

Rough-toothed dolphins

Rough-toothed dolphins (*Steno bredanensis*) have a worldwide tropical and subtropical distribution (Hammond *et al* 2010; Mayazik and Perrin 1994). Most often this species is found in deep, offshore waters, but may be seen close inshore around volcanic islands containing a steep slope (Ritter 2002). Although this species is thought to include around 150,000 individuals worldwide, the populations studied around Hawaii (Baird *et al* 2008) and the Society Islands of French Polynesia (Oremus *et al.* In Press) appear to be small (less than 200 individuals around Hawaii and Moorea). The rough-toothed dolphin is known to interact with both sport and commercial near-shore fisheries around the Hawaiian Islands and French Polynesia. If these fisheries are interacting with several small, island-associated populations of the rough-toothed dolphin rather than a single large, panmictic population, their impact on the populations could be far greater than currently assumed by national management authorities.

Population Structure and Conservation Implications

My current work is focused on the population structure of the rough-toothed dolphin on a worldwide, oceanic and local scale. I will use phylogenetic reconstruction of mitochondrial DNA to describe the biogeography of the species on a worldwide scale. Using a combination of microsatellite and mitochondrial DNA markers I plan to describe the degree of isolation and interchange of rough-toothed dolphins between archipelagos on an oceanic scale in the South Pacific and the Hawaiian Islands. With these markers I will also infer the social organization and habitat use of the rough-toothed dolphin within the Hawaiian and French Polynesian archipelagos on a local scale. This information will be valuable for the conservation management of this species.

Genetic Differentiation and Phylogeographic Reconstruction

It has been assumed that pelagic dolphins move across a vast expanse of habitat due to the lack of barriers in the open ocean. This would predict little phylogeographic structure at the global scale and little population differentiation at the oceanic scale. However, my initial PhD research has revealed distinct clades within and between ocean basins suggesting a population structure of small, isolated populations.

References

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