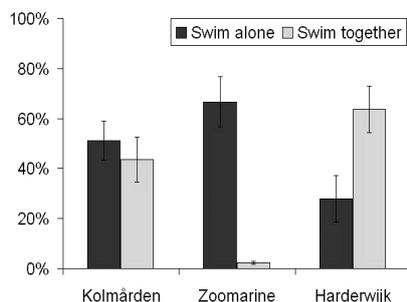


# Bachelor groups of Bottlenose dolphins in human care

The Bottlenose dolphins (*Tursiops truncatus*) are commonly held in harem groups in zoos. This, combined with the fact that an equal number of male and female offspring are born, inevitably leads to a large number of “surplus” males that need to be housed without access to females. Creating these “bachelor” groups has been more of a trial and error process than the result of a pre-planned strategy.

In the wild the male offspring leave or are rejected from their maternal pod as subadults and join large and fluid groups of other subadult males<sup>1</sup>. As males get older, they tend to associate with fewer and fewer males<sup>1</sup>. Pairs or trios of adult males form alliances with bonds that can be as strong as that between a mother and her calf with a coefficient of association (COA) as high as 0.8-1.0 and can last until one of the members dies<sup>2</sup>.

Three dolphinariums were studied: Kolmården, Sweden, housing a female Bottlenose dolphin group, engaged in a combination of public shows and a low scale human interaction program; Zoomarine, Portugal, housing a subadult male dolphin group engaged in a heavy scheduled human interaction programme, and Harderwijk, Holland, housing an adult male dolphin group engaged in public shows. The major factor that was studied, was the time spent socialising with the other individuals in the group. It was significantly different between the three facilities. See figure 1.



**Figure 1.** Percentage of time spent swimming together and alone in Kolmården, Zoomarine and Harderwijk. The bars indicated the variance.

The results obtained at Kolmården were consistent with previous studies, both at this facility and with other studies on groups of female Bottlenose dolphins<sup>3,4</sup>. The social situation in the two male groups at Zoomarine and

Harderwijk, was very different. At Zoomarine, the males were separated into different and changing subgroups, which inevitably affected the association levels between them. In an always changing social environment the association levels between the males were almost non-existent. In contrast, the group composition at Harderwijk had been more or less stable for many years and high association levels were observed. There was also evidence of alliances between some of the males, with COAs of 0.6 and 0.5.

Time spent resting (motionless at the surface and on the bottom) differed between the facilities. There was no such resting behaviour observed at Harderwijk and at Kolmården only one female was observed resting in this way for a very short period of time. As a contrast, the males at Zoomarine had an average resting of 28% of the time, either alone or together with another male. It might be suggested that the large number of human interaction sessions at Zoomarine could explain why the dolphins rested so much during their free time; they were simply physically and/or mentally exhausted. However, considering the high activity level of both the Kolmården and Harderwijk shows and training sessions, this seems to be a less likely explanation. More plausible is the composite effect of the interrupted social setting, the lack of enrichment in the pool, and the close relationship with the trainers and a strong dependence of their initiatives on the activities in the pool. Social factors such as changes in a group composition, leading to interrupted dominance hierarchies, are potential stressors and associated health problems are recognised concerns for captive dolphins<sup>5</sup>. Minimising such stress should be an important goal in managing dolphins in human care, both in bachelor and harem groups.

These results indicate the importance of how bachelor Bottlenose dolphin groups are kept and of what methods are used to manage their social interactions. Despite the fact the single males are kept in harem groups, this is not necessarily the best or even an acceptable social life for them. Free-ranging male dolphins are known to be very social and create strong bonds

with one or two other males. This was also observed at Harderwijk. Hence, males should preferably be given the opportunity to form such strong bonds in bachelor groups. Then, instead of moving single males to female breeding groups, such male pairs could be chosen. This most likely would offer them a richer social life. However, it must be born in mind that these conclusions are based on a small sample size and should be treated with caution until the further studies are conducted. Questions such as how the relationship between the males in such pairs is affected when they are exposed to females in oestrus or to which the extent public performance should be allowed to affect on the composition of dolphin groups needs to be discussed.

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