

Satellite-linked acoustic receivers to observe behavior of fish in remote areas



Automated acoustic receivers are now widely used by biologists to study the behavior of fish. However, currently available acoustic receivers require physical recovery of the units to download stored data. Such operation is often difficult in remote study areas like in the open ocean. We present a new satellite-linked acoustic receiver (Vemco VR3-Argos) that allows downloading data through a satellite uplink (Argos). The VR3-Argos can last up to one year, sending GPS positions and tag data at regular time intervals. We illustrate the advantages of this new technology with tagging data from 121 fish of seven species (yellowfin tuna, bigeye tuna, skipjack tuna, wahoo, dolphinfish, silky shark and oceanic triggerfish) caught and released around drifting fish aggregating devices (FADs) in the Western Indian Ocean, far from any land. In opposition with the classic acoustic receivers (Vemco VR2), the use of VR3-Argos allowed to collect data for several weeks after leaving the drifting FADs. Maximum residence times of 3 days for bigeye tuna, 7 days for skipjack, 8 days for wahoo, 10 days for silky shark and 15 days for yellowfin tuna, dolphinfish and oceanic triggerfish could be recorded. VR2 and VR3-Argos are equivalent in terms of quality of residence times data, however depth data obtained through satellites are aggregated in 8 classes for compression purposes, which leads to a loss of precision available with raw data. Future directions of this technology are discussed.

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