

*Can fishermen and tour-boat guides reliably perceive changes in the abundance of large marine species over a sizable time gap?*

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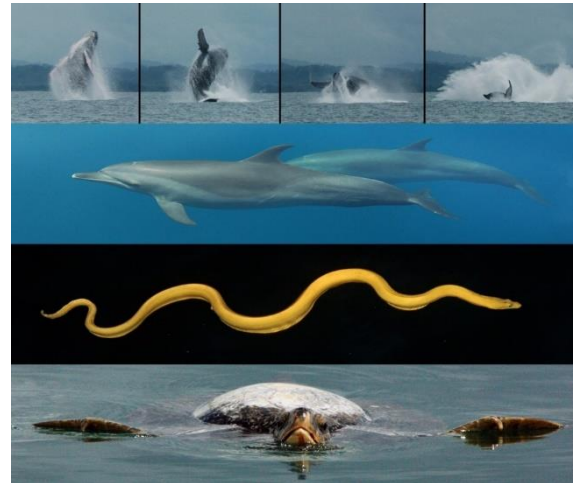
Turns out, they can't—at least not very well. The results of two interview surveys, which we conducted through questionnaires a decade apart, reveal both strengths and weaknesses in human perception. While people tend to accurately recognize what is happening in their environment in the moment, they often fall victim to inaccurate recall when reflecting back over time.

In 2010, and again in 2020, fishermen and tour-boat guides working in the bio-rich waters of Golfo Dulce, Costa Rica, were asked how frequently they saw whales, dolphins, sea turtles, and other flagship marine species. During the same two time periods, our research team undertook boat-based biomonitoring to assess the occurrence of those animals first-hand. In each year, the sighting frequencies provided by interviewees generally matched our own sighting frequencies, and likewise, when we compared interviewee responses from 2010 against those from 2020, the changes we found were consistent with those empirically documented on the water.

The problem came when we asked interviewees about their perceived change between study periods. In 2020, a small panel of respondents who had participated both years gave us their opinion as to whether they saw more, less, or about the same number of whales, dolphins, sea turtles, and other focus fauna, as they had in 2010. Not only did their perceptions fail to sync with our biomonitoring data, but they also failed to sync with their own reporting.

Respondents tended to view the situation more optimistically than the data did. Recognizing this bias is essential because a growing number of researchers are seeking insights from experienced people living in their study areas to aid assessments of habitat change and species loss, especially in at-risk environments. Our work suggests such contributors can

provide valuable information regarding current species abundance but should not be heavily relied upon for evaluating precise historical shifts.



*Four groups of fauna for which interview and sighting data were compared: (top to bottom) whales, dolphins, sea snakes, and sea turtles. Photo credit: Brooke L. Bessesen.*

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