V9D / V9DT 69 kHz Predation Transmitter

vemco

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Transmitters

Detect if your tagged fish has been eaten by a predator!

VEMCO predation tags permit exploration of novel questions and important research while increasing the certainty with which researchers can interpret their telemetry results.

The predation tag provides a direct measure of digestion wherein stomach acids digest a polymer. It is a superior technique to using indirect measures of activity such as acceleration.

31.5

Battery Life
The V9D/V9DT Predation Tag has many programming options (power, transmission interval, transmission scheme) that determine battery life. The table provides a few typical examples. Please contact VEMCO to discuss the appropriate programming settings and desired battery life for your study.

Physical Specifications

Battery Model	2L	2H
Length (mm)	31.5	31.5
Diameter (mm)	9	9
Weight in air (g)	5.0	5.0
Weight in water (g)	3.0	3.0
Power Output (dB re 1uPa @1m)	146	151

Trigger time depends on biological and physical factors such as temperature, species, prey size, etc.

V9D Projected Battery Life (Days)		
Delay (seconds)	V9D-2L	V9D-2H
60	336	130
120	537	234
180	676	324

Receivers **Transmitters**

Accessories **Data Loggers**

Applications

**Validating Mark Recapture Survival Models**

Separating Predation Mortality from Natural Mortality

Investigating Impacts of Invasive Predators on Native Species

Trophic Energy Transfer on Reefs

Investigations into Predator-Prey Behavior
dominance • prey selection • genetic characteristics
prey detection distance • water quality impacts on predation success
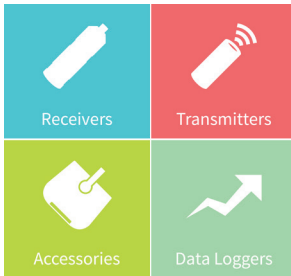
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How does the V9D/V9DT Predation Tag work?

Once prey is ingested by a predator, the stomach secretes acid and begins the process of breaking the food down. During this process, a biologically inert polymer is digested and the tag begins to transmit a value that represents the time since digestion. For example, a value of 3 indicates that the tag just triggered.

A value of 98 indicates that the tag has counted 4 days since digestion. These transmitted values allow the researcher to predict where the predation event occurred by analyzing the tag's detection history.

Raw Sensor Value	Calibrated Sensor Value	Calibrated Sensor Unit
0	0	Sensor fault **
1	1	Untriggered
2	2	Triggering
3-254	0.0 - 35.0 *	Days
255	255	Maximum count reached

* Shown in decimal days.

** This tag can detect and report certain fault conditions in the predation sensor. A raw sensor data value of 0 indicates a problem was detected and no predation measurement is available. This value will never occur in normal operation. Please contact VEMCO.

Temperature Sensor Option Available

If the tag includes a temperature sensor (V9DT), the tag will also transmit the ambient temperature leading up to the predation event. The temperature that was measured at the time of predation will then be transmitted for the remainder of the tag's life.

Temperature Sensor		
Range	Accuracy	Resolution
-5 to 35 °C	± 0.5°C	0.15°C
-4 to 20 °C	± 0.5°C	0.1°C
0 to 40 °C	± 0.5°C	0.15°C
10 to 40 °C	± 0.5°C	0.12°C

U.S. Patent No. 9,526,228
U.S. Patent No. 9,095,122 B2
European Patent No. 3,114,185
China Patent No. 2015 8001 2483.X