

GEOGRAPHICAL AND HISTORICAL DISTRIBUTION OF THE CETACEANS IN CROATIAN PART OF THE ADRIATIC SEA

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Abstract

The following dolphin, porpoise, and beaked whale species have been found in the Croatian part of the Adriatic Sea: common dolphin, *Delphinus delphis* (Linnaeus, 1758), bottlenose dolphin, *Tursiops truncatus* (Montagu, 1821), striped dolphin, *Stenella coeruleoalba* (Meyen, 1833), Risso's dolphin, *Grampus griseus* (Cuvier, 1812), harbour porpoise, *Phocoena phocoena* (Linnaeus, 1758), northern bottlenose whale, *Hyperoodon ampullatus* (Forster, 1770), long-finned pilot whale, *Globicephala melas* (Traill, 1809), false killer whale, *Pseudorca crassidens* (Owen, 1846), sperm whale, and three species of the suborder Mysticeti. Among them the only true residents were the common and bottlenose dolphins. Before the Second World War the common dolphin was prevalent, but today only the bottlenose dolphin lives in the Adriatic Sea.

Key-words: Cetacea, coastal waters, Adriatic Sea

Introduction

Descriptions of marine mammals in the Croatian part of the Adriatic Sea date from as long ago as the 16th century. The first mention of the Mediterranean monk seal in the written Croatian language is to be found in the papers of Mavro Vetranovic Cavcic (1482-1576) (1), who described Mediterranean monk seal on the small island of Sveti Andrija, near Dubrovnik. The first formal mention of the dolphin can be found in the dictionary compiled by Faust Vrancic in 1595 (2) (Latin: Delphin; Italian: Dolfino; German: Meer-Svvein; Croatian: Duppini; Hungarian: Dizno Hal). However, the first scientific descriptions of cetaceans in Croatian Adriatic waters date from the end of the 19th century (3, 4). According to data in literature the following cetacean species in Croatian waters have been found and described: common dolphin, *Delphinus delphis* (Linnaeus, 1758), bottlenose dolphin, *Tursiops truncatus* (Montagu, 1821), Risso's dolphin, *Grampus griseus* (Cuvier, 1812), harbour porpoise, *Phocoena phocoena* (Linnaeus, 1758), northern bottlenose whale, *Hyperoodon ampullatus* (Forster, 1770), long-finned pilot whale, *Globicephala melas* (Traill, 1809), false killer whale, *Pseudorca crassidens* (Owen, 1846), sperm whale, *Physeter catodon* (Linnaeus, 1758), fin whale, *Balaenoptera physalus* (Linnaeus, 1758), minke whale, *Balaenoptera acutorostrata* (Lacépède, 1804), northern right whale, *Eubalaena glacialis* (Müller, 1776) (5-13), and, in October 1991, striped dolphin, *Stenella coeruleoalba* (Meyen, 1833) (14). Cuvier's beaked whale, *Ziphius cavirostris* (Cuvier 1823) (15) has also been found in Italian Adriatic waters. Apart from those species, descriptions of the Adriatic dolphin, *Tursiops parvimanus* (Reinhardt, 1888) (4,10) and the blue whale, *Balaenoptera musculus* (Linnaeus, 1758) (4,9) are to be found in literature, although they were misidentified. In addition to the foregoing published data, sightings of sperm whale, long-finned pilot whale, common dolphin, and bottlenose dolphin in Croatian waters, and striped dolphin on the outer limits of Croatian territorial waters were noted between 1972 and 1992 (16). The purpose of this work was to establish all the cetacean species which are to be found in the Croatian part of the Adriatic Sea, as well as their present status.

Materials and methods

We examined and identified the skeletons and corresponding documents housed in the Croatian Natural History Museum in Zagreb, where there are 25 skeletons, together with relevant documentation on dolphins found between 1873 and 1935 in various parts of the Croatian Adriatic Sea.

In the past decade we have determined species for 211 individual live cetaceans in different areas of Croatia's Adriatic Sea (between about N42°15' and N45°35' latitude) and divided in 30 by 30 minute (latitudinally and longitudinally) (16) squares. For this purpose we used a small motor boat with which we were able to approach the dolphins to within a distance of less than 50-60 meters. In the period June - August of each year we sailed through specific areas of Croatian waters, to a total of 100 hours and 1,000 km. We also manned an observation point on the shore of the central part of the Croatian Adriatic Sea (E15°15'25'', N44°23'12''). It should be noted that it is probable that our observations did not always involve different animals, and that some individuals could have been registered more than once, at different locations and at different times.

Over the past seven years we have examined and determined species of 15 carcasses of dolphins that either died from natural causes or

were accidentally caught in fishing nets. The dolphins were aged by growth-layer groups in the dentine (17), or else were adult specimens, determined by the complete ossification of vertebrae.

Results

Of 25 dolphins found in Croatian waters between 1873 and 1935 and whose skeletons and documents are housed in the Croatian Natural History Museum in Zagreb, 15 specimens were common dolphins, 9 were bottlenose dolphins and one was a Risso's dolphin. Therefore, of all the collected dolphins to have died in the Croatian part of the Adriatic Sea before the Second World War, 60% were common dolphins and 36% were bottlenose dolphins.

Of the 211 living individuals to have been identified in the last decade in Croatian Adriatic waters, one was a juvenile whale belonging to the family Balaenopteridae, 10-15 m long, seen on 8 September 1990, at N44°58'32'', E14°55'. We probably observed the Risso's dolphin twice (11 August 1990 and 2 May 1992) from the coastal observation point. On the first occasion the Risso's dolphin was in the company of two bottlenose dolphins; on the second occasion it was solitary. The remaining 208 dolphin sightings were bottlenose dolphins, seen at different times of the year, in almost all 30 by 30 minute (latitudinally and longitudinally) (16) squares of Croatian Adriatic waters.

Of the 15 examined carcasses of the dolphins, 14 were bottlenose dolphins which had died from natural causes, or were accidentally caught in fishing nets along the whole Croatian coastline and islands (between N42°43'45'' and N45°06'05''). They were of both sexes, from cub to adult, with body masses of between 52 and 279 kg, and a body length of between 163 and 290 cm. Only one was a striped dolphin (N42°55', E17°11'25''), stranded in October 1991 (Table 1). This was a physically mature animal and, according to interviews with witnesses, it had displayed some neurological symptoms before stranding; that is to say, the animal rolled and swam in small circles. In November 1990, an 11-metre-long carcass of a fin whale was found on the coast of Silba island (N44°21', E14°44').

Table 1. General data of examined dead dolphins in Croatian part of the Adriatic Sea (F = female; M = male).

Species	Found month/year	Sex	Age year	Location north/east	Length Mass	
					cm	kg
<i>Tursiops truncatus</i>	10/90	F	4	45°03'N, 13°35'E	250	204
<i>Tursiops truncatus</i>	11/90	F	<1	45°05'40"N, 13°38'40"E	164	52
<i>Stenella coeruleoalba</i>	10/91	?	adult	42°55'N, 17°11'25"E	?	?
<i>Tursiops truncatus</i>	6/92	M	7	45°04'N, 13°34'E	263	240
<i>Tursiops truncatus</i>	summer/93	?	?	44°23'30"N, 14°40'E	?	?
<i>Tursiops truncatus</i>	9/93	M	3-4?	44°33'40"N, 14°23'E	242	?
<i>Tursiops truncatus</i>	3/94	F	6	45°04'25"N, 13°38'20"E	219	120
<i>Tursiops truncatus</i>	5/94	F (pregnant)	6	44°52'05"N, 14°E	265	?
<i>Tursiops truncatus</i>	9/94	M	<1	42°43'45"N, 16°53'40"E	163	75
<i>Tursiops truncatus</i>	4/95	F	adult	45°18'N, 14°33'E	?	?
<i>Tursiops truncatus</i>	12/95	M	9	43°43'40"N, 15°53'30"E	278	237
<i>Tursiops truncatus</i>	4/96	F	5	44°49'30"N, 13°51'05"E	240	?
<i>Tursiops truncatus</i>	8/96	?	young	43°12'30"N, 16°33'20"E	210	?
<i>Tursiops truncatus</i>	10/96	M	12	45°06'05"N, 13°37'50"E	290	279
<i>Tursiops truncatus</i>	4/97	F (pregnant)	7	44°46'20"N, 14°19'15"E	?	?