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GRANDER BLUE MARLIN Australia's first

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Grander marlin ageing

The age of a grander marlin was uncertain until recently. However, the question has finally been answered using groundbreaking technology to measure the remnant radioactivity left over from the nuclear bomb tests in the Pacific in the 1960s – quite a breakthrough!

The most common question that I have been asked over my many years of involvement with billfish research would have to be just how old is a 1000-pound (453.6kg) marlin? While I would have loved to have been able to provide a definitive answer, the truth is we didn't really know. That is, until the recent publication of a scientific paper on this very question.

Studies in the past decade or so had given us a good understanding of the age and growth rates of small black, blue and striped marlin in their first few years of life. However, the techniques used for such studies – counting annual rings on fin spines or daily rings on otoliths (earbones) – were useless on very large marlin. Based on early growth rates, at best we could only guess at the ages of these huge fish, but at the end of the day, that's all they were – guesses. When pressed on the subject, I have usually put the age of a 1000-pound black marlin between 10 and 20 years old.

"Counting rings on fin spines or otoliths (earbones) was useless on very large marlin."

Perhaps surprisingly, the breakthrough study – as announced in this issue's Newsline – is based on a single blue marlin. The fish, weighing 565kg (1245lb), was caught by recreational anglers off Honolulu in September 2009. They kept the head and contacted the local NOAA Fisheries lab. Scientists then managed to extract the tiny otoliths from the head of the huge fish, which were eventually used for groundbreaking billfish research.

Dr Allen Andrews and colleagues Robert Humphreys and Jeffery Sampaga decided to apply a novel dating method to determine an age from the otoliths. With recent advances in techniques and knowledge, they thought the previously known method might be able to be applied to a single fish. Known as the marine bomb carbon 14 dating method, it relies on the remnant radioactivity left over from the nuclear bomb tests in the Pacific in the 1960s, specifically the radioisotope of carbon, C14.

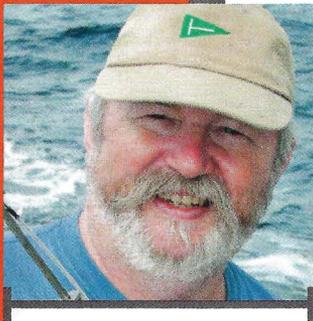
Advances in the detection limits of C14, together with recent mapping of C14 sampled by coring coral reefs throughout the tropical Pacific, were the keys for ageing this big blue marlin.

The otoliths of marlin are tiny, with the larger 'sagitta' otoliths from the big blue weighing just 8mg each. Even so, Dr Allen and his team were able to measure C14 levels right in the centre of the otoliths (i.e. when the fish was just hatched), and then estimate the decline in C14 levels in the younger, outer part of the otoliths. The most likely age of the big blue marlin was also confirmed to some extent by including C14 measurements from otoliths of two very young blue marlin of 28kg, estimated to have been around one year old at the time of capture in the mid 1990s. Otoliths from a 90kg male blue marlin caught in the late 1980s were also used.

To cut to the chase, the estimates for the age of the marlin fell into two ranges: 12 to 21 years or 32 to 44 years. Using a chain of logical scenarios which included where the marlin was likely to have travelled through its life, Dr Andrews and his co-workers confidently narrowed down the age range to the younger grouping and then refined it to determine that the most likely age was around 20 years old.

I have to say I was pretty pleased to see this age estimate for the 565kg blue marlin as it fits quite well with my long-held gut feeling that a grander black marlin is indeed 10 to 20 years old.

That being said, a blue marlin is not a black marlin. In fact, given the apparent higher frequency of 1000lb black marlin compared with blues, there may well be significant differences between the two species. Dr Andrews is keen to undertake similar aging studies on one or more granders weighed during the Cairns heavy-tackle season, so I'll certainly be looking to help that happen this coming spring. 🐟



DR JULIAN PEPPERELL is a recognised world authority on billfish and other pelagic species. He is especially well-known for developing the Australian gamefish tagging program. Julian formed his own research company in 1991 and conducts research in partnership with universities, government and the private sector. He is also an adjunct professor at several Australian universities. He provides a rare gift in his ability to bridge the gap between the scientific community and recreational anglers.