

## Satellite tag remains on fish for 351 days — but on what fish?

*As part of a project to monitor albacore tuna movements in New Caledonia’s exclusive economic zone, 10 fish were fitted with satellite tags.*

Recent progress in technology has made it possible to reduce the size of “pop-up” satellite tags, so named because they detach themselves from fish after a pre-set time, and rise to the surface and transmit recorded data (e.g. depth, water temperature, ambient light) via the Argos system. Unfortunately, albacore (*Thunnus alalunga*) are a fragile tuna species, and the stress of capture compounded with the stress of tagging (due to what is a fairly bulky tag for a 20 kg fish), led to the death of 8 of the 10 albacore tunas (after between 6 and 20 days). The last hope of retrieving any data disappeared when the date set for data transmission (350 days after tagging) from the tags on the last 2 fish went by with no data being received.

It was, therefore, a big surprise when one such tag began transmitting some 40 days later. Why the delay, especially given the accuracy and reliability of the tag system? The battery’s performance was outstanding because it enabled transmission to continue for more than 14 days after the set date for final transmission, thereby sending the vast majority of data recorded the previous year. An assessment of the data, however, revealed that either the tag sensors were faulty, or something happened to the fish about three days after its release. After the first three days

of recording, when the animal’s daily vertical movements seemed normal, the tag recorded a deep dive to a depth of 800 m, followed by resumption of normal daily movements at depths located between 400 m and 800 m, and that trend continued for a total of 351 days after tagging. One possible explanation could be that the tuna died after three days, and then sank and was later eaten (along with the tag) by a predator at a depth of about 800 m. But what predator remains in this bathypelagic zone without ever swimming back up to shallower layers, and how could it be possible for a tag to remain for so long in the stomach of such a predator without being regurgitated or damaged?

The data collected were sent to the tag manufacturer for a possible answer to this mystery.

### For more information:

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*A satellite tag has been inserted close to the dorsal fin of an albacore tuna, which is then immediately released. The whole operation lasts 1–2 minutes maximum.*



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