



# Chelonia Limited

Wildlife Acoustic Monitoring

## C-Sound Specification

August 2025

The C-Sound is an underwater WAVE file sound recorder.

<b>Frequency range</b>	20Hz – 220kHz Precise determination of the frequency response is currently waiting for the National Physical Laboratory to resume this service which is temporarily suspended.
<b>Sampling rate</b>	Selectable. Range 16k to 512k samples per second
<b>Duty cycle / filtering</b>	Anti-aliasing and optional Goertzel filters
<b>Resolution</b>	16bit
<b>Data compression</b>	A custom lossless data compression routine reduces data volumes by approx. 70%. After download data files can be expanded to standard WAVE file format.
<b>Memory</b>	Up to 3 micro SD cards of any size up to 1TB.
<b>Software</b>	Data decompression routine only. WAVE files are handled by many software utilities including Audacity, Raven, Ishmael etc.
<b>Working depth</b>	At least 100 metres
<b>Battery</b>	The battery pack holds 25 lithium rechargeable 21700 cells in 5 stacks of 5 cells in series. These cells are not shipped with the unit and must be obtained locally. They are charged outside the C-Sound by the user – this allows individual charging and monitoring of cell condition. The battery pack has diode protection against insertion of cells the wrong way round and resettable fuses on each stack plus an overall 5amp fuse. It can safely tolerate short circuiting. With Samsung 58E cells the capacity is >0.5kWh
<b>Runniong time</b>	Operation time is determined by sampling rate and duty cycle. At 16k sampling rate it can record continuously for 1 year.
<b>Housing:</b>	710 mm long and 90 mm in diameter Polypropylene. Weight 2.5kg in air without batteries. Lid: 2 'O'ring seal. 3 transverse securing holes in lid each 10mm ID.
<b>Weight:</b>	2.1 kg without batteries, 3.5 kg with batteries
<b>Buoyancy:</b>	Approximately 0.7 kg. This makes the C-Sound self-orientating if suitably moored
<b>Hydrophone:</b>	Frequency range is 20 kHz to 220 kHz. The housing has a large-diameter to reduce pick-up of noise generated at the hydrophone surface. The transducer mounting and housing design gives very high resistance to impact damage. Full calibration by the UK National Physical Laboratory is awaited.



<b>Standardisation:</b>	Each unit is tested in an acoustic test tank.
<b>Settings</b>	Settings are applied via a text file on an SD cards and are retained until changed.
<b>Fouling and Maintenance:</b>	The external surfaces of the C-Sound are simple and tough allowing robust methods of removing biofouling. The lids use a dual O-ring design with grease-free lubricants and these have proved highly reliable.