9-1965

Ultrasonic Tracking of Migratory Fishes with an Internal Tag

Ross M. Horrall
University of Wisconsin

H. F. Henderson
University of Wisconsin

A. D. Hasler
University of Wisconsin

Follow this and additional works at: http://digitalcommons.unl.edu/natrespapers

Part of the Aquaculture and Fisheries Commons, Bioinformatics Commons, Natural Resources and Conservation Commons, Natural Resources Management and Policy Commons, and the Other Environmental Sciences Commons


http://digitalcommons.unl.edu/natrespapers/566

This Article is brought to you for free and open access by the Natural Resources, School of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Papers in Natural Resources by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
Ultrasonic Tracking of Migratory Fishes with an Internal Tag

Ross M. Horrall, H.F. Henderson, and A.D. Hasler
The University of Wisconsin

A small ultrasonic tag, 9 mm by 40 mm in size, has been developed by members of the fish orientation group at the University of Wisconsin. The tag emits a continuous signal at approximately 65 kc/sec. The signal is received via a directional hydrophone and a high quality communications receiver. Tracking ranges of up to 1 km have been obtained. The placement of the tag is internal: either into the stomach or into the body cavity of the fish. The tags and tracking equipment have been successfully employed in studies on the open water movements and orientation of white bass during their spawning migration. (Supported by NSF Grant GB-3123; ONR contract Nonr-1202(26); PHS Grant 5T1-WP-2-04; and the Wisconsin Conservation Department)

Techniques for tracking fish:

1. Bobber tracking (Hasler et al. 1958)
2. Balloon method (Horrall 1961)
3. Dye marker method (Hasler and Henderson 1963)
4. Ultrasonic tracking (Trefethen 1956; Trefethen et al. 1957; Johnson 1960; Novotny and Esterberg 1962; Henderson 1963)

The Wisconsin Ultrasonic Tag:

- **T** cylindrical transducer of lead zirconium titanate (P2T)
- **L** coil: 125 turns, #36 enameled wire, tapped at 25th & 75th turns, on ferrite core
Receiving equipment:

**INPUT**
Directional hydrophone

**Communications Receiver**
National HRO-60
(Vacuum tube)

or
National HRO-500
(Transistor)

**OUTPUT**
Loudspeaker or earphones

References:


