiles. A new missile, with greater speed and range capabilities, the AS-6, is currently being deployed. Naval aviation anticarrier capabilities are backed up by the strategic bomber forces, which have a secondary naval mission. These include long-range heavy bombers armed with the AS-3 missile, as well as medium bombers similar to those assigned to the navy.

Soviet surface forces make an important contribution to anticarrier warfare by trailing carrier forces operating in the sea approaches to the USSR during peacetime. The use of missile-armed ships for trailing provides a preemptive strike capability as well as continuous targeting data for the other anticarrier forces. In addition, some surface combatants are equipped with long-range cruise missiles.

The naval forces that could be committed to anticarrier operations are equipped with about 915 cruise missile launchers, not counting coastal defense weapons on small patrol boats and at shore sites. This total includes 420 launchers on submarines, 385 on aircraft, and 110 on surface ships. Anticarrier forces are assigned to all four of the Soviet fleet areas, with the main strength concentrated in the Northern and Pacific fleets. The Soviets also maintain a permanent deployment of anticarrier forces in the Mediterranean Sea.

Soviet doctrine for anticarrier warfare stresses the use of coordinated strikes by different types of weapons to saturate carrier defenses. Training exercises are conducted regularly and feature coordinated attacks by submarines, aircraft, and surface ships. Many of these exercises are conducted under

realistic conditions, sometimes with a US carrier serving as the practice target. Some operations have been timed to bring the target under simultaneous attack by various types of weapons from different directions. Simulated carriers approaching the USSR have been subjected to successive attacks by submarines, aircraft, and surface ships forming a defense in depth. Exercise activity as well as Soviet writings indicate that the Soviets would try to attack a carrier before its aircraft were within range of Soviet territory. US carriers in the sea approaches to the USSR are normally subjected to continuous targeting and frequently to preemptive practice attacks.

Soviet forces possess a large and diversified inventory of antiship weapons, and conduct extensive training for the anticarrier mission. The Soviets may well believe that they could defeat the US carrier forces under most circumstances. These capabilities are at their best in defending Soviet territory against carrier-based attacks when all of the anticarrier weapons could be brought into action. The ability of the Soviet fleet to defend itself against opposing carrier forces at sea is less impressive. Although possessing powerful strike capabilities, the Soviet forces are vulnerable to air attack. Despite this problem, however, the Soviets have demonstrated a growing capability to deploy forces in opposition to carrier operations in peacetime and limited war situations.

The weakest link in the anticarrier effort is a limited capability for maritime reconnaissance, particularly in areas remote from Soviet territory. The effectiveness of the anticarrier strike forces would be seriously degraded in the absence of reliable targeting data. The anticarrier forces also would be at a disadvantage in a conflict limited to conventional weapons.

Current and projected programs will provide a general improvement in Soviet anticarrier capabilities over the next several years. New weapons

systems are being deployed and the number of missile launchers in the anticarrier forces continues to increase. These improving capabilities probably will result in an expansion of the deployment areas of Soviet naval forces in opposition to the operations of US carrier forces.

Annex A

Selected Soviet Naval Order of Battle

The five tables which follow present basic order of battle data for selected Soviet naval forces.

Tables A-1 to A-3 cover the attack submarine, naval aircraft, and surface forces, showing deployment by fleet area as of 1 May 1972.

Table A-4 summarizes the cruise missile threat by fleet area as of 1 May 1972.

Table A-5 gives summary order of battle data for the years 1955, 1960, 1965, 1970, and 1975.

Table A-1

Soviet Cruise Missile and Torpedo
Attack Submarines by Fleet Area
As of 1 May 1972

| Type of Submarine | Fleet Area | | | | Total |
|---|---|---|---|---|---|
| | Northern | Baltic | Black | Pacific | |
| Nuclear | 43 | 0 | 0 | 24 | 67 |
| P class *a* | 1 | | | | 1 |
| C class *a* | 9 | | | | 9 |
| E-II class *a* | 14 | | | 14 | 28 |
| E-I class *a* | | | | 2 | 2 |
| E-I (conv) class | | | | 3 | 3 |
| V class | 10 | | | | 10 |
| N class | 9 | | | 5 | 14 |
| Long-range diesel | 56 | 6 | 0 | 28 | 90 |
| J class *a* | 12 | | | 4 | 16 |
| F class | 31 | 4 | | 16 | 51 |
| Z class | 13 | 2 | | 8 | 23 |
| Medium-range diesel | 37 | 25 | 21 | 37 | 120 |
| W (LB) class *a* | | 3 | 2 | 2 | 7 |
| W (TC) class *a* | 1 | | 3 | 1 | 5 |
| W class | 26 | 20 | 12 | 32 | 90 |
| B class | 1 | | 1 | 2 | 4 |
| R class | 9 | 2 | 3 | | 14 |
| Short-range diesel | | | | | |
| Q class | 0 | 4 | 5 | 0 | 9 |
| Total | 136 | 35 | 26 | 89 | 286 |

*a. Armed with cruise missiles.*

Table A-2

Soviet Naval Reconnaissance and Strike Aircraft by Fleet Area
As of 1 May 1972

| Type of Aircraft | Fleet Area | | | | Total |
|---|---|---|---|---|---|
| | Northern | Baltic | Black | Pacific | |
| Reconnaissance | 27 | 32 | 34 | 27 | 120 |
| TU-95 Bear D | 25 | | | 25 | 50 |
| TU-22 Blinder | | 30 | 30 | | 60 |
| AN-12 Cub | 2 | 2 | 4 | 2 | 10 |
| Medium bombers | 105 | 100 | 95 | 155 | 455 |
| TU-16 Badger C *a* | 65 | 20 | 40 | 40 | 165 |
| TU-16 Badger G *a* | | 40 | 15 | 55 | 110 |
| TU-16 Badger (other) | 40 | 40 | 40 | 60 | 180 |
| Light bombers | | | | | |
| IL-28 Beagle | 0 | 60 | 0 | 0 | 60 |
| Total | 132 | 192 | 129 | 182 | 635 |

*a. Armed with cruise missiles.*

Table A-3

Major Soviet Surface Ships
by Fleet Area
As of 1 May 1972

| Type of Ship *a* | Fleet Area | | | | Total | |
|---|---|---|---|---|---|---|
| | Northern | Baltic | Black | Pacific | | |
| Helicopter carrier | | | | | | |
| Moskva | 0 | 0 | 2 | 0 | 2 | |
| Missile cruisers and destroyers | 10 | 8 | 22 | 13 | 53 | |
| Kresta I *b* | 3 | | | 1 | 4 | |
| Kresta II *b* | 2 | 1 | | | 3 | |
| Kynda *b* | | | 2 | 2 | 4 | |
| Sverdlov (with SAMs) | | | 2 | 1 | 3 | *c* |
| Krivak *b* | | 1 | 1 | | 2 | *d* |
| Krupnyy *b* | | 1 | | 3 | 4 | *e* |
| Kildin *b* | | | 3 | 1 | 4 | *f* |
| Kashin | 1 | 3 | 11 | 3 | 18 | |
| Kanin | 3 | 1 | | | 4 | |
| Kotlin (with SAMs) | 1 | 1 | 3 | 2 | 7 | |
| Other cruisers and destroyers | 9 | 14 | 16 | 15 | 54 | |
| Sverdlov | 2 | 2 | 2 | 2 | 8 | |
| Chapayev | | 2 | | | 2 | |
| Kirov | | 1 | 1 | | 2 | |
| Kotlin | 2 | 2 | 4 | 8 | 16 | |
| Tallin | | 1 | | | 1 | |
| Skoryy | 5 | 6 | 9 | 5 | 25 | |
| Destroyer escorts | 33 | 25 | 29 | 25 | 112 | |
| Petya & Mirka | 20 | 17 | 18 | 12 | 67 | |
| Kola & Riga | 13 | 8 | 11 | 13 | 45 | |
| Other | | | | | | |
| Nanuchka *b* | 0 | 1 | 2 | 0 | 3 | |
| Total | 52 | 48 | 71 | 53 | 224 | |

*Notes to Table A-3*

*a. The ships shown include all major surface combatants plus the Nanuchka class patrol craft, a small but heavily armed minor combatant.*

*b. Armed with cruise missiles.*

*c. One Sverdlov in the Black Sea Fleet is known to have a SAM installation, and two Sverdlovs recently reactivated probably had SAMs added during overhaul and modernization.*

*d. A third Krivak has been completed and may already be operational.*

*e. Three of these units have already begun conversion to the Kanin class configuration.*

*f. Two of these units are being converted to a new configuration and are being armed with SAMs in place of surface-to-surface missiles.*

Table A-4

Number of Soviet Cruise Missile Launchers by Fleet Area
As of 1 May 1972

| Type of Missile | Launch Platform | Fleet Area | | | | Total Launchers |
|---|---|---|---|---|---|---|
| | | Northern | Baltic | Black | Pacific | |
| Submerged-launched | | 82 | 0 | 0 | 0 | 82 |
| SS-N-7 | C class submarines | 72 | | | | 72 |
| unidentified | P class submarines | 10 *b* | | | | 10 *b* |
| Surface-launched | | 190 | 32 | 49 | 177 | 448 |
| SS-N-3 | E, J, W class submarines *c* | 162 | 12 | 14 | 150 | 338 |
| SS-N-3 | Kynda, Kresta I ships | 12 | | 16 | 20 | 48 |
| SS-N-10 | Kresta II, Krivak ships | 16 | 12 | 4 | | 32 |
| SS-N-1 | Krupnyy, Kildin ships | | 2 | 3 | 7 | 12 |
| SS-N-9 | Nanuchka patrol craft *c* | | 6 | 12 | | 18 |
| Air-launched | | 65 | 100 | 70 | 150 | 385 |
| AS-2 | Badger C aircraft | 65 | 20 | 40 | 40 | 165 |
| AS-5, AS-6 | Badger G aircraft *d* | | 80 | 30 | 110 | 220 |
| Total | | 337 | 132 | 119 | 327 | 915 |

*a. Total includes all launchers on submarines, naval aircraft, major combatants, and the Nanuchka class patrol craft; excludes launchers at shore sites and on small patrol boats, and launchers carried by aircraft of the strategic bomber forces.*

*b. The P class carries at least 10, possibly 12 missiles.*

*c. Some J class submarines possibly are changing from the SS-N-3 to the SS-N-9 missile.*

*d. Most Badger G aircraft carry AS-5 missiles. Some are being reequipped with the new AS-6.*

Table A-5

Summary Order of Battle for Major Soviet Naval Forces

Selected Years Mid-1955 to Mid-1975

| | 1955 | 1960 | 1965 | 1970 | Projected 1975 |
|---|---|---|---|---|---|
| Cruise missile and torpedo attack submarines | 422 | 347 | 350 | 306 | 257 |
| Nuclear | | 3 | 33 | 58 | 89 |
| Long-range diesel | 15 | 27 | 64 | 88 | 83 |
| Medium-range diesel | 123 | 212 | 208 | 150 | 82 |
| Short-range diesel | 284 | 105 | 45 | 10 | 3 |
| Aircraft | 3,070 | 530 | 755 | 960 | 1,010 |
| Long-range recon | | | 10 | 50 | 45 |
| Medium bombers/recon | | 275 | 455 | 530 | 455 |
| Light bombers/attack | 950 | 35 | 105 | 60 | 60 |
| Fighters | 1,910 | | | | |
| Other (mainly ASW) | 210 | 220 | 185 | 320 | 450 |
| Surface forces *a* | 210 | 233 | 191 | 212 | 228 |
| Battleships | 3 | | | | |
| Helicopter carriers | | | | 2 | 3 |
| Missile cruisers and destroyers | | 7 | 23 | 46 | 83 |
| Other cruisers and destroyers | 145 | 153 | 81 | 54 | 19 |
| Destroyer escorts | 62 | 73 | 87 | 109 | 103 |
| Nanuchka class | | | | 1 | 20 |
| Cruise missile launchers | 0 | 308 | 589 | 865 | 1,176 |
| On submarines | | | 217 | 384 | 468 |
| On aircraft | | 300 | 320 | 395 | 380 |
| On surface ships *a* | | 8 | 52 | 86 | 328 |

*a. The ships shown include all major surface combatants plus the Nanuchka class patrol craft, a small but heavily armed minor combatant.*

# Page# 48

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Annex B

Technical Characteristics of Selected Soviet Naval Weapons Systems

The five tables in this annex, covering selected characteristics of weapons systems, are intended to provide a general description of the systems for background use. The individual systems can vary widely in actual performance under different circumstances.

Tables B-1 through B-3 cover attack submarines, reconnaissance and strike aircraft, and major surface combatants.

Table B-4 covers current cruise missile systems.

Table B-5 is a brief reference list of anticarrier missile systems.

Table B-1

Characteristics of Soviet Attack Submarines

| Class | Cruise Missiles Type | Cruise Missiles Number | Length (ft) | Submerged Displacement (tons) | Maximum Submerged Speed (kts) | Patrol Characteristics Duration (days) | Patrol Characteristics Average Speed (kts) |
|---|---|---|---|---|---|---|---|
| Nuclear | | | | | | | |
| P | U/I | 10-12 | 348 | 7,200 | . . . . . | undetermined | . . . . . |
| C | SS-N-7 | 8 | 308 | 5,200 | 27 | 60 | 12-14 |
| E-I | SS-N-3 | 6 | 375 | 5,750 | 26 | 60 | 12 |
| E-I (conv) *a* | | | 375 | 5,500 | 28 | 60 | 10-12 |
| E-II | SS-N-3 | 8 | 385 | 6,000 | 24.5 | 60 | 12 |
| V | | | 308 | 5,100 | 32 | 60 | 12-14 |
| N | | | 360 | 5,400 | 30 | 60 | 12-14 |
| Diesel | | | | | | | |
| F | | | 295 | 2,200 | 16 | 60 | 5 |
| Z | | | 295 | 2,200 | 15 | 60 | 5 |
| J | SS-N-3 *b* | 4 | 285 | 3,500 | 15 | 60 | 5 |
| W | SS-N-3 | 4 | 275 | 1,500 | 12 | 40 | 5 |
| W | SS-N-3 | 2 | 249 | 1,400 | 12 | 40 | 5 |
| W | | | 249 | 1,355 | 13.5 | 40 | 5 |
| B | | | 230 | 2,900 | 15 | 60 | undetermined |
| R | | | 250 | 1,800 | 15.5 | 40 | 5 |
| Q | | | 185 | 510 | 8 | coastal operations | |

*a. E-I class missile submarines are being converted to torpedo attack types.*
*b. Some J class submarines possibly are being retrofitted with SS-N-9 missiles.*

Table B-2

Characteristics of Soviet Naval
Reconnaissance and Strike Aircraft

| | Type | Cruise Missiles Type | Cruise Missiles Number | Gross Weight (lbs) | Maximum Speed (kts) | Combat Radius at Cruising Speed (nm) |
|---|---|---|---|---|---|---|
| TU-95 Bear D | Reconnaissance | | | 357,000 | 500 | 4,600 |
| TU-22 Blinder | Medium bomber *a* | | | 185,000 | 975 | 1,800 |
| TU-16 Badger | Medium bomber *a* | | | 167,000 | 540 | 1,650 |
| TU-16 Badger C | ASM carrier | AS-2 | 1 | 167,000 | 540 | 1,450 |
| TU-16 Badger G | ASM carrier | AS-5 or AS-6 | 2 | 167,000 | 540 | 1,200 |
| IL-28 Beagle | Light bomber *a* | | | 51,100 | 490 | 550 |
| AN-12 Cub A/B/C | Reconnaissance *b* | | | 107,000 | 375 | 1,300 |

*a. Used in both reconnaissance and strike roles.*
*b. Special-purpose reconnaissance and ECM variants of the basic AN-12 transport.*

Table B-3

Characteristics of Major Soviet Surface Ships

| Class | Cruise Missiles Type | Cruise Missiles Number | Length (ft) | Full-load Displacement (tons) | Max Speed (kts) | Range at Cruising Speed (nm) |
|---|---|---|---|---|---|---|
| Helicopter carrier | | | | | | |
| Moskva | | | 620 | 20,000 | 29 | 14,000 |
| Missile cruisers and destroyers | | | | | | |
| Kresta I *a* | SS-N-3 | 4 | 510 | 6,700 | 34 | 7,000 |
| Kresta II *a* | SS-N-10 | 8 | 522 | 6,800 | 34 | 7,000 |
| Kynda *a* | SS-N-3 | 8 *b* | 465 | 5,600 | 36 | 7,000 |
| Sverdlov | | | 689 | 17,200 | 32 | 10,000 |
| Krivak | SS-N-10 | 4 | 405 | 3,800 | 32 | 4,650 |
| Krupnyy | SS-N-1 | 2 *c* | 452 | 4,500 | 35 | 4,700 |
| Kildin | SS-N-1 | 1 *d* | 415 | 3,500 | 36 | 4,700 |
| Kashin | | | 470 | 4,450 | 38 | 7,500 |
| Kanin | | | 463 | 4,500 | 35 | 4,700 |
| Kotlin | | | 415 | 3,500 | 36 | 4,700 |
| Other cruisers and Destroyers | | | | | | |
| Chapayev | | | 665 | 15,000 | 32 | 5,000 |
| Kirov | | | 626 | 9,060 | 32 | 3,000 |
| Skoryy | | | 395 | 3,050 | 36 | 3,500 |
| Tallin | | | 440 | 3,700 | 34 | 4,500 |
| Destroyer escorts | | | | | | |
| Kola | | | 315 | 1,500 | 30 | 3,500 |
| Mirka | | | 268 | 1,150 | 30 | 4,900 |
| Petya | | | 269 | 1,100 | 34 | 4,900 |
| Riga | | | 298 | 1,320 | 28 | 2,450 |
| Nanuchka *e* | SS-N-9 | 6 | 198 | 650 | 32.5 | 2,600 |

*a. The Kresta and Kynda classes 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. They are less than half the size of a US light cruiser.*

*b. The Kynda carries a total of 16 missiles for its eight launchers.*

*c. The Krupnyy carries a total of 20 missiles for its two launchers.*

*d. The Kildin carries a total of 9 missiles for its single launcher.*

*e. The Nanuchka is not a major combatant, but is included here because of its anticarrier potential.*

Table B-4

Characteristics of
Soviet Antiship Missiles *a*

| Type of Missile | Maximum Range (nm) *b* | Speeds (Mach) *c* | Warhead (lbs) |
|---|---|---|---|
| Air-to-surface | | | |
| AS-2 | 110 | 1.3 | 2,200 |
| AS-3 *d* | 180 *d* | 1.8 | 4,500-5,500 |
| AS-5 | 120 | 0.9-1.2 | 1,100-2,200 |
| AS-6 | 300 | 2.5-3.0 | 1,100-2,200 |
| Surface-to-surface | | | |
| SS-N-1 | 130 | 0.7-0.9 | 500-2,000 |
| SS-N-3 | 150-220 *e* | 0.9-1.6 | 1,100-2,200 |
| SS-N-7 | | | |
| SS-N-9 | | | |
| SS-N-10 | | | |
| Unidentified | *f* | *f* | *f* |

*a. Systems not likely to be used against aircraft carriers are excluded. Estimates of performance for the latest systems are tentative.*

*b. Range performance depends on specific flight profile and, in some cases, whether external targeting assistance is used.*

*c. The speeds shown reflect variations due to different flight profiles as well as uncertainties as to actual missile performance characteristics.*

*d. The AS-3 is basically a strategic attack weapon, but could be used in the anticarrier role. It has a maximum range of 350 nm against land targets, but against ships its maximum operational range is about 180 nm.*

*e. There are at least three variants of the SS-N-3. The type carried by most submarines has a maximum range of 220 nm; the version carried by surface ships is limited to a range of 150 nm.*

*f. The P class submarine carries an unidentified type of missile. It is believed to be launched under water and to have a range of over 100 nm.*

Table B-5

Reference List of
Anticarrier Missile Systems *a*

| Type of Missile | Launch Platform | Number of Launchers |
|---|---|---|
| Air-launched | | |
| AS-2 | TU-16 Badger C medium bomber | 1 |
| AS-3 *b* | TU-95 Bear B/C heavy bomber | 1 |
| AS-5 | TU-16 Badger G medium bomber | 2 |
| AS-6 | TU-16 Badger G medium bomber | 2 |
| Surface-launched | | |
| SS-N-1 | Kildin destroyer | 1 *c* |
| | Krupnyy destroyer | 2 *d* |
| SS-N-3 | E-I class nuclear submarine | 6 |
| | E-II class nuclear submarine | 8 |
| | J class diesel submarine | 4 |
| | W class diesel submarine | 2-4 |
| | Kresta I cruiser | 4 |
| | Kynda cruiser | 8 *e* |
| SS-N-9 | Nanuchka patrol boat | 6 |
| | J class diesel submarine *f* | 4 |
| SS-N-10 | Kresta II cruiser | 8 |
| | Krivak destroyer | 4 |
| Submerged-launched | | |
| SS-N-7 | C class nuclear submarine | 8 |
| Unidentified | P class nuclear submarine | 10-12 |

*a. Systems not likely to be used against aircraft carriers are excluded.*
*b. Deployed only with strategic bomber forces.*
*c. Ship carries total of 9 missiles.*
*d. Ship carries total of 20 missiles.*
*e. Ship carries total of 16 missiles.*
*f. J class submarines originally carried SS-N-3 missiles, but some may be changing to the SS-N-9 missile.*

Related Publications of
The Office of Strategic Research

| | |
|---|---|
| SR IM 72-11<br>May 1972 | Soviet Naval Air Strike Capability in Egypt |
| SR IR 71-21<br>December 1971 | The Wartime Missions of Soviet Long Range Aviation |
| SR IR 71-19<br>December 1971 | The Soviet Naval Cruise Missile Force: Development and Operational Employment |
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| SR IM 71-11<br>June 1971 | The Soviet Attack Submarine Force: Evolution and Operations |

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