

# CSBA

Center for Strategic and  
Budgetary Assessments

## The Future of America's Strategic Nuclear Deterrent

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- **Background and key questions**
- **Rethinking deep nuclear reductions**
- **Undersea forces**
- **Bomber forces**
- **Land-based ballistic missile forces**

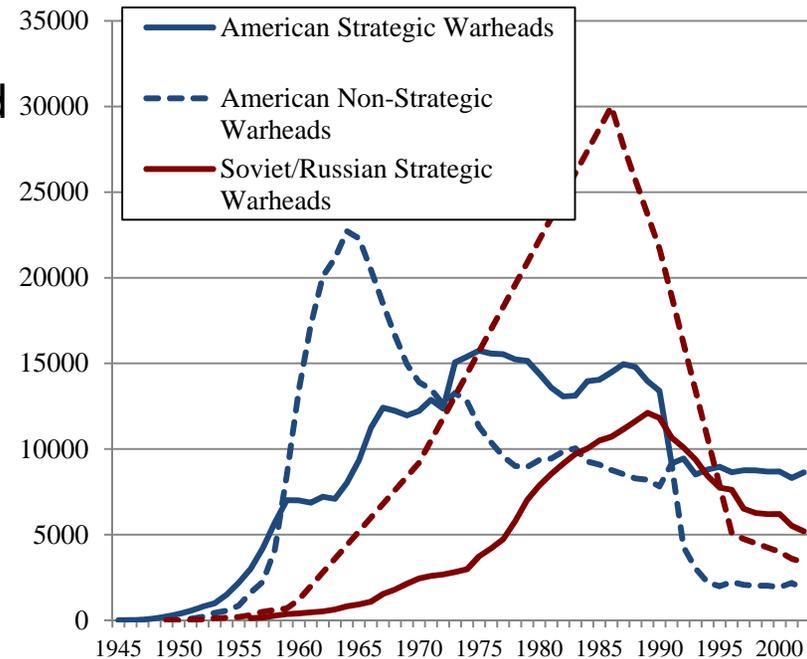
# CSBA Nuclear Deterrence at the Crossroads

- **Drawing down...**

- The U.S. has progressively decreased its reliance on nuclear weapons
- Confluence of defense budgets cuts and recapitalization costs has made nuclear programs a target for funding cuts

- **...or building up?**

- DoD is committed to recapitalizing the Triad
  - Ohio-Replacement program
  - Long-Range Strike Bomber (LRS-B)
  - Minuteman III follow-on
  - B61 gravity bomb life extension
  - Air-Launched Cruise Missile (ALCM) replacement



***Should the United States continue to implement deep nuclear reductions?***

***Should it retain the strategic triad of bombers, ICBMs, and SSBNs?***

***Should it replace its aging nuclear forces?***

## Proponents of a further nuclear drawdown often argue for...

- 1) **Making additional reductions in the size of the arsenal by cutting warheads, preferably in tandem with Russia**
  - Overemphasizes the bilateral U.S.-Russia nuclear balance
  - Could encourage horizontal proliferation on the part of allies and vertical proliferation on the part of competitors—setting the stage for a multipolar nuclear world
- 2) **Reducing force structure but keeping arsenal size intact by cutting bombers and/or ICBMs and increasing number of warheads on SSBNs**
  - Prioritizes arsenal size at the expense of arsenal composition
  - Will not provide balance between survivability, promptness, flexibility, lethality, and visibility to deter a variety of actors across a range of contingences
- 3) **Deferring, scaling back, or canceling nuclear modernization programs**
  - Assumes that Washington will continue to face a relatively benign security environment, including the absence of a hostile peer competitor and conventional military superiority over potential rivals

*Ultimately, the United States still needs a nuclear arsenal that is large enough to dissuade other nations from pursuing parity, diverse enough to deter nuclear use across a wide range of contingencies, and viable long into the future.*



### Undersea Forces

- 14 Ohio-class SSBNs
- 288 Trident D5 SLBMs (24 per boat)
  - ~768 W76 (100kt) and 384 W88 (455kt) warheads



### Bomber Forces

- 18/16 B-2s
  - ~500 B61 (variable yield) and B83 (1.2 Mt) bombs
- 76/44 B-52Hs
  - ~500 AGM-86 ALCMs with W80 (5-150kt) warheads



### Land-Based Ballistic Missile Forces

- 450 Minuteman III missiles
  - ~250 W78 (335kt) warheads
  - ~250 W87 300kt warheads

## Key Attributes of the SSBN Fleet

- Survivability
  - Silo-based ICBMs and bombers not on alert status much more vulnerable to a disarming first strike
- Flexibility
  - Different warheads allows for counterforce & countervalue targeting
  - Mobility allows SSBNs to avoid sensitive launch trajectories

## Modernization Efforts

- Ohio-Replacement Program
  - 12 new boats rather than 14
  - 16 missile tubes rather than 20
  - Projected service life into the 2080s
  - \$93-102 billion (GAO/CBO) total program cost



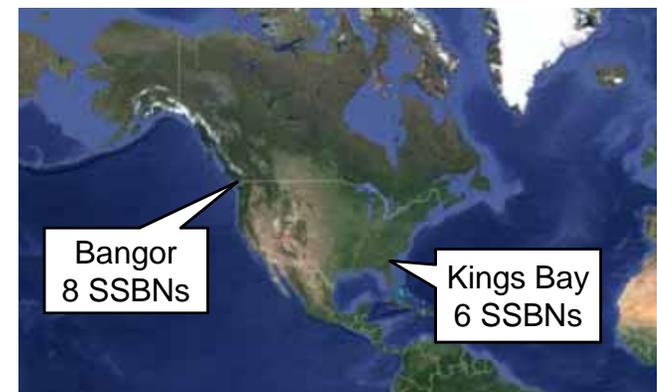
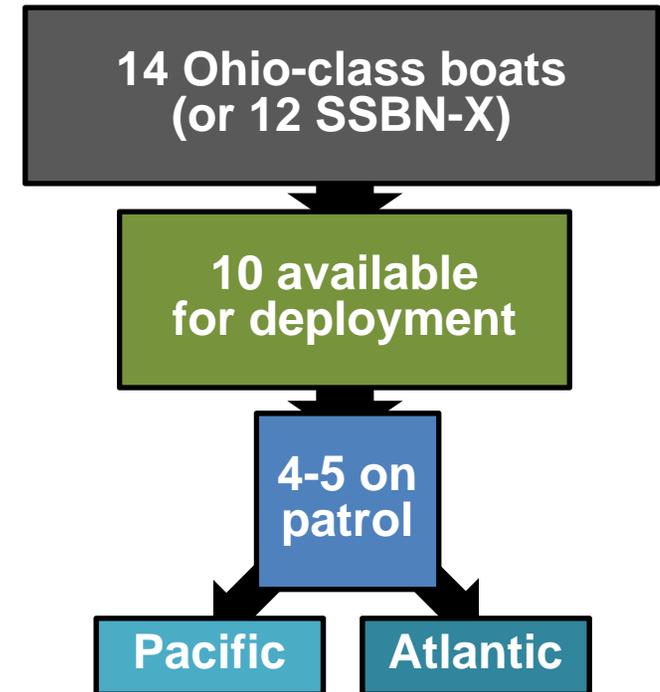
# CSBA Debating Future Undersea Forces

- **Fleet Composition**

- Ohio-Replacement alternatives would be less stealthy
  - Modified Virginia-class SSN
  - Newly built Ohio-class SSBN
- Cost savings may not be as great as anticipated
  - New missile for a modified Virginia-class
  - Cost of restarting the closed Ohio-class production line
  - More platforms needed to maintain the same at-sea presence

- **Fleet Size**

- Current fleet size determined by number of boats continuously at sea
- Numbers matter: more SSBNs means a more survivable force in the aggregate
- Deployment patterns matter: Need enough SSBNs to sustain two bases and present a “two ocean problem” for rivals



- **Key attributes**

- Visibility
  - Can be used to signal during crises
- Recall-ability
  - Attacks can be aborted after the order to attack
- **Inherently Dual-Use**
  - Conventional and nuclear strike platforms
- **Targeting flexibility**
  - Armed with lowest & highest yield nuclear weapons



- **Key modernization efforts**

- Long Range Strike Bomber (LRS-B)
  - Penetrating aircraft to supplement/replace B-2
- B61 life extension
  - Refurbish and consolidate four of five variants
- ALCM life extension and LRSO missile development



## Growing challenges to conventional deterrence

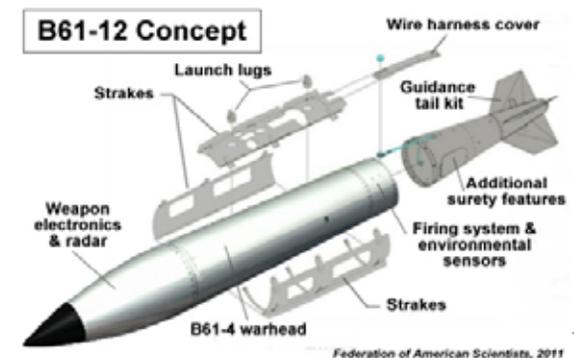
- Principal role for LRS-B will be as a conventional strike platform
  - Increasing threats to short-range and non-stealthy aircraft due to proliferation of conventional precision-strike weapons
  - Need for aircraft that do not require close-in bases and can locate/strike targets within heavily defended airspace



*The added cost of making LRS-B nuclear-capable at the outset is marginal. The added cost of making it nuclear-capable retroactively is prohibitive*

## Changing character of nuclear deterrence

- Most **likely** nuclear threat is limited use by a minor power, particularly if nuclear weapons proliferate more widely
  - ICBMs and SLBMs with high yield (100+kt) warheads may not provide a credible deterrent—or an effective and morally acceptable retaliatory capability
  - With no plans to build new nuclear weapons, bombers will remain the only systems capable of delivering the only low-yield weapons in the U.S. arsenal



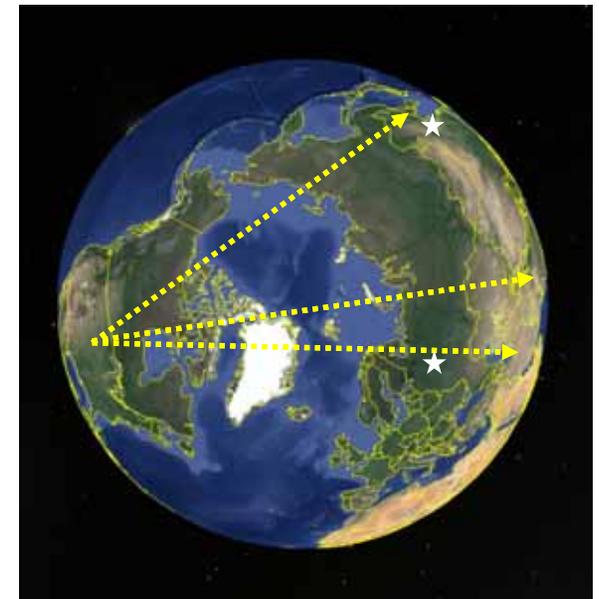
- **Key Attributes**

- Promptness
  - ~99 percent of missiles on alert
- CONUS-based
  - Disabling ICBMs would require attacking US territory
- **Large, hardened target set**
  - Disarming first strike would require an adversary to deplete a significant portion of its own arsenal



- **Key Drawbacks**

- High yield warheads
  - Might only be suitable for countervalue targeting
- Limited launch trajectories
  - May need to overfly Russia to strike targets elsewhere



- **Modernization Efforts**

- Life of the MMIII has been extended to 2030
- Analysis of Alternatives will explore follow-on options

## The “Missile Sink”

- Opponent would have to expend a disproportionate share of its own weapons to degrade or destroy the ICBM leg
  - Foundation for strategic stability with a peer competitor
- Eliminating or significant reducing the ICBM leg could create a major source of instability
  - Remainder of the U.S. arsenal would be concentrated in five locations
  - Unless bombers returned to alert status, entire leg could be wiped out in a first strike
  - U.S. would still have a significant undersea nuclear arsenal, but a less advantageous force ratio could create doubts about willingness to retaliate
  - **Bottom line:** the likelihood of escalation would increase and escalation dynamics could become more complex

### DETECTING OUR DETERRENT

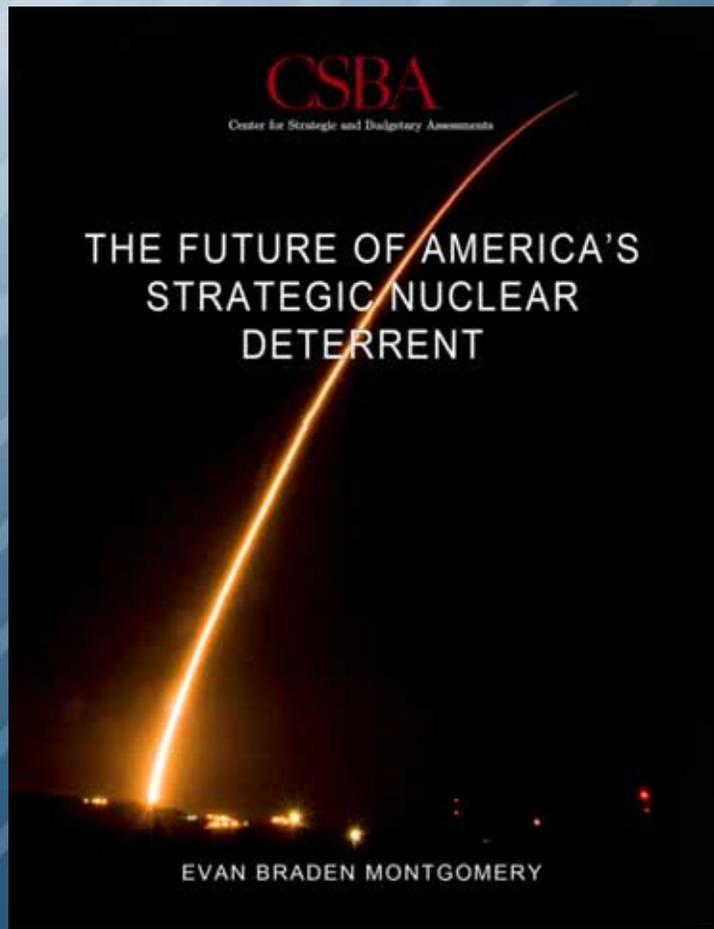
*by Paul H. Nitze*

**D**uring much of Henry Kissinger's dominance over U.S. foreign policy, détente with the Soviet Union was the centerpiece of that policy. U.S. military strength was viewed as necessary to make détente work, rather than to make possible actual defense of ourselves or our allies against Soviet military pressure; Kissinger said that war with the Soviet Union was unthinkable.

This view was supported by the proposition that any war between the Soviet Union and ourselves would be nuclear and would inevitably result in hundreds of millions of casualties on both sides. This, in turn, implied that it makes little difference, within limitations of the type contemplated by the Vladivostok accord, whether the Soviet side comes to have more or bigger offensive warheads, the degree to which they improve their weapons technology, the extent of the asymmetrically better Soviet defenses (both active and passive), or whether one side or the other strikes first, provided only that we maintain strategic offensive forces for retaliation approximately as numerous and powerful as those we now have and have programmed for the future.

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## Questions?