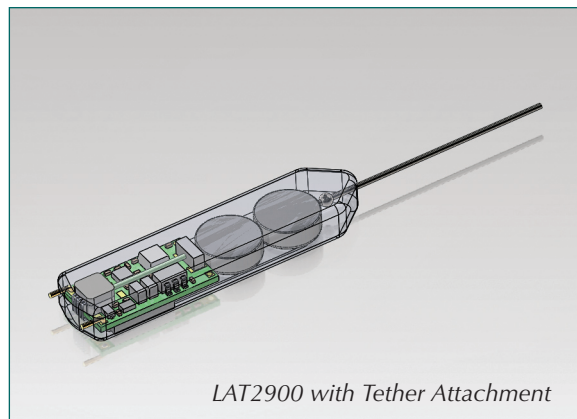


Attaching Lotek geolocation archival (LAT2900) tags to salmon smolts

- ✓ **2g geolocation archival tag**
- ✓ **Reports daily LAT/LON for 1+ years**
- ✓ **Attachment design confirmed by testing**

In 2000, Lotek Wireless Inc. (Lotek) initiated a plan to develop geolocation archival tags that would help to uncover the secrets of juvenile salmon migration and distribution during the marine phase of their life cycle. Given that the marine phase for many salmon species poses the greatest challenge to the completion of their life cycle and that this has only been exacerbated by climate change during the last 10 years, the need for such products is now more evident than ever. Lotek has worked with scientists from Science Branch, Fisheries and Oceans Canada (DFO) and the Ocean Sciences Centre (OSC), Memorial University, to develop such a product in a form factor that minimizes the impact on survival and maximizes the likelihood of retention and recovery.



LAT2900 with Tether Attachment

In the fall of 2008, plans were initiated to test prototypes of the latest miniaturized geolocator LAT2900. In May 2009, Atlantic salmon smolts were captured from the wild, transferred to the OSC's mariculture facilities, tagged with three versions of the LAT2900 (internal with protruding sensor stalk; external body mount; and external tether) and reared for 3.5 months. Results from this experiment led to refinements in the LAT2900 design and attachment method. Similar



rearing studies using refined methods were conducted in July and November of 2010. A final test was conducted in February 2011 to observe tagged fish in a swim chamber. Given the success of these studies, the Ocean Tracking Network (OTN) has agreed to fund field experiments using the LAT2900 tags and plans to release Atlantic salmon smolts in the spring of 2011.

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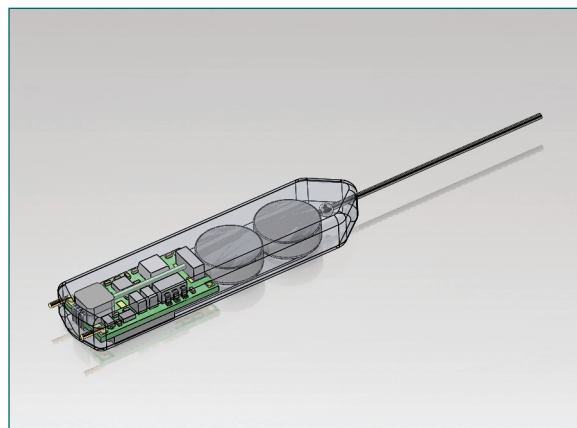
Specifications (Preliminary)

	LAT 2900 – External tether
Dimensions	33.7 x 8.0 x 4.2mm
Mass w/o tether	2.1g
Tether line	Stainless steel braided wire, Teflon coated (biomedical grade)
Memory	32 kbytes
Memory Management	Custom Programming
Survival Depth	1.5 x pressure sensor
Number of samples	Variable based upon data storage options selected
Sample rate setting	≥1s in 1 sec. increments
Data Download	Gold electrical contacts, 57.6 kbaud
Standard Depth Range	50m, 100m, 200m, 500m, 1000m, 2000m
Data Resolution	Up to 12 bits
Processing scale and offset	Yes
Sensors	Internal Temperature, Pressure, Light, Sea Water Switch
External sensor stalk	No
Pressure Accuracy	±1%
Pressure Resolution	0.05%
Temperature Measurement	-5° to 45° C
Temperature Accuracy	Better than 0.2° C (when within -5° to 35° C)
Temperature Resolution	0.05° C or better
User Setup	Miscellaneous ways to log data (see Key Features)
Number of log structures allowed	3
Minimum Life	6 months*
Typical Life	TBD
Data Analysis Software	Available

NOTE: These specifications are subject to change.

* at the sampling interval of every 12 seconds.

For minimum life expectancy associated with sampling intervals less than this, please contact the appropriate Lotek account manager.



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