

Local environment and population demographics, not genetics, influence bottlenose dolphin 'names'

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New research suggests that it is the local ocean environment and population demographics, and not genetics, that best explains the different lengths and pitches of signature whistles—the unique

identifying call akin to a name—between common bottlenose dolphin populations in the Mediterranean Sea. The study is published in *Scientific Reports*.

As with other dolphin species, common bottlenose dolphins (*Tursiops truncatus*) communicate using a range of whistles, including a 'signature whistle' which is unique to each animal. Previous research has indicated that different groups of dolphins tend to develop different styles of signature whistles. It is, however, unclear which factors influence the development of signature whistles and these different styles.

Using 188 hours of recorded [acoustic data](#), Gabriella La Manna and colleagues analyzed the differences in signature whistles between six geographically distinct populations of common bottlenose dolphins across the Mediterranean Sea. The sites included Port Cros in the French Riviera, Alghero in the Sardinian Sea, and Ostia-Fiumicino in the Tyrrhenian Sea (all considered the western Mediterranean region); Cres-Losinj in the Adriatic Sea and the Gulf of Corinth in the Ionian Sea (both considered eastern); and Lampedusa in the Strait of Sicily (considered southern). There is established [genetic variation](#) between eastern and western dolphin populations. The authors identified 168 individual signature whistles and mapped variations in acoustic features such as duration and changes in pitch.

The authors analyzed the influence of region (a proxy for genetic variation), geographic site, the local ocean environment (such as whether the sea bottom was muddy or covered in seagrass), and [population demographics](#) had on differences between signature whistles. They report that the local ocean environment and population most strongly influenced signature whistle variation. For example, signature whistles in areas with seagrass, such as Lampedusa and Port Cros, were higher pitched and shorter in length compared to when the sea bottom was muddy. In [small populations](#), such as in the Gulf of Corinth, signature

whistles had more changes in pitch than among larger populations.

In contrast, region—and therefore genetic variation—had no strong influence on whistles. The authors suggest that these findings support the 'acoustic adaptation hypothesis' and that [bottlenose dolphins](#) develop signature whistles best suited to their local habitat.

More information: Gabriella La Manna, Determinants of variability in signature whistles of the Mediterranean common bottlenose dolphin, *Scientific Reports* (2022). DOI: [10.1038/s41598-022-10920-7](https://doi.org/10.1038/s41598-022-10920-7).
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