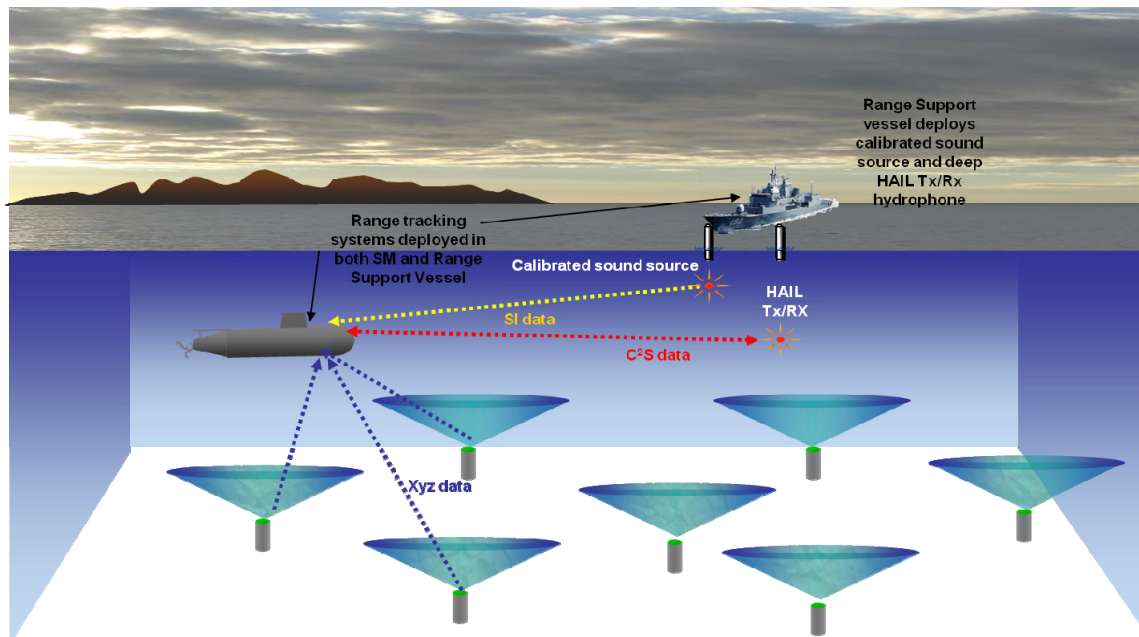


### SUBMARINE SONAR CALIBRATION RANGE



#### OVERVIEW

The Submarine Sonar Calibration Range (SSCR) provides a relocatable large area (30 nm by 12 nm) Test and Evaluation (T&E) range to measure passive sonar performance (bearing, frequency and detection range). Typically the range comprises 31 L-3 Nautronix sea bed beacons and is deployed in 1000 to 3500 metres of water.

#### KEY FEATURES

The key features of the SSCR system are:

- Accuracy 1 to 2 metres RMS
- Range control and safety is managed using HAIL (through water communications) between the range support vessel and the submarine
- Relocatable. Deployment of the range is achieved in 3 to 4 days and recovery in 2 to 3 days
- Operates in depths of 1000 to 3500 metres
- 31 beacons are deployed over the required area
- Tracking processors are embarked in the submarine and the range support vessel
- Able to be deployed and recovered in sea states up to and including sea state 3
- Operational in sea states up to and including sea state 5, and perhaps higher depending on the sea-keeping ability of the range support vessel.
- Long life beacon with one million ping relay capability (per beacon). The system includes stand-by and sleep modes to extend the beacon life up to 6 months.

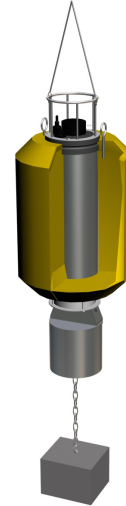


### SUBMARINE SONAR CALIBRATION RANGE

#### SYSTEM COMPONENTS

The SSCR system comprises the following major components:

- Range Operations Centre embarked in the Range Support Vessel – comprises tracking and communications electronics and communications and operator workstations
- Vehicle tracking processor
- HAIL through-water communications
- 31 beacons – each beacon radiates a spread spectrum signal that is detected by the submarine and the range support vessel where the vehicles are located and tracked in the tracking processors
- Calibrated noise source – usually provided by the customer to meet the customer's sonar requirements.



L-3 Nautronix Sea Bed Beacon

#### SYSTEM OPERATION

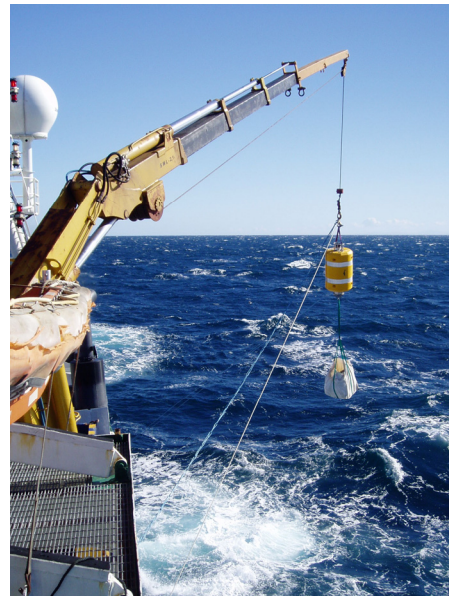
The SSCR system can be operated from a vessel of opportunity with adequate deck space to accommodate the SSCR beacons during their deployment and recovery.

Once deployed the beacons are surveyed using a 'box in calibration' process.

Thereafter the submarine under test may enter the range and measure the performance of its sonar from the calibrated noise source deployed from the range support vessel.

The beacons may be recovered by operating the 'acoustic release' mechanism between the beacon and its biodegradable anchor. The beacons are positively buoyant and thus are recovered easily from the surface.

Alternatively the beacons may be switched to 'sleep mode' (using an acoustic signal) and left on the sea bed ready for the next ranging, perhaps in six months time.



Deployment of Sea Bed Beacon

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**Nautronix**