

ShEp-Fish

**Ship (& Helicopter) Expendable
Lightweight Torpedo Simulator**

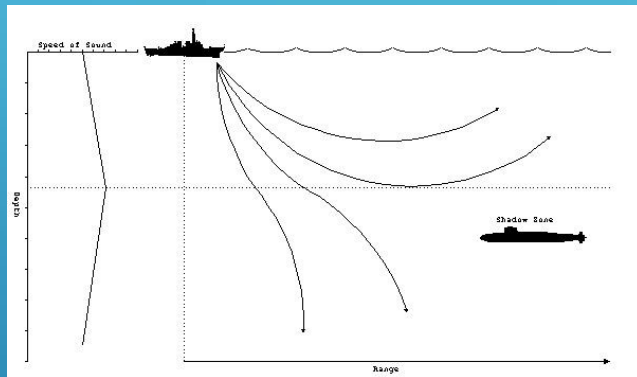


MARCOM Defence

- ▶ Achieving Cert or even Prob Sub Classification status is often challenging in ASW
 - ▶ More likely a force is faced with fleeting or intermittent contact
 - ▶ Assets are often limited
 - ▶ Helicopters may be weapon carriers but can't always localise
- ▶ The initiative remains with the Submarine Commander
 - ▶ He can exploit the bathymetric conditions
 - ▶ He can continue to manoeuvre to obtain an optimum firing solution
 - ▶ He is in control
- ▶ Surface Commanders are faced with difficult choices
 - ▶ Is it a valid submarine contact or not (it's our 5th contact of the day)
 - ▶ Do I manoeuvre the entire force & impact on our overall objectives
 - ▶ Do I scramble assets

The ASW Challenge

► I can make use of the thermocline in minimising active sonar contact



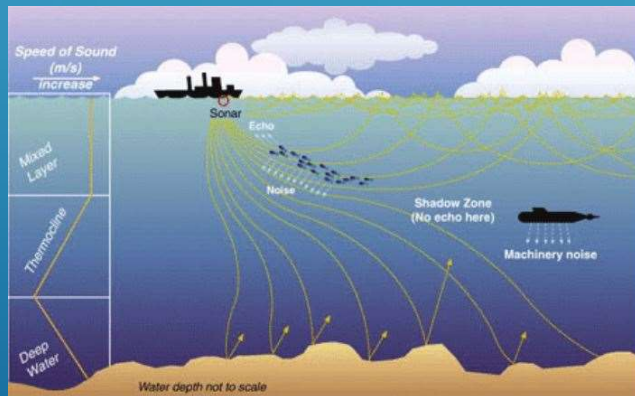
- I have a good handle on the ASW Assets
- I can concentrate on positioning for the HVU
- I can work on an optimum FCS
- I can think about my escape and evasion strategy

► The initiative is mine to lose

The submariner's perspective

► The Surface Commander's decision process:

- It's the 3rd sonar contact HMS Cry-Wolf has had in the last 24 hrs
- We lost 2 hours with the 1st two – can I afford any more time on wild goose chases?
- Can I take the risk with my HVUs if we don't react?
- What will be the impact on availability at our ultimate objective if I start scrambling additional assets now.



- If the threat is conventional or hybrid it may limit passive options
- LFAS could be a solution if available
- There are many scenarios but always a risk from an intermittent sonar contact that remains un-prosecuted

The surface commander's perspective

- ▶ **Whilst we have presented a relatively simplistic scenario, it is:**
 - ▶ One that every ASW Officer or PWO is familiar with
 - ▶ Intermittent or fleeting sonar contact that just can't be ignored
- ▶ During the Falkland's War the RN encountered such scenarios; with the Type 22 HMS Brilliant firing LW Torpedoes from her STWS Tubes, more as a classification tool / insurance policy rather than a serious threat to the possible submarine.
 - ▶ An expensive policy!
- ▶ **ShEp-Fish**
 - ▶ In effect “a reverse decoy”, with the concept demonstrator trialled successfully at AUTECH, provides another string to UWW at very low cost compared with the alternatives.

The ASW Challenge

▶ **ShEp-Fish is a (low-cost) Lightweight Torpedo Simulator capable of:**

- ▶ Deployment by hand from ships or helicopters
- ▶ Pre-programming with several torpedo options
- ▶ Simulating:
 - ▶ Water entry
 - ▶ “Motor Start-up / Run”
 - ▶ Sonar Transmissions with various modes:
 - ▶ CW / FM / BB
 - ▶ Search / Homing / Acquisition
- ▶ It changes depth, insonifying the water column
- ▶ Intelligent frequency shifting and transducer switching produces:
 - ▶ Apparent Doppler
 - ▶ Apparent Movement

ShEp-Fish

MARCOM Defence

▶ **ShEp-Fish from the Submariner's perspective:**

- ▶ On Deployment from either a Ship or Helicopter the submariner will hear:
 - ▶ Water Entry (particularly if dropped close from a helo) & Motor Start-up
 - ▶ Initial Search Sonar Transmissions
- ▶ **Faced with a torpedo running he must assume that either:**
 - ▶ A Surface Ship has a solution and fired a weapon from on-board tubes, or
 - ▶ That a helicopter has conducted a Vectac or dropped the torpedo on their own solution
- ▶ **Either way – there is significant pressure (and little time to think about it) to deploy countermeasures and manoeuvre – losing:**
 - ▶ The initiative
 - ▶ Potentially stealth
 - ▶ & Providing further detection, localisation and classification opportunities.

ShEp-Fish & the Submariner

- ▶ **ShEp-Fish – The ultimate low cost solution to some ASW Scenarios.**



Thank you for viewing
our presentation.

- ▶ *Simplicity-in-Sonar – Effectiveness-in-Depth*

ShEp-Fish – Making Sound Sense