

Isolated in a harsh marine realm: phylogenetic position and genetic diversity of a possibly isolated Indo-Pacific bottlenose dolphin (*Tursiops aduncus*) population in the Persian Gulf

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Summary report:

Background and the aims: Because of its coastal habits, habitat association, and discontinuous geographical distribution, investigation of the genetic diversity and phylogenetic position of different Indo-Pacific bottlenose dolphin populations is essential for defining intraspecific taxonomy and conservation management of the species. This study was proposed to analyze mitogenome sequence data of the largest Iranian community of *T. aduncus* which is resident at Dolphins' Bay Natural Heritage in the northern Persian Gulf. The main goals were to assay phylogenetic and phylogeographic positions of the study community. However, for some technical reasons explained below (in the *Activities* subsection), the genetic analyses, the awarded title, has been postponed.

Activities: A small boat (23 feet length, 85 HP engine) was used to survey the bay during the calm days (Beaufort scale ≤ 3). A sterilized nylon scrub pad affixed to a pole was used to collect skin samples from the lateral dorsal side of dolphins that swim near the boat. However, instead of the expectations, dolphins reacted to the pole aggressively and ran away from the research boat, whereas in the common situations (i.e. when tourism boats approached them) they behaved passively. Therefore, as the safety of the animals is on the top of the priority, the scrubbing process was stopped aiming to avoid making much stress for dolphins. Alternatively, it has been now planned to use biopsy darts to collect the tissue samples. However, for this alternative option, getting new permissions and training for the skills are necessary. Therefore, collecting the tissue samples for genetics (the awarded title) is postponed to another time. We also keep an eye out to see if any dead animal washed ashore, and then we will be able to collect tissue sample from the stranded specimens.

Next Steps: Part of the award is secured and immediately after collecting the tissue samples, the expected genetic analyses will be carried out and the results will be published.

Current outcomes: a series of the preliminary boat surveys were also carried out for this study, which have provided the first information about abundance, home range and threats to the largest known Iranian bottlenose dolphin community in the only dolphin-watching site in southern Iran. We presented the results of these surveys in a poster in the World Marine Mammal Conference held in December 2019 in Barcelona, Spain. The size of the community was estimated at 126 individuals. In addition, at least four neonates were observed during February, confirming the bay is a breeding habitat for this community. The group size ranged from eight to 100 individuals, observed in one to five subgroups, a mixture of adults, juveniles and calves. Based on previous observations, dolphins usually migrate to unknown areas seaward during late spring and summer months. Our surveys showed that during their presence, their home-range exceeds the easternmost limit of the bay, which calls for an immediate measure to expand the boundaries of the protected area. Fishing activities (e.g. purse-seines, fish hooks, cage-liked traps), which were recorded during 60 % of boat surveys, are the main putative threat for the dolphins. Further, while skippers are not trained for responsible dolphin-watching, tourism boat traffic is another threat for the dolphins. Therefore, the top priority is to cooperate with local communities aiming to promote responsible dolphin-watching, help develop alternative livelihood options for fishers and encourage fishing outside the protected area in order to reduce incidental bycatch and competition for fish resources.