

# SeapiX-R

## 3D Multibeam Echosounder for Research

SeapiX-R is a solid-state 3D multibeam sonar that provides accurate water column coverage, biomass assessment and seabed mapping. Its calibration capability brings new insights to the scientific community for the evaluation and the monitoring of marine environments.



### FEATURES

- 120°x120° volume coverage
- Target strength split beam measurement in all beams (TS)
- Volume backscattering strength measurement (SV)
- In-situ calibration on a standard target (tungsten sphere 22mm)
- Backscattering strength measurement (BS) and bathymetry (IHO special order with INS coupling)
- Real-time single-echo detection
- Highly configurable (scenarios, data needed, real-time streams)
- No blind zone

### SETTINGS

- Tilted installation possible: side-looking sonar
- Installation on pole, hull, buoy
- Static position for monitoring
- Electronically steerable (transmission & reception)

### DATA VISUALIZATION

- 3D shoal behavior and fish avoidance study
- Displaying acoustic swaths, echograms, GBA outputs and seabed bathymetry/backscatter values
- Data format export to Echoview, Movie 3D, S7k, XYZ & proprietary format
- Real-time stream to Delph interpretation and Olex

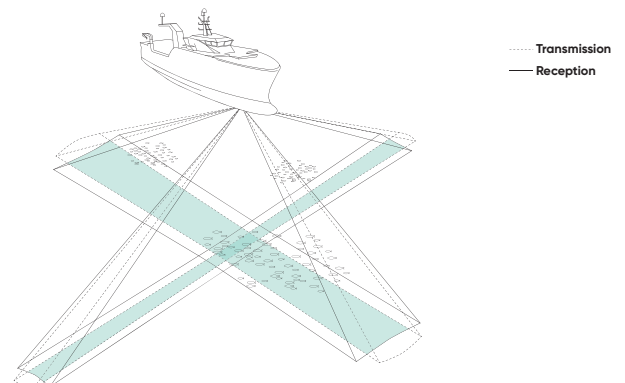
### TECHNOLOGY

SeapiX is the first compact civilian system comprising a dual Mills Cross multibeam sonar transducer offering total liberty of control. Its transducer generates several simultaneous multibeam transmissions and acoustic processes to yield quantitatively and qualitatively impressive measurements of the underwater environment.

Its multiple advanced modulation modes, including CHIRP, combined with Doppler processing, are guarantees of the highest possible detection performance, even in difficult conditions.

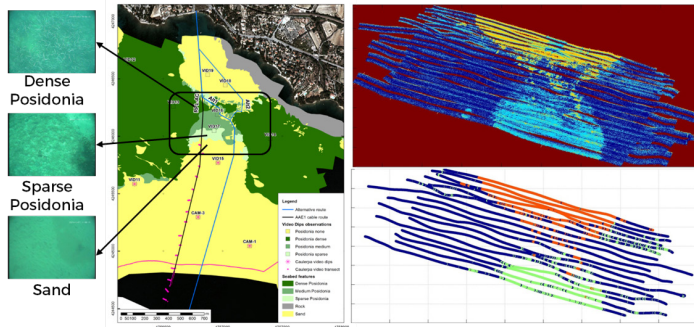
SeapiX-R multi-beam sonar provides metrological target strength (TS) and volume backscattering strength (SV) on multiple swaths. Each detection is referenced in 3D in the water column and is automatically reported on a real-time built map that includes local bathymetry.

According to IHO standards, SeapiX bathymetry is special order when coupled with external high quality motion reference units. Underwater habitats and geological textures can be derived from the along-track backscatter of the seafloor. The electronically steerable capability of both arrays enables multiple applications including fishery research, biomass monitoring, gas leakage surveillance, volcanic degassing...



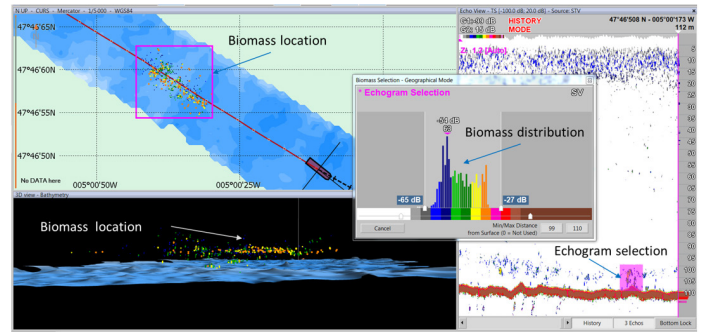
## APPLICATIONS

- Fishery research
- Fish migration monitoring
- Biomass monitoring
- Seabed characterization
- Underwater volcanic degassing
- Gas leakage surveillance



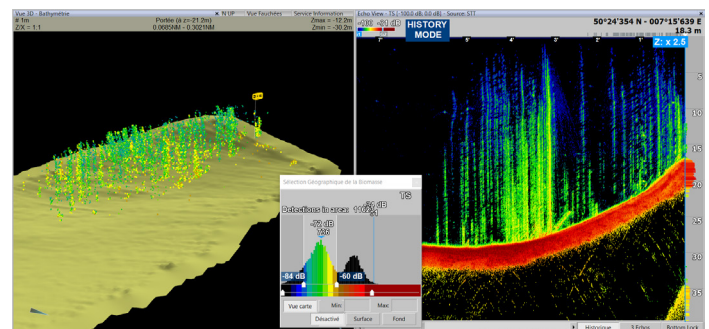
### Seabed mapping

Across & Along swath backscattering allow to generate DTM



### Fishery & biomass monitoring

Biomass distribution derived from Target Strength (TS) and/or Volume backscattering Strength (SV) of fish



### Degassing monitoring

Bubbles distribution and monitoring from multi split beam capability of SeapiX

## TECHNICAL SPECIFICATIONS

Frequency	145 kHz to 155 kHz
Modulation	CW and CHIRP
Across-track multibeam swath	64 channels, stabilized
Along-track multibeam swath	64 channels, stabilized
Beam stabilization	TX + RX, built-in MRU
Beam resolution	1.6° angular / 7.5 cm radial
Triple echograms from all swaths	Adjustable from 1° to 120° each
Typical range	Biomass 400 m, Bathymetry 500 m
Volume resolution	0.6 m <sup>3</sup> @100 m
Volume coverage	120° x 120°
Signal processing	SV, TS, NORM, calibrated
SED fish extraction	Up to 200,000 single fish detection (depending on shoal density, survey time, etc.)
Transmission power	2 kW (standard use for fishery)
Sonar Antenna Unit (SAU) cable	20 m