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SATELLITE TAGGING REVEALS INTERESTING BEHAVIOR OF PACIFIC BLUE MARLIN



Satellite tags are greatly enhancing our body of knowledge on billfish behavior due to their ability to collect massive amounts of data and because they do not need to be recovered to obtain the information they collect.
IGFA Conservation Director Jason Schratwieser

Since the start of the IGFA Great Marlin Race (IGMR), we have placed 116 tags on blue marlin, black marlin, white marlin, and sailfish during 19 events held in 13 countries. Although we are still in the early stages of analyzing the large IGMR dataset, we'd like to share some of our preliminary findings.

We have learned that the blue marlin tagged at all the IGMR races exhibit a consistent pattern in their depth distribution.

- The marlin spend the majority of their time (around 60%) in the top 5 – 10 meters (16 – 33 ft) of the water column and when they are not near the surface, they primarily occur between 50 to 100 meters (165 – 330 ft) below the surface.
- At the Hawaii International Billfish Tournament in Kona, Hawaii (the longest running IGMR event), tagged marlin have consistently exhibited this bimodal depth distribution across all of the five years of races.
- The depth range of blue marlin is likely constrained by the thermocline – the boundary between relatively warm surface water and deeper, colder water below. This is likely due to that fact that blue marlin are quite temperature-sensitive (they rarely are in waters less than 26°C (79°F)) and they are unable to spend long periods of time below the thermocline.
- However, blue marlin do make periodic deep dives to depths in excess of 350 meters (1,155 ft), but these forays into colder, deeper waters are generally brief and the marlin quickly return to the warm surface layer after these deep dives.
- This bimodal depth distribution likely represents a diel (day/night) pattern, where fish generally dive deeper and spend more time at depth during the day and remain near the surface at night. One theory behind this behavior is that the marlin are highly visual predators and they dive deeper during the day so they can better see their prey, silhouetted at the surface, while remaining invisible to them below.

These are some of the preliminary discoveries that we have made during the last several years. We are also beginning to understand broader patterns in migratory behavior that appear to be linked to major oceanographic processes such as El Niño and La Niña events. As we delve deeper into this dataset, and amass more data in other regions, new insights will be gained into the biology and ecology of these important pelagic species in the months and years ahead.