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**Fotoidentification of bottlenose dolphin, *Tursiops truncatus* (Montagu, 1821),
present along the north-east coast of Sardinia, Italy**

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INTRODUCTION Until today few long term studies in the Mediterranean Sea on bottlenose dolphin and on the photoidentification in a resident population of this specie have been carried out. Since 1991 the “Accademia del Leviatano” is studying the behaviour ecology of a resident population of bottlenose dolphins in the north-east coast of Sardinia, Italy.

In this work the results obtained during years 1999, 2000 and 2001 are showed.

MATERIALS AND METHODS All photographs have been realised in the Olbia Gulf (SS) (Figure 1) from a motor boat and the observation effort has been uniform all over the months.

A Nikon F401x AF reflex camera with zoom lens of 35-80 mm e 100-300 mm has been used with Kodak ELITEchrome ASA 100 films. All of the photographs have been selected, labelled and included in a chronological catalogue. Was calculated the COAs (coefficient of association) (Smolker *et al.*, 1992), yielding ranging from 0 for two individuals that are never found in the same group to 100 for two individuals that are always sighted together.

RESULTS Of almost 1200 photographs 324 have been considered useful for the study and 13 dolphins have been identified by natural marks (Figure 2). 98 photographs show dorsal fins without any characteristic marks useful for the identification of the individuals. It has been possible to determine the sex of four females (“MD”, “Jad”, “Nen” and “Rus”), always sighted together with juveniles of small dimentions. There are some individuals already recognised in previous years (Marini, 1995): “VT” sighted for the first time in 1986 (sighted again in 1991-1994) and “Gan”, sighted in 1991-94 study period.

The mean size of the group which the photoidentified dolphins belonged to were of 5.18 dolphins (SD= 3.37, range=1-15). The mean of juveniles per group has been 0.93 (SD=1.15, range= 0-5). Groups with juveniles showed to be predominant in this study (Figure 3).

DISCUSSION The continuous presence of the dolphins during the research period shows that a stable population of bottlenose dolphin is present in the study area. This is supported by the presence of some individuals already identified in previous studies in the same area (Díaz López *et al.*, 2001). Some animals have been sighted only few times indicating their occasional use of the study area (Figure 4). Anyway, this latter represents only a small part of the total home range of this population.

The absence of an asymptote in the photoidentification curve shows that not all the naturally marked individuals have been identified. A maximum estimate of about 42 individuals frequenting the area could be obtained by adding an assessed 30% of unmarked animals to the number of catalogue individuals (Bearzi et al., 1997).

COAs values usually resulted lower than 50 showing that schools in the population are not clearly defined (Figure 5).

The exchange of individuals among the schools could represent a way to reinforce the interspecific bonds. In this way collaboration and benefits due to reciprocal interactions between individuals is increased (Bräger et al., 1994).

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Figure 1. Study area

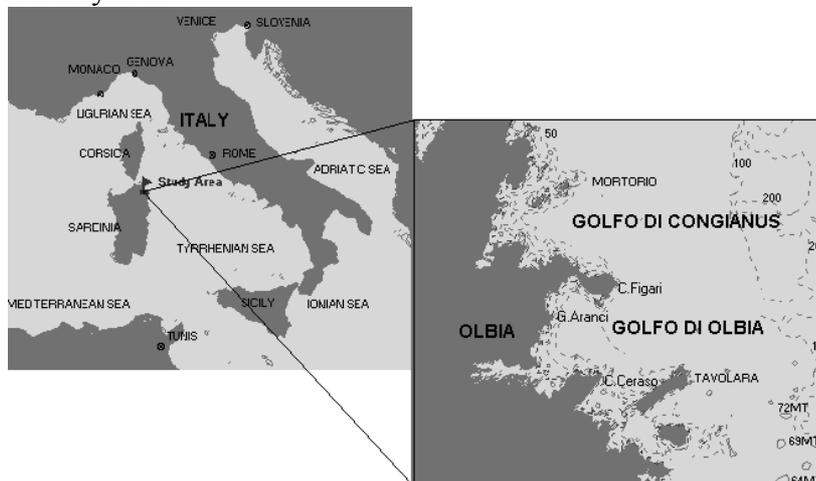


Figure 2. Cumulative rate of identification of new individuals over time

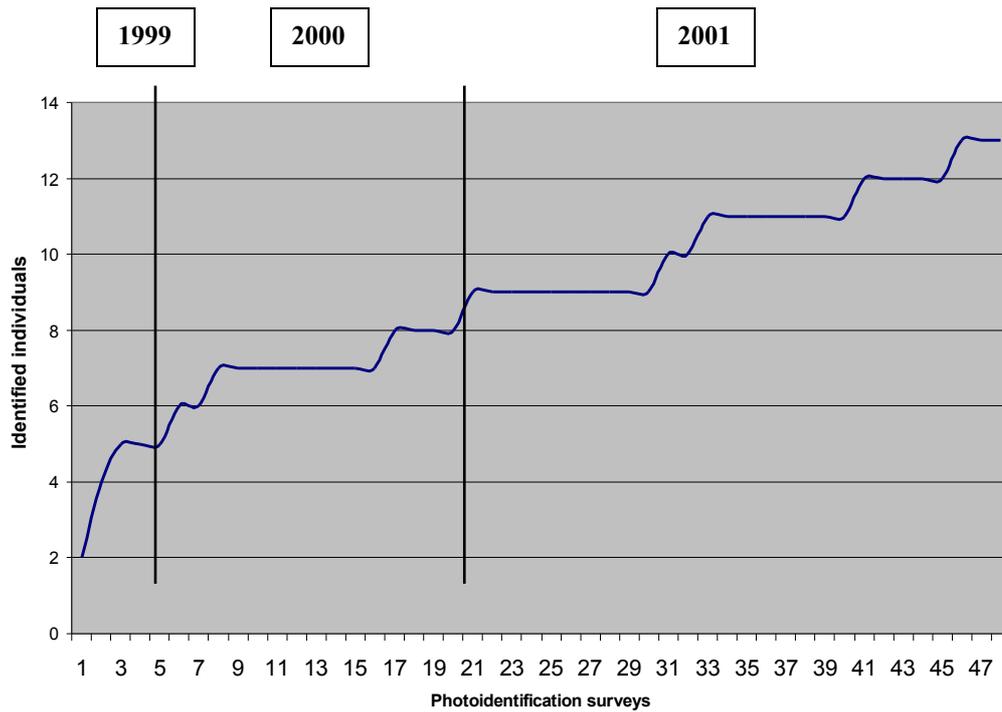


Figure 3. % of surveys in which each of the 13 photoidentified individuals was sighted in the study area

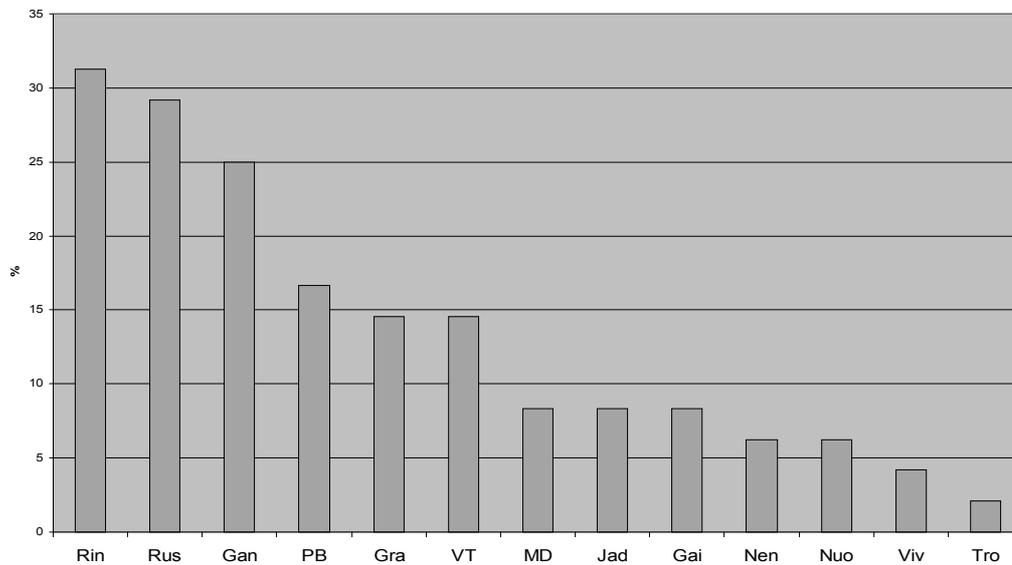


Figure 4. Structure of fotoidentified groups

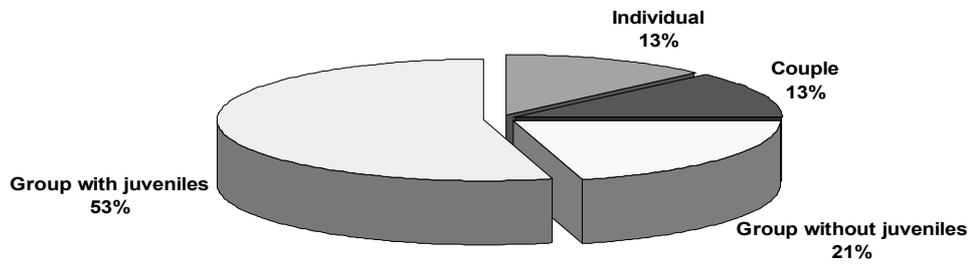


Figure 5. Coefficient of association between dolphins

