



Littoral Warfare: *Taking the Fight to the Enemy*

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Introduction



Littoral Warfare

- ◆ **Definition**
- ◆ **Environment**
- ◆ **Multiple Threats**
- ◆ **Impact on Design**
- ◆ **Impact on Operations**
- ◆ **Conclusions**

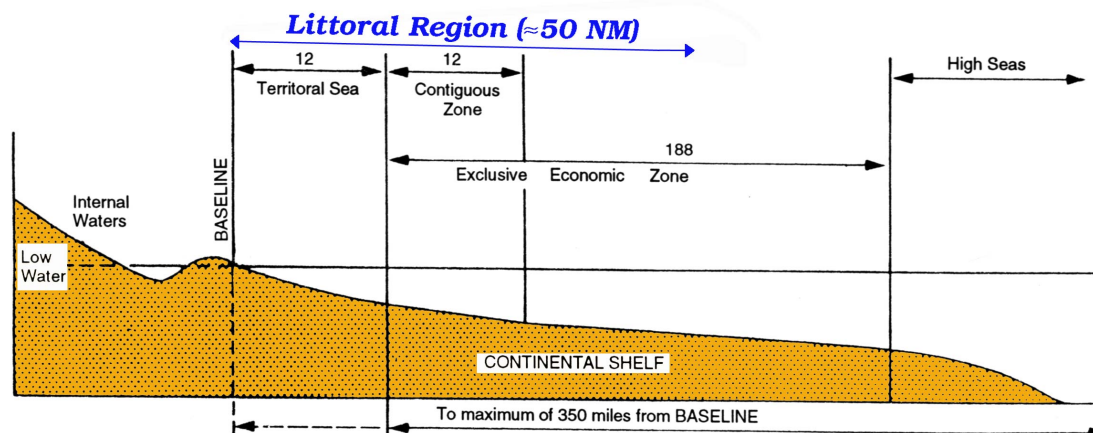




Definition

Littoral Warfare

- ◆ **Littoral**: Those regions relating to or existing on a shore or coastal region, within direct control of and vulnerable to the striking power of naval expeditionary forces. (*Naval Warfare, Naval Doctrine Publication 1*)
- ◆ **Proposed Definition**: The operation of naval forces within 50 NM of the coast.





Taking the Fight to the Enemy

Littoral Warfare

- ◆ Is “Littoral Warfare” something new?
- ◆ Anytime troops are inserted from sea, you have littoral warfare.
 - Gallipoli - World War I
 - South Pacific “Island Hopping” - World War II
- ◆ Anytime ships fight in close proximity to land, you have littoral warfare.
 - Operations in the English Channel
 - Guadalcanal Campaign



Environment

Littoral Warfare

- ◆ **The littorals present a very difficult environment due to the close proximity of land**
- ◆ **Detection Issue**
 - Radar - Land clutter
 - IR - Large background heat source
 - Sonar - Shallow water, high ambient noise
- ◆ **Classification Issue**
 - Large number of false targets
 - High shipping density
- ◆ **Attack Issue**
 - Shallow water can be mined



Radar Example

Littoral Warfare

◆ Detection of a fast patrol boat with a surface search radar

- La Combattante class
 - 249 tons normal displ
 - RCS = 28 dB
- SPS - 64 Radar
 - Open range = 11.3 NM
- Operating near a beach
 - Land clutter = 17 dB
 - Littoral range of SPS-64 = 4.3 NM



Threats - Submarines



Littoral Warfare

◆ Diesel submarines are even harder to detect in shallow water

- Very quiet when on the battery
- High shipping density raises the ambient noise
- High reverberation limits active detection



Mud Sharks!

◆ Taking the fight to his backyard maximizes a SS strengths and minimizes its weaknesses

- Mitigates the speed and endurance limitations of SS



Threats - Fast Patrol Boats

Littoral Warfare

- ◆ **Small, fast, heavily armed**
 - Hard to detect, hide along the shore
 - Sprint to get into position, fire multiple ASCMs
- ◆ **Fragile platforms, easily killed**
 - Very limited space for defensive weaponry
 - Limited ECM
- ◆ **“Egg shells armed with sledge hammers.”**

Surprise!

Shoot!

Scoot!

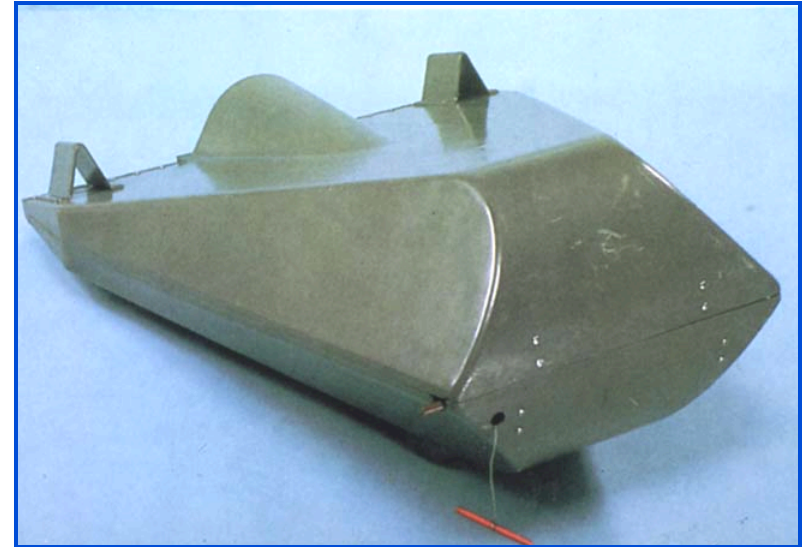


Threats - Mines



Littoral Warfare

- ◆ Weapons that wait
- ◆ Easy to employ
- ◆ Difficult to detect
- ◆ Very hard to sweep
- ◆ CHEAP!
- ◆ Modern mines
 - Multiple influence, bottom
 - Propelled warhead, moored
- ◆ Don't forget the old fashioned moored contact mine is still a threat





Threats - Coastal Defenses

Littoral Warfare

- ◆ Artillery and missile batteries
- ◆ Radar, EO/IR sensors
- ◆ Usually integrated
- ◆ Mostly static defenses
- ◆ Increasing emphasis on mobile systems
- ◆ **Lesson of DESERT STORM**
If it doesn't move, it dies!

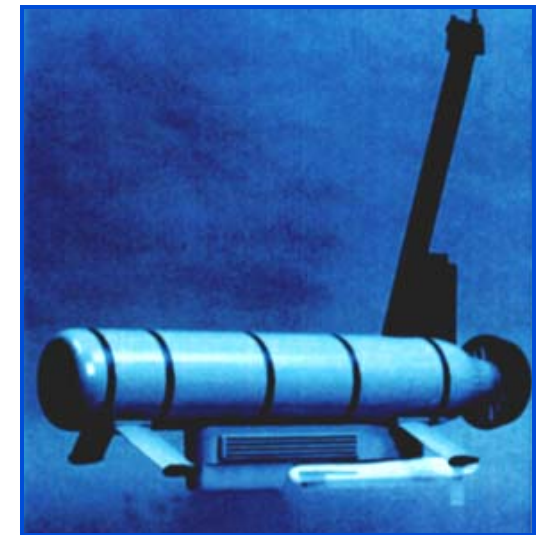


Impact on Ship Design



Littoral Warfare

- ◆ Radar and IR stealth required
- ◆ Greater reliance on “stealthy” and passive sensors
 - LPI radar
 - EO/IR sensors
- ◆ Growing emphasis on off board sensor platforms
- ◆ Highly automated, integrated combat systems
 - Reduce reaction time

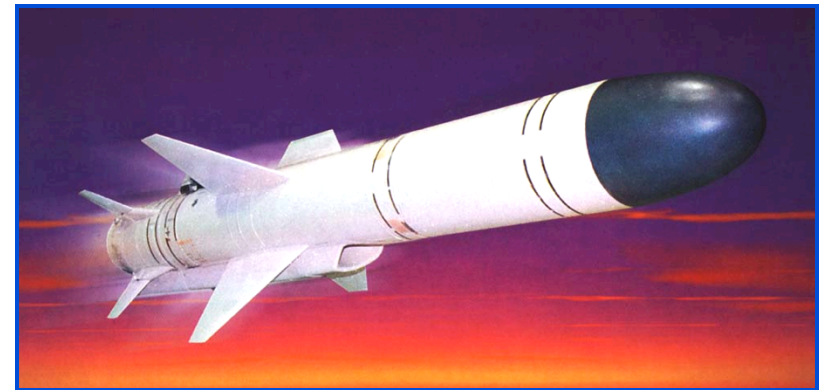
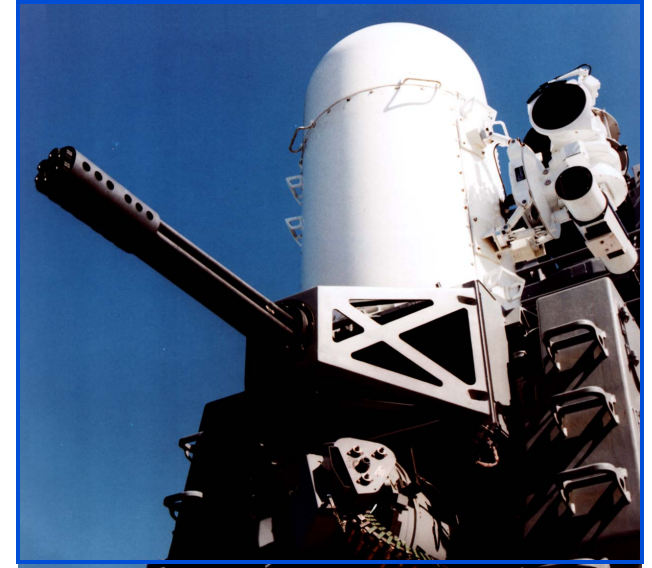


Impact on Weapon Design



Littoral Warfare

- ◆ **Fundamental paradigm shift to coastal areas**
- ◆ **Back to the future**
 - **AAW systems now being upgraded/designed with true ASUW role**
- ◆ **Small combatants now the major target**
 - **Need to be able to attack targets close to land**
- ◆ **Every ship needs to be able to counter mines**





Impact on Operations

Littoral Warfare



- ◆ Littoral warfare is *asymmetric* in nature
 - Opponent can't win a force on force duel
- ◆ Operations will incur greater risks
 - Difficult detection, classification environment
 - Reduced reaction time
- ◆ Knowledge of your enemy, environment and own ship capabilities are key to survival and success

Conclusions



Littoral Warfare

- ◆ Littoral Warfare is the nature of war at sea today, and for the foreseeable future
- ◆ Its not something new - lots of history
- ◆ Its asymmetric in nature - guerilla warfare
- ◆ The environment is much more difficult, and is more beneficial for the defender
- ◆ Realize that taking the fight to the enemy always entails certain risks
- ◆ Risk can be reduce, but not eliminated by knowledge - enemy, environment, self

Warning!



Littoral Warfare



Littoral warfare can be hazardous....

Warning!



Littoral Warfare



.... to your health!

Questions?



Littoral Warfare

