

V5D Predation Transmitter

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. The tag ID changes approximately 3 to 5 hours after predation.

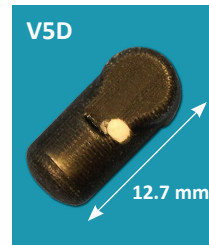
Over the past two years, we have conducted over 140 control and experimental trials (12°C to 24°C) with an independent University research group.

Compatible with VEMCO's new HR2 receiver and the VR2W-180 kHz receiver, the predation tag supports two acoustic transmission systems (PPM and HR).

Physical Specifications

Frequency (kHz)	180
Length (mm)	12.7
Width (mm)	5.6
Weight in air (g)	0.68
Power Output (dB re 1uPa @1m)	143
Trigger Time (hrs)	3 to 5*

* Temperature dependent



Applications

Validating Mark Recapture Survival Models

Separating Tag Mortality from Natural Mortality

Investigating Impacts of Invasive Predators on Native Species

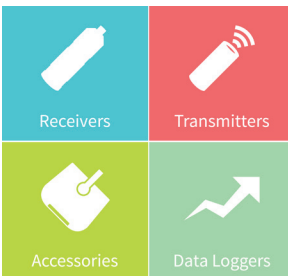
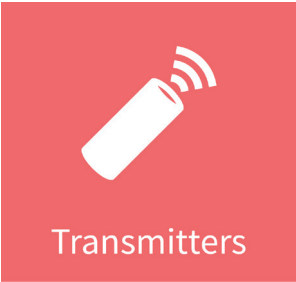
Trophic Energy Transfer on Reefs

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 V5D Predation Tag Work?

Once the prey is ingested by a predator, the stomach secretes acid and begins the process of breaking the food down. At some point along the digestion process, a biologically inert polymer is digested and the tag immediately changes its Identification Code. The new code is transmitted by the tag until the end of tag life. Triggering time, referred to as the time from prey ingestion to the time of the change of ID, is largely a function of temperature and typically ranges between 3 and 5 hours (see diagram below as well as details in the following publication).

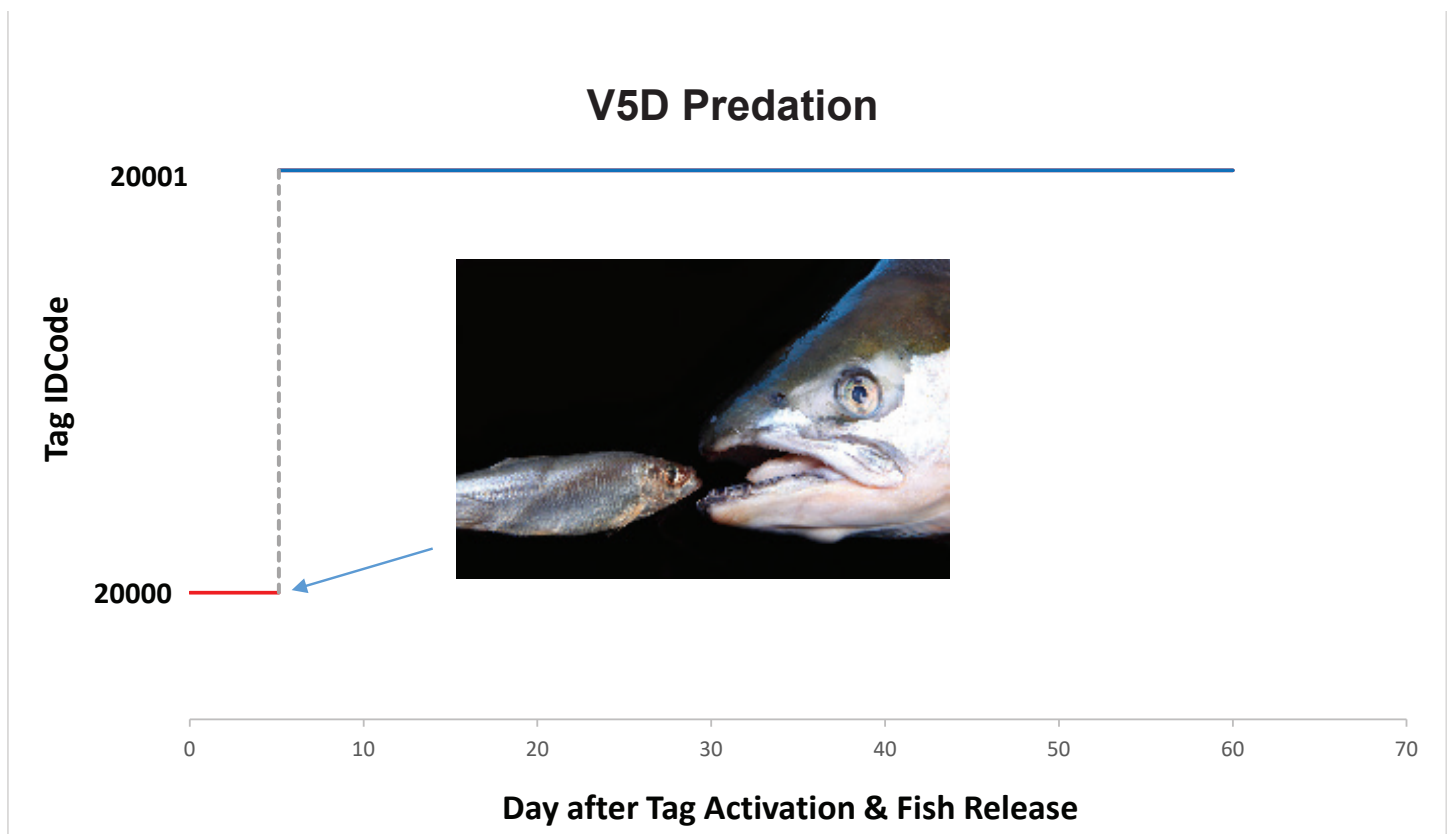
Publication Citation and Web Link

Halfyard, E. A., Webber, D., Del Papa, J., Leadley, T., Kessel, S.T., Colborne, S.F. and Fisk, A.T. (2017), Evaluation of an acoustic telemetry transmitter designed to identify predation events. *Methods Ecol Evol.* Accepted Author Manuscript. [doi:10.1111/2041-210X.12726](https://doi.org/10.1111/2041-210X.12726)

Battery Life

The V5 Predation Tag has many programming options (power, transmission interval, transmission scheme) that determine battery life. The table below provides a few typical examples. Please contact Vemco to discuss the appropriate programming settings and desired battery life for your study.

V5D-1H (0.68 g)			
Type	Nominal Delay (sec)	Life (days)	
		95%	50%
HR	1.5	24	30
HR	5	64	77
HR	10	99	116
PPM	20	57	68
PPM	30	74	87
PPM	40	87	103
HR/PPM	5/30	41	50



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
 Canadian Patent No. 2,845,230
 Japan Patent No. 6590993

