Mediterranean Monk Seal (*Monachus Monachus)* Habitat in Vis Archipelago, the Adriatic Sea

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INTRODUCTION

The Mediterranean monk seal (*Monachus monachus* Hermann, 1779) used to be widespread throughout the Adriatic Sea but today is very rare in this area[1]. Only a few individuals were noticed recently, passing by the outermost Croatian islands. Biology and population ecology of this endangered marine mammal have been little studied scientifically in the Croatian part of the Adriatic Sea so far[2].

The Mediterranean monk seal, the largest species among seals, could reach about 3 m in length and 450 kg as recorded in the Vis archipelago[3] (Fig 1). Its fur is greyish-brown or dark brown with white spots especially on the ventral side. Sexual intercourse and fertilization take place under the sea. It has been recorded that one male fertilizes more females during the mating season[4]. Females give birth to only one cub per year who is, for 3 to 4 weeks, completely dependent on the mother. Sexual maturity is reached in the fourth year and individuals can live up to 20 or 30 years. A grown up individual eats 10-12 kg of food, predominantly fish and cephalopodes[5].

Fig. 1: Vis archipelago

According to recent studies in the field and the results of fishermen questionnaires, there is no resident monk seal population in the Croatian part of the Adriatic Sea at present[3]. This species, like all seals, needs land for bearing young and for rest[5]. In the Adriatic habitats, there are suitable rock beaches and caves that have entrances at or below sea level[6].

The aim of this survey was to investigate the known former habitats of the Mediterranean monk seal in the Vis archipelago and gather as much knowledge as possible about natural caves and beaches where individuals of this species were encountered in the last 50 years.

Table 1. Number of *Monachus monachus* sightings in Vis archipelago from 1961-1996. (Results of survey of 44 fishermen)

Storo medvidina i. Mala Palagruža		Kamik ol žola i. Vela Palagruža		Slatina i. Svetac		Tovorski bod i. Svetac		Corno ploca i. Svetac		Puhera i. Svetac		Medvidina špilja i. Biševo		Zakamice Okljuèina i. Vis		Punta ol pozora i. Vis		HABITAT
nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	nms	nsf	YEAR
												8	3					1961
																		1962
																		1963
																		1964
				3	1							2	2			1	1	1965
1	1											3	2			1	1	1966
												3	3					1967
								1	1			4	3					1968
				1	1	1	1					3	1					1969
2	1											3	3					1970
				1	1							2	1					1971
																		1972
																		1973
				2	1	1	1	2	1	2	1							1974
								3	1			4	1					1975
						2	1											1976
																1	1	1977
																		1978
																		1979
												6	2					1980
																		1981
																		1982
																		1983
								5	1									1984
																		1985
																		1986
																		1987
																		1988
																		1989
																		1990
																		1991
																		1992
		1	4															1993
																		1994
																		1995
														1	2			1996
3		1		7		4		11		2		38		1		3		Total of monk seals seen

nsf – number of surveyed fishermen; nms – number of monk seals seen

METHODS

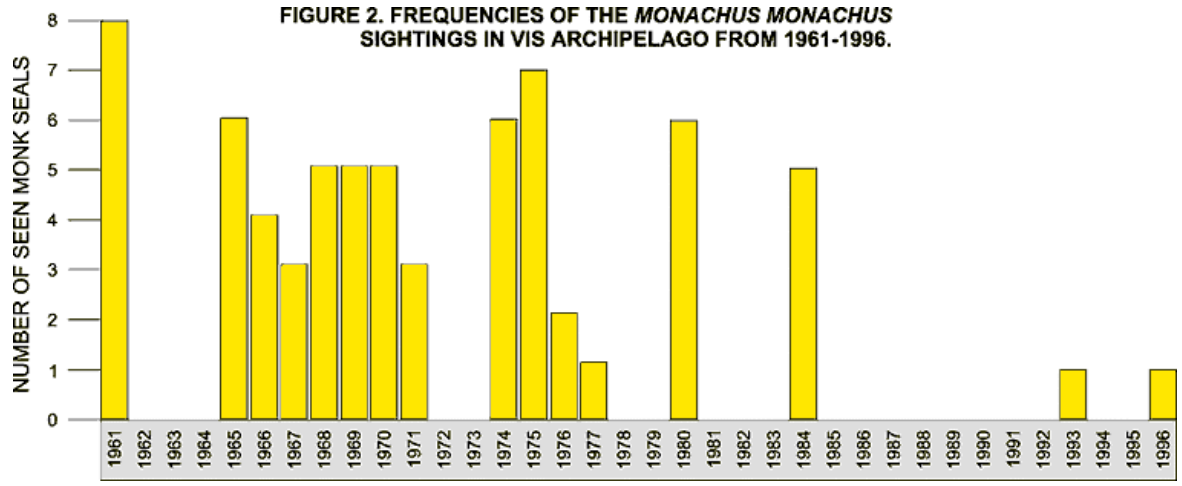
Two methods were used in this study: a survey among fishermen in the fishing village of Komiza, and direct examination of known former habitats of the monk seal. In the survey, 44 fishermen were interviewed about encounters with the monk seal: sites, behaviour, number of individuals, and damage to fishing gear which might be attributed to the species. In the direct examination, all known habitats were visited, measured and described.

RESULTS AND CONCLUSIONS

In this survey, 8 caves and 2 pebble beaches known as former habitat of the Mediterranean monk seal were measured and described. Seals used rocky coastal areas, caves with pebble beaches and flat rocks as well as sandy beaches surrounded by steep rocks for resting and reproduction.

No sign of the animal's recent presence at these localities was found.

According to the survey of fishermen, the monk seal has been only temporarily present in this area during the last two decades (Table 1 & Fig. 2).



Caves surveyed during the study have not changed since the time when this species inhabited them, and they are still suitable as potential monk seal habitat. As far as beaches are concerned, those surveyed are no longer fully suitable as resting sites for this species, due to intense nautical traffic in the area during the summer.

Repopulating the area with Mediterranean monk seals would be possible only through the establishment of specially protected areas, such as marine parks at certain localities.

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