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DIRECTORATE OF
INTELLIGENCE

Intelligence Report

Soviet Naval Writings: A Framework for Antisubmarine Warfare Strategy

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
July 1971

INTELLIGENCE REPORT

Soviet Naval Writings: A Framework for Antisubmarine Warfare Strategy

Introduction

A major unsolved problem of Soviet naval warfare is how to counter the nuclear powered ballistic missile submarines and torpedo attack submarines of the United States and other NATO countries.

Soviet naval writings--both public and classified--provide some insights into how Soviet naval planners view the problem of antisubmarine warfare. The writings reveal a detailed perception of the submarine threat to the Soviet Union and its forces, and illustrate general Soviet views on the advantages and disadvantages of the various branches--submarine, air, and surface--of ASW forces. Moreover, the writings point to the major problems confronting Soviet ASW planners and suggest the existence of conflicting interests and views within the Soviet navy on the most promising solutions to ASW problems. They do not lend themselves directly to assessments of capabilities and specific future force levels.

The differing purposes behind the various articles add to the problem of interpreting them. Many are obviously designed to bolster domestic morale and influence international opinion. Some Soviet descriptions of Western navies are straightforward

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

while others are veiled formulations of Soviet concepts. Still others appear to support particular positions on weapons procurement issues.

Nevertheless, certain constraints operate to assure that much of the content of the writings is useful from the standpoint of Western intelligence. There is, after all, a need to inform Soviet professional naval readers accurately. In addition, there is the need to avoid claims that the other Soviet military services could demonstrate to be false, and to maintain some credibility with the readership. Many claims which seem extravagant are premature rather than fabricated. Finally, it should be noted that the open articles and the writings of lesser classification available to Western intelligence are generally in consonance with the highly classified Soviet writings acquired during the 1959-1961 period.

This paper analyzes--and quotes extensively from--Soviet naval writings of the past decade in an effort to discern the Soviet view of the Western submarine threat and to suggest the trend of future Soviet measures to counter that threat. A summary of the analysis starts on page 24.

The number in parentheses following every quotation in the text refers to the appended bibliography (beginning on page 27) of sources used for the preparation of this paper. Not all of the writings listed in the bibliography are quoted directly in the paper.

* * * * *

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Maps

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Soviet View of the Submarine Threat

Soviet naval writings depict Western nuclear powered submarines as a dual threat to the Soviet Union. Ballistic missile submarines are capable of striking targets in the USSR and torpedo attack submarines potentially can keep Soviet submarines and ships from performing their missions in a limited or general war.

Ballistic Missile Submarines

The Soviets recognized at least as early as 1959 that the ballistic missile submarine would supersede the attack aircraft carrier as the primary seaborne threat to their mainland. In that year, Admiral V. F. Tributs, Baltic Fleet commander in World War II, wrote:

> ...high speed atomic-driven submarines which are armed with rockets are to replace aircraft carriers. These submarines must also form the nucleus of future navies. *(40)**

Since then, Soviet publications have printed accurate details on the characteristics of the US Polaris submarine, its construction program, forward basing procedures, and the various versions of the missiles, such as the Polaris-to-Poseidon conversion program. Such information was most comprehensively set out in an exhaustive technical and operational description of the Polaris system published in Moscow in 1966. *(11)* A more recent book--*Submarines Against Submarines (37)*, published in 1968 by N. I. Suzdalev, a former submarine captain--lists the ranges of the Polaris A-3 and Poseidon missiles at about 2,900 nautical miles. A *Naval Digest* article in April 1971 *(45)* gives the maximum ranges of these missiles as 2,500 and 2,800 nm. These estimates reflect the Soviet perception of the large potential launch zones available to Western ballistic missile submarines.

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* *Italic numbers in parentheses refer to sources listed alphabetically by author in the bibliography beginning on page 27.*

According to Soviet authors, the threat originates from 22 to 30 Polaris submarines operating continuously in the Mediterranean, Norwegian Sea, and western Pacific, within missile range of Soviet territory, ready to launch their missiles 15 minutes after receiving the launch order.

The Soviets probably regard Polaris patrols in the Indian Ocean as a real possibility as well. Classified Soviet papers of 1959 and 1960 referred to the Indian Ocean as a potential launch site for carrier attacks on Soviet territory. The ballistic missile submarine, having replaced the carrier as the primary naval strategic threat in Soviet eyes, could use the same waters. In January 1970, in fact, a *Red Star* article *(42)* claimed that Polaris submarines had patrolled in the Indian Ocean.

Soviet writers--including Suzdalev *(37)*--have also recognized the Arctic as a possible Polaris patrol zone. They have kept abreast of US and UK under-ice operations since 1957, and probably take the ballistic missile threat from that quarter seriously.

Admiral S. G. Gorshkov, commander of the Soviet navy, has frequently pointed to the US Navy's growing share of the total US nuclear strike potential. He wrote in *Pravda* in 1965 *(14)* that over one-third of the US force of strategic nuclear weapons was in the US Navy. He made the same assertion in a 1967 *Naval Digest (15)* and predicted the percentage would increase to one-half by 1970. The latter estimate was repeated in the same Soviet publication in 1969 *(36)* by one of its editors, naval theorist Rear Admiral K. A. Stalbo. This overstated estimate of the US naval threat seems to be a "navy line" in the USSR. It is possible that Gorshkov and other naval leaders were only lobbying with the Politburo for funds and forces for the ASW, the strategic attack, and, perhaps, the anticarrier missions.

The Soviets are aware of and follow closely the evolution of US thinking and funding for an

undersea long range missile system (ULMS) to supplement the Polaris and Poseidon systems. A writer in *Naval Digest (33)* recently stated that an ULMS is certain to be developed. To date, however, the authors of the available writings have not yet focused on the threat of an ULMS and the forces necessary to counter it.

Torpedo Attack Submarines

The Soviet navy regards Western nuclear powered attack submarines as the greatest threat to its own ballistic missile, cruise missile, and torpedo attack submarines.

With regard to the threat to Soviet ballistic missile submarines, Admiral A. T. Chabanenko of the Soviet General Staff wrote in 1967:

> Atomic submarines are now considered by the United States, England, France, and others as the most effective means of combating missile-carrying submarines. Their intensified construction now constitutes the most characteristic trend in the development of antisubmarine forces of the navies of the largest powers. *(8)*

Regarding the threat to other Soviet submarines, naval theorist Captain 1st Rank Ye. Mamayev maintained that Western nuclear attack submarines would be positioned in barriers to keep Soviet submarines from reaching the open sea lanes where they would attack Western convoys. *(23)*

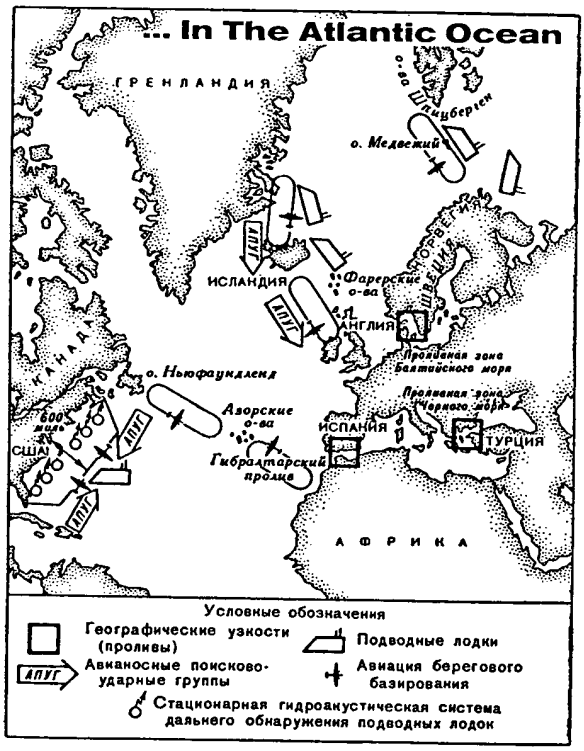
Suzdalev's *Submarines Against Submarines (37)* makes explicit statements of Soviet perception of Western ASW barrier strategy. The book asserts that this strategy was worked out in US and NATO exercises in the early Sixties. Suzdalev graphically depicts Western submarine barriers in the Atlantic (see top map on page 8), showing the location of submarines stationed off the Kola Gulf, a submarine and ASW aircraft line between northern

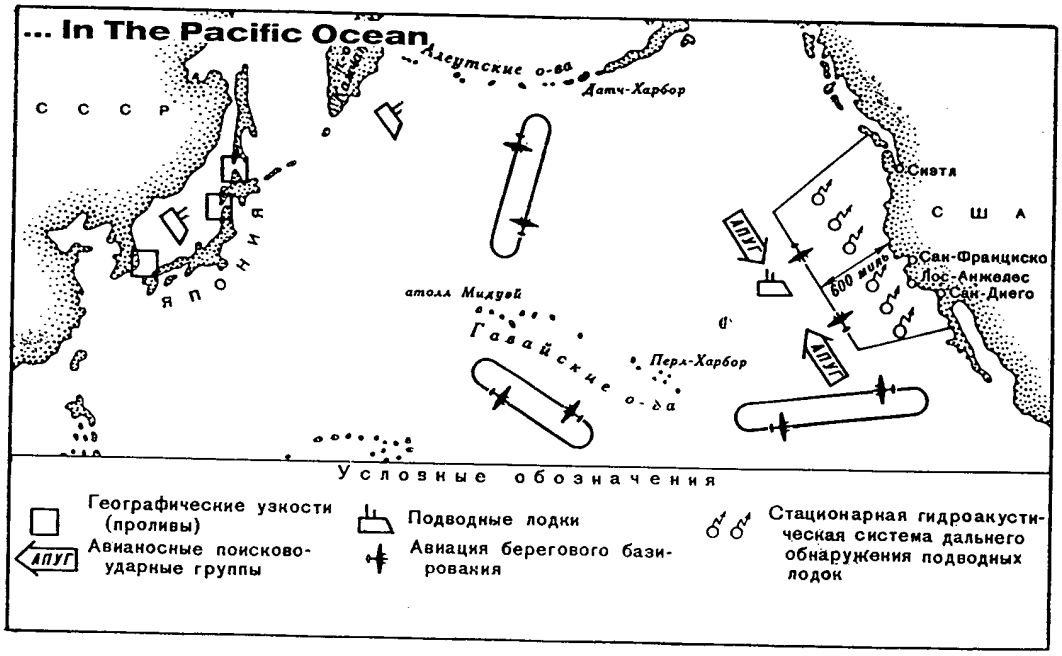
A Soviet View of Western Antisubmarine Warfare Barriers...

Translation of legends:

- Geographic narrows (straits)
- АПУГ — ASW aircraft carrier groups
- Submarines
- Shore-based aircraft
- Fixed hydroacoustic system for long range detection of submarines

Maps reproduced from
Submarines Against Submarines
by N.I. Suzdalev (Moscow: 1968)





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Norway and Spitzbergen; a series of submarine, ASW aircraft, and ASW carrier group lines at the Greenland-Iceland-UK gap; ASW aircraft patrol lines from Newfoundland to West Africa; and submarine, ASW aircraft, and ASW carrier group zones in the western Atlantic. A map of the Pacific (see bottom map on page 8) shows submarines off Petropavlovsk and Vladivostok, backed up by ASW aircraft patrol lines, and submarines, ASW aircraft, and ASW carrier group zones in the eastern Pacific. Suzdalev gives a detailed discussion of the tactics used by Western submarines in patrolling their zones and the guidelines used in assigning patrol zones. He notes that the US submarines can lay up to 30 mines each off Soviet bases.

Two additional US uses of attack submarines have been noted by Soviet authors: trailing and escort. Regarding US operations, Admiral Chabanenko notes that:

> ...a large number of training exercises is being conducted in which atomic missile-carrying submarines are regularly assigned to act as the "enemy." Methods of concealed search and lengthy concealed tracking are being developed with particular care. *(8)*

Suzdalev mentions the possible Western use of attack submarines as escorts:

> ...in the interest of safety of their SSBNs, the Americans propose to use atomic attack boats for search and destruction of those enemy submarines that are in the same patrol areas as their SSBNs. *(37)*

In this situation, Western submarines would be a counter to Soviet ASW submarines.

Although Soviet naval writers recognize both the Western ballistic missile submarines and attack submarines as military threats to contend with, their ASW literature is concerned chiefly with countering

the Polaris. They apparently believe that if the more difficult Polaris problem can be solved, anti-submarine defense of Soviet ships and submarines can also be managed. The writings do not indicate that specific ASW forces are earmarked for use solely against either ballistic missile submarines or torpedo attack submarines. In this connection, Admiral Chabanenko wrote, "...the operations of the antisubmarine forces involve a struggle against all submarines." *(8)*

The importance of the anti-Polaris mission of Soviet ASW forces was emphasized by *Naval Digest* editor Rear Admiral Stalbo:

> The content of Soviet naval art has been subjected to extensive review. Naval art has been reinforced now by such new (in principle) types of combat action as delivering strikes on land targets with ballistic missiles and combat with atomic missile submarines for the purpose of defending one's territory from nuclear missiles launched from these submarines. *(36)*

The destruction of NATO ballistic missile submarines at their bases by Soviet missile strikes was a persistent theme throughout the late Fifties and early Sixties. But now that the Soviet navy is expanding its operations in the open ocean, the Soviet theoretical discussions emphasize operations against the missile submarine at sea.

Soviet ASW: Finding the Proper Combination of Weapons

The dialogue carried on in Soviet naval writings among the proponents of different ASW weapon systems provides clues about the future trends in Soviet ASW weapon procurement. Submarines, surface ships, and naval aircraft each have their advocates. The argumentation which has appeared in open or lesser classified writings has been low key, however, and most authors evidently accept the efficacy of a balanced approach to ASW weapon procurement.

Submarines

The leading proponent of the antisubmarine submarine* is Admiral A. T. Chabanenko, a former submariner. The pronouncements of Chabanenko deserve special attention because he probably plays a major role in the Soviet ASW effort. From 1952 to 1962, he commanded the Northern Fleet, the Soviet fleet with the largest concentration of submarines. He was identified in 1964 as a naval deputy on the Soviet General Staff--the only admiral thought to be currently assigned to the General Staff. He is probably involved in overall planning for ASW forces and strategy. Many of his published writings deal with various aspects of submarine warfare and the Polaris threat.

In 1963 Chabanenko predicted that Polaris "will be fought by special atomic submarines with combat equipment for the detection and destruction of the missile-carrying submarines of the enemy." *(7)* In 1967 he described the operational features of the ASW submarine in terms of the attack submarine versus ballistic missile submarine encounter:

> ...in duel situations the multipurpose submarine will have advantages over the missile-carrying atomic submarine. It will have a greater speed..., it will be about 1.5 times as fast in changing the depth of submersion, and its dimensions will be less. *(8)*

The future tense is taken to mean that none of the submarines in the 1967 Soviet order of battle met the description. To be effective, according to Chabanenko, an ASW submarine had to be quieter,

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* *Chabanenko states: "According to the terminology established in the USSR navy, antisubmarine submarines are called multipurpose submarines because they can be used to carry out reconnaissance, lay mines, inflict strikes against convoys, etc. In the US Navy, antisubmarine submarines are called attack submarines." (8)*

faster, deeper diving, and more reliable, and have better sensors than earlier Soviet models. With these improvements, Chabanenko continued:

> ...there are great opportunities for the further development of atomic multi-purpose submarines and for sharply increasing their operational characteristics. Therefore, we can expect in the near future a considerable increase in the number of multipurpose deep sea submarines. *(8)*

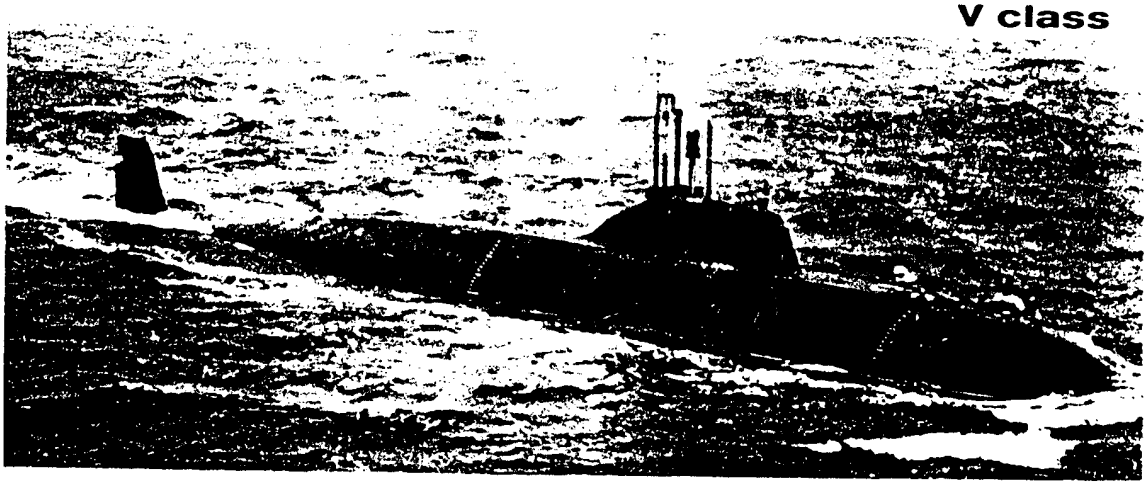
Chabanenko's ideas along with those of Admiral Kharlamov, a former Baltic Fleet commander, may be partially embodied in the latest generation of Soviet torpedo attack submarines such as the nuclear-powered V class and A class (see photographs on page 13). Kharlamov emphasized the virtues of the deep diving attack submarine when he wrote about the US submarine program in 1968:

> The submarine with the greater operating depth can maneuver more freely in the vertical plane, which, on the one hand, increases its attack capabilities and, on the other hand, offers improved capability for fuller use of the tremendous water depth for protection. Thus, the development of deep diving submarines is opening up new possibilities for the further growth of the atomic submarine fleet and improvement of the tactical operational capabilities of various types of submarines. This is the reason we can expect the appearance in the naval forces in the near future of a large number of deep-diving submarines. *(19)*

With Kharlamov, Chabanenko *(8)* believes that the attack submarine offers the best means of countering ballistic missile submarines, although he does acknowledge some ASW capability for aircraft and surface ships. Other authors take the view that the efforts of a balanced force of all three arms--

Newest Soviet ASW Submarines

V class



The first V class entered the fleet in 1968. Eight of these nuclear powered torpedo attack submarines are now operational and production continues at the rate of about two each year. The operations, estimated characteristics, and performance of the V class suggest that it may be intended primarily for an ASW role. Its maximum submerged speed is 32 knots and it may have a powerful low frequency active sonar. Its operating depth is at least 1,300 feet.

A class

The first A class is expected to enter the fleet late this year. Also nuclear powered, it appears to be intended for quiet operations and high speeds—qualities relevant to effective ASW. Its small size—about 250 feet in length—suggests that it is highly maneuverable and would present an elusive target to other submarines.

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air, surface, and subsurface--are necessary. Most authors agree, however, that the submarine is the best single antisubmarine weapon available.

Chabanenko, impressed by the high promise of the attack submarine in ASW, neglected to mention its disadvantages. Suzdalev *(37)*, writing about Western attack submarines, displayed no such restraint. In his view nearly all the disadvantages of the attack submarine stem from its limited capability for underwater communication. Communication problems curtail the effectiveness of joint operations of a submerged submarine with other submarines, surface ships, and aircraft. The other major shortcoming of the nuclear submarine is its high construction cost.

Chabanenko does not rule out joint operations by submarines with the other ASW forces. "However," he writes, in any joint ventures, "atomic multipurpose submarines are to play the main role." *(8)* In this, he echoes those nuclear submariners in Western navies who would prefer operating independently and thereby avoiding the command and control headaches involved in joint ASW operations.

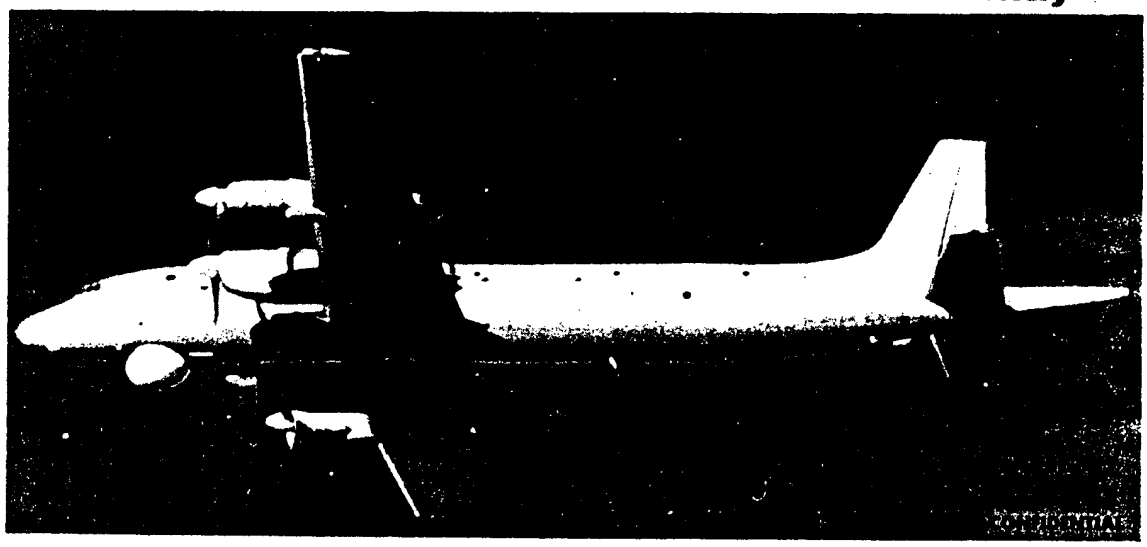
Aircraft

Soviet naval aviators predictably take issue with the emphasis on attack submarines. They argue for a balanced approach to the ASW problem, including a substantial contribution from land-based aircraft. Their writings accord with the current upgrading of the ASW component of Soviet naval aviation, where every new combat aircraft entering the fleet is configured primarily for ASW--such as the Mail and May aircraft (see photographs on page 15).

Of the three branches of Soviet naval aviation--antiship strike, reconnaissance, and ASW--the ASW branch is a relatively new creation, having been established in the early Sixties. This is attested by a 1962 article by Major General of Aviation S. M. Ruban alerting aviators to the impending delivery of

Principal Soviet ASW Aircraft

May



The May long range ASW and reconnaissance aircraft was first deployed in 1968. In 1970, May aircraft started operating in the Mediterranean and first performed ASW exercises in the Norwegian Sea and northwest Pacific.

Mail

The Mail, which started entering the Soviet fleets in 1966, conducts offshore ASW and reconnaissance operations in the eastern Mediterranean (from bases in Egypt) and coastal waters of the four Soviet fleets.

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new ASW technical equipment *(31)*, a 1963 statement by Ruban and Colonel N. Antonov that Soviet ASW aircraft have an anti-Polaris mission in the "open sea" *(2)*, and a 1964 article by Major General of Aviation P. P. Nevzorov calling ASW aviation a "new branch." *(24)*

Soviet views of the advantages and disadvantages of ASW aircraft are explicitly set forth in available naval writings. The proponents claim the aircraft can search large areas rapidly, arrive quickly in a contact area, track and destroy submarines, and operate independently or in conjunction with other ASW forces. They admit, however, that the aircraft cannot fly in bad weather, that their endurance is limited, and that they have to rely on other forces or systems for initial detection.

Open press descriptions of long-range air ASW operations often start with the aircraft--possibly a May--flying out to a contact area in response to a call from other forces. The initial means of detection is not stated. In the contact area, the aircraft uses sonobuoys to localize and track the submarine. Attack is by air dropped torpedoes or depth bombs.

A comprehensive Soviet description of ASW aviation in Western navies concluded that NATO aircraft are effective against diesel but not nuclear submarines. *(5)* The conclusion may reflect a judgment by the Soviets of their own current capability inasmuch as the problem is basically the same for their naval air force.

Surface Ships

The requirement for oceangoing surface ships in the Soviet navy, questioned by Khrushchev during the late Fifties, is now firmly established. Their usefulness in countering nuclear submarines--and performing other missions--has been defended by the navy's second-in-command, Fleet Admiral V. A. Kasatonov, in a 1969 paper on the role of surface ships. *(17)* He points out that the design and construction of modern

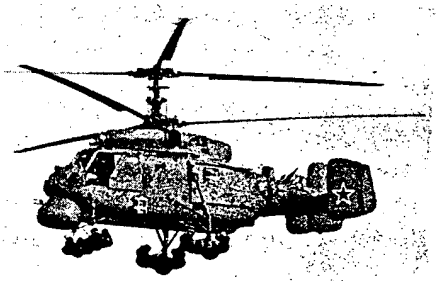
ASW surface ships are a reaction to the construction of nuclear submarines, and that today's surface ships are capable of seeking, pursuing, and destroying submarines in the "open regions of the sea as well as in their coastal waters." He continues that their detection and destruction capabilities are being improved constantly, thus increasing their overall ASW potential.

Kasatonov and others, including naval aviators, entertain high expectations for joint ASW operations of task groups which include ASW helicopters. The use of helicopters, according to Kasatonov, "...considerably increases the area investigated in joint actions with surface ships," and "hinders evasion by a submarine when a surface ship is directed to it by helicopters...." But ASW helicopter ships "...do not replace surface antisubmarine warfare ships. The combating of missile submarines requires their joint action."

In his 1964 article *(24)*, Major General of Aviation Nevzorov praised the concept of multiforce ASW groups, including helicopters, to operate at sea for extended periods because ASW cannot be a "one-shot effort." In October 1970, Captain 1st Rank V. G. Yefremenko, in a wide-ranging article entitled "The Development and Perfection of ASW Forces and Tactics for Them" *(43)*, pointed out that surface ships "have everything necessary to organize the control of various types of ASW forces and means. Therefore, definite success is expected of them in antisubmarine warfare." He also noted that in the West hydrofoil craft and air cushion vehicles are considered useful in ASW.

On the other hand, submariner Chabanenko expressed a pessimistic view of surface ships in ASW--they are handicapped by difficulties in detecting modern submarines, and are vulnerable to attack from submarines and aircraft; therefore, they require "additional forces for their combat support." *(8)* He stated that ASW surface ships have a role only in areas where shore-based aircraft can protect them,

Elements of a Soviet ASW Surface Ship Task Group



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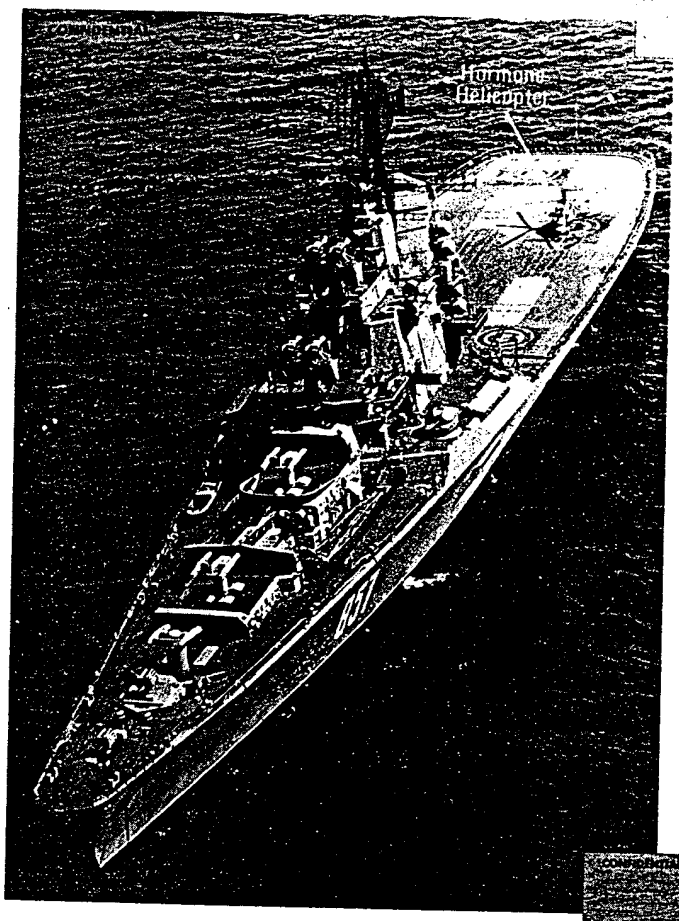
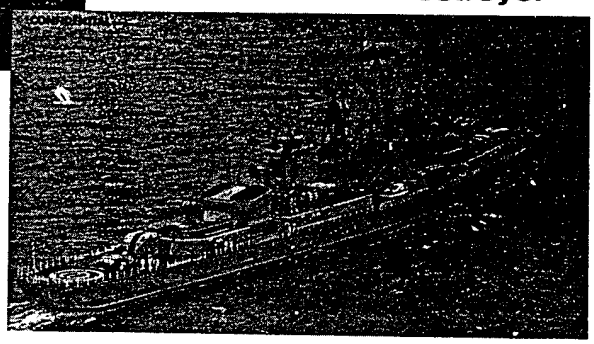
▲ Hormone Helicopter



◀ Moskva Class Helicopter Cruiser

Only two ships of the Moskva class have been built. The lead unit first deployed to the Mediterranean in 1968. Since then, the Moskva and its sister ship Leningrad have made five operational deployments outside their home waters in the Black Sea. The Moskva and two Kashin class ASW destroyers form the nucleus of an ASW task group. Each ASW helicopter cruiser carries about 15 Hormone ASW helicopters.

▼ Kashin Class Destroyer



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patrolling the approaches to bases, escorting coastal convoys, and defending amphibious assaults.

In this clash of ideas over surface ships in ASW, Kasatonov's point of view has won a qualified victory. The construction of just two Moskva class ASW helicopter cruisers suggests that the performance of the ASW task group (see photographs on page 18) to date is undergoing intensive high-level evaluation. The combined forces concept appears to have the organizational advantage of uniting surface ship and aviation officers behind it. However, in none of the available literature is there a response to Chabanenko's criticism of the vulnerability of ASW surface ships to aircraft attack.

A harbinger of an expanded future for Moskva type task groups may be the commendation that Defense Minister Grechko awarded to the Moskva in 1969. Additionally, the multipurpose detroyer and cruiser type ships entering the fleets--the Kresta, Kanin, Kashin, and Krivak classes--are equipped for an ASW role and all are fitted with surface-to-air missiles, a possible answer to Chabanenko's criticism.

Balanced Forces and Operational Concepts

A widespread appreciation for the necessity of the proper balance of ASW forces emerges from Soviet writings. The impression given by the writings is that no single force element or strategy has been found which offers hope of a solution to the ASW problem, and that several avenues are to be followed simultaneously.

The Soviet navy evidently regards the nuclear-powered attack submarine as the most capable ASW weapon. At the same time it believes that effective ASW in the open ocean requires the contributions of aircraft and surface ships along with diesel submarines. The Soviets' naval writings reflect a view that,if they are to implement a proper balance of ASW

forces, they will have to increase the numbers of surface ships and aircraft as they continue adding ASW capable submarines to the fleet. This movement toward a "correct combination" (Gorshkov) *(15)* and "rational proportionality" (Rear Admiral N. A. Piterskiy) *(28)* is gradually replacing the general emphasis on submarines and shore-based antiship aircraft imposed on the navy in the Khrushchev years.

Some Soviet commentators realize that the scope of the Polaris threat is so great that large numbers of countering forces are necessary. In view of the vast regions to search, the "main efforts of the navies during the initial period of the war may be directed at the search and destruction of submarines at sea." This will involve "significant reinforcement" of ASW forces. This solution, proposed by Captain 1st Rank P. V. Nikolayev, demands "numerous forces and means." *(25)* Another commentator asserted that ASW requires "considerable personnel and material, part of which can be deployed in advance in areas of possible enemy submarine operations in order to detect, track, and destroy them at the proper time once a war has broken out." *(30)*

These ideas invite comparison of Soviet operational concepts for anti-Polaris strategy and anticarrier strategy. First, with respect to the proportion of force levels, no prominent Soviet naval leader has stated that small numbers of forces will suffice against Polaris. In contrast, Gorshkov has asserted that relatively slender but potent forces can handle the carrier threat. Second, although high level naval officers have discussed preemptive attacks against aircraft carriers, there is a noticeable reticence on the subject of preemptive tactics against Polaris.

A hint of preemptive thinking against Polaris is found in the recent book entitled *Ocean (32)*--describing the so-named large scale naval exercise of April 1970. According to the book, combat against ballistic missile submarines was one theme of the "unified plan" for the "Ocean" exercise. In one description, a "Southern" or "enemy" ballistic missile submarine

was localized by long range aircraft from the Northern Fleet.

> For several hours the crew kept the "enemy" submarine under surveillance. Contact was steady. The buoys were functioning efficiently and clearly. The command headquarters of the maneuvers did not give orders to destroy the submerged "Southern" missile carrier. It had its own reasons for this.

It may be speculated that the exercise play involved long "hold-down" maneuvers, in which naval headquarters had the option to attack or withhold attack on the Polaris, as directed by broader considerations. Prolonged tracking of this sort would be essential for a preemptive strike.

The present impossibility of locating and of prolonged simultaneous tracking of all or most Polaris units suggests that the "hold-down" maneuver in Exercise "Ocean" was a highly artificial test of a strategy for the far distant future if ever. The naval writings reflect the Soviet view that the primary difficulties in countering Polaris are the unsolved problems of underwater detection and communication.

Major ASW Problems

Detection

One Soviet critique of ASW in the US Navy ended with the following judgment:

> ...despite the great emphasis the US navy is placing on this, it is generally felt that the ASW problem remains unsolved. As before, the problems involved in search, detection, and identification of underwater targets are still considered highly complex. Until they are solved, other ASW developments lose much of their significance. *(12)*

Yet the Soviet open press frequently discusses in extensive detail the fixed and mobile underwater submarine detection systems used by the US, with full knowledge that the USSR is far behind the West in this field. It is clear that initial detection is a stumbling block to ASW in the Soviet navy.

Soviet statements in the early and mid-Sixties tended to emphasize close-in detection systems. For example, Major General of Aviation Nevzorov's 1964 article stated:

> It can be assumed that given modern conditions, any technically developed country can create a submarine detection and identification system along its coasts. *(24)*

More recently, statements have hinted that the Soviets recognize the advantages of submarine detection systems beyond coastal waters. Colonel A. T. Anokhin, an advocate of aircraft in ASW, argued in June 1970 that "the possibilities for antisubmarine aircraft operating in conjunction with stationary detection gear, installed near coasts, in straits and narrows are still increasing." *(1)* For initial detection of submarines, Captain 1st Rank Yefremenko in his article last October suggested fixed arrays of hydrophones and large buoys having acoustic and "other means" of detection. *(43)* The trend of statements suggests that the Soviets intend to apply underwater detection techniques in combination with antisubmarine aircraft in "narrow seas," such as the Sicily Straits and around the Kuril and Japanese islands.

The writings reveal only one hopeful avenue for detection in the near future--the diesel submarine. Chabanenko *(8)* describes "hidden search" tactics of conventional submarines which, operating on battery power, are extremely quiet sonar listening platforms. "Their cruise speed under water in carrying out antisubmarine search missions," he states, "is about 2-3 knots for 2-3 days." Suzdalev *(37)*, in

his description of US submarine exercises, attributes similar views to US ASW experts on the detection capability of the diesel submarine. These ideas may help explain operations of Soviet diesel submarines in the Mediterranean and suggest an ASW mission for the Soviet B class submarine.

Communications

The Soviets recognize that command and control and communications are the keys to effective coordinated tactical use of the balanced forces against enemy submarines. The main difficulties are underwater communications, identification (IFF--identification, friend or foe), and distance measuring equipment (DME). If these are overcome, submarines can be more fully integrated into joint tactics against opposing submarines. Suzdalev *(37)* notes how communication problems handicap Western submarine tactics, and goes on to say, "When the requisite underwater communications are perfected the submarine will be able to conduct mutually supporting operations with other ASW forces...."

Another facet of this problem is the two-way communications link between the submerged submarine and shore headquarters. The Soviet chief of naval communications, Vice Admiral G. G. Tolstolutskiy, has written that, in the drive to centralize command and control, reliable long-range communication with deep diving submarines is a major problem area. *(38, 39)* Soviet statements suggest that underwater communication and submarine detection are the research and development problems with the highest ASW priority.

* * * * *

Summary

Soviet naval writings define the submarine threat as a dual one--Western ballistic missile submarines and torpedo attack submarines. The Soviets recognized at least as early as 1959 that ballistic missile submarines would supersede the attack carrier as the primary seaborne threat to their mainland. They see the threat emanating from Polaris submarines patrolling continuously in the Mediterranean, Norwegian Sea, and western Pacific. In addition, they regard the Arctic basin and Indian Ocean as potential Polaris launch sites. Western torpedo attack submarines deployed in forward barriers are seen as opposing the Soviet navy's main long range forces operating from bases in the Northern and Pacific Fleets. The writings suggest that Western attack submarines may also be used to trail enemy ballistic missile submarines and defend friendly ballistic missile submarines.

Although Soviet naval writers recognize both the Western ballistic missile submarines and attack submarines as military threats to contend with, their ASW literature is concerned chiefly with countering Polaris. They apparently believe that if the more difficult Polaris problem can be solved, antisubmarine defense of ships and submarines can also be managed.

A widespread appreciation for the necessity of a proper balance of ASW forces emerges from Soviet writings. Submarines, surface ships, and naval aircraft each have their advocates.

Among the proponents of the ASW submarine is Admiral A. T. Chabanenko of the Soviet General Staff. He points out the advantages of the quiet, fast, deep-diving nuclear-powered ASW submarine. Its chief disadvantages are the difficulties involved in communication and joint operations with other friendly forces and its high cost.

Soviet naval aviators argue for a more balanced approach to the ASW problem, including a substantial

contribution from land-based aircraft. Its proponents claim the aircraft can search large areas rapidly, arrive quickly in a contact area, track and destroy other submarines, and operate independently or in coordination with other ASW forces. The advocates of naval aviation admit, however, that the flight endurance of aircraft is limited, their capabilities are degraded in bad weather, and they have to rely on other forces or systems for initial detection.

Proponents of surface ships, including the navy's second-ranking officer, Fleet Admiral V. A. Kasatonov, argue that today's surface ships are capable of seeking, pursuing, and destroying nuclear submarines in the open ocean and controlling coordinated ASW on the scene. Kasatonov and others, including naval aviators, entertain high expectations for joint ASW operations of task groups which include ASW helicopters, such as the task groups centered on the two Moskva class ASW cruisers. Submarine advocates believe surface ships are deficient in detection capabilities and are excessively vulnerable to counterattack.

The impression given by the writings is that no single force element has been found which offers hope of a solution to the ASW problem and that several avenues are to be followed simultaneously. The Soviet navy appears to regard the nuclear-powered attack submarine as the most capable ASW weapon. At the same time it believes that effective ASW on the high seas requires the contribution of surface ships and aircraft as well. To implement a proper balance of ASW forces, it appears that the Soviets will have to increase the numbers of surface ships and aircraft as they continue adding ASW-capable submarines to the fleet.

Soviet writers recognize that communications for command and control are the key to effective coordinated tactical use of the balanced forces against enemy submarines. If the acknowledged difficulties of submarine communications are overcome, submarines can be more fully integrated into joint tactics against opposing submarines. Another

stumbling block is the two-way link between the submerged submarine and shore headquarters. Soviet statements imply that underwater communications and submarine detection are the highest priority research and development problems related to ASW.

Soviet writers recognize that large numbers of pre-deployed ASW forces would be needed to cope with Polaris threats. Although Soviet naval leaders have written about preemptive tactics against aircraft carriers, there is noticeable reticence on the subject of preemptive tactics against Polaris.

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