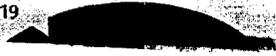


**Modernization of Soviet ICBMs Warhead Mix**

SS-17,  
SS-19



SS-25  
(mobile)



New  
Heavy ICBM

SS-24  
(mobile)

Mid-1990s\*

SS-19

**Submarine-Launched Ballistic Missile Force Developments**

The Soviet Navy operates the world's largest strategic missile submarine force. Although it includes some older submarines, the majority of the nuclear-powered ballistic missile submarine (SSBN) force consists of more

Part 1, Chapter IV 47

modern DELTA I, II, and III submarines armed with intercontinental-range missiles that can reach North America from Soviet ports and coastal waters.

Within the last seven years, the Soviets have introduced the TYPHOON and the DELTA IV, both equipped with more accurate, longer range MIRVed intercontinental missiles. The introduction of these systems has enabled the Soviets to increase their SLBM weapons delivery capabilities by nearly 30 percent without increasing the overall size of their SSBN force. At the same time, submarine survivability was being significantly enhanced.

Based in the Pacific Ocean and Northern Fleet areas, the Soviet ballistic missile submarine force is equipped with over 3,000 warheads on submarine-launched ballistic missiles (SLBMs). In wartime, a portion of these forces is expected to serve as a survivable nuclear reserve. In the last decade, the deployment of multiple-warhead SLBMs with ranges sufficient to reach the United States from waters near the USSR has allowed the Soviets to plan to operate the majority of their SSBNs in protected "bastions," or havens, near the Soviet Union. Mixed groups of naval air, surface, and submarine assets, along with fixed sensors and minefields, will operate in wartime to protect these SSBN bastion areas against US/NATO antisubmarine forces.

Additionally, within the last several years the Soviet Navy has increased greatly its interest in the Arctic as an area of military operations, particularly for its SSBNs. The Soviets think that SSBN operations in the Arctic ice zone could increase submarine survivability, based on

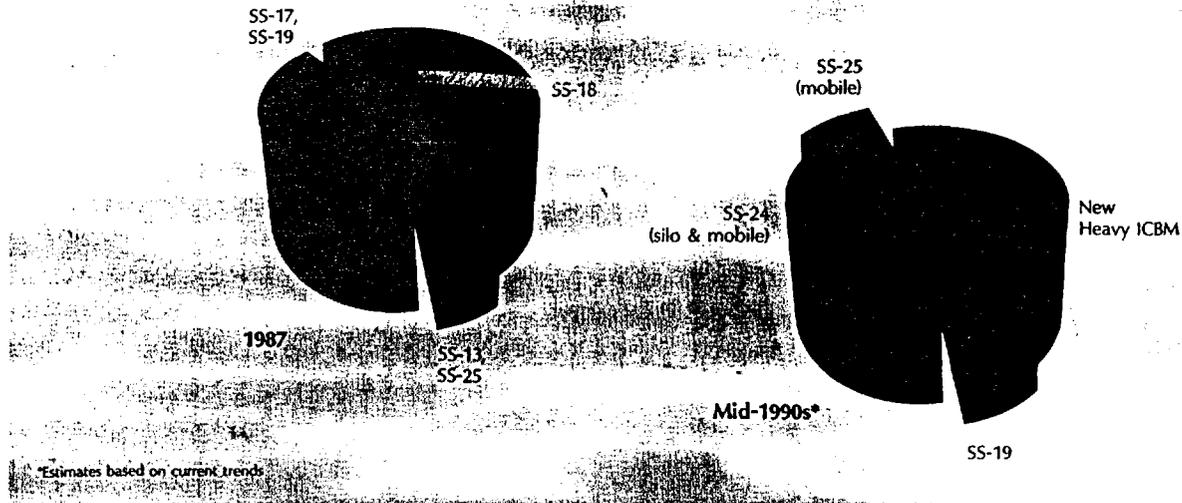


their belief that operations under and near the Arctic ice pack might provide their deployed SSBNs with greater security and protection than in more exposed waters.

To ensure that they can communicate with their SSBN/SLBM assets, the Soviets have recently improved their submarine command, control, and communications (C<sup>3</sup>) systems by deploying an extremely low frequency (ELF) communications system. Newly deployed BEAR J aircraft offer an additional means of effective SSBN communication redundancy by providing very low frequency (VLF) communication transmissions to SSBNs on patrol.

The Soviets may begin at-sea flight testing of a modified version of the SS-N-20 missile sometime this year. A modified version of the SS-N-23 missile will probably complete testing in 1988. Improved accuracy of the Soviets' latest SLBM systems, as well as possible efforts to increase SLBM reentry vehicle size and warhead yield, would confirm Moscow's plans to

### Modernization of Soviet ICBMs Warhead Mix



modern DELTA I, II, and III submarines armed with intercontinental-range missiles that can reach North America from Soviet ports and coastal waters.

Within the last seven years, the Soviets have introduced the TYPHOON and the DELTA IV, both equipped with more accurate, longer range MIRVed intercontinental missiles. The introduction of these systems has enabled the Soviets to increase their SLBM weapons delivery capabilities by nearly 30 percent without increasing the overall size of their SSBN force. At the same time, submarine survivability was being significantly enhanced.

Based in the Pacific Ocean and Northern Fleet areas, the Soviet ballistic missile submarine force is equipped with over 3,000 warheads on submarine-launched ballistic missiles (SLBMs). In wartime, a portion of these forces is expected to serve as a survivable nuclear reserve. In the last decade, the deployment of multiple-warhead SLBMs with ranges sufficient to reach the United States from waters near the USSR has allowed the Soviets to plan to operate the majority of their SSBNs in protected "bastions," or havens, near the Soviet Union. Mixed groups of naval air, surface, and submarine assets, along with fixed sensors and minefields, will operate in wartime to protect these SSBN bastion areas against US/NATO antisubmarine forces.

Additionally, within the last several years the Soviet Navy has increased greatly its interest in the Arctic as an area of military operations, particularly for its SSBNs. The Soviets think that SSBN operations in the Arctic ice zone could increase submarine survivability, based on

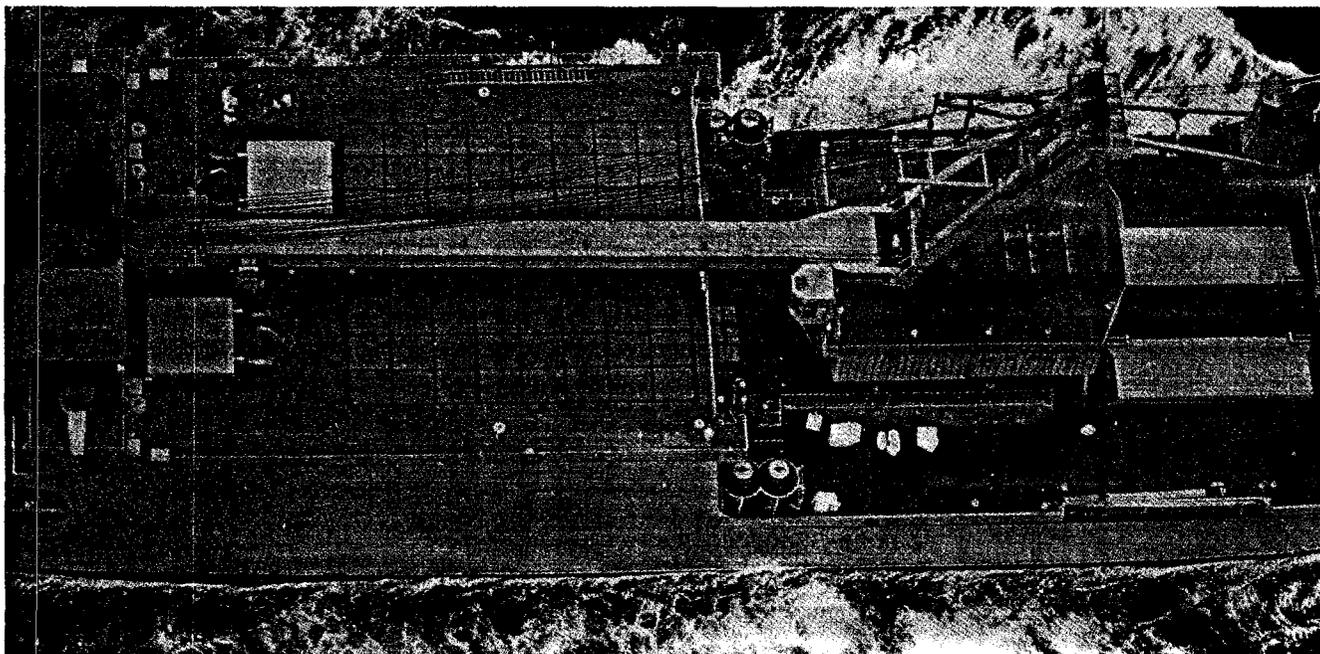
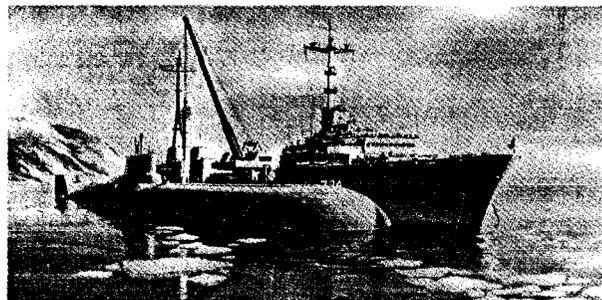
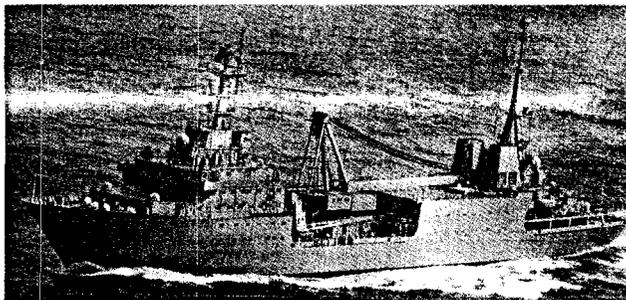
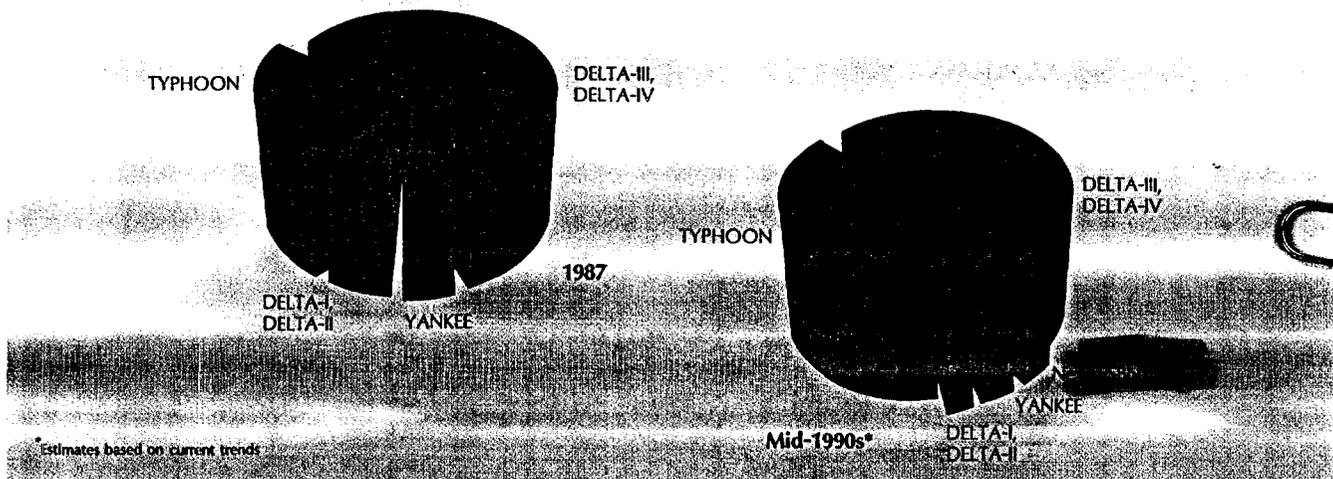


their belief that operations under and near the Arctic ice pack might provide their deployed SSBNs with greater security and protection than in more exposed waters.

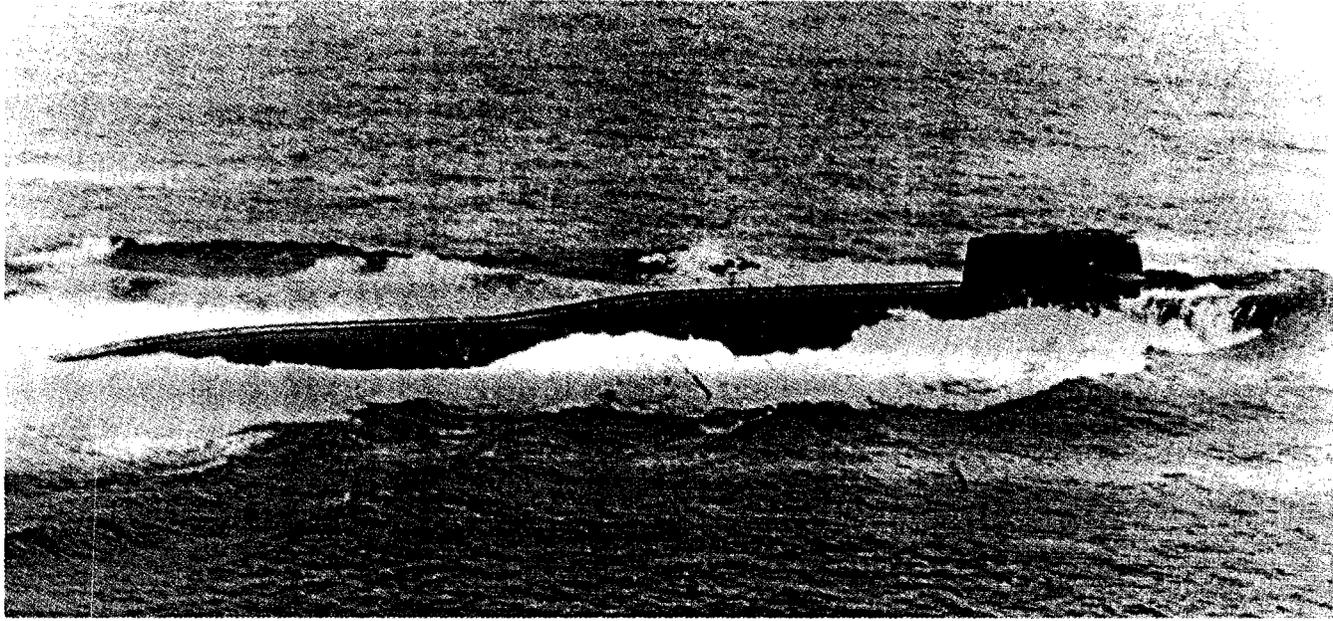
To ensure that they can communicate with their SSBN/SLBM assets, the Soviets have recently improved their submarine command, control, and communications (C<sup>3</sup>) systems by deploying an extremely low frequency (ELF) communications system. Newly deployed BEAR J aircraft offer an additional means of effective SSBN communication redundancy by providing very low frequency (VLF) communication transmissions to SSBNs on patrol.

The Soviets may begin at-sea flight testing of a modified version of the SS-N-20 missile sometime this year. A modified version of the SS-N-23 missile will probably complete testing in 1988. Improved accuracy of the Soviets' latest SLBM systems, as well as possible efforts to increase SLBM reentry vehicle size and warhead yield, would confirm Moscow's plans to

### Modernization of Soviet SLBMs Warhead Mix

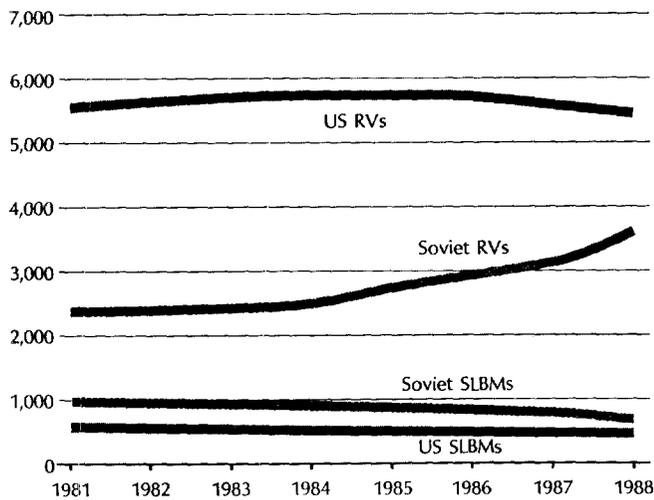


As illustrated in the 1987 edition of *Soviet Military Power*, (middle right), the ALEXANDER BRYKIN is specially designed to reload Soviet SSBNs away from their homeports, thereby increasing SSBN survivability and enhancing Soviet wartime capabilities. The lead unit of this new class of missile support ship was photographed last year, providing a detailed view of SLBM storage and handling areas.



As newer classes of nuclear-powered ballistic missile submarines are deployed, existing platforms may be converted to cruise missile carriers, such as the YANKEE shown here, which has been modified to carry the SS-N-21 sea-launched cruise missile.

### US and Soviet SLBM Launcher and Reentry Vehicle (RV) Deployment 1981-1988



develop a hard-target-kill capability for its SLBM force. The new missile support ship class, the ALEXANDER BRYKIN, is designed to reload SSBNs with these modern missiles. This capability will allow Soviet SSBNs to hold additional targets at risk.

### Soviet Strategic Aviation Developments

The Soviet intercontinental bomber force has historically lagged behind the SRF and navy in systems development. Recent Soviet efforts in strategic aviation, however, particularly with the BEAR H and BLACKJACK long-range bombers, signal heightened interest in a manned-bomber attack force to diversify the character of their strategic forces.

The BLACKJACK is the world's largest and heaviest bomber. Designed to carry bombs and air-launched cruise missiles (ALCMs), the BLACKJACK can cruise subsonically over long ranges, perform high-altitude supersonic dash, and attack utilizing low-altitude, high-subsonic penetration maneuvers. As with the B-1, the BLACKJACK has a blended wing-body design with a variable-sweep wing and a single vertical stabilizer. It has an unrefueled combat radius of about 7,300 kilometers and a maximum speed of Mach 2.0. Eleven BLACKJACK bombers have been produced, and the first BLACKJACK regiment should begin forming this year. The backbone of the modern Soviet intercontinental bomber force of the 1980s, however, will remain the BEAR H, armed with the AS-15/KENT ALCM. The Soviets also have in their inventory about 100 other BEAR bombers and air-to-surface missile carriers. The BEAR was first produced in the late 1950s, but some of these aircraft have been updated in subsequent years with new technology.