A multi-species foraging aggregation of Delphinids in Western Indian waters

Animals generally tend to form heterospecific associations for two functional advantages: more effective foraging and predator avoidance. Such interactions have been observed in different phyletic groups and between closely and distantly related species. The nature of such polyspecific aggregations is often dynamic, in which there may or may not be direct and coordinated behavioural interactions. Although the definition for mixed groups is broad, it is appropriate to consider such an association as occurring among the species of the same group. Thus, aggregations of distantly related species tend to be facilitated by concentrated resources while mixed groups of related species might occur irrespective of prey concentration[1]. In the marine realm, multispecific aggregations and interactions are known to occur especially between the marine mammals, fishes and seabirds as part of foraging. However, it is relatively rare within various marine mammal groups and appears to be influenced by region, season and behavioural peculiarities[2].

As part of the marine mammal stock assessment survey across the southern half of the Lakshadweep archipelago, India, we observed an extensive aggregation of three species of Delphinids viz. pantropical spotted dolphins (*Stenella attenuata*), striped dolphins (*Stenella coeruleoalba*) and spinner dolphins (*Stenella longirostris*) off the island of Kalpeni. The line intercept transect survey conducted on 20 February 2025 recorded a total of 401 ± 27 individuals in the aggregation at a distance of 3.6 nautical miles (6.8 km) from the northern shore of Kalpeni island. The pod comprised 350 ± 20 pantropical spotted dolphins, 35 ± 7 spinner dolphins ($n = 35 \pm 7$) and 16 ± 5 striped dolphins. The individuals exhibited active behavioural attributes including porpoising, foraging, bow riding, communicating (acoustic, tactile), and breaching (full, height of $\sim$3 m). Four calves of spinner dolphins and 12 of spotted dolphins were also observed. Many of the individuals were actively foraging (initial cue remains to be the fish jumping out of the water) and bow-riding. The outer boundary of the observed group was at a horizontal distance of 700 m from the bow of the boat and distributed into many subgroups ($n = 18$) of varying sizes.

The association between spinner and spotted dolphins was observed globally, with the third major contribution to the mixed species groups in 27 known studies[3], while this is the first observation of such an association in Lakshadweep waters. Studies suggested that the spinner dolphins seek the company of spotted dolphins in order to ensure more protection, as the latter is generally more alert. This idea is based on the evidence of non-overlapping diets of the two species as well as the protection needed for spinner dolphins in the open ocean when they leave their usual shallow sandy bottom resting areas[3,4]. The fluid fission-fusion social structures of some dolphin species allow flexible group formation based on ecological needs, potentially for enhanced foraging, predator avoidance and social/reproductive benefits[1]. The dynamic nature of these associations suggests a mechanism for balancing competing demands like safety and resource acquisition in a complex marine habitat.

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