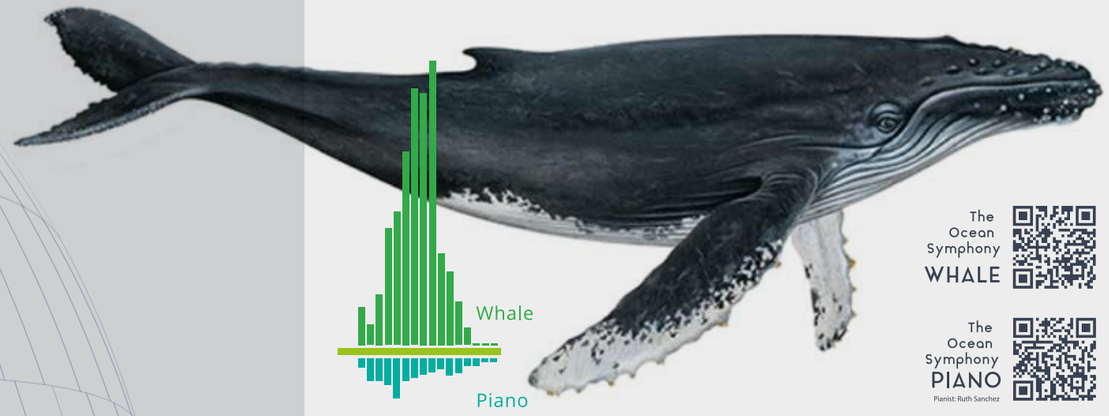
The Ocean Symphony

Soto 40 Sailing Team

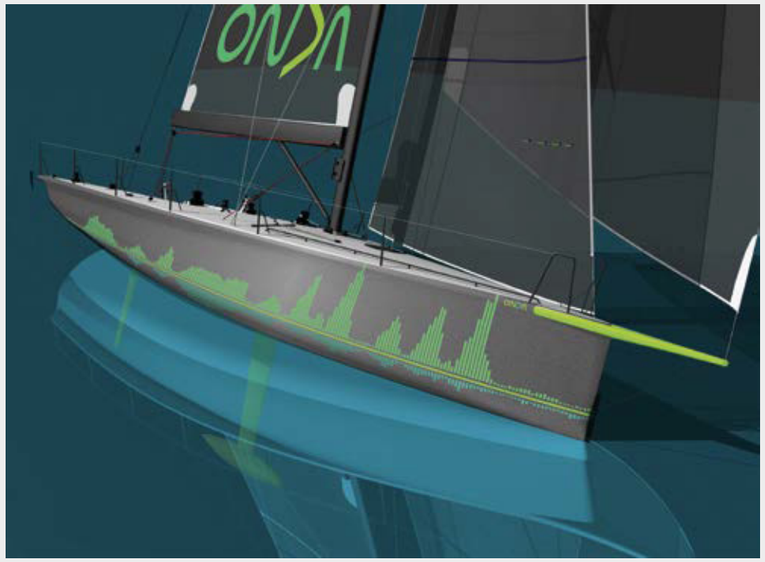


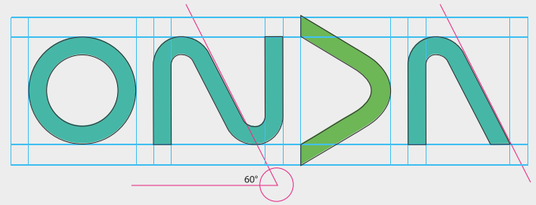


Humpback whales possess one of the most complex acoustic communication systems in the ocean. Their sounds travel exceptionally well underwater—much faster and with far less energy loss than in air—allowing their songs to be heard across tens or even hundreds of kilometers. They primarily use low frequencies that propagate over great distances, enriched with higher-pitched harmonics that add nuance and detail. In addition to vocalizations, they also communicate through physical actions such as fin slaps and breaches, which generate mechanical waves detectable by other whales. Their songs have a cultural structure: melodies and rhythms evolve over time and are collectively learned, functioning as a shared, ever-changing language.

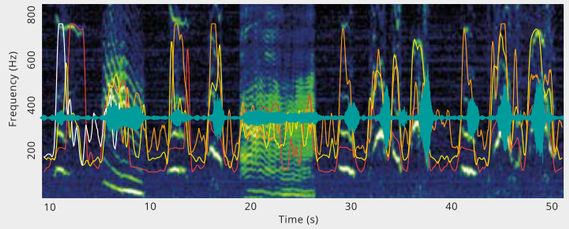
To deepen our understanding of this phenomenon, we studied the whale's sound alongside acoustics experts, analyzing its spectrogram to obtain a visual representation of the vocalizations. We then examined the harmonics and fundamentals and complemented this study with a detailed review of the waveform using specialized software.

We also invited professional pianist Ruth Sánchez to interpret the recorded whale song, allowing us to compare the animal's original sound with its artistic translation on the piano. In this way, we present the "symphony of the sea" from both a scientific and a creative perspective.

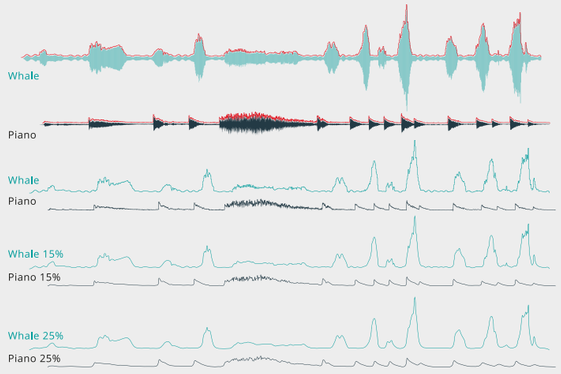




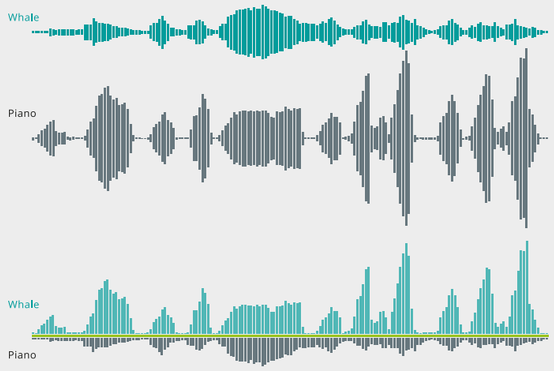
Humpback Whale Spectrogram:



Humpback Whale Fundamental & Harmonics:



Humpback Whale Waveform



Design by boatbranding.shop/collections/boat-custom-graphic 2025