Forgoing U.S. Damage-Limitation against China’s Nuclear Weapons

Charles L. Glaser

Bottom Lines

**Key strategic nuclear choice.** The key strategic nuclear choice facing the United States is whether to attempt to preserve or enhance its damage-limitation capability against China’s strategic nuclear force.

**Feasibility of damage limitation.** The United States is unlikely to be able to develop technology—space-based radar and ballistic missile defense—capable of maintaining a damage-limitation capability if China pursues appropriate countermeasures and implements operational best practices.

**Benefits and risks of a damage-limitation capability.** A damage limitation capability would provide the United States with few benefits, because the United States can meet its most important deterrent requirements in East Asia without one. In comparison, the risks, which include an increased probability of accidental and unauthorized Chinese attacks, as well as strained U.S.-China relations, would be large.

**Forgoing a damage limitation capability.** Given the technological infeasibility of maintaining a damage-limitation capability and the negative impact that pursuing such a capability would have on U.S. security, the United States should forgo efforts to preserve or enhance its damage-limitation capability.
Key Strategic Nuclear Choice

The key strategic nuclear choice facing the United States is whether to attempt to preserve or enhance its “damage-limitation” capability—that is, the ability to reduce significantly the damage that China can inflict against the U.S. homeland in an all-out nuclear retaliatory attack. The United States currently has the ability to destroy much of China’s strategic nuclear force (missile silos, ballistic missile submarines, command and control, etc.) in a first strike, which would somewhat reduce the impact of a Chinese retaliatory second strike. China’s continuing deployment of mobile missiles has the potential to fully erode U.S. damage-limitation capabilities, though in the midterm this will depend upon whether China adopts best practices for avoiding detection and in the longer term will depend upon whether the United States develops and deploys systems that can reliably find and destroy mobile targets. U.S. decisions about whether to attempt to preserve or enhance this modest damage-limitation capability could greatly affect U.S. force structure, U.S. and Chinese incentives in a crisis, and the U.S. political relationship with China as well as potentially with U.S. regional allies.

Attempting to preserve or enhance this damage-limitation capability will require the United States to make large investments in ISR (intelligence, surveillance, and reconnaissance) and possibly in missile defenses designed to defeat China’s strategic nuclear forces. In contrast, if the United States decides to forgo a damage-limitation capability, its current forces could still perform the full array of required strategic deterrent missions, including limited nuclear attacks designed to deter conventional war and unlimited retaliation.
designed to deter all-out nuclear war. A damage-limitation strategy requires competition with China’s nuclear forces; forgoing damage limitation will enable the United States to avoid this competition.

Feasibility of Damage Limitation

What counts as significant damage limitation? During the Cold War, the United States understood damage limitation as denying the Soviet Union an “assured destruction capability” against the United States. A damage-limitation capability could enable the United States to achieve a better outcome in an all-out nuclear war than if the Soviet Union were able to attack the United States with its entire nuclear force. Secretary of Defense Robert McNamara defined an assured destruction capability as a state’s ability to destroy 20 to 25 percent of another state’s population and 50 percent of its industrial base in retaliation after an all-out attack against its nuclear forces. It was estimated that 200 1-megaton warheads, or the equivalent, could inflict this level of destruction.

More recent estimates that include a fuller set of nuclear effects, fire in particular, show that 40 1-megaton weapons could inflict this level of damage on the United States. In addition, these calculations do not include the impact of such attacks on energy systems, information and communication systems, and major ports and other transportation nodes. In a fragile, highly integrated modern industrial economy, the destruction could be much greater. Therefore, a damage-limitation range—from 10 medium-yield warheads to 40 equivalent megatons on cities in a retaliatory attack against the United States—is more appropriate than a single threshold. Analysts can reasonably disagree about where within this range reducing the size of a Chinese attack would produce a significantly better outcome for the United States.

China currently deploys about 20 silo-based intercontinental ballistic missiles (ICBMs) and 25 mobile ICBMs capable of delivering warheads against cities in the United States. China is modernizing and expanding its ICBM force, which is predicted to reach 100 mobile ICBMs by 2030, and may soon deploy up to 60 submarine-launched ballistic missiles (SLBMs) on its new generation of ballistic missile submarines. China’s silo-based missiles are highly vulnerable to attacks from extremely accurate U.S. nuclear missiles; China’s current-generation ballistic missile submarine is also likely to be highly vulnerable to U.S. anti-submarine warfare capabilities. Consequently, for at least the next decade, China’s ability to launch retaliatory strikes will depend on the survivability of its mobile ICBMs.
During peacetime, China’s mobile missiles are stored separate from their warheads in garrisons. Their ability to survive a U.S. attack in a severe crisis or conventional war therefore depends on mating warheads with missiles and moving them well out of garrison before the attack begins. China must also be able to launch its missiles from unprepared positions, because the United States is likely to have identified most prepared launch sites. Given the widespread availability of modern positioning and navigation services, China is highly likely to be capable of this type of launch.

To preserve or enhance its damage-limitation capability, the United States would need the ability to find and track Chinese mobile missiles, or to intercept Chinese warheads in flight with a national missile defense (NMD) system, or both. To track mobile missiles, the United States would need a large constellation of space-based radars or a much larger, but overall much less expensive, constellation of small imaging satellites. China could, however, defeat these radars with a combination of hiding and decoys, as well as active attacks against U.S. satellites. To intercept warheads in flight, the United States would need a larger and more capable NMD than it currently deploys—but China could overcome this more advanced NMD system with a combination of countermeasures and attacks that defeat or destroy U.S. tracking radars. In short, if China operates its missile force effectively and pursues technologically feasible reactions, the United States has poor prospects for maintaining a significant damage-limitation capability.

Benefits and Risks of a Damage-Limitation Capability

If a damage-limitation capability were critical to ensuring U.S. security, pursuing one might be the United States’ best option, even though the probability of success was low. The benefits of a damage-limitation capability are small, however, and pursuing such a capability could reduce U.S. security.

The United States will be able to continue to meet its extended deterrence commitments to its key East Asian allies without a damage-limitation capability. The combined capabilities of the United States and these allies should be sufficient to prevent China from winning a major conventional war and thereby sufficient to deter large Chinese conventional attacks. In addition, even without a U.S. damage-limitation capability, the possibility that a conventional war could escalate to a nuclear war should help deter China from launching a large conventional attack. The United States can enhance this aspect of its nuclear deterrent by planning limited nuclear options (LNOs); a U.S. doctrine that calls only for all-out retaliation could fuel Chinese doubts about the credibility of U.S. threats. LNOs should be
small and not planned against Chinese nuclear and command-and-control targets. Given the deterrent value of the other components of the U.S. nuclear and conventional capabilities, the additional deterrent value of a damage-limitation capability is modest and will decline further as China modernizes its forces.

Compared to these limited benefits, the potential costs and risks of striving to preserve or enhance the U.S. damage-limitation capability are large. The U.S. ability to destroy much of China’s capacity to retaliate could generate a variety of escalatory dangers, including accidental, unauthorized, and inadvertent nuclear attacks, as well as early intentional limited nuclear escalation driven by concerns about U.S. preemptive attacks. In addition, U.S. efforts to preserve or enhance a damage-limitation capability would fuel strategic nuclear competition that would almost certainly add to strains in U.S.-China relations, which would in turn increase the probability of conflict. Finally, the systems that the United States would likely deploy in pursuit of an effective damage-limitation capability—including an extensive national ballistic missile defense designed to protect against Chinese ICBMs and space-based sensors designed to track mobile missiles—would be very expensive.

Forgoing a Damage Limitation Capability

The United States should not try to preserve or enhance whatever damage-limitation capability it now possesses. It is unlikely to succeed in doing so, and even if it could, such a capability would have little deterrent value. Still more important, however, the United States can meet its extended deterrence commitments to its key East Asian allies without a damage-limitation capability. Given the military and political risks of adopting competitive military policies, pursuing a damage-limitation capability would make the United States less secure.
Related Resources


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