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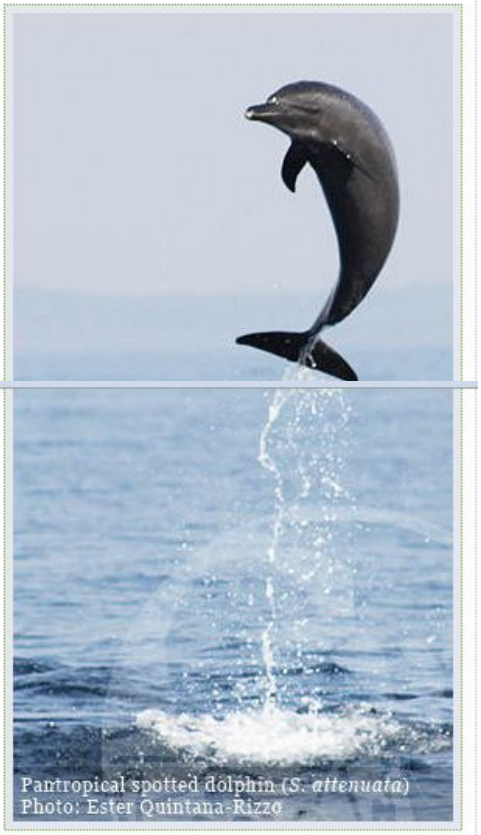
The majority of whales in the eastern North Pacific (ENP) gray whale population (~19,000 animals) feed north of the Aleutians during summer months, although ~200 individuals of the "Pacific Coast Feeding Group" (PCFG) feed between northern California and southeastern Alaska. ENP whales winter in the lagoons and coastal waters of Baja Mexico. Feeding grounds utilized by the western North Pacific (WNP) population (~130 individuals) include coastal waters of Sakhalin Island and southeastern Kamchatka, Russia. Although contemporary records of gray whales in Japanese waters exist, the location of migratory routes and wintering ground(s) of the WNP population is not well understood. Previous studies have documented mitochondrial and nuclear differentiation between whales feeding off Sakhalin and those on the ENP migratory route. For the first time, we examine site fidelity of gray whales to feeding grounds by analyzing genetic differentiation (mtDNA and 8-13 microsatellite loci) between three areas of the North Pacific (WNP, n=142; ENP north of Aleutians, n=106; ENP PCFG, n=71). We also use this dataset to identify samples with identical genetic profiles and use these matches to infer inter-area movements. Major findings include 1) detecting significant mtDNA differentiation but non-significant nuclear differences between ENP feeding areas, 2) significant nuclear and mitochondrial differentiation between the WNP and the ENP, and 3) movements of two whales between the ENP and WNP. These results suggest that use of feeding areas in both the WNP and ENP is influenced by matrilineal fidelity. While whales utilizing different ENP feeding areas may interbreed, a degree of reproductive isolation exist between whales feeding off Sakhalin and whales feeding in the ENP. However, consistent with the results of photo-identification and telemetry studies, the putative movements of at least some animals between the ENP and WNP suggest that not all animals feeding off Sakhalin remain in the WNP year-round.



Pantropical spotted dolphin (*S. attenuata*)
Photo: Ester Quintana-Rizzo