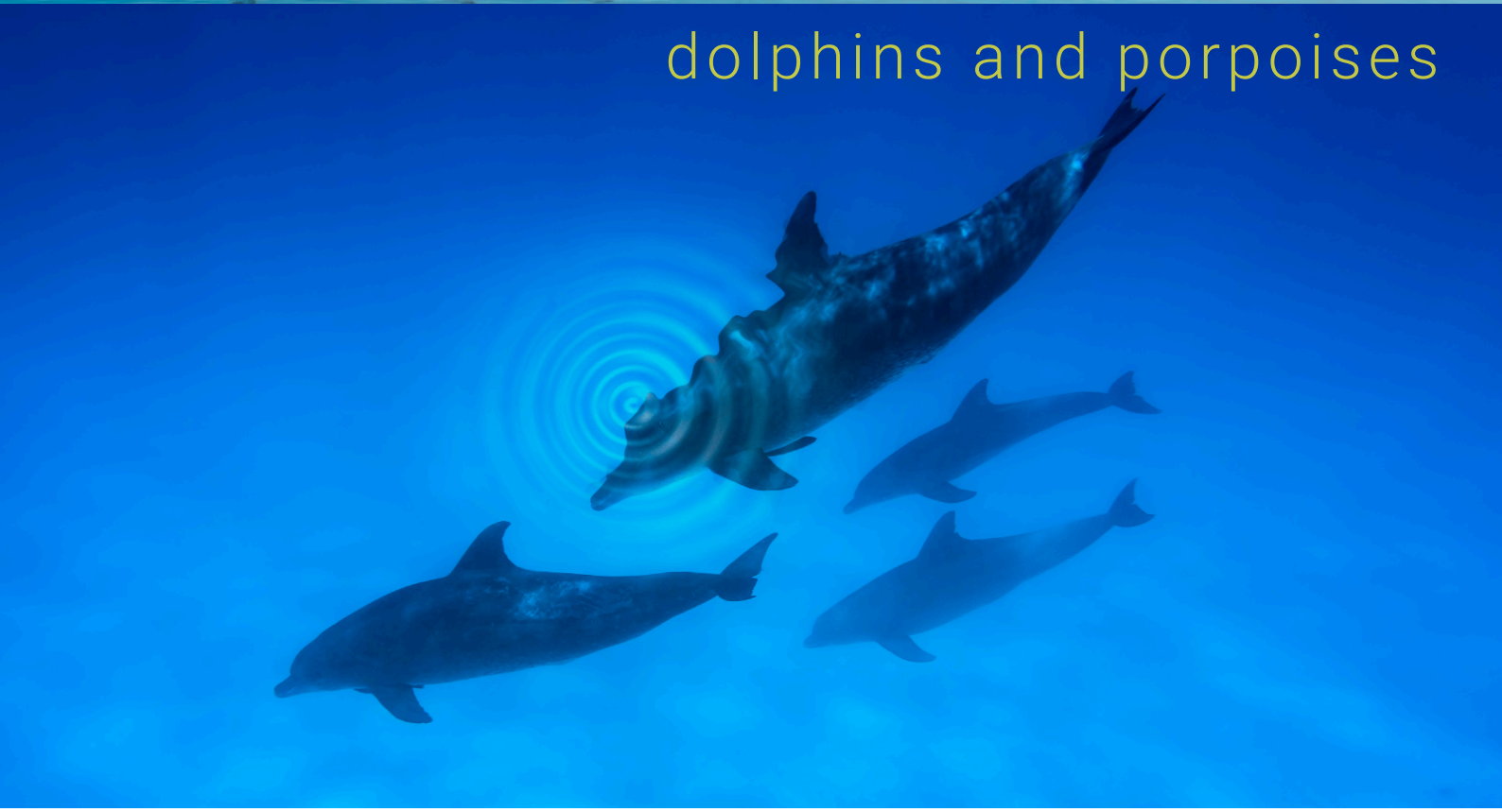
Visualize invisible

dolphins and porpoises



MMT

Ocean Environmental Assessment

A-tag

What's A-tag

Simple and Rapid Environmental Assessment

Appropriate environmental assessment is required for implementation of renewable energy systems. Dolphins and porpoises are the top predators in the ocean and a key species for aquatic environmental assessment. The A-tag supports quick and reliable monitoring of small odontocetes.

Scientific Survey of Dolphins and Porpoises for Everyone

When are dolphins present in an aquatic environment, and for how long? In which direction are they swimming? The A-tag enables recording of the presence and behavior of echolocating dolphins and porpoises. Several hundred A-tags have been used worldwide and the monitoring results have been documented in a wide range of international journals and books. Professional quality data can be obtained by everyone.

Distribution and Abundance

Visual counting of dolphins and porpoises is not possible in darkness or while swimming in the water. To allow detection, the A-tag applies an "acoustic line transect" to monitor underwater dolphins and porpoises, even in turbid water or at night. Simply fix the A-tag on a rope and tow behind a survey boat, and the number of dolphins and porpoises will be counted. The A-tag is especially effective for observing the distribution and abundance of dolphins and porpoises in turbid coastal or shallow water systems.

How it works?

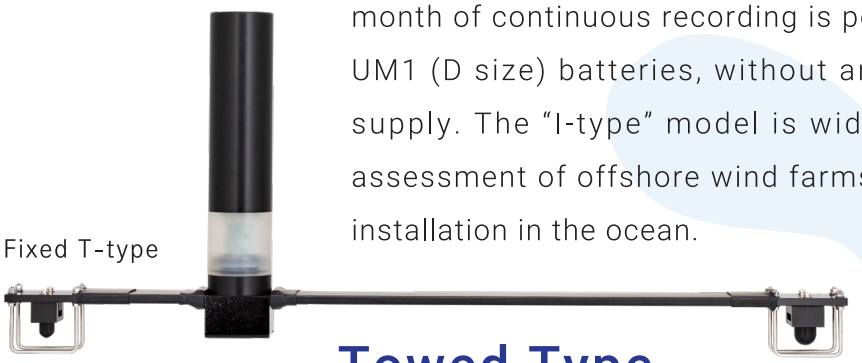
Dolphins and porpoises produce frequent ultrasonic pulses for echolocation. For example, finless porpoises emit an echolocation sound (click train) every 5 to 12 seconds so they keep sensing in the water. The A-tag records the intensity and reception time of each pulse as well as the sound source direction to separate phonating individuals. In addition, the A-tag provides two-band receiving levels to identify porpoises separately from dolphins. The A-tag is a pulse event recorder; it does not record the waveform of ultrasonic signals.

Products

Fixed Type

The fixed models are for stationary monitoring of dolphins, porpoises and snapping shrimps. The “I-type” model is generally fixed on a rope between an anchor and a buoy. The “T-type” model can be fixed on the seabed or breakwaters. One month of continuous recording is possible with two off-the-shelf UM1 (D size) batteries, without any external cables or power supply. The “I-type” model is widely used for environmental assessment of offshore wind farms because of its simplicity of installation in the ocean.

Fixed T-type



Fixed
I-type

Towed Type

The towed models can be used for abundance estimation of dolphins and porpoises. Non-visible animals underwater can be detected acoustically by receiving their phonations. The number of independent sound sources identified by the stereo hydrophone of the A-tag indicates the minimum number of phonating animals within the detection range. The towed-type A-tag is small enough to fix on a rope and tow behind a small boat. The towed-type A-tag has a lifetime of approximately 20 hours using a CR2 lithium cell.

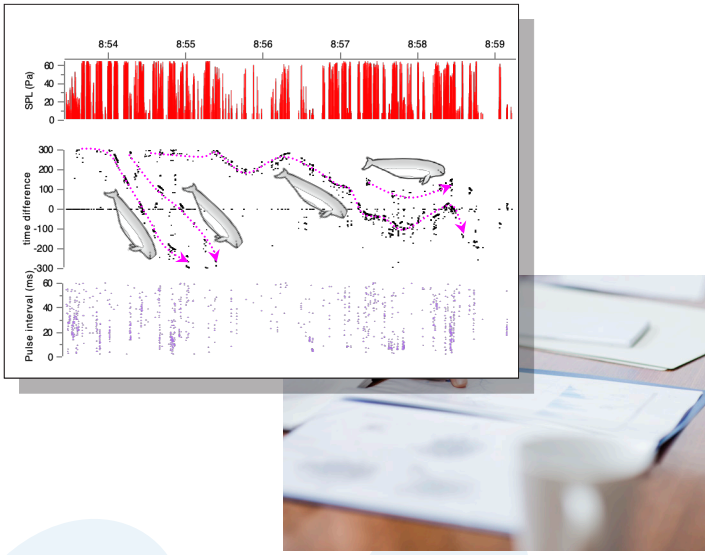
Towed type

Data Analysis and Survey Reporting

An optional data analysis and report drafting service is available. Data analysis from the A-tag can be conducted by the user, but manual screening of target sounds may be time consuming in noisy conditions. The data analysis service comes with report drafting of the following items, allowing you to focus on application of the results.

Items of analysis

1. Diurnal pattern
   distribution of presence time of a day
2. Long term trends of presence
   presence/absence pattern every on hour during one month.
3. Identification of porpoises out of dolphins
   Number of sounds (click trains) of porpoises and dolphins *1
4. Distribution of sound source direction
5. Sensing distance by echolocation
   Index of foraging behavior *2



*1 Note that species identification is not possible. Comparisons of received level at 130kHz and 70kHz only enables separation of porpoises out of dolphins.

*2 Maximum sensing distance by echolocation roughly correlated with the inter-pulse intervals of clicks since they produce pulse sound after receiving previous echo. Short range sonar characterized by short inter-pulse interval is an index of foraging behavior.

Specification

Battery life time :	Fixed type 30 days (UM1 (D cell) x 2)
	Towed type 48 hours (C123 lithium battery x1)
Pressure resistance :	200m in depth
Fixed I-type : size :	L560×Φ50(mm) Maximum Size
weight :	800(g) (without Battery)
Fixed T-type : size :	L650×H282×W50 (mm) Maximum Size
weight :	1.03(Kg) (without Battery)
Towed type : size :	L410×Φ27 (mm) Maximum Size
weight :	240(g) (without Battery)
Bandpass filter :	55kHz - 235 kHz
Sampling interval :	0.1ms / 0.5ms / 1ms / 2ms
Data format :	CSV (received sound pressure, sound bearing angle (time difference between stereo hydrophones)
Interface :	USB (setting up and downloading)

Serach for details.

http://mmtcorp.co.jp/A-tag/index.html

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