

THE DOWN UNDER DOLPHIN

by Stephen Dawson and Elisabeth Slooten

The world's whales, dolphins and porpoises, 76 species in all, comprise some of the most fascinating animals on the planet. Shaped by a need to move in a viscous environment they all are similarly streamlined, but there are awesome differences in scale. Female blue whales, usually a little larger than the males, reach over 90 feet long, and are without doubt the largest animals ever to have lived on Earth. At the other end of the scale is Hector's dolphin (*Cephalorhynchus hectori*). Adult Hector's dolphins, usually less than four and a half feet long, are the world's smallest oceanic dolphins.

Most dolphins are capable of travelling large distances, and are widely distributed. Bottlenose dolphins, the species endeared to us through the television series "Flipper", occur in every ocean. Hector's dolphin is one of the exceptions to this rule. The fascinating *Cephalorhynchus* genus comprises four species of small dolphins, each with a very limited distribution and endemic to a different temperate coastal region in the Southern Hemisphere. Hector's dolphin, named in honour of early New Zealand natural historian and surveyor Sir James Hector, is now one of the better known of this genus. We have been privileged to closely study this species, which is the only dolphin found solely within New Zealand waters.

A survey of their distribution and abundance was the first step in a four-year study of Hector's dolphin, and resulted in a total population estimate of 3000-4000 individuals. This is an extremely low figure for a marine mammal, and underscores the urgent need to discover more about the biology of this species. Several cetacean species listed as endangered number considerably more. Although sobering, the figure of 3000-4000 individuals has little meaning by itself. Some mammals, mice for example, could recover relatively easily from such a small population size, whereas elephants and others would face certain extinction. Having estimated the distribution and abundance of Hector's dolphins, a comprehensive study of their social organization, reproductive biology and feeding ecology is now crucial to assess whether the species is as threatened as the population estimate would suggest.

For the second phase of the study, we are working from a base on Banks Peninsula. Elisabeth is studying the behaviour and ecology of Hector's dolphins while Steve is concentrating on their sounds and acoustic behaviour. The integrated approach to ani-

mal behaviour, co-ordinating both the acoustic and visual signals may provide unique insights into the mysteries of the social organisation, reproductive biology and conservation requirements of this remarkable dolphin.

Behaviour

To enable behavioural study our first task was to work out the behavioural repertoire of Hector's dolphins. The list of observed behaviours grew steadily during the first summer and winter of the study, and has now reached the stage where only extremely rare behaviours could be still missing. The dolphins show a wide range of behaviours including a number of different postures, gentle and occasionally aggressive body contacts, bubble blowing, leaping, lobtailing, "spyhopping", surfing and playing with pieces of seaweed and other objects.

Aggression in Hector's dolphins is rare, and it appears that direct approaches, displacements and open-mouth displays usually avert more obvious aggression such as biting, forceful body contact, and hitting with the tail. Aggression is always one-way. We have yet to see an aggressive display that develops into a fight, where the recipient of a bite turns and retaliates against the original aggressor.

While lobtailing, a dolphin hits the tail flat onto the water surface while swimming either normal way up or upside down. This movement is vigorous, makes a lot of noise and splash, and is usually repeated several times. Commonly seen in many dolphin species, lobtailing is thought to indicate excitement and in some situations possibly annoyance, usually in a social context — we have never seen lobtailing from a lone dolphin. During upside-down lobtailing (the most common type) it is usually possible to sex the individual, and, interestingly, virtually all of the Hector's dolphins we have observed doing this have been males.

Unlike Dusky and Spinner dolphins, Hector's dolphins are not known for their spectacular acrobatics, but they do jump. When moving at speed, especially while bowriding or "racing" boats, they often make low, arching leaps, while at other times their jumps are usually more vertical. Almost invariably they re-enter the water head first, cleanly, with little splash. Only rarely do jumping Hector's dolphins fall back into the water on their sides, although when this type of jump occurs it is usually repeated many times, always falling back on the same side. These "noisy", repeated jumps

may have social importance, but we get the impression that the dolphin may be "itching" itself. Most have tiny flattened whale lice scattered over their skin. These forage on the perpetually sloughing outer skin layer and although they appear to do no damage, probably cause some annoyance. Fastened on to the skin with tiny hooked claws, some of the lice may be dislodged by sudden, vigorous splashes.

Some types of jumps are clearly social, and often one individual leaping seems to trigger others to follow suit. A disproportionate number of leaps are of two dolphins at a time, usually one leaping just a fraction of a second later than the other. This suggests either that the same stimulus causes both dolphins to leap, or that the leaping dolphin stimulates others nearby to doing likewise. Either way, we have found leaping is more common during courtship and other close social situations — such as just after two groups have come together. In fact, the meeting of two or more groups of Hector's dolphins tends to cause a marked increase in activity in general.

Group Associations

In regions where they are relatively common, it is usual to find several groups of Hector's dolphins in close proximity, say within an area of half to one nautical mile in diameter. Individual groups usually consist of two to eight dolphins, but there may be 50 or even a hundred dolphins in the general area.

When a boat appears on the scene, or when one of the small groups starts to feed, often they will be joined by other groups. This is particularly obvious when the interactions of boats and dolphins are observed from a clifftop vantage point. The mingling of individuals from previously separate groups almost always results in a marked increase in activity. Individual dolphins closely approach one another more frequently, sometimes groups of three to five individuals mingle very closely for several minutes, frequently touching. Jumping, lobtailing, bubble-blowing, body contacts, and displacements all are more common when two or more groups have just come together, beyond what would be expected from the simple increase in number of dolphins present.

Such group mingling invites a whole range of intriguing questions regarding which is "the group". Are the smaller units stable, perhaps family groups; or is it the larger aggregations which are of most biological importance, with the composition of