

COMMON DOLPHIN (*DELPHINUS DELPHIS*) PHOTO IDENTIFICATION IN THE REGION OF THE NE. AEGEAN SEA, GREECE

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Abstract

Capture-recapture analysis using photo identification was applied to the Common Dolphin (*Delphinus delphis*) population in the region of the north east Aegean Sea. The few studies which have applied photo identification techniques to this delphinid species have used distinct pigmentation patterns and long-term natural markings on the dorsal fin to identify individuals. This study successfully identified 35 individuals from photographs obtained between 2004 and 2011, with 5 individuals sighted on multiple occasions.

Keywords: Aegean Sea, Cetacea, Population Dynamics

Introduction

The Common dolphin was once one of the most common cetacean species in the Mediterranean Sea [1]. During the last decade, this species was classified as endangered based on the IUCN Red List criteria, due to a decline of 50% over the last 3 generations, the reasons behind which remain poorly understood [2], [3]. There is currently no reliable time series of abundance of common dolphins in the Mediterranean Sea, with the most recent estimate by Forcada and Hammond in 1998 [4]. For this reason, IUCN/Species Survival Commission Cetacean Specialist Group has integrated common dolphin studies among their priorities and recommended the escalation of studies focusing on common dolphin distribution abundance, population structure and factors threatening their conservation status [5], [2]. Thus with this thought in mind, we aim to estimate and photo-identify individuals of the common dolphin population frequenting in the region of the north eastern Aegean Sea, Greece.

Researchers have primarily used distinct pigmentation patterns and long-term natural markings on the dorsal fins to identify individuals [9]. Although the non-intrusive method of photo-identification of cetaceans is well established [6], only a few areas around the world, including New Zealand [7], [8], the eastern Ionian Sea [9] and the Gulf of Corinth [1], have studied common dolphins using photo-identification. Analyses of capture-recapture technique provides data on group structure, site fidelity, movement patterns [6], and yield estimates of relative and total abundance of common dolphin, essential for management and conservation planning [1].

Material and Methods

A total of 166 photographs of common dolphin obtained between September 2004 and July 2011 were examined, looking at pigmentation patterns and other markings on the dorsal fins, resulting in the identification of 35 individuals. Five individuals were frequently observed on more than one occasion (Fig. 1).

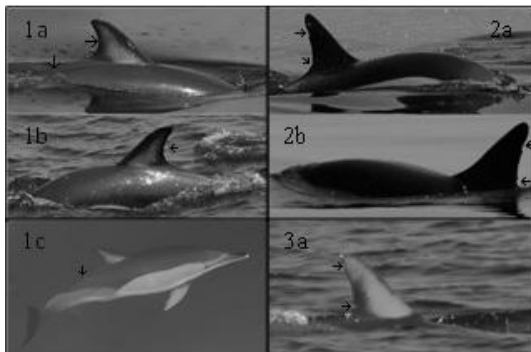


Fig. 1. Example of dorsal fin differences on three common dolphin individuals. Arrows indicate identifying features. First individual (1a,1b,1c) with distinct notch half way up the trailing edge of the dorsal fin and scar on body; second individual (2a,2b) with two distinct notches on the trailing edge of the dorsal fin; third individual (3a) with notch near the top and base

of the trailing edge of the dorsal fin

Results and Discussion

The results of this study suggest that photo identification can be successfully applied to common dolphin population in the region of the north eastern Aegean. However, further research and photographic material are required to identify the total common dolphin population in the region. As the volume of photographic material increases, the need for photographic software which can identify individuals via the analysis of pigmentation patterns is highlighted, consequently reducing potential human error.

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