
GLOSSARY OF TERMS

Acoustics

The science of dealing with the transmission of sound waves underwater.

Attenuation

To lessen, weaken or diminish (i.e. to weaken a signal).

Beacon (Acoustic)

An underwater device which continually sends out a repetitive signal (usually 1 pulse every second) at a preset frequency. Pingers are used to mark locations or objects underwater for later recovery or relocation. The amount of time a pinger can be deployed depends upon its battery life.

Beam Width

A transducer's or hydrophone's beamwidth is expressed in degrees between the most sensitive point and the half-power (-3db) point.

db (Decibel)

A unit of measuring the volume of a sound.

Echo-sounder

A device that transmits an acoustic signal vertically downwards into the water and then receives the signal which has been reflected by the seafloor. The device then calculates and displays the distance to the seafloor by measuring the travel time of the signal.

Frequency

The number of cycles per second of a wave (i.e. sound wave).

Hydrophone

An underwater antenna used to detect/receive/and/or register the direction of sound transmitted through water.

Hydrophone Directivity

The beam width of a hydrophone determines its directivity. A narrow beam will give it greater directivity, i.e. allow determination as to the direction a sound wave is coming from.

Khz (Kilohertz)

Unit of frequency, equal to one thousand hertz or cycles per second.

Omnidirectional

Sending or receiving sound waves in or from any direction.

Piezo-electric ceramic

A material made of crystalline substance which creates charges of electricity by the application of pressure and vice versa.

Pinger

See Beacon (Acoustic)

Pinger Receiver

An instrument which detects and receives signals from a pinger and gives operator feedback as to the direction and strength of the signal via an audio tone or through a signal-strength indicator.

Resonant Frequency

The frequency at which a piezo-electric ceramic will vibrate most efficiently, i.e. will produce the highest output with the least amount of voltage applied.

Reverberation

A reflection or re-echoing of a soundwave.

Responder

A pinger that is remotely activated via a cable. Triggering a pinger via a cable connected to it allows for very exact distance measurement between the pinger and the receiving transducer since the only variable is the time it takes the signal to travel from the pinger to the transducer.

Sonar

Word is derived from sound navigation ranging. A device that transmits high-frequency sound waves in water and registers the vibrations reflected back from an object. It is used in detecting objects such as submarines, locating schools of fish or determining water depth.

Source Level

Sound pressure (acoustic power) in dB referenced to 1.0 microPascal measured at 1 yard or 1 meter from the sound source.

Sub-bottom Profiling

Determining the sedimentary structure of the ocean floor by utilizing sound waves.

Thermocline

The boundary between two layers of water with different temperatures.

Transducer

In underwater acoustics this term is used to describe an antenna which converts electrical energy into soundwaves and vice versa.

Transponder (Acoustic)

A device that automatically transmits sonar signals when actuated by a specific sonar signal from an interrogator. Transponders are used to mark or track objects or sites underwater. They are programmed to be in a continuous passive (listening) mode until they receive a valid signal from a transponder interrogator. They then send a reply signal which allows the interrogator to compute and display the exact distance to the transponder.

Transponder Interrogator

In underwater acoustics, an acoustic transmitter whose signals actuate a transponder and then determines and displays the exact distance between the two units based upon the timetravel of the signals.

uPa (microPascal)

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ubar

A unit of pressure used in acoustic.