



NZ Marine Research Foundation

Striped Marlin Satellite Tagging Programme

May 2008

Satellite Tagging News

This is the third in a series of newsletters that will describe satellite tagging research on New Zealand's striped marlin in 2008.

19 May

Last satellite tag deployed

We are very pleased to report that all striped marlin satellite tags have now been deployed for the Foundation's research project. On 5 May the final pop-off satellite tag (PSAT) was deployed from the Ultimate Lady during its most recent excursion to the Wanganella Banks. What makes this particular marlin unique is that the tag was attached to the marlin from a free diver's spear gun. After hatching this idea several years ago and many efforts to free tag a striped marlin, we are pleased to report our first free tagging success using the last tag of this project. The tag is scheduled to report in early August and we will eagerly await the results from it. A special thank you goes to the crew of the ITM Fishing Show, Graham Mackareth and the Ultimate Lady for their tremendous efforts to free tag this 85kg striped marlin. Upon tagging, they reported the marlin took off like a bolt of lightning, with a few jumps along the way as it left the area. It was one of 7 striped marlin seen simultaneously in the water at the time free tagging occurred.

Progress of Waihou Bay 2008 marlin

From the last newsletter update in mid-April you will recall one of the tail tagged striped marlin from Waihou Bay in early March was reporting nicely. Again we are pleased to see that this fish and its tag are still doing extremely well. As of 18 May at 7:43am (NZ time) this marlin is currently heading northeast along the Kermadec Ridge after spending more than 3 weeks circling around between the Colville-Lau and Kermadec Ridges (see Figure 1). During this time it transmitted excellent data on most days, providing a quite detailed insight into its movements. Often this kind of behaviour is associated with feeding activity, as the marlin exploits patches of high food density. We commonly observe striped marlin association to this area through satellite tagging and this continues to demonstrate the importance of this area for a significant proportion of striped marlin we tag...particularly from the Bay of Plenty. This tag has transmitted 9800 messages to satellites over 75 days. The batteries are expected to transmit approximately 10,000

message...meaning we have achieved nearly 100% of expected battery life which is an achievement that has taken refinements over 4 seasons to reach. Achieving this has been really challenging and it marks another milestone in the successes of this research. Unfortunately, the tag attached to the other striped marlin at Waihou Bay in March has not transmitted data since the end of March. We can not be certain why, but attachment failure or tag failure is always possible. However, both of these striped marlin are also carrying PSAT tags which are scheduled to transmit at the end of August and December respectively.

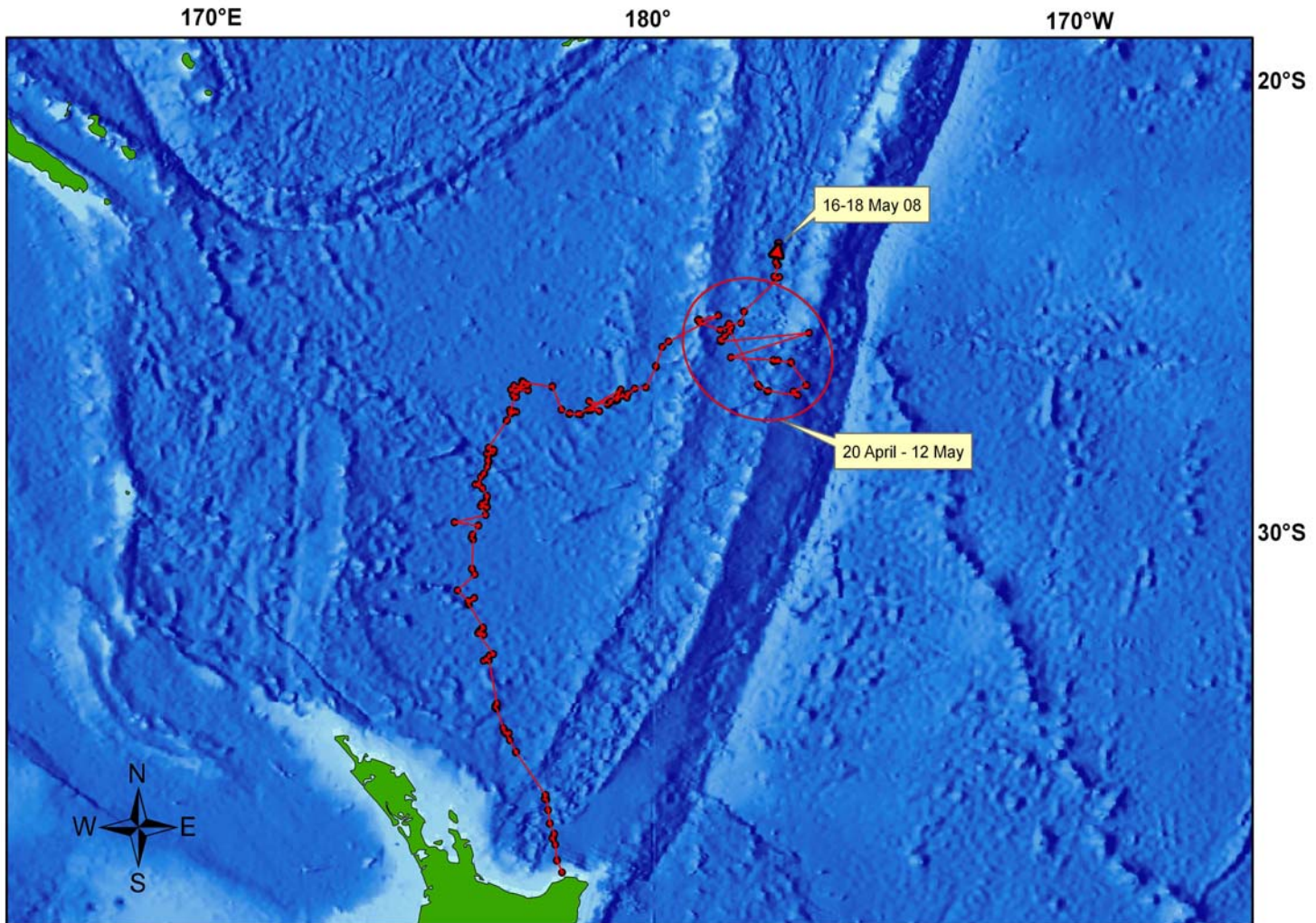


Figure 1. Movements of striped marlin STM08.1 tagged at Waihou Bay in March 2008 and tracked in near real time by satellite tags attached to its tail.

Washed up PSAT tag

As mentioned in the last newsletter, we have recovered data from a PSAT tag which washed up on a beach in Australia earlier this year. The tag was deployed on a 74kg striped marlin at the Wanganella Banks from the Ultimate Lady on 10 January 2006. Some of the data have been processed and revealed another surprising result. Figure 2 represents a water column profile of the marlin with temperature and depth recorded every 15 seconds until 3 April 2006. The plot shows the water column (depth and temperature) experienced by the tagged marlin through time. It shows how the marlin spent all of its time in the upper 200m of the water column until mid/late February when it began diving deeper and colder to between 300-400m more regularly until 20 March when it apparently died, and sank to the bottom where it sat at about 630m for two days. The tags were programmed to detect mortality by monitoring for constant depth over 48 hours. Once it detected constant depth for 2 days it automatically released from the marlin, floated to the surface and transmitted to satellites from the surface until the battery died. It is not apparent why this marlin died. We have previously seen evidence of striped marlin being eaten by sharks which also ingested the tag, providing us a clear signature of data from inside the stomach of the shark. However, in this case we do not see that signature of the marlin and tag being ingested. Never the less, a plausible explanation here is that the marlin was killed by a shark but the carcass and tag sank to the sea floor instead of being ingested. We can not be sure though. We continue to see that striped marlin are both predators and prey themselves and we are gaining insights into their ecological role in the environment they live in. This dataset will be analysed further as time permits.

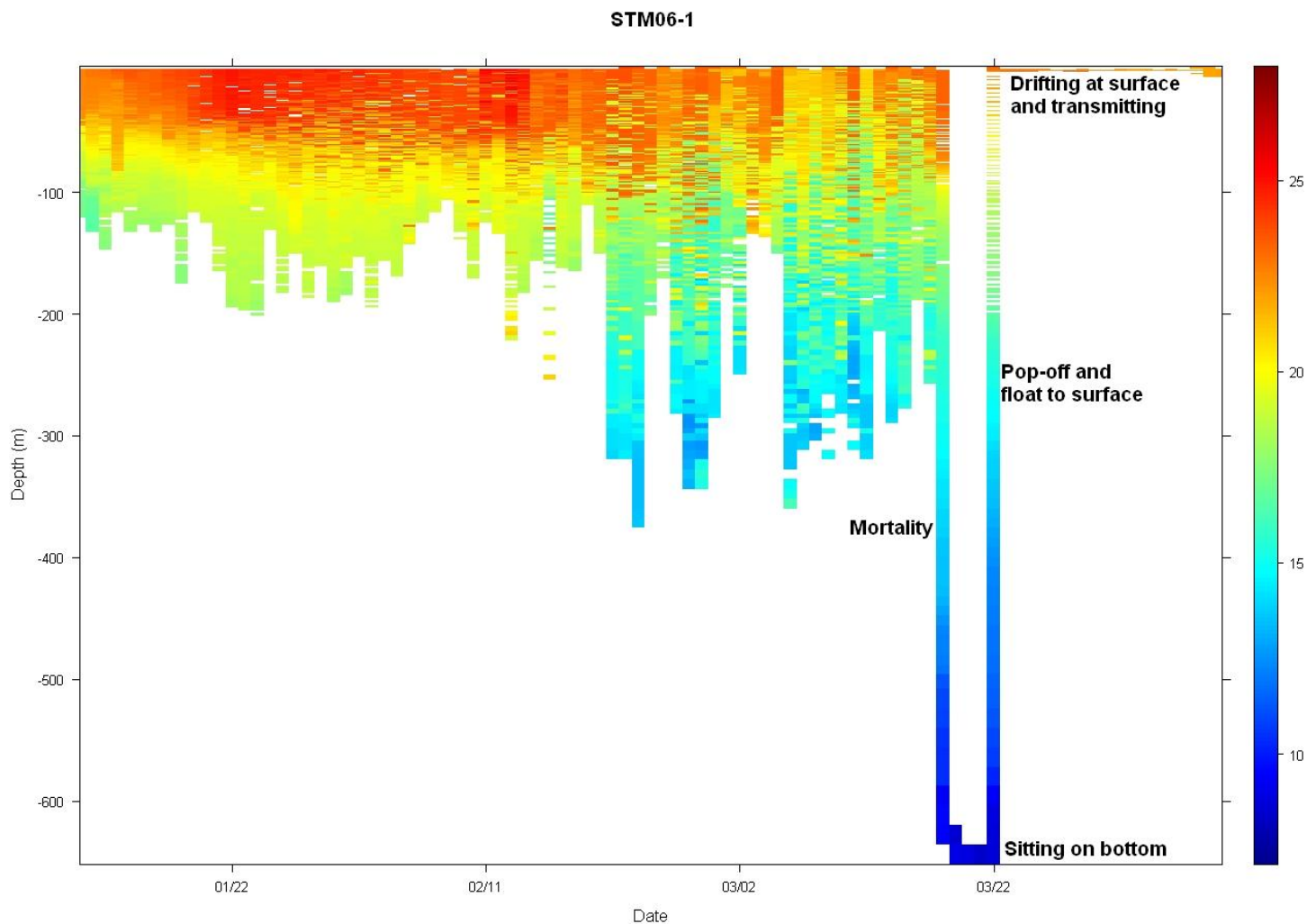


Figure 2. Water column profile from STM06.1. Diving depth (m) is along the vertical y-axis, date runs along the horizontal x-axis and water temperature is represented in colour, with the scale bar of temperatures corresponding to colours along the vertical right side of the graph.

Bluefin tuna satellite tagging in 2008

Researchers partnered in the striped marlin satellite tagging projects will continue working together on bluefin tuna satellite tagging in 2008. Auckland University, Blue Water Marine Research, Stanford University, and the Ministry of Fisheries are teaming up to satellite tag northern bluefin tuna off of the west coast of the south island in August. This will be part of ongoing satellite tagging efforts which began in 2006.

Thank you

As always, we thank everyone for their ongoing support, and we are happy to bring these reports to you as we can. We will continue to provide updates as new information from the New Zealand Marine Research Foundations satellite tagging projects come to us.

Sponsors and supporters

Satellite tagging efforts in 2008 are a continuation from the 2006 project in which the New Zealand Marine Research Foundation received support from many sources including:

New Zealand Big Game Fishing Council
Enterprise Motor Group
The Lion Foundation
Green Thistle Sporting Trust
Pub Charity
Bay Trust

Whangamata Ocean Sports Club
Tauranga Game Fishing Club
Paslode
Collaborators from Stanford University and
University of Auckland

Fundraising is ongoing to help complete these projects. Please contact the New Zealand Marine Research Foundation or the New Zealand Big Game Fishing Council if you wish make contributions, PO Box 93, Whangarei.

Issues of this and our previous newsletters are available on the New Zealand Big Game Fishing Council's website: <http://www.nzbgfc.org.nz>

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