

**Strategic Stability and Submarine Operations:
Lessons from the Cold War**

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Confidence-Building and Maritime Strategic Stability in the Asia-Pacific

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Nuclear weapons states deploy ballistic missile submarines to provide a survivable second-strike capability and thus add to strategic stability. It is not the mere existence of these ships that brings stability, but also the manner in which they are operated, the capabilities of the ships, especially the degree to which they are quiet and thus hard to detect, and the characteristics of the missiles they carry, especially missile range.

While ballistic missile submarines are new for China, they are not new for the world. I would like to review some lessons derived from the operation of ballistic missile submarines during the Cold War and how those operations enhance or detract from survivability and thus stability.

Submarines are survivable and thus stabilizing only when they are at sea.

Submarines in port are easily located and subject to non-nuclear attack. Two approaches to managing the number of submarines at sea evolved during the Cold War. The United States sought to guard against surprise attack by maximizing the number of submarines at sea on any given day. It thus had two crews for each ship and a highly efficient logistics system. The Soviets assumed a nuclear confrontation would grow from a conventional conflict, thus providing strategic warning. They operated at sea only enough to maintain proficiency. This allowed them to conserve reactor fuel and maximize the time between reactor refuelings. This was important because during refuelings, which could last for two years, the ships would be unavailable for any military purpose. Both approaches sought to keep those ships in port ready to get underway in as short a period as possible.

Submarines at sea must be invulnerable to attack.

Once again, there are two approaches. The United States operated in the vast open seas, depending on the inherent difficulty of locating its submarines to ensure their survival. The Soviet Union sought to operate submarines in bastions near Soviet bases, where they could be defended by other elements of the Soviet Navy. The Soviet approach only worked once they had developed submarine-launched ballistic missiles that could reach their targets from these protected bastions. The American approach was not absolutely dependent on missile range but became more effective as longer-range missiles allowed much larger operating areas while remaining in range of assigned targets.

If submarines are out of range of their assigned targets they must be able to remain survivable while transiting to launch areas.

How long such a transit takes depends on missile range and where the submarines start from. To the best of my knowledge, all Cold War nuclear powers kept at least a fraction of their force within range of targets. Submarines out of range or in port when a conflict began had to transit to be in range; generally these transits were not under escort of other warships. Instead, the transiting submarines depended on their inherent stealth to survive.

Effective command and control of submarines and their missiles is crucial to stability.

The United States follows a policy called “always-never.” This means that nuclear weapons will always be launched and function properly when the President so orders and will never be launched or detonated if the President does not so order. This principle influences weapon design and shipboard procedures, but it also demands a survivable command and control system that is not an attractive target for attack. As China develops its system for command and control of ballistic missile submarines it will be important to observe this principle, for example by not using the same system to command nuclear and general-purpose forces.

There are no good examples of effective arms control or confidence building measures designed to enhance the survivability or stability of ballistic missile submarines.

Soviet negotiators occasionally advocated so-called ASW-free zones, where the operations of anti-submarine forces would be prohibited. The United States rejected these measures because they would interfere with non-nuclear missions, could not be verified, and were unlikely to be observed in an actual conflict. Outside arms control experts sometimes advocated mandating that submarines patrol out of range of their assigned targets. This idea gained few adherents since it was unverifiable without compromising the stealth on which submarine survivability depends.

One arms control measure does contribute to stability. The 1991 START Treaty banned launchers of submarine launched ballistic missiles from being installed on other types of ships or submarines. This contributed to predictability and what is sometime called arms race stability, but was not relevant to stability in crises.

Conclusions

I draw two conclusions from this review. First, it is unlikely that confidence building measures will prove to be relevant to enhancing strategic stability. Instead, stability will depend on the design and operational concept that China adopts. Second, I have been speaking of stability in a narrow sense. Broader strategic stability will be enhanced by our understanding of how each side is thinking about nuclear weapons. Discussions of our respective concepts of operating ballistic missile submarines involving both theorists and current military officers would therefore be to our mutual benefit.