

## **Underwater Pressure Recording: Industry Standardization**

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### **ABSTRACT**

Accurate assessment of blasting near an object (organism or structure) requires recording of the damage parameter for low-valued scaled distances. Seismograph recordings of particle velocity are a well established, common procedure for land-based blasting. Similarly, pressure recording of the absolute waveform needs to be a more common procedure for sensitive, underwater resources.

Underwater pressure recording is significantly more complex than its particle-velocity counterpart. Obviously, surveying and continuous positioning are more difficult in the water. The equipment is more elaborate and sensitive. Further, the waveform should be recorded at much higher frequencies (more data is produced). Lastly, the recording professional needs to comprehend the damage parameter to take the reading properly. Peak pressure, impulse, cavitation, and duration of a sustained amplitude are types of potential damage parameters, but may require varied recording configurations. The position, age and resilience of the organism or structure further impacts the damage scenario.

The small professional community conducting pressure-recording evaluations would benefit from a commonality of procedures. Standardization of equipment, calibration, field verification, redundancy of testing, and statistical significance of the acquired data are varied among practicing professionals. Different users have diverse needs. Blasting contractors need a well-resolved test required for only scaled-distance extremes or maximum that the shot will produce. Regulators require underwater pressure readings that replicate the impact in physical terms, since the blast is needed to remain below the damage threshold. Researchers demand precise, statistically-valid, complete data sets. There exists no professional body to establish such procedures. It is proposed that an interdisciplinary, informal peer group recommend some guidelines. Sample procedures in underwater pressure recording are proposed for consideration.