

Submarines for the Littorals

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Submarine Design & Research group



Submarines – A strategic system

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- If and only if we can make them count

Maintaining the freedom of operation

- To chose when and where to operate shall be our prerogative and unhampered by others

This is a tactical – technical challenge!



Maintaining the freedom of operation

Stealth – to be, but not to be seen

Do our business – with direct and indirect actions

When worst comes to worst – win the duel, and...

Be back to fight another day!



Stealth – to be, but not to be seen

- Secure basing – uncertain positions of our submarines
- Air independence – in all aspects
 - AIP – Air independent propulsion
 - AILS – Air independent Life-support
 - AINP – Air independent navigation and positioning
- Maintain a positive FOA – detect them first
 - Signatures – Acoustic, magnetic, electric and IR etc.
 - Sensors – on the sub, from the sub and stand-off from the sub
- Stealthy and secure communications
 - Always listening and from sub if and when we need to and then leave no trace or fit in with the background



Do our business – direct or indirect

- Surveillance missions (SR)
- Intelligence missions (IS)
- Special operations missions (SO)
- Underwater Information Warfare (UIW)
- Underwater Work (UW)
- Mine Counter Warfare (MCM)
- Mine Warfare (MW)
- Anti-Submarine Warfare (ASW)
- Anti-Surface Warfare (ASuW)
- Anti-Ground Warfare (AGrW)



Win the duel

We do not have convergence zones – we have close proximity

I.e. In an ocean of uncertainties – the challenge comes suddenly

- To detect and classify early and correctly – FOA
- Be able to manoeuvre stealthy – to improve our position
- To track – launch – control – an asset of preference, i.e. against a weapon, sensor, submarine, surface or flying opponent. Hard and soft weapons and countermeasures including ROVs and UUVs
- To have a sturdy and reliable design, less vulnerable to shock and to have degradation with grace of the system and its systems

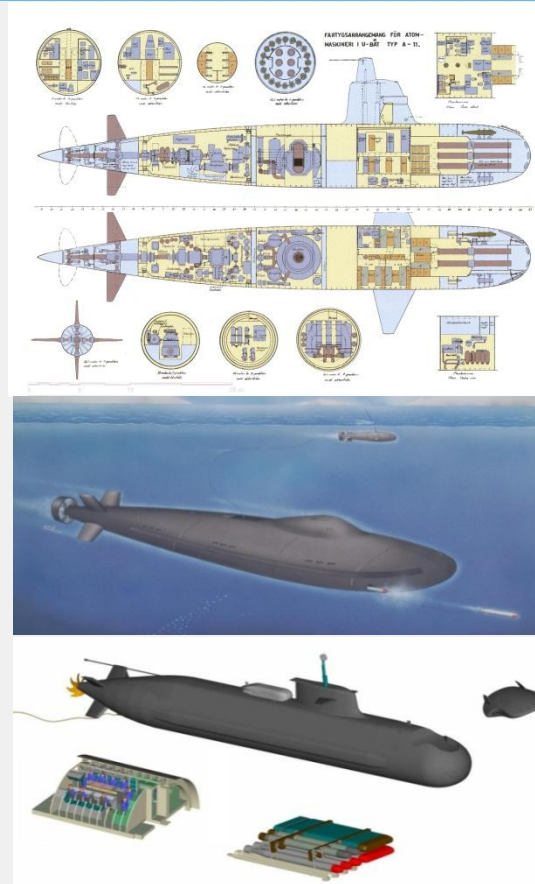
Be back to fight another day

- Secure basing – dispersed positions of our submarines
- Secure and sheltered workshops – to ensure our capabilities
- Efficient and timely maintenance and repair by trained teams
- Monitoring system critical functions and proactive approaches to safety and capability deficiencies, especially regarding FOA capabilities and assets, weapons and countermeasures
- Close cooperation (IPT) between Navy, Base, Yard, Design and R&D teams



Study – Challenge – Develop ...

- Understand that:
Military intelligence is sometimes a contradiction in terms... Think for your self!
- Study:
 - Naval history
 - Naval development
- Challenge Naval Staff
- Work in teams – IPT
- Develop...



Upplöft på Berga. Den röda "burken" i fören är en aktiv-sonar.



Consequences and Conclusions

- Continue recruitment of naval architects and engineers from different disciplines and train submarine designers
- Continue and intensify R&D for submarines and underwater technology, both for production but also for student training
- Develop and implement more modern design methods
- Secure the chain for design-production-maintenance
- Complement submarines with missing systems/assets
- Secure the chain for operational readiness
- Train submarine crews and base maintenance teams
- Continue to participate in challenging training and ops

*Forward from Under
the Sea...*



Victory on Land

Begins Under Water

A part of the Littoral and extreme Littoral Swedish Naval Concept

QUESTIONS ?

