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KILLER WHALE, *ORCINUS ORCA*, IN THE MEDITERRANEAN SEA

The killer whale, *Orcinus orca* (Linnaeus 1758), one of the most widespread cetacean species, can be found virtually in all oceans and seas and at all latitudes, from polar waters to the equator (Leatherwood and Dahlheim 1978). The Mediterranean Sea is no exception. Probably the earliest published account of this species, given by Pliny the Elder, refers to a killer whale which apparently stranded in the harbor of Ostia "after gorging on skins from a sunken ship" and was killed by the emperor Claudius and his guard (de Saint Denis 1955). It is generally agreed, however, that killer whales are rather uncommon in the Mediterranean (Gervais 1864, Tomilin 1957, Toschi 1965, Duguy and Robineau 1973, Duguy and Cyrus 1974, Duguy 1978, Casinos 1982, Duguy and Robineau 1982, Cagnolaro *et al.* 1983, Duguy 1983). The purpose of this note is to report on recent observations of *O. orca* in the Mediterranean, and to review the current knowledge of the presence of this species in the area.

Most of the recent data on killer whales in the Mediterranean are from the western basin. *O. orca* is sighted occasionally on the Mediterranean side of the Gibraltar region (Casinos and Vericad 1976) and off the Spanish mainland coast (Raga *et al.* 1985). A skeleton of a female captured in 1902 near Gibraltar by Albert of Monaco (Casinos and Vericad 1976) is now mounted in the oceanographic museum of Monaco. Incidental captures of killer whales, in conjunction with fishing activities, were reported from southeast Spain (Duguy *et al.* 1983*a, b*). Strandings on the Balears Islands were reported by Casinos and Vericad (1976), Casinos (1981, 1982) and Duguy *et al.* (1983*b*). Data on killer whales from southern France include two skulls reportedly in the national museum of Paris, one from a specimen captured near Sète, and one from a juvenile stranded at Palavas (van Beneden 1889); one skull in the museum of Marseilles, locality unknown (Duguy and Cyrus 1976), but supposedly Mediterranean (van Beneden 1889); stranding reports from the French mainland (Duguy 1977, Duguy *et al.* 1983*b*) and west Corsica (Duguy 1976); and sightings off the west coast of Corsica (Duguy *et al.* 1983*b*, Cagnolaro *et al.* 1983). Albert of Monaco (1898) collected two specimens from a pod of three near Monaco; the skeleton of one of them is mounted for display in the oceanographic museum of that city. Killer whales are also found occasionally in the Italian seas. Two skulls from Sicily are reportedly kept in the museum of Palermo (Giglioli 1880); one skull from Sardinia (Island of Asinara) is in the museum of Florence. The record of a specimen caught between Sicily and Malta was given by Cornalia (1870), and one young individual was caught in June 1972 in a coastal tuna corral ("tonnara fissa") near Scopello (Palermo), Sicily (Di Natale and Mangano 1983, A. Di Natale, personal communication). Sighting records from the western Ligurian Sea were given by Duguy *et al.* (1983*b*) and Cagnolaro *et al.* (1983), from the east coast of Sardinia by Di Natale and Mangano (1981, 1983), from the Eolian Islands by F. Quilici (personal communication), and from Malta by Tomilin (1957) and by F. Quilici (documented by unpublished photographs). Killer whales are extremely rare east of Italy. Few sightings are reported from the Ionian Sea (Di Natale and Mangano 1981, Notarbartolo-di-Sciara 1981, Cagnolaro *et al.* 1983, Di Natale and Mangano 1983). No documented records of killer whales are available for the eastern Mediterranean basin, although the species has been reported from Israel (Marchessaux 1980).

In summer and fall 1985 a killer whale was sighted repeatedly in the Ligurian Sea over a period of almost two months. An individual about 5 m long, apparently alone, was observed in the morning of 14 August, 75 km southeast of San Remo (43°33'N, 8°30'E). Judging from its body size and from the shape of its dorsal fin, it was either an immature male or an adult female. Two days later the sighting of two killer whales was reported 30 km south of San Remo. The larger of the two, with an extremely tall dorsal fin, apparently remained about 1 km away and was not documented, but the smaller individual swam for a long time in the vicinity of the observer's boat, and was filmed. Careful examination of its natural marks (a distinctive, fan-shaped white postocular patch and the ragged trailing edge of the dorsal fin) indicated that this specimen was the same sighted on 14 August. A third sighting of this

individual was made on 1 October, 30 km south of Finale Ligure (43°52'N, 8°24'E). The killer whale was feeding on the floating disemboweled carcass of a 6-m-long Cuvier's beaked whale (*Ziphius cavirostris* G. Cuvier 1823), a cetacean not infrequent in the Mediterranean, but rarely observed (Cagnolaro *et al.* 1983).

O. orca is a known predator of other cetaceans in the Mediterranean (Albert of Monaco 1898, Casinos and Vericad 1976). The fact that the killer whale was feeding on an odorless, supposedly freshly killed carcass is further support to the hypothesis of predation. The relatively low mean productivity of the Mediterranean causes low densities of pelagic vertebrate and cephalopod fauna, on which killer whales largely subsist. It has been suggested that killer whales feed on other cetacean species primarily in warm temperate and tropical seas, where feeding conditions are usually less favorable for them than at high latitudes (Shevchenko 1975).

Scarcity of food may also be one of the reasons for the low density of *O. orca* in the region. Its infrequent occurrence in the Mediterranean – which decreases to virtual absence eastward, away from Gibraltar – argues against the hypothesis of a small but resident Mediterranean population; surely such a conspicuous and unmistakable species would be reported more often if a resident population was present in an area where human activities are so intense. That the entire record from the Ligurian Sea in one year consists of repeated observations of the same individual further suggests that killer whales in the Mediterranean are occasional wanderers belonging to a North Atlantic stock.

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