



China Maritime Technologies and Structures

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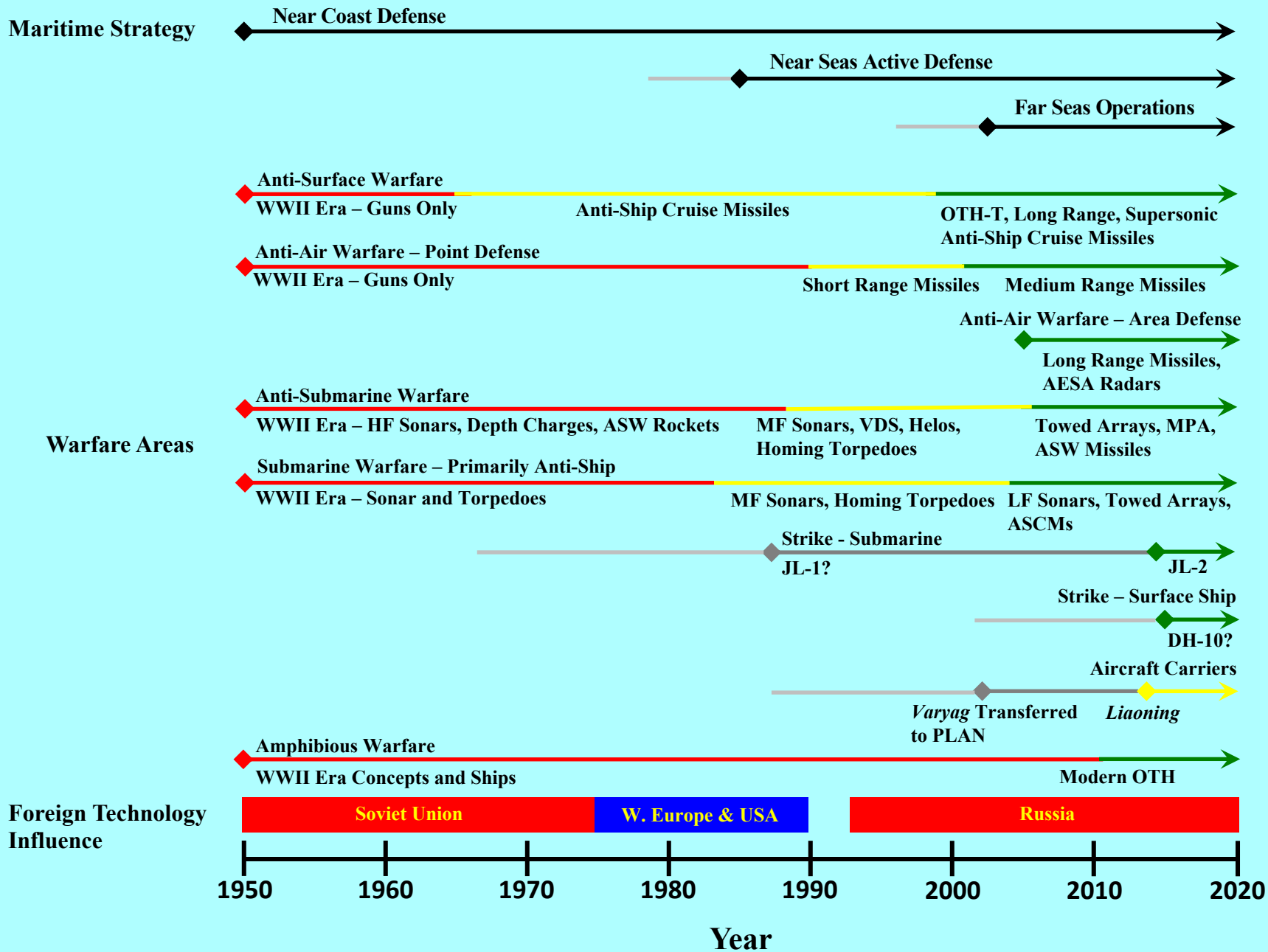


Scene Setter

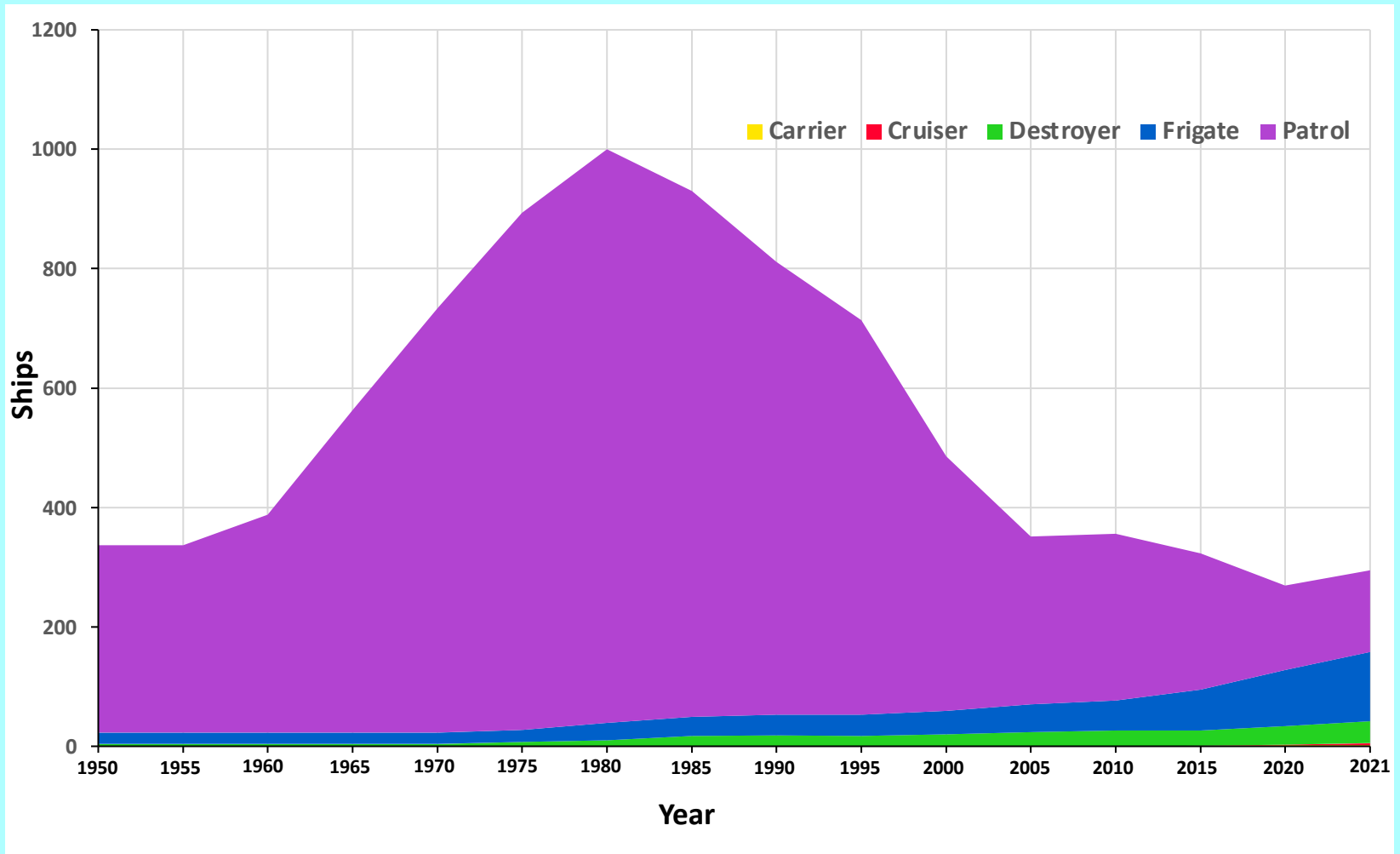
(An additional slide that has the verbal preamble to the workshop presentation)

- ◆ The PLAN has undergone rapid technological advancement in naval warfighting capabilities during the last 17 years.
- ◆ This incredible pace is tied to several factors:
 - 1) Stable maritime strategy.
 - 2) Stable funding.
 - 3) Significant foreign technology insertion; particularly from Russia.
 - 4) Imitative innovation concept – significant R&D savings in both time and money.
 - Research = Shopping list for proven foreign systems.
 - Development = Modifying acquired systems to better meet PLAN requirements.
 - 5) Use of spiral development to field rapid changes in payload while maintaining consistency in hull, mechanical, and electrical components.
- ◆ PLAN's technology requirements are driven by Chinese maritime strategy.
- ◆ PLAN surface warship capabilities are a function of the order of battle and the systems on the individual ship classes.
 - Focus on frigate-size ships and larger. Patrol combatants lack the volume to make full use of the technological advancements.
 - Type 056/056A corvettes are considered light frigates for the purpose of this presentation.
 - Examine the capabilities in four warfare areas: anti-surface, anti-air, anti-submarine, and strike over the history of the PLAN – roughly 1950 thru 2021.

PLAN Technology Timeline

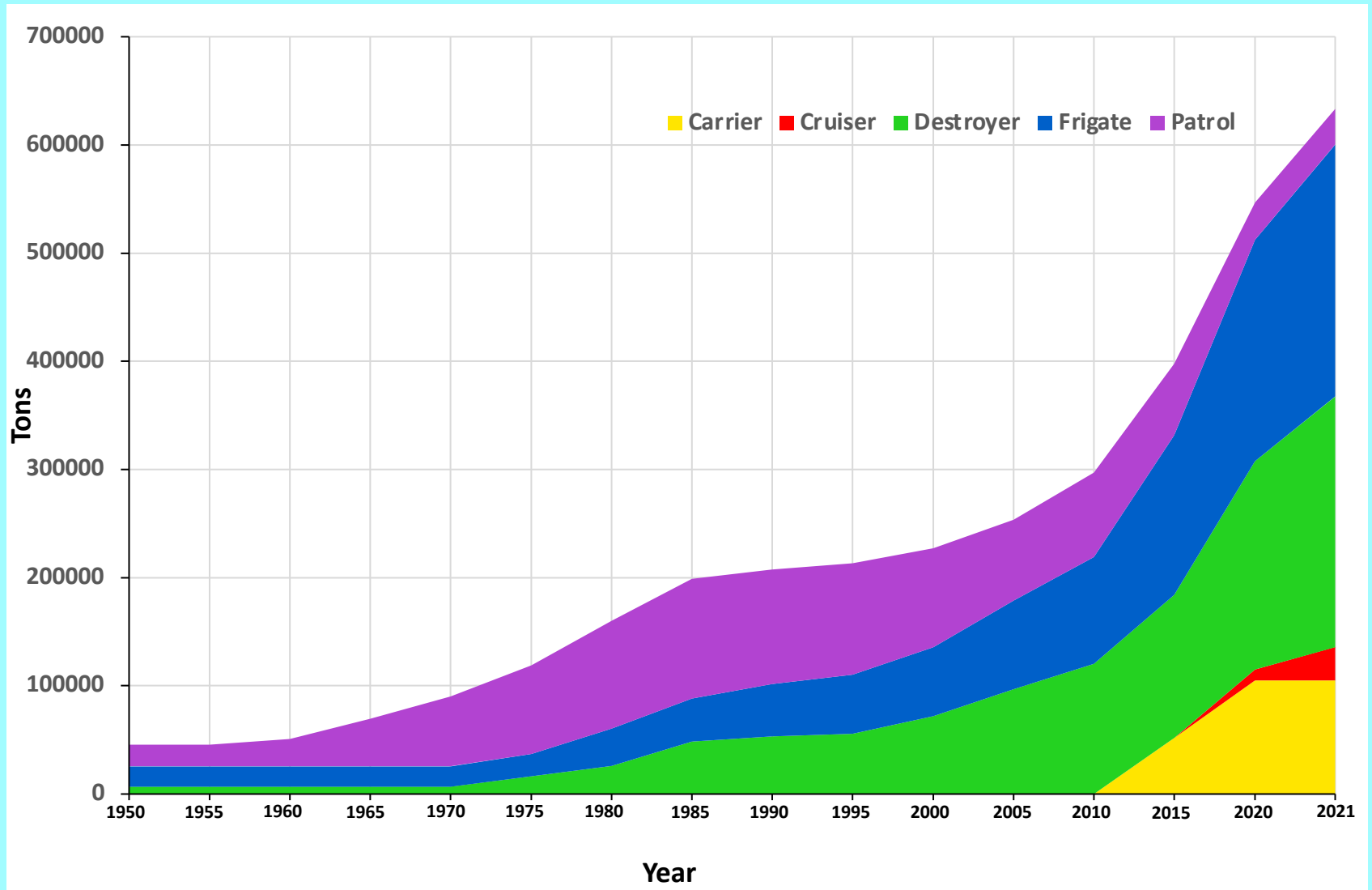


PLAN Surface Combatant Order of Battle (1950 – 2021)



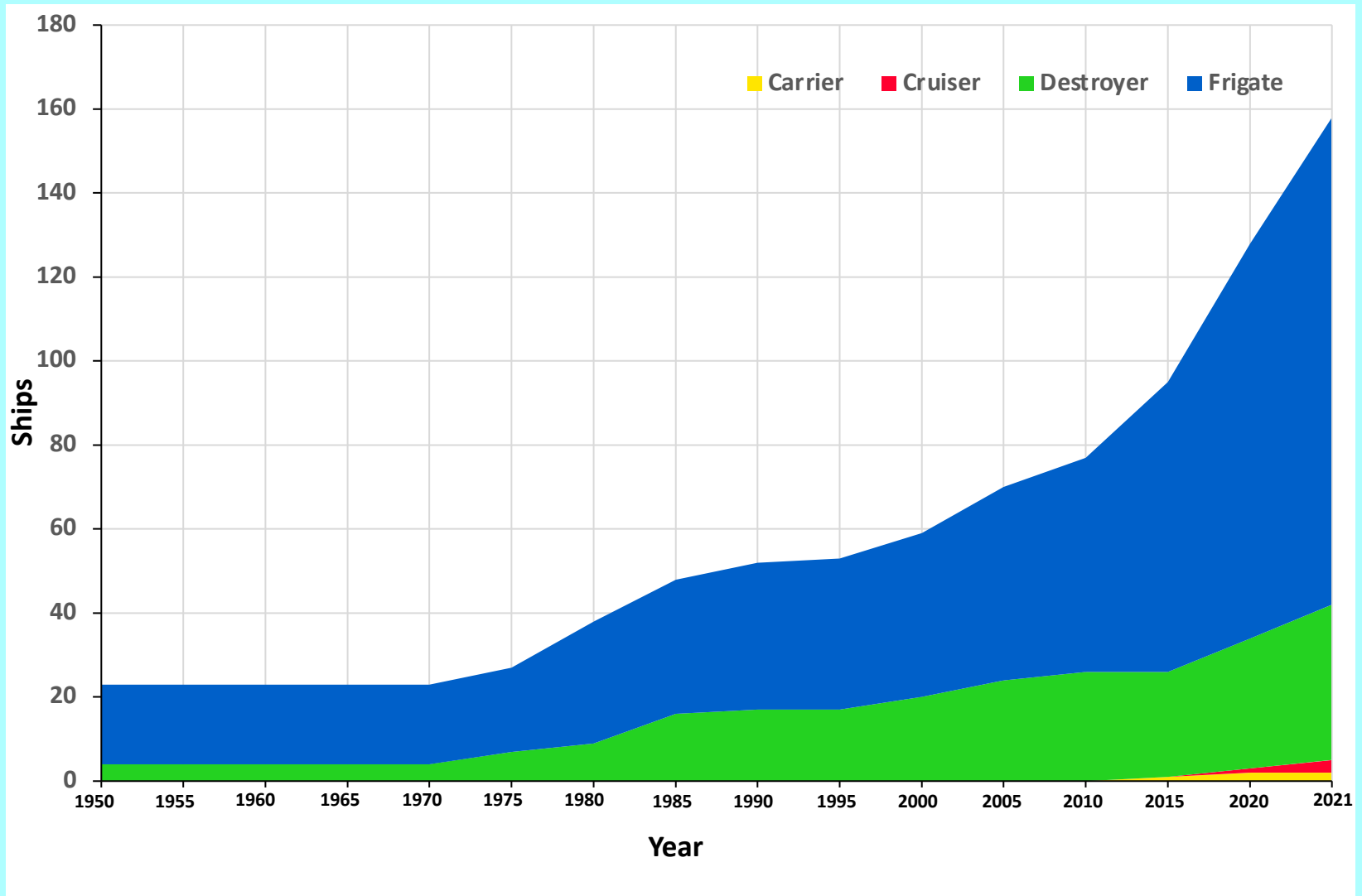
- ◆ Order of battle does not include Coast Guard, Customs, CMS, MSA, or militia.
- ◆ 1950 – 1995: Patrol craft make up 92+% of the PLAN order of battle.
- ◆ Advanced maritime/ naval technologies tend to require a lot of volume.

PLAN Surface Combatant Total Displacement (1950 – 2021)



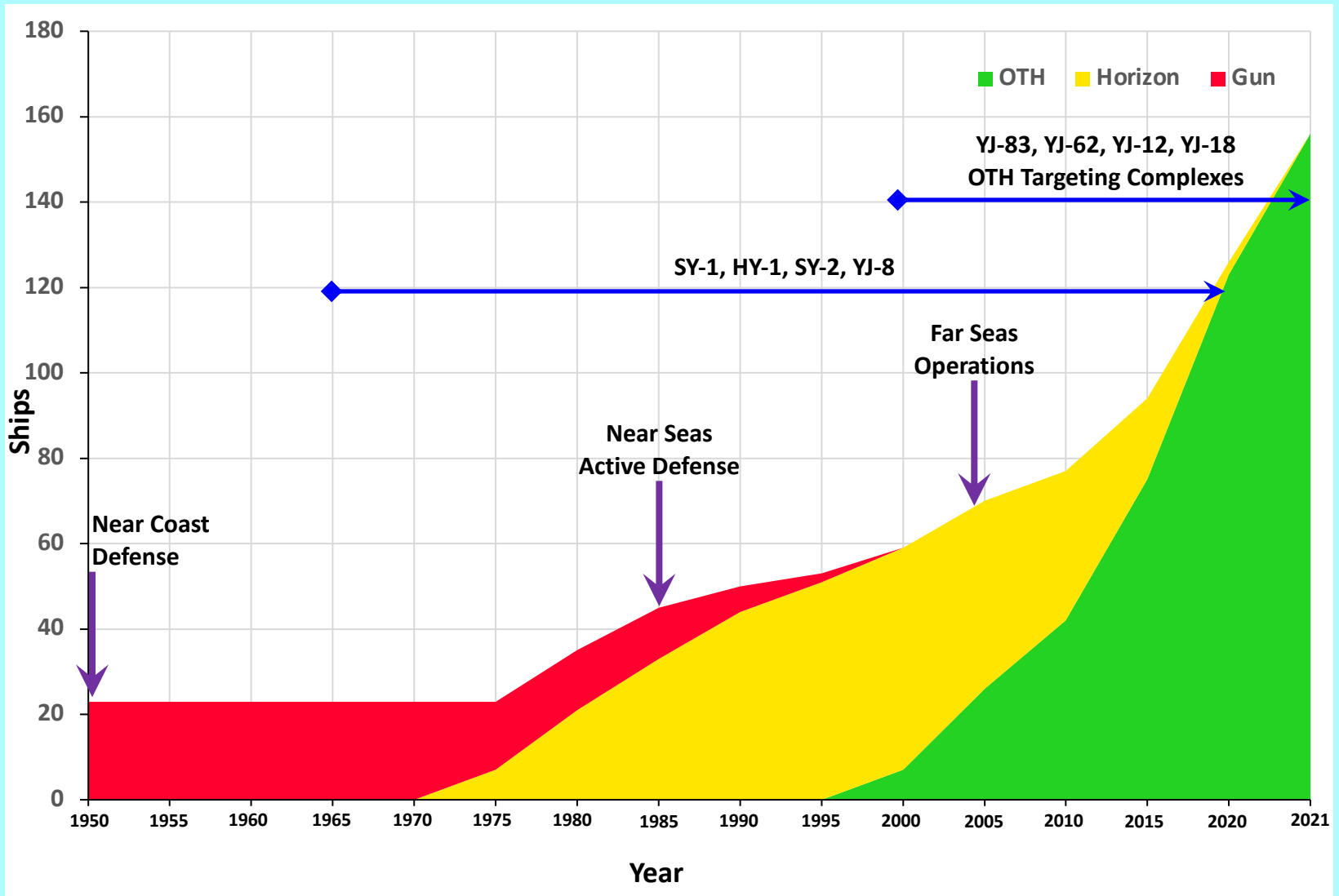
- ◆ From 1995 and on, patrol craft represent less than half the total OOB displacement.
- ◆ Will ignore patrol craft for remainder of this discussion.

PLAN Surface Combatant Order of Battle (1950 – 2021)



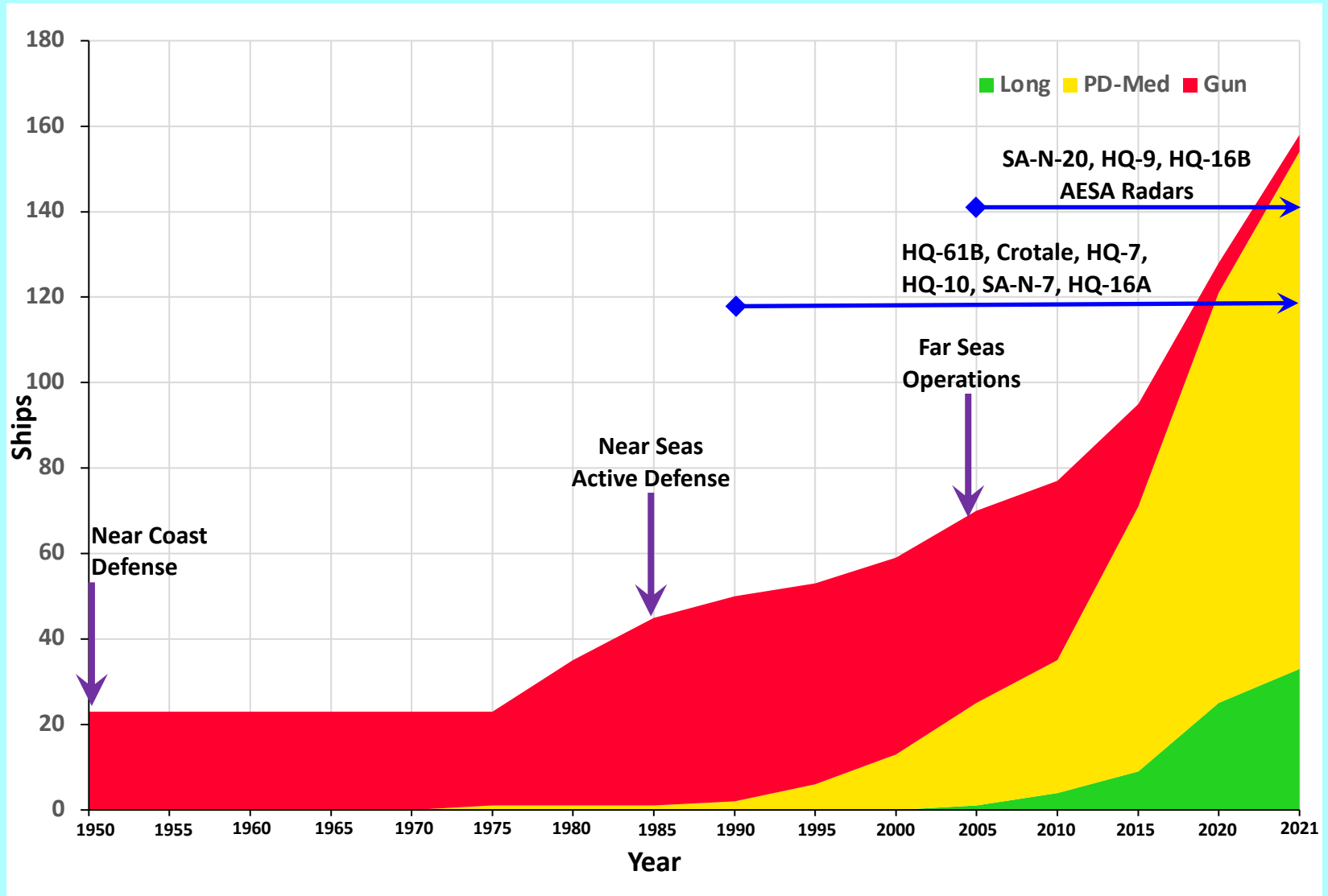
- ◆ This represents the ships of greater interest for investigating the effects of advances in naval technologies – available volume.

PLAN Anti-Surface Warfare Assessment (1950 – 2021)



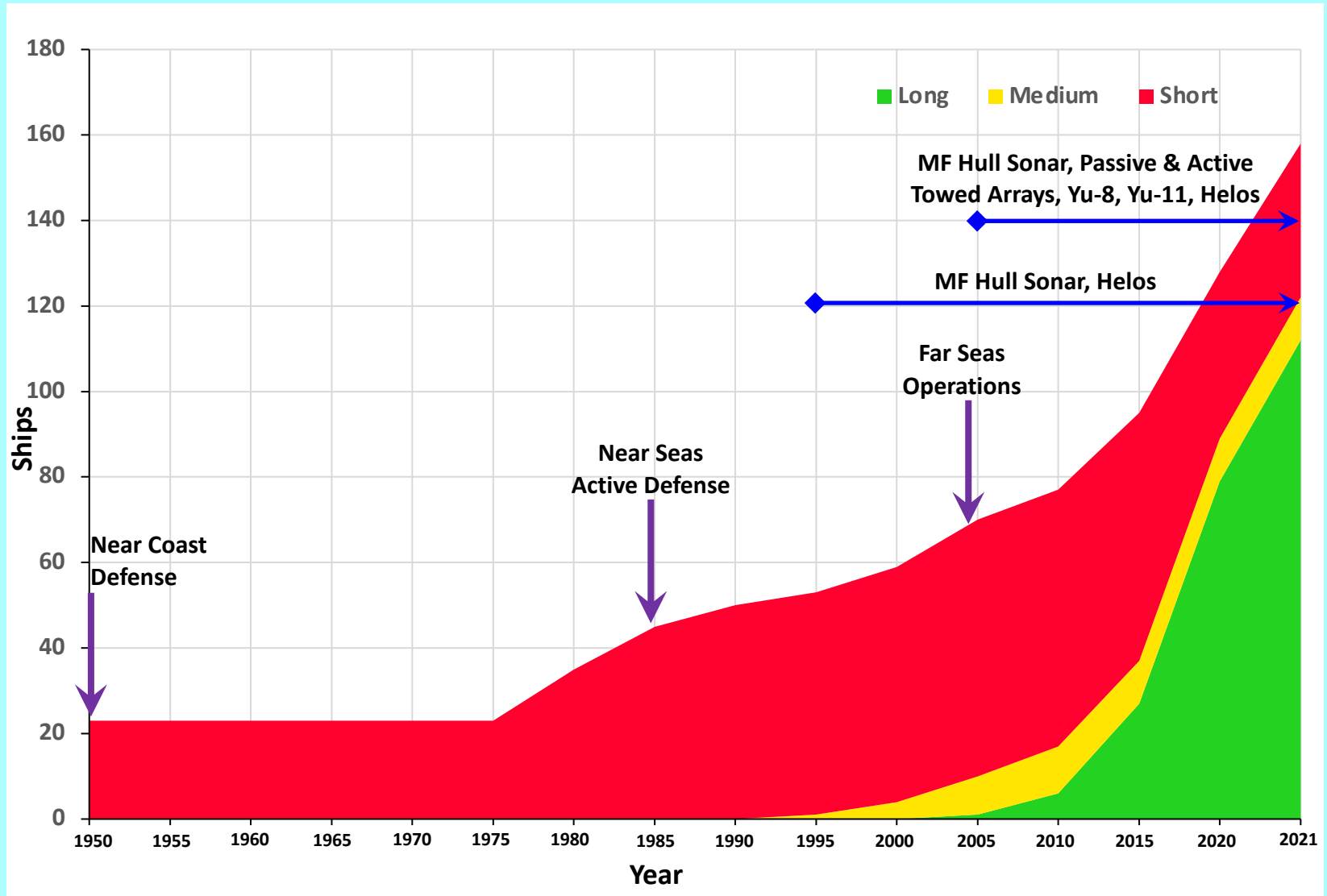
- ◆ PLAN was an early adopter of the anti-ship cruise missile.
- ◆ Core competency – by 2020 PLAN had transitioned to an OTH capable force.

PLAN Anti-Air Warfare Assessment (1950 – 2021)



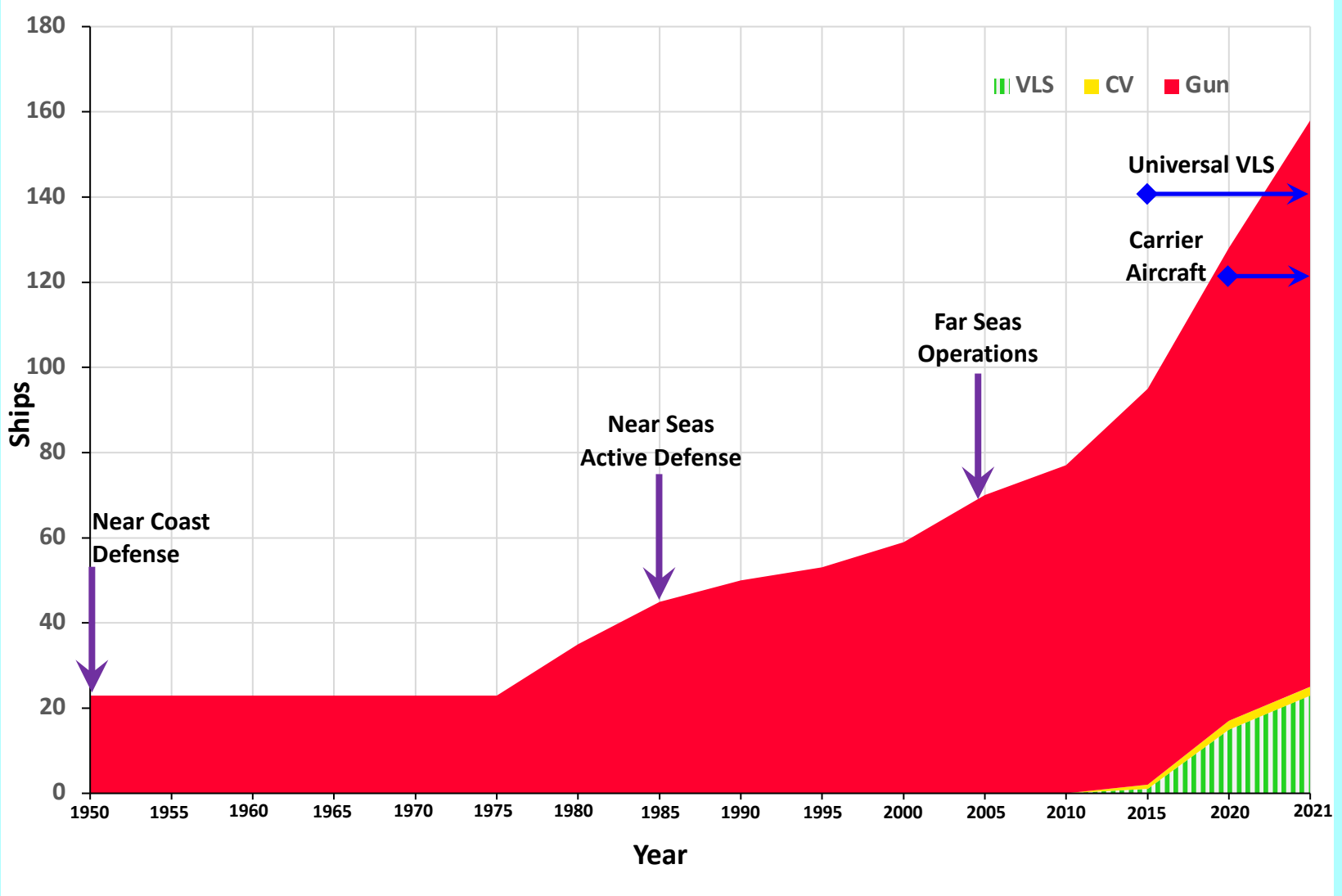
- ◆ Not a priority concern until the 1996 Taiwan Strait Crisis revealed significant vulnerabilities.
- ◆ Far seas operations pushing the development and deployment of long-range air defense.

PLAN Anti-Submarine Warfare Assessment (1950 – 2021)



- ◆ PLAN recognizes the SSN force is a U.S. advantage; understands their ships are vulnerable.
- ◆ Far seas operations drove the rapid development and deployment of ship ASW capability.

PLAN Strike Warfare Assessment (1950 – 2021)



- ◆ Weakest warfare area for the PLAN – CVs have limited strike capability.
- ◆ No indication DH-10 has been launched from a Universal VLS equipped ship.

Conclusions

- ◆ China has been rapidly developing advanced naval technologies.
 - Significant benefit from foreign technology insertion; particularly from Russia.
 - True believers of the “spiral development” concept.
 - Imitative Innovation: takes proven systems and adjusts them to better serve China’s needs.
 - The era of Imitative Innovation is likely drawing to a close; China has assimilated most of the technologies and procedures they obtained from the Russians.
- ◆ PLAN’s technology requirements are driven by Chinese maritime strategy.
 - Far Seas Operations has been a critical driver for many of the systems that have been fielded by the PLAN; also benefit Near Seas Active Defense.
- ◆ PLAN surface warship capabilities have grown tremendously in the past 20 years.
 - **Anti-Surface Warfare:** Almost a total OTH capable force with long-range ASCMs and ship-based targeting complexes. Currently superior to the U.S. Navy.
 - **Anti-Air Warfare:** Behind the U.S. Navy but moving steadily forward. HQ-9 family of SAMs coupled with AESA radars will be a potent threat to strike aircraft.
 - **Anti-Submarine Warfare:** China is putting considerable effort into their ship-based ASW capabilities, an acknowledged weakness - active towed arrays and Yu-8/Yu-11 ASW missiles.
 - **Strike Warfare:** Weakest area due to carrier limitations (size of air wing & aircraft restrictions) and the apparent lack of a DH-10 launch from a Universal VLS ship.