

RESEARCH ON CETACEANS IN ITALY

Giuseppe Notarbartolo di Sciara and Giovanni Bearzi

Tethys Research Institute, viale G.B. Gadio 2, 20121 Milano, Italy

I. Introduction

Zoology, like other branches of the natural sciences, has expanded greatly from the time of Aristotle, who may be regarded as its founder, to the present day. Zoology started from simple descriptions of animals, based in part on facts and in part on fantasy. Century after century, accounts became increasingly detailed, extending from representations of external features to anatomical descriptions of internal organs, while zoological collections were established to buttress such descriptions with reference material. Increasingly detailed knowledge of the different animal species afforded in the XVIII cent. the adoption of the Linnaean cataloguing system, still valid to this date. Two thousand years of zoological work also set the stage for Darwin's unifying theory of evolution, which provided an explanation for the mechanisms responsible for the diversity of all existing animal species, of the relationships among species, and between species and their environment.

Cetology (cetacean zoology) followed a similar development, although at a slower pace with respect to most branches of zoology. This was because cetaceans have never been easy to study. Compared to most species, and even to most mammals, cetaceans are relatively rare, and the body size of even the smallest species (let alone the largest) made it often problematic to bring specimens to a laboratory or to a collection for detailed investigation. Furthermore, their lifestyles have made cetaceans, until recently, barely accessible not only to studies of their ecology and behaviour, but even to more simple taxonomical, anatomical, and physiological descriptions. This situation has changed significantly only in the last few decades. Technological advances in scientific methods and improvements in our capabilities of working offshore, together with an increased interest and respect for these animals in many cultures, are finally narrowing the gap between zoology in general and cetology in particular.

What follows is a brief, and certainly incomplete, account of the main contributions to cetology by zoologists in Italy. The past works on cetaceans in our country have largely been ignored by the international scientific community, because they were published in Italian and mostly on hard-to-obtain journals; however, scientific production in this field is comparable to that of most other European countries. We are only considering here, for the purposes of this writing, studies involving cetaceans deriving from the Mediterranean seas surrounding Italy; studies of captive cetaceans, largely of an exotic origin, are not included in our review.

Early descriptions of cetaceans are found in the writings of natural historians across a wide temporal span, from the accounts of Pliny the Elder in the I cent. AD (Cagnolaro 1982) to the colourful descriptions of whales, sperm whales, killer whales, dolphins and porpoises by Ulisse Aldrovandi (1638). Further contributions were provided by Antonino Mongitore (1734), an erudite clergyman from Palermo, and by Constantine Samuel Rafinesque-Schmaltz (1810), a naturalist who spent a decade in Sicily in the early XIX cent. However, not unlike Pliny's descriptions 17 centuries before him, Rafinesque's cetaceans, such as *Epiodon urganantus* and *Oxypterus mongitori*, belong more to the realm of fantasy than to that of science.

To the best of our knowledge, the first attempt to catalogue all the cetacean species occurring in the whole of the seas surrounding Italy is that of naturalist Emilio Cornalia (1824-82), director of the Civic Museum of Natural History of Milan, who in his 1872 "Fauna d'Italia" listed 10 species of *Delphinus* (*D. delphis*, *D. tursio*, *D. phocoena*, *D. orca*, *D. rissoanus*, *D. mongitori*, *D. urganantus*, *D. globiceps*, *D. desmarestii*, *D. doumetii*), two of *Physeter* (*P. macrocephalus* and *P. tursio*), and *Balaenoptera musculus*. Many of these species did not withstand the scrutiny of time. Slightly less than a century later, in 1965, Augusto Toschi wrote a newer account which is vastly more accurate, thanks to the accumulation of knowledge that had occurred since Cornalia's time, and that is succinctly narrated in the next section of this paper. However, Toschi's account still contains clear incongruences as to the species composition of the cetacean fauna in Italy, because in spite of all efforts the state of knowledge of cetacean populations in those years was still very limited. Sensible improvements were contained in the guide of cetaceans in Italy by Luigi Cagnolaro *et al.* (1983), rehashed in Di Natale (1987). The latest comprehensive account of Mediterranean cetaceans, with a special attention for the Italian seas (already including knowledge of the ecology of these species which had become available since the 1980s), is provided by a field guide written by the senior author and illustrated by Massimo Demma (1997).

Another rather different, but extremely useful nation-wide review, which includes a list of all the cetacean specimens found in the Italian collections and museums, was compiled by Luigi Cagnolaro in 1996.

2. Accounts of sporadic findings of stranded or captured specimens: 1715-1985

Beginning mostly from the second half of the XIX cent. an increasing number of zoologists engaged in the reporting of occurrences of cetacean species in the seas surrounding Italy. Scientific activities were conducted from a limited number of centres of interest, mostly in correspondence of the country's main zoological museums and scientific universities. These are here listed geographically, following the Italian coastline from Liguria in to north west to Friuli-Venezia Giulia in the north east.

Liguria. Significant contributions to the knowledge of the occurrence, strandings and captures of large cetaceans in Italy, notably fin, sperm, minke and right whales, where compiled in 1896 and 1908 by Corrado Parona, who directed the Institute of Zoology of the University of Genoa around the turn of the century. Decio Vinciguerra reported in 1926 on two hitherto little-known cetaceans from the area, the false killer whale and the Cuvier's beaked whale. Enrico Tortonese, director of the City Museum of Natural History "Giacomo Doria" of Genoa, also contributed with a number of writings, including the description of two specimens of *Ziphius* stranded in Liguria (1957), a report of the multiple stranding of a minimum of 15 *Ziphius* along the Ligurian shore (1963b), the catalogue of cetacean specimens belonging to 9 species (striped dolphins being noticeably absent) conserved in the collections of Turin and Genoa (1963c), and a popular book with an account of cetaceans found in the Ligurian Sea (containing, however, a rather conspicuous misidentification of a striped dolphin, classified as common dolphin). In more recent years, Gianna Arbocco (1969) and Roberto Poggi (1982), the current director of the "Giacomo Doria" museum, provided an updated account of the recent cetological acquisitions by that institution. Other contributions from Liguria include that by Giovanni Podenzana (1888) from La Spezia, reporting on a long-finned pilot whale captured locally that year, and that from Niccolò Mezzana (1900) from Savona, who reports on the local capture of a specimen of *Ziphius*, which he unfortunately misidentified as *Hyperoodon ampullatus*; thus paving the way to a long and unfortunate series of similar misidentifications which, rather incredibly, persist to our days.

Not too far from Liguria, in nearby landlocked **Lombardy**, the Civic Museum of Natural History of Milan remains a centre of excellence on cetology thanks to the interest and activities of its former director and curator, Luigi Cagnolaro. Among Cagnolaro's many contributions to this early phase of Italian cetology we here recall his description of a newborn Cuvier's beaked whale stranded near Genoa (1964), the description of a pregnant female long-finned pilot whale, captured off Genoa in 1967, the description of the skeleton of a fin whale exposed in the Milan Museum (1977), and the account, description and morphometrics of 18 cetacean specimens belonging to six species (fin whale, sperm whale, Cuvier's beaked whale, long-finned pilot whale, Risso's dolphin and striped dolphin) stranded along the coasts of Italy from 1981 to 1985 (Cagnolaro *et al.* 1986)

Tuscany. In Florence, where the important ancient cetological collection of the zoological museum "La Specola" is headquartered, Enrico Hillyer Giglioli provided (1880) a brief but precise account of 12 species of cetaceans for which he could find records from the seas surrounding Italy. This account vastly improved the list which had been drafted by Cornalia only eight years before. Later (1882) Giglioli added the further account of a 13th species, the false killer whale, which he had identified in specimens conserved in the zoological museum of Palermo. Pisa, and the zoological museum of its university, remains a most substantial centre of interest for cetaceans in Tuscany. An important role was played by Sebastiano Richiardi, former director of the zoological museum of Bologna and afterwards director of the Pisa museum since 1871. Richiardi embarked on an ambitious project, having the target of establishing in that institution a collection representing all the world's known genera of Cetacea. Although the target was not attained, Richiardi's effort resulted in a major assemblage of cetacean specimens, which are conserved today in the Certosa di Calci, near Pisa. Richiardi published in 1874 a detailed analysis of the cranium of a young female fin whale stranded near Livorno in 1871, listing as well other cetacean specimens which were acquired by his collection, and in 1881 an analysis of Risso's dolphin skeletal morphology. A later curator of the same museum, Eugenio Ficalbi, briefly reported in 1907 the local stranding of a fin whale, and in 1919 subsequent strandings of two fin and one sperm whale. Co-worker Umberto Repetti, who had published the catalogue of cetacean specimens in the collection, was charged by him to proceed to the specific determination of four crania in the collection, all of which turned out to belong to *B. physalus*. Alberto Razzauti, from the same institution, described a female specimen of Risso's dolphin stranded in the vicinities in 1910, providing with the occasion morphometrics of that specimen and a summary of the occurrence of the species in Italy. In 1927 Celso Borri, from the same institution, described a young fin whale which had been captured in Portoferraio, Isola d'Elba. Some years before (1910) Giacomo Damiani gave an account of his attempts to salvage specimen material from a likely stranding of a minke whale on Isola d'Elba. In 1901 Eugenio Salle and Giuseppe

Becherucci endeavoured to salvage a specimen of fin whale for the city of Livorno, and provided measurements and some anatomical descriptions of that specimen. Finally, the cetological collection at the Museo dei Fisiocritici of Siena, mentioned later in this paper, must be recalled here for its importance.

Rome. The first sign of an interest for cetaceans here is represented by the account of a fin whale stranded on the nearby shore, published by Vincenzo Diorio in 1866. Leone De Sanctis, a fine anatomist as well as director of the Zoological Museum of the University “La Sapienza”, left a remarkable morphological description of a large male sperm whale stranded on the Adriatic coast of Italy in 1874, including an extremely detailed representation of the circulatory system, heart and aorta, gastro-intestinal tract, spermaceti organ, respiratory tract, brain and dura mater, and genital organs. The paper is enriched by beautifully crafted drawings of internal anatomical features, and by anatomical comparisons between sperm whales and other dolphin species. Antonio Carruccio, who succeeded to De Sanctis in the direction of the museum, made quite a few contributions. These include accounts and descriptions of cetacean specimens acquired by his institution, such as a minke whale captured in a tuna trap in Tuscany (1899, 1900), a live-stranded long-finned pilot whale off Anzio (1903), a Risso’s dolphin captured in Tuscany (1906), with a review of the species’ occurrence in Italy, and finally (1911) a rather adventurous account with measurements of a small balaenopterid whale, by him supposed a minke whale, stranded at Castel Fusano, near Rome. In 1914 Giuseppe Lepri, of the Institute of Zoology of the University of Rome, rectified Carruccio’s 1911 report, demonstrating that the Castel Fusano specimen was, in fact, a very young fin whale. Gustavo Brunelli, from the Accademia Nazionale dei Lincei, attempted in 1928 (without success) to organise the collection of data on cetacean reproductive biology through the analysis of pregnant dolphin females which had become available through a culling programme. Brunelli also described in 1928, in cooperation with colleague G. Fasella, the stranding of a female *Mesoplodon*, which they differentiated from *Ziphius* as having two mandibular teeth in medial position; unfortunately, no specimen from this extremely rare event in the Mediterranean was secured to science. The greatest production in terms of cetological literature in Rome came in the 1950s, through the works of Giuseppe Tamino, curator at the Civic Zoological Museum of that city. Among his contributions we here recall a detailed account of a long-finned pilot whale stranded near Rome (1952), an account of the stranding of a young fin whale on the island of Ischia (1953), with morphometrics and comparisons with other known specimens, an account and measurements of the strandings of two sperm whales along the Tyrrhenian coast of Italy, with a review of past occurrences (1953), an account and measurements of the stranding of a fin whale in the bay of Salerno (1953), an account of the stranding of a Risso’s dolphin near Rome (1953), a study on the osteomorphology of a long-finned pilot whale (1954), with speculations about the species’ functional anatomy and locomotion, a study of the muscular anatomy of Risso’s dolphins and on this species’ swimming capabilities (1953), a report on a stranded young fin whale in the Gulf of La Spezia (1956), with comments on fin whale morphometry and allometry, and finally an account of the stranding of a Cuvier’s beaked whale in 1957, with morphometrics and comparisons with other similar strandings in Italy.

Naples. The zoological museum of that city hosts what may be regarded as one of the rarest specimens of cetaceans from the Mediterranean, the mounted skeleton of a North Atlantic right whale, which stranded in Taranto in 1877 and was acquired by Paolo Panceri, professor of comparative anatomy at the University of Naples; the skeleton is described in detail by Gasco (1878), as well as by Giovanni Capellini (1877b) from Bologna (see below). Gesualdo Police, from the university of that city, provided in 1909 a detailed description of the cranial anatomy of a long-finned pilot whale, together with a review of the occurrence and captures of that species along the Italian coasts. Francesco Saverio Monticelli, director of the zoological museum of the University “Federico II” of Naples, discussed (1906) the collection of a large sperm whale stranded on Ischia in 1770, and reported in 1925 the entrapment of a minke whale in a fixed tuna net on the island of Ischia in 1925.

Sicily. Antonino Mongitore (1734) provided an interesting account of a very rare event in the Mediterranean, the mass stranding of 16 sperm whales near Mazzara del Vallo (western Sicily), allegedly during a violent storm on 30 November of that year. An interesting summary of the cetaceans found in the waters surrounding Sicily was compiled in 1868 by Sicilian naturalist Francesco Minà Palumbo. Few years later, Pietro Doderlein, director of the Museum of Zoology and Comparative Anatomy of the University of Palermo, published an account of the Sicilian vertebrate fauna, in which cetacean species are listed, although with little direct knowledge (1871). In 1883 Giuseppe Riggio, curator of that museum, described the anomalous skull of a common dolphin. The same author also provided in 1893, together with a discussion on the presence of large cetaceans in the area, yet another mass stranding account of seven sperm whales on the coast of western Sicily in 1892. In Messina, Concettina Scordia from the local Istituto Sperimentale Talassografico reported rather mysterious occurrences, in 1933 and 1939, of “pilot whales” attacking giant bluefin tuna in the Strait of Messina (1939); these were, in fact, false killer whales, as is apparent from the published photograph of a skull (also pointed out by Orsi Relini and Cagnolaro 1996). In later years Arturo Bolognari, director of the Institute of Zoology of the University of Messina, was fascinated by sperm whales, and gave numerous accounts (1949, 1950, 1951, 1957) of specimens that were captured off eastern Sicily, together with morphometrics and a

wealth of other information. Later contributions from northeastern Sicily were provided by Di Natale and Giuffrè (1976), and Di Natale and Mangano (1985).

Puglia. Pasquale Manni reported in 1827 a large whale stranded near the tip of the Apulian peninsula, on the Adriatic side, and provided sufficient information to identify the whale as *Balaenoptera physalus*. Pietro Parenzan, curator of the zoological collection in Porto Cesareo (Lecce), reported on the stranding of a fin whale on the island of Ponza (Tyrrhenian Sea) in 1957, and on the capture of a Risso's dolphin in the Gulf of Taranto in 1961. It is also worth mentioning here the compilation on cetacean reports for the seas adjacent to the Apulian coasts by Giambattista Bello (1990), from the Provincial Laboratory of Marine Biology of Bari, as this paper mostly refers to historical occurrences.

Bologna. Sebastiano Richiardi, who directed the university museum of comparative anatomy before moving to Pisa, enriched the collection with several cetacean specimens, including the skeleton of 19 m-long Mediterranean sperm whale, the largest on record in Italy. Giovanni Capellini, professor of geology at the university of that city, published in 1877 two important cetological papers: a very detailed osteological description of a minke whale which had been acquired in 1771 at the Bologna fish market by Carlo Mondini, curator of the museum of comparative anatomy, and the description of a rare stranding, in Taranto, of a right whale, the skeleton of which is now conserved at the zoological museum of Naples (see above).

Venice. In 1715 chemist Giovanni Girolamo Zannichelli published in Venice "Puro e distinto ragguaglio del gran pesce chiamato Balenotto bufalino, detto anche Capo d'olio, preso in vicinanza del porto di Pesaro il giorno 18 aprile 1715 da P. Domenico Cavaglieri" (not seen, cited by Tortonese 1963a). Giovan Domenico Nardo (1855) listed all the species of marine mammals found in the Adriatic Sea known to him. Enrico Filippo Trois, curator of the natural history collections of the Istituto Veneto di Scienze, Lettere ed Arti of Venice, provided a first record of a Risso's dolphin in the northern Adriatic Sea in 1874, gave a detailed anatomical description of another specimen caught near the mouth of the river Piave in 1882, and published in 1894 a list of cetaceans occurring in the Adriatic Sea. Venetian naturalist Alessandro Pericle Ninni reported two Risso's dolphins which entered the Venice Lagoon in 1890; Emilio Ninni provided in 1901 an account of the cetacean species known to have been captured, stranded or occurred in the Adriatic (surprisingly failing to mention the Risso's dolphins in Venice in 1890), and commented on the dolphins' relative abundance at sea, based on accounts from fishermen. E. Ninni further speculated about the behaviour of dolphins, again based on reports from fishermen (1904). In more recent times naturalist Giampaolo Rallo reported on the sighting of a bottlenose dolphin inside the Venice lagoon (1976), and later compiled an account of cetaceans from the Adriatic Sea (1979).

Trieste. Antonio Valle provided in 1900 a summary of past occurrences of Risso's dolphins in the northern Adriatic, comprising the waters adjacent to the Istrian peninsula and Dalmatia, at that time part of Italy, including as well the original description of a recent capture with morphometrics and endoparasites. In 1932 Aristocle Vatova, from the Italian-German Institute of Marine Biology of Rovigno, listed *Delphinus delphis* and *Tursiops tursio* (= *T. truncatus*) among the marine animal species that are most frequently encountered in that area.

3. Beginning of a concerted and systematic scientific activity at the national level: the Centro Studi Cetacei.

The first advocates of the need for organised research on cetaceans in Italy, and for the collation of the existing information on this mammalian order, were Arturo Bolognari from the University of Messina (1951), and Enrico Tortonese from the Genoa Museum (1963a). However, a real impulse in this direction had to wait until 1985, when the foundations were laid for the organisation of a nation-wide cetacean stranding network during a conference held in Riccione (Notarbartolo di Sciara *et al.* 1986). That meeting saw the creation of the Centro Studi Cetacei (CSC), consisting of a group of zoologists concerned with cetacean science, and hosted by the Italian Society for Natural Science in Milan. The CSC embarked immediately in the organisation and maintenance of a nation-wide stranding network, *Progetto Spiaggiamenti*, still operant today. The most remarkable aspect about the CSC and its network is its strict volunteer status, and the scope of its achievements which were produced at zero cost for the Italian taxpayer. The activities of the CSC were most notably supported by the Natural History Museum of Milan, through the funding of the annual reports published on the proceedings of the Italian Society of Natural Sciences (Centro Studi Cetacei 1987, 1988, 1990, 1991, 1992, 1994, 1995, 1996a, 1996b, 1997a, 1997b, 1998, 2000, 2001, 2002, 2003, in press a, in press b), and through the coordination of *Progetto Spiaggiamenti* by the Museum's curator, Michela Podestà. During its first ten years of operations, a total of 1,463 cetacean specimens belonging to 11 species were recorded (Borri *et al.* 1997; Bortolotto and Podestà 1997), and listed in the yearly reports. The total number of specimens recorded by the CSC has meanwhile grown to 2,928 in 16 years (1986-2001).

Of all these, a total 377 specimens had been secured by a number of zoological collections around the country during the first decade of operations (Cagnolaro 1997), providing an unprecedented influx of study material into Italian research institutions. Collections benefiting from the output of CSC included, most notably, the museums of Florence, Genoa, Livorno, Milano, Pescara, Rome, and Siena, as well as that of the Fondazione Cetacea in Riccione. Updated catalogues of some such collections have been compiled since, to account for the large number of new entries. These include the catalogue of the collection in Rome (Carlini 1991), Siena (Pezzo *et al.* 1995), Pisa (Cagnolaro and Braschi 1993) and Naples (Maio *et al.* 2001b).

Through the results of its stranding network, the CSC has provided a remarkable flow of study material which is vigorously promoting the advance of knowledge in the fields of cetacean pathology, toxicology, mortality, and conservation, despite the limitations of research efforts dedicated to these mammals imposed by the lack of funding and consequent absence of university programs specifically dedicated to cetaceans throughout the 15 Italian faculties of veterinary medicine. Until 10-15 years ago, medical research on cetaceans was limited to few passionate scientists from the Institute of Parasitology of the University of Rome "La Sapienza" (now Section of Parasitology of the Department of Public Health Sciences), the Department of Public Health and Cell Biology of the University of Rome "Tor Vergata", the Institute of General Veterinary Pathology (now Section of Parasitology of the Department of Veterinary Public Health) of the University of Milan, and the Department of Experimental Veterinary Science of the University of Padua, Bologna and Siena (e.g., Paggi *et al.* 1986). Studies on development, structure and function of dolphins have been promoted at the Institute of Anatomy of Domestic Animals of the University of Milan in the '80s and '90, and presently at the Department of Experimental Veterinary Science of the University of Padua, where Bruno Cozzi has managed in 2002 to establish a pioneering tissue bank of Mediterranean cetaceans. A specific, active interest in pathology was developed in the '90s by Giovanni Di Guardo, now at the University of Teramo, who studied morbillivirus infections in Mediterranean cetaceans. In fact, data from the CSC network provided the sole evidence that a morbillivirus epizootic of striped dolphins, originated in Spain, had extended to Italy (Bortolotto *et al.* 1992). Several "Istituti Zooprofilattici" (State Institutes for Animal Health), and Departments of Veterinary Pathology of some Universities (Bari, Bologna, Napoli, Padova, Palermo) now provide diagnosis for stranded cetaceans and are active with specific research projects (e.g., Di Guardo *et al.* 2001, Maio *et al.* 2001a).

Studies of the presence of contaminants in the tissues of cetaceans, stranded as well as free ranging, are undertaken most extensively at the Department of environmental sciences of the University of Siena. Toxicological analyses were performed on biopsy samples that were largely provided by the CSC (stranded animals) and by the Tethys Research Institute (free-ranging animals). In the early 1990s Silvano Focardi and co-workers started producing information on the levels of contaminants found in cetaceans stranded along the Italian coasts (e.g., Focardi *et al.* 1991, Marsili and Focardi 1997). This work was expanded by Maria Cristina Fossi, Letizia Marsili and their colleagues at the Laboratory of Biomarkers of that same university, who specialized in advanced methodologies applied to the investigation of cetacean toxicology. As a whole, the Senese research group produced a remarkable body of scientific information aimed at evaluating the toxicological risk of Mediterranean cetaceans (e.g., Fossi *et al.* 1992). Additional work was done by Claudio Leonzio (University of Siena) and Marco Nigro (University of Pisa) on levels of heavy metals found in cetacean tissues. Other laboratories investigating contaminants included the University of Genoa (e.g., Capelli *et al.* 2000), the zoological museum of Rome (e.g., Carlini and Fabbri 1989), and Taranto's Istituto Sperimentale Talassografico (Cardellicchio 1996).

4. Ecology, behaviour and population studies

Knowledge of the distribution, abundance, and population ecology of cetaceans in the seas surrounding Italy, based on data collected at sea, was virtually absent until the 1980s. During the early decades of the 20th cent. such type of studies had made considerable progress in other fields of zoology, mostly on terrestrial environments but also including marine species such as fishes and invertebrates. However, cetaceans had remained largely impermeable to such advances due to the often recalled practical difficulties related to their lifestyle and large body sizes. Arturo Bolognari from the University of Messina was certainly, among the Italian zoologists of the first half of the 20th cent., one of the most intrigued by aspects related to cetacean ecology, and provided a wealth of observations of sperm whales, with speculations on their migration patterns within the Mediterranean (Bolognari 1949, 1950, 1951, 1957).

In 1979 the World Wildlife Fund Italy launched "Progetto Cetacei", a programme consisting in the collection of information on sightings, strandings, and accidental captures of cetaceans in the seas surrounding Italy, in cooperation with the Institute of Zoology and Comparative Anatomy of the University of Messina and the Civic Natural History Museums of Milan and Venice. Several other research institutions, including the Museum of Natural History of Genoa,

the Museum of Zoology of Rome, and other laboratories involved in the collection and study of stranded cetaceans, were later involved in the programme (e.g., Di Natale 1979, Di Natale and Mangano 1981). Although the scientific merit of "Progetto Cetacei" was weakened by the impossibility of verifying the quality of the data, generally thought to be rather heterogeneous, this initiative represented the first attempt of a nation-wide organized, systematic description of the distribution of cetaceans in Italy, with the involvement of a large number of recognized research institutions, and promoting the awareness on cetaceans among the general public.

In the second half of the 1980s a small number of Italian researchers began to realise that the information that could be obtained through "traditional" investigation techniques such as the monitoring of stranded cetaceans and the analysis of museum collections (let alone studies on captive animals) could not provide a satisfactory understanding on the ecology and status of free-ranging populations. The first who pioneered the approach of collecting information at sea in Italy were Michela Podestà and Luca Magnaghi, who at that time were intern students of Luigi Cagnolaro. Podestà and Magnaghi were lucky enough to start their studies in the Ligurian Sea waters of today's Pelagos Cetacean Sanctuary, where cetacean densities are particularly high. Their work, conducted from various platforms of opportunity, represented the first truly modern approach to the study of free-ranging animals through direct and systematic observations at sea (Podestà 1986; Magnaghi and Podestà 1987; Podestà and Magnaghi 1988). In the wake of their example, and taking as a model studies conducted overseas, other enthusiastic students soon began to take the sea in search for dorsal fins, and started to import field research techniques that by that time were routinely adopted by several researchers in the U.S. and elsewhere. This work, partly incorporated in the scientific literature, was typically conducted in the context of Biological Sciences or Natural Sciences theses (e.g. Cavalloni 1988, Zanardelli 1988, Bearzi 1989).

Pioneer work conducted in the 1980s, together with a raising interest towards cetacean field research, stimulated a number of studies aimed to describe the distribution and species composition of the cetacean fauna off several portions of the Italian coast. Many of these studies were conducted with minimal funds, often by taking advantage of platforms of opportunity or privately-owned boats. One of the most comprehensive early scientific attempts to produce an overview of cetacean distribution and relative abundance in Italian waters was conducted by the Tethys Research Institute (Notarbartolo di Sciara *et al.* 1993), a non-profit organization funded by the senior author in 1986. Although preliminary, this early survey of the Italian cetacean fauna provided the first overview of cetacean distribution, relative abundance (weighed by effort) and habitat use of cetaceans off the national coasts, in which the extraordinary importance of the Ligurian Sea was for the first time emphasized by quantitative data.

During the first half of the 1990s, research on free-ranging cetaceans boomed. An increasing number of groups specialising in cetacean studies were founded. These included both institutional bodies (e.g. universities or governmental institutes) and NGOs, with a clear predominance of the latter. As a consequence of this growing interest in cetaceans, Italian scientists began to attend with increasing frequency national and international marine mammal conferences, such as those of the European Cetacean Society and the Society for Marine Mammalogy. It is undeniable that at the beginning of this process a lack of familiarity with the English language kept many Italian researchers away from such fora, or made it difficult for them to enter a scientific microcosm that was predominantly Anglophone. However, this gap was soon overcome, and by the mid 1990s international marine mammal conferences had a strong Italian component.

Providing a comprehensive review of the work done by Italian cetologists after 1980 goes beyond the scopes of this essay. A minimum of 556 "scientific contributions" (see list and working definition in Bearzi *et al.*, this volume) were produced since 1980 and it would be difficult to consider all of them individually. An effort to mention some of the groups who have been particularly active in the realm of ecology, behaviour and population studies is attempted here, although we realize that our selection criteria will be inevitably biased by our personal experience and perception. While being aware that our effort may result in disappointment by those who do not appear here, we hope that such an imperfect exercise will provide impetus for a more comprehensive and balanced review of the recent history of cetacean science in Italy. Meanwhile, omissions must be exclusively blamed on the authors of this essay. We apologize with all those individuals and research groups whose work has been overlooked.

For the purposes of the brief overview provided below, the criterion for inclusion of a research group rests on the number and quality of published contributions in the field of ecology, behaviour and population studies. Contributions included in the proceedings of the European Cetacean Society conferences ("European Research on Cetaceans"), although not benefiting from a Science Citation Index, were considered here nevertheless, due to their great numbers and to their importance in documenting the status of cetacean research in Italy (see Bearzi *et al.*, this volume). All other conference presentations and unpublished or "grey literature" contributions were excluded from this analysis.

As some of the authors changed affiliation over time, an attempt was made to relate their work to the institute for which they issued most of their published contributions. The research groups below are listed alphabetically.

Centro Interdisciplinare di Bioacustica e Ricerche Ambientali (CIBRA). The Interdisciplinary Centre for Bioacoustics and Environmental Research, founded in 1988 at the University of Pavia, is headed by Gianni Pavan who began in the early '80 to design detection and analysis equipment for investigating cetacean acoustics (Zanardelli 1988, Pavan 1992). Having considered the dearth of available bioacoustic instrumentation and data in those years in the Mediterranean Sea, CIBRA started organising cetacean surveys based on passive acoustic methods with towed hydrophones designed for the purpose, through funding from the Ministries of merchant marine and environment (Pavan 1995, Pavan and Borsani 1997, Priano *et al.* 1997). In 1995, within the framework of the European Nature Conservation Year launched by the Council of Europe, CIBRA organized and promoted a cooperative project with the Italian Navy for the protection of marine mammals and of the marine environment (Pavan 2002). One of the most representative research projects started within this context, and still ongoing, investigates the ecology and behaviour of sperm whales (Pavan *et al.* 1997a, 1997b, 1999, 2000; Teloni 1998; Priano *et al.* 2001; Fossati *et al.* 2003), with funding from the Italian Navy and the US Office of Naval Research. Different platforms and acoustic detection systems were used and tested for improving acoustic methods for the detection, monitoring and surveying of marine mammals (Pavan 1996; Pavan *et al.* 2001; Fossati *et al.* in press), including the development of *ad hoc* software to support Environmental Impact Reduction (Pavan *et al.* 2004). CIBRA was among the promoters of, and first participants to the SOLMaR Project organised by the Saclant Undersea Research Center. CIBRA currently maintains one of the most extensive digital library of underwater sounds in Europe, including both animal vocalizations and manmade signals, as well as a public consultation library with over 5,000 papers on acoustics and bioacoustics.

Consiglio Nazionale delle Ricerche (CNR). Since the mid-1990s, National Research Council researcher Massimo Azzali and colleagues at the Istituto di Ricerche sulla Pesca Marittima (IRPEM) of Ancona worked on a wide range of issues, mostly centred around acoustic research techniques. These included various studies in captivity, bioacoustic research on free-ranging cetaceans (e.g. Azzali *et al.* In press) and work on Adriatic dolphins (e.g. Azzali *et al.* 2000, Manoukian *et al.* In press). In addition, Claudio Lafortuna at the Istituto di Bioimmagini e Fisiologia Molecolare has done relevant work on the physiology and locomotion of free-ranging cetaceans (Jahoda *et al.* 2003, Lafortuna *et al.* 2003).

Fondazione Cetacea. Although dealing in large part with cetacean husbandry, public awareness and education, the Fondazione Cetacea produced information on free-ranging cetaceans living in the Adriatic Sea, that was included in the newsletter by the Fondazione ("Cetacea Informa") or presented at national and international conferences. Refereed contributions on the occurrence or rare cetaceans in the Adriatic Sea were also published (e.g. Stanzani and Piermarocchi 1992; Affronte *et al.* 2003). The Fondazione has been active in the rescue and rehabilitation of live-stranded cetaceans throughout Italy (Bortolotto *et al.* 1992).

Istituto Centrale per la Ricerca Applicata al Mare (ICRAM). Within the framework of its general mandate to support national policy in matters concerning the protection of threatened marine species, ICRAM launched in the late 1990s and early 2000s a series of activities to promote cetological knowledge. These included, among others, an investigation of bottlenose dolphins in the waters of the National Park of Asinara (north-western Sardinia), and of their conflicts with fishing operations (Lauriano *et al.* 1999, in press *a, b*), the acoustic monitoring of the Pelagos Sanctuary through the deployment of bottom-deployed "popup" hydrophones for a period of three years by J. Fabrizio Borsani (Borsani *et al.* 1999a, 1999b, 2000; Clark *et al.* 2002, an investigation of dolphin-fisheries interactions in the northern Adriatic Sea (Casale in press), and the collection of sightings data from the Italian Navy (Nascetti and Notarbartolo di Sciara 1997). ICRAM is a "partner" of the *Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area* (ACCOBAMS).

Oceanomare. In 1996 Daniela Silvia Pace, together with Francesca Triossi and Marina Pulcini, started a study on bottlenose dolphins around the island of Lampedusa (Pulcini *et al.* 1997; Pace *et al.* 1999, In press *b*; Pulcini and Pace 1999), including dolphin interactions with local fisheries (Pace *et al.* in press *a*), within the framework of an NGO named Oceanomare. Oceanomare is collaborating with two other Italian NGOs, Delphis and Ketos, for projects focusing on the behaviour and ecology of Mediterranean cetaceans. Francesca Triossi has recently started a study on Adriatic Sea bottlenose dolphins (Triossi and Tizzi in press). Marina Pulcini also produced work on cetaceans of the Ligurian Sea and adjacent waters, and in the Greek Ionian islands (Pulcini and Pace 1999).

Saclantcen. In the late 1990s, partly as a result of the increased interest by NATO in the relationship between mass cetacean strandings and military sonar exercises, the Saclant Undersea Research Centre of La Spezia began a series of studies coordinated by Angela D'Amico, within the framework of an international program named SOLMaR (Sound,

Oceanography and Living Marine Resources) was setup with the cooperation of several research institutions and the Italian Navy. SOLMaR focused initially on the correlation of cetacean presence and oceanographic and biological features in the Ligurian Sea (D'Amico *et al.* 2003), and included the tagging of sperm and Cuvier's beaked whales with D-Tags in cooperation with the Woods Hole Oceanographic Institution. Furthermore, a Mediterranean-wide multidisciplinary database and GIS system was developed, including 15 years of stranding and sightings data collected by the CSC, as well as acoustic and visual records from CIBRA and other institutions (Fossati *et al.* 1999; Manghi *et al.* in press; Pavan *et al.* in press).

Studiomare/Delphis. Research in the waters surrounding the islands of Ischia and Ventotene was conducted by Studiomare (now Delphis - Mediterranean Dolphin Conservation) since 1991, thanks to the efforts of Barbara Mussi and Angelo Miragliuolo. Starting in 1997 Delphis focused its work on the submarine canyon of Cuma, off the island of Ischia, where a remarkable density and diversity of cetaceans was found. This resulted in a proposal for the creation of a Marine Protected Area that is attracting considerable interest. Research has also focused on a relict group of common dolphins (Mussi *et al.* in press), on a small pod of long-finned pilot whales (Mussi *et al.* 2000), on cetacean interactions with fisheries and other anthropogenic threats (Mussi *et al.* 1999 a; Miragliuolo *et al.* in press a, b), and on other cetacean species found in the area (Mussi *et al.* 1999 b, 2001).

Tethys Research Institute. Founded in 1986, the Tethys Research Institute is a NGO specialized in cetacean research. Exclusively based on autonomous fundraising, Tethys has generated one of the largest datasets on Mediterranean cetaceans and over 200 scientific contributions. Tethys first conceived and proposed the creation of the Ligurian Sea Pelagos Sanctuary (Notarbartolo di Sciara *et al.* 1991, 1992; Notarbartolo di Sciara 1997), based on extensive information collected in the field. Data collected by Tethys since 1990 contributed to show that fin whales are endemic in the Mediterranean (Notarbartolo di Sciara *et al.* 1996; Berubé *et al.* 1998). Tethys has conducted longitudinal studies of bottlenose dolphins in the northern Adriatic Sea since 1987 (Bearzi *et al.* 1997, 1999, 2000; Fortuna *et al.* 1997, 1999, 2000), and on both common and bottlenose dolphins in the eastern Ionian Sea (Politi *et al.* 1994; Bearzi 2003). Research methods used by Tethys included remote sensing and telemetry (Panigada *et al.* 1999; Jahoda *et al.* 2003; Airoidi *et al.* In press), relative abundance (Notarbartolo di Sciara *et al.* 1993) and line-transect population studies (Forcada *et al.* 1995), the combined use of laser range-finding binoculars and GPS to passively track and record the horizontal movements of whales (Notarbartolo di Sciara *et al.* 1997; Jahoda *et al.* 2003), bioacoustic research (e.g. Borsani *et al.* 1992, 1997), photo-identification and behavioural sampling, remote biopsy sampling for genetic and toxicological analyses, and historical research (Bearzi *et al.* 2004). Tethys owns photographic archives exceeding 50,000 cetacean images, that have resulted in the identification of over 1,200 individuals of seven Mediterranean species. This expertise has granted to Tethys a role as regional coordinator for the EC-funded Europhlukes project. Tethys manages one of the largest collections of scientific literature on cetaceans in Europe, currently including over 11,000 entries. Comprehensive reviews of Mediterranean fin whale and common dolphin populations were produced (Bearzi *et al.* 2003; Notarbartolo di Sciara *et al.* 2003). Following a proposal by the junior author in 2003, the Mediterranean common dolphin population was listed as "Endangered" in the IUCN Red List of Threatened Species. Tethys is a "partner" to the *Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area* (ACCOBAMS).

University of Durham, U.K. In the late 1990s Ada Natoli, a researcher with the Tethys Research Institute, started investigating and comparing the population genetics of Mediterranean, Black Sea and North Atlantic cetaceans in the context of her PhD curriculum with Dr. Rus Hoelzel at Durham. Ada is applying genetic investigation methods to the study of philopatry in bottlenose dolphins and common dolphins (Natoli and Hoelzel 2000; Natoli *et al.* in press a, b). Stefania Gaspari - also a Tethys collaborator - is another Italian researcher who has worked with the University of Durham in the context of her PhD programme, focusing on the social and population structure of striped dolphins and Risso's dolphins in the Mediterranean (Gaspari *et al.* 2000, in press).

University of Genova. Since the early 1990s, researchers from the University of Genova, particularly Lidia Orsi Relini, Giulio Relini and Maurizio Wurtz, have been focusing on the diets of cetaceans living in the Ligurian Sea, and on the ecology and distribution of their prey (Orsi Relini and Garibaldi 1992; Orsi Relini and Giordano 1992; Wurtz *et al.* 1992 a,b; Orsi Relini and Relini 1993; Wurtz and Marrale 1993; Orsi Relini *et al.* 1994 a, b; Relini *et al.* 1994). This work has produced significant scientific information that benefits our understanding of the ecological roles of Mediterranean cetaceans. The University of Genova was among the initial promoters of the idea of a pelagic reserve in the Ligurian Sea, where cetaceans would find protection from Italian driftnet operations (Orsi Relini *et al.* 1992).

University of Rome and the Accademia del Leviatano. Since the early 1990s, the University of Rome has been focusing on cetacean ecology and distribution, particularly in the central Tyrrhenian Sea, as well as on the behaviour and ecology of dolphins in Sardinia coastal waters, producing several contributions (e.g. Consiglio *et al.*

1992; Marini *et al.* 1992, 1996 *b*, 1997; Arcangeli and Marini 1997; Arcangeli *et al.* 1997). The leading forces of this effort have been Luca Marini and Antonella Arcangeli, who in 1996 created an NGO called "Accademia del Leviatano", that is continuing the work on bottlenose dolphin off the northern Sardinian coasts (Diaz Lopez *et al.* 2001). Research was also conducted in other Mediterranean areas, including the Aegean Sea (Marini *et al.* 1996 *a*; Carpentieri *et al.* 1999). L. Marini and colleagues published a refereed account on fin whale aerial behaviour (Marini *et al.* 1996 *c*).

We finally wish to mention here a number of other organisations, which have contributed to the promotion of scientific knowledge on cetaceans in Italy through the implementation of specific activities. These include:

- Acquario di Genova, where a sighting programme was recently implemented targeting dolphins found in the coastal area of the city of Genoa, called "Delfini Metropolitan" (Gnone *et al.* in press).
- Centro Turistico Studentesco (CTS), which has been monitoring bottlenose dolphin groups off the coasts of Sardinia and Lampedusa for several years, also promoting public awareness and conservation initiatives (Fozzi *et al.* in press; Zannetti and Di Marco in press; Zannetti *et al.* in press).
- Cetus, a research, educational and whale watching NGO established in 2000 and based in Viareggio, conducting cetacean surveys in the Tuscan Archipelago (Nutti and Chiericoni, in press).
- Ketos, and NGO established in 1997 and based in Catania, which has produced several contributions on the ecology and behaviour of cetaceans off the eastern coast of Sicily (Tringali *et al.* 1999, 2001, Catalano *et al.* in press; Puzzolo and Tringali in press *a*; Tringali and Puzzolo in press), as well as accounts of dolphin-fisheries interactions (Puzzolo and Tringali in press *b*; Tringali *et al.* in press). Ketos' researchers have also been involved previously in similar cruises promoted by the Museo del Mare of Cefalù (Giordano and Tringali 1992, Giordano *et al.* 1995).
- the Italian Navy contributed to knowledge on distribution of large cetaceans in the Italian Seas by reporting sightings to ICRAM (Nascetti and Notarbartolo di Sciara 1997), and investigating possible effects of military sonars on cetaceans (Nascetti *et al.* 1997). In addition, the Italian Custom's Authority (*Guardia di Finanza*) contributed sighting reports and welcomed cetacean researchers on board its vessels in the Adriatic Sea.
- the World Wide Fund for Nature, Italy (WWF). The Ligurian section of the WWF, largely through the efforts of Roberta Trucchi, has been conducting research campaigns in the Ligurian Sea cetacean fauna since the late 1990s (Trucchi *et al.* 1999, in press). Researchers from the Miramare Marine Reserve affiliated with the World Wide Fund have been monitoring the cetacean fauna of the Gulf of Trieste since the mid 1990s (Francesco *et al.* 1999, Picciulin *et al.* in press).
- Zoönomia, established in the late 1990s by Alessandro Bortolotto (formerly with the Fondazione Cetacea), is a non-profit association aimed at the conservation of biodiversity, with particular reference to cetaceans. Research activities include the reproductive behaviour of captive bottlenose dolphins, ecology of wild cetaceans (in Italy and Tanzania), strandings (Bortolotto *et al.* 1992) and microscopic anatomy of cetaceans (Bortolotto 1994, 2001).

5. Science for conservation

Until few decades ago, it was very uncommon for a zoologist to explicitly express concern for the conservation status or for the living conditions of his or her study subjects: a 'real' scientist had to remain detached from the contamination of emotions, and remain strictly confined within the limits of purported objectivity. More recently it has dawned on an increasing fraction of the scientific community that science – while still remaining outside of an emotional context - is the most powerful tool for the initial addressing of the widespread concern for the state of the world's biodiversity, by providing decision makers and managers with much needed support for the adoption of remedial or mitigating measures. Thus conservation has become today a science in its own right. That such evolution of science has affected also cetacean research in Italy is demonstrated in many ways. Some of the strongest evidence to this date of the existence of serious conservation problems for cetaceans in Italy, caused by threats such as pollution (Focardi *et al.* 1991, Marsili and Focardi 1997); epizootics (Bortolotto *et al.* 1992); collisions with vessels, intentional kills (e.g., with firearms), and accidental captures in fishery operations (Notarbartolo di Sciara 1990, Cagnolaro and Notarbartolo di Sciara 1992), has derived from the stranding network managed by the CSC. At the same time, research cruises to investigate cetacean populations at sea (e.g., Notarbartolo di Sciara *et al.* 1993, Forcada *et al.* 1995), and long-term studies of resident dolphin communities (e.g., Bearzi 2003), were designed and conducted specifically to provide knowledge badly needed for conservation purposes. Recently, the riparian nations in the Mediterranean and Black seas have decided to cooperate to ensure the favourable conservation status of cetacean populations in this marine region, and as a consequence of this political will the UN Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) came into force in 2001. The Agreement and its Scientific Committee, currently chaired by the senior author, have since become an

important catalytic force for the promotion of cetacean knowledge and conservation in the region, and Italian professionals are becoming engaged in cetacean science in increasing numbers under the Agreement's auspices.

We would like to conclude this review of our country's contribution to cetacean knowledge by recalling that the first awakening of the scientific community in Italy to the problem of cetacean conservation was due, to the best of our knowledge, to Prof. Arturo Bolognari from the University of Messina. As a tribute to his foresight, we report here (English translation ours) the concluding paragraph of his last (1957) paper on sperm whales:

"Finally, we formulate the wish that the Sperm whale, instead of enduring the fate of having to disappear due to the relentless hunt that mankind has been conducting against it for centuries, may continue to plough the world's oceans as its instinct dictates; to testify in this way, with its immense size in which force, agility and beauty coexist, a highly significant work of Nature. And perhaps we would render to the sperm whale justice by not considering it anymore a sea monster, but rather a being having the full right of living undisturbed on Earth."

6. Acknowledgements

We are grateful to Silvia Bonizzoni for her help with literature management and search. We also thank Alessandro Bortolotto, Luigi Cagnolaro, Bruno Cozzi, Danilo De Gobbis, Daniela Silvia Pace, Gianni Pavan and Michela Podestà for providing relevant information.

7. List of references

- Affronte M., Stanzani L.A., Stanzani G. 2003. First record of humpback whale, *Megaptera novaeangliae* (Borowski, 1781) in the Adriatic Sea. *Annals for Istrian and Mediterranean Studies* 13 (1): 51-54
- Aldrovandi U. 1638. De Piscibus Libri V et de Cetus Lib. unus. Ioannes Cornelius Uteverius collegit, Marc. Antonius Bernia in lucem restituit, cum indice copiosissimo. Nicolò Tebaldini, Bologna.
- Airoldi S., Fasano D., Gavazzi N., Miragliuolo A., Mussi B., Mariani M. In press. Diving behaviour and reactions to tagging of long-finned pilot whales in the central Mediterranean Sea. *European Research on Cetaceans* 17.
- Arbocco G. 1969. I pinnipedi, cetacei e sirenii del Museo di Storia Naturale di Genova. *Annali del Museo Civico di Storia Naturale di Genova* 77:658-670.
- Arcangeli A., Caltavuturo G., Marini L., Salvati E., Tringali M., Valentini T., Villetti G. 1997. Avvistamenti invernali di cetacei nel Canale di Sicilia. Pp. 5-9 in M. Borri, L. Cagnolaro, M. Podestà, T. Renieri, (eds.). *Atti del Convegno Nazionale sui Cetacei. Natura - Soc. it. Sci. nat. Museo civ. Stor. nat. Milano* 90 (2).
- Arcangeli A., Marini L. 1997. Primo contributo alla conoscenza della specie *Grampus griseus* presso le coste sud orientali della Sardegna. Pp. 171-174 in M. Borri, L. Cagnolaro, M. Podestà, T. Renieri, (eds.). *Atti del Convegno Nazionale sui Cetacei. Natura - Soc. it. Sci. nat. Museo civ. Stor. nat. Milano* 90 (2).
- Azzali M., Impetuoso A., Mussi B., Miragliuolo A., Battaglia M., Antolovich W. In press. Analysis of acoustic signals emitted from a nursery school of sperm whale (*Physeter macrocephalus*) recorded off Ventotene Island (Southern Tyrrhenian Sea, Italy). *European Research on Cetaceans* 17.
- Azzali M., Rivas G., Modica A., Luna M., Farchi C., Giovagnoli L., Manoukian S. 2000. Pre-impact baseline studies on cetaceans and their most important prey items in the Adriatic Sea. *European Research on Cetaceans* 14:165-170.
- Bearzi G. 1989. Contributo alle conoscenze sulla biologia di *Tursiops truncatus* (Montagu, 1821) nel mare Adriatico settentrionale. Tesi di laurea in Scienze Biologiche. Università degli Studi di Padova. 172 pp.
- Bearzi G. 2003. Studies on the ecology and conservation status of short-beaked common dolphins (*Delphinus delphis*) and common bottlenose dolphins (*Tursiops truncatus*) in the Mediterranean Sea. Ph.D. dissertation, University of Basle, Switzerland. 202 pp.
- Bearzi G., Holcer D., Notarbartolo di Sciarra G. 2004. The role of historical dolphin takes and habitat degradation in shaping the present status of northern Adriatic cetaceans. *Aquatic Conservation*.
- Bearzi G., Notarbartolo di Sciarra G., Politi E. 1997. Social ecology of bottlenose dolphins in the Kvarneric (northern Adriatic Sea). *Marine Mammal Science* 13(4):650-668.
- Bearzi G., Politi E., Fortuna C.M., Mel L., Notarbartolo di Sciarra G. 2000. An overview of cetacean sighting data from the northern Adriatic Sea: 1987-1999. *European Research on Cetaceans* 14:356-361.
- Bearzi G., Politi E., Notarbartolo di Sciarra G. 1999. Diurnal behavior of free-ranging bottlenose dolphins in the Kvarneric (northern Adriatic Sea). *Marine Mammal Science* 15(4):1065-1097.
- Bearzi G., Reeves R.R., Notarbartolo di Sciarra G., Politi E., Cañadas A., Frantzis A., Mussi B. 2003. Ecology, status and conservation of short-beaked common dolphins (*Delphinus delphis*) in the Mediterranean Sea. *Mammal Review* 33(3):224-252.

- Bello G. 1990. I cetacei dei mari di Puglia. Umanesimo della Pietra-Verde, Martina Franca 5:5-16.
- Berubé M., Aguilar A., Dendanto D., Larsen F., Notarbartolo di Sciarra G., Sears R., Sigurjónsson J., Urban-Ramirez J., Palsbøll P.J. 1998. Population genetic structure of North Atlantic, Mediterranean Sea and Sea of Cortez fin whales, *Balaenoptera physalus* (Linnaeus, 1758): analysis of mitochondrial and nuclear loci. *Molecular Ecology* 7(5):585-599.
- Bolognari A. 1949. A proposito della recente cattura di alcuni esemplari di capodoglio (*Physeter macrocephalus* L.) nel Mediterraneo. *Bulletin de l'Institut Océanographique (Fondation Albert I^{er}. Prince de Monaco)* 949:1-43.
- Bolognari A. 1950. Ancora sulla comparsa del capodoglio (*Physeter macrocephalus* L.) nel Mediterraneo. *Bollettino di Zoologia* 17:29-37.
- Bolognari A. 1951. La migrazione del capodoglio nel Mediterraneo. *Bollettino di Zoologia* 18:253-256.
- Bolognari A. 1957. Sulla biologia del capodoglio. *Atti della Società Peloritana di Scienze Fisiche, Matematiche e Naturali* 3(2):143-156.
- Borri C. 1927. Una notevole comparsa di grandi cetacei nell'Arcipelago toscano. *Monitore Zoologico Italiano* 38:18-23.
- Borri M., Cagnolaro L., Podestà M., Renieri T. (Eds). 1997. *Il Centro Studi Cetacei: dieci anni di attività, 1986 – 1995.* Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 88(1):1-93.
- Borsani J.F., Clark C.W., Notarbartolo di Sciarra G. 2000. Sound production by fin whales in the Corsican-Ligurian basin, Mediterranean Sea. *European Research on Cetaceans* 14:75.
- Borsani J.F., Hayes S.A., Molinari A., Costa D. 1999a. Multiple sperm whales tracked by combining a towed dipole hydrophone and free-drifting spar-buoy arrays. *European Research on Cetaceans* 12:372.
- Borsani J.F., Pavan G. 1994. Acoustics and aspects of sperm whales (*Physeter macrocephalus*) behaviour and ecology in the Mediterranean Sea. *Italian Journal of Zoology (Suppl. 79)* 61:79.
- Borsani J.F., Pavan G., Gordon J.C.D., Notarbartolo di Sciarra G. 1997. Regional vocalisations of sperm whale: Mediterranean codas. *European Research on Cetaceans* 10:78-81.
- Borsani J.F., Pavan G., Notarbartolo di Sciarra G. 1992. An acoustic study of sperm whales (*Physeter catodon*) and other cetaceans in the southern Tyrrhenian Sea and the western Ionian Sea. *European Research on Cetaceans* 6:171-173.
- Borsani J.F., Tunesi L., Notarbartolo di Sciarra G., Di Mento R. 1999b. A bioacoustical oceanography laboratory for assessing noise and interactions with cetacean ecology in marine protected areas. *European Research on Cetaceans* 13:24.
- Bortolotto A. 1994. The microscopic structure of the lungs in Cetacea: phylogenetic considerations. *European Research on Cetaceans* 8: 265-268
- Bortolotto A. 2001. The structure of the lung in Cetacea: a summary. pp. 45-49 in: M. Garcia Hartmann (ed.), *Proceedings of the Third ECS Workshop on Cetacean Pathology: Lung Pathology*, Lisbon, 14 Mar 1996. *European Cetacean Society Newsletter* n.37, Special Issue.
- Bortolotto A., Casini L., Stanzani A.L. 1992. Dolphin mortality along the Southern Italian coast (June-September 1991). *Aquatic Mammals* 18(2):56-60.
- Bortolotto A., Podestà M. 1997. Progetto spiaggiamenti cetacei. *Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano* 88(1):15-19.
- Brunelli G. 1928. Intorno all'epoca di riproduzione dei delfini. *Atti dell'Accademia Nazionale dei Lincei, Rendiconti Classe di Scienze Fisiche Matematiche e Naturali* 6(8):518-520.
- Brunelli G., Fasella G. 1928. Su di un rarissimo cetaceo spiaggiato nel litorale di Nettuno. *Atti dell'Accademia Nazionale dei Lincei, Rendiconti Classe di Scienze Fisiche Matematiche e Naturali* 6(7):85-87.
- Cagnolaro L. 1965. Osservazioni su di un giovanissimo *Ziphius cavirostris* G. Cuv. Arenatosi a Genova il 20 aprile 1964 (Cetacea, Ziphiidae). *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 104(4):377-382.
- Cagnolaro L. 1969. Osservazioni su di una femmina di globicefalo (*Globicephala melena*) esposta nel Museo Civico di Storia Naturale di Milano e sul suo feto (Cetacea, Delphinidae). *Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano* 60(2):85-95.
- Cagnolaro L. 1977. Lo scheletro di *Balaenoptera physalus* (L.) esposto al Museo Civico di Storia Naturale di Milano: studio osteometrico (Cetacea Balaenopteridae). *Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano* 68(1-2):33-64.
- Cagnolaro L. 1982. I mammiferi marini in Plinio. "Plinio e la Natura", Part I. *Proc. of a series of seminars on the naturalistic aspects of the Plinian works*, Como:27-38.
- Cagnolaro L. 1996. Profilo sistematico e tipologico delle raccolte di cetacei attuali nei musei italiani. *Museologia Scientifica* 13(Suppl.):193-212.
- Cagnolaro L. 1997. L'incremento delle collezioni dei musei. Pp. 41-45 in M. Borri, L. Cagnolaro, M. Podestà and T. Renieri, eds. *Il Centro studi Cetacei: dieci anni di attività, 1986-1995.* Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 88(1).

- Cagnolaro L., Braschi S. 1993. La collezione dei cetacei del Museo di storia naturale e del territorio dell'Università di Pisa. *Museologia Scientifica* 10:87-94.
- Cagnolaro L., Cozzi B., Magnaghi L., Podestà M., Poggi R., Tangerini P. 1986. Su 18 cetacei spiaggiati sulle coste italiane dal 1981 al 1985: rilevamento biometrico ed osservazioni necroscopiche (Mammalia Cetacea). *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 127(1-2):79-106.
- Cagnolaro L., Di Natale A., Notarbartolo di Sciarra G. 1983. Cetacei. Guide per il riconoscimento delle specie animali delle acque lagunari e costiere italiane. *AQ/1/224*, 9. Consiglio nazionale delle Ricerche, 183 p.
- Cagnolaro L., Notarbartolo di Sciarra G. 1992. Attività di ricerca sui cetacei e loro status di conservazione in Italia. *Bollettino del Museo e dell'Istituto di Biologia dell'Università di Genova* 56-57:53-85.
- Capelli R., Drava G., De Pellegrini R., Minganti V., Poggi R. 2000. Study of trace elements in organs and tissues of striped dolphins (*Stenella coeruleoalba*) found dead along the Ligurian coasts (Italy). *Advances in Environmental Research* 4:31-43.
- Capellini G. 1877a. Sulla balenottera di Mondini, rorqual de la Mer Adriatique di G. Cuvier. *Memoria dell'Accademia delle Scienze, Bologna* 3(7):413-448.
- Capellini G. 1877b. Della balena di Taranto. Gamberini e Parmeggiani, Bologna.
- Cardellicchio N. 1996. Persistent contaminants in dolphins: an indication of chemical pollution in the Mediterranean sea. *Water Science and Techniques* 32(9-10):331-340.
- Carlini R. 1991. I cetacei del Museo civico di zoologia di Roma (189-1989). *Museologia Scientifica* 7(3-4):187-194.
- Carlini R., Fabbri F. 1989. Mercury, methylmercury and selenium in Italian stranded odontocetes. *European Research on Cetaceans* 3:25-28.
- Carpentieri P., Corsini M., Marini L. 1999. Contribute to the knowledge of the presence and distribution of cetaceans in the Aegean Sea. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 140(1):65-75.
- Carruccio A. 1899. Sovra una balenoptera rostrata presa recentemente a Porto Santo Stefano (Grosseto). *Bollettino della Società Romana per gli Studi Zoologici* 8(3-4-5-6):89-93.
- Carruccio A. 1900. Sovra uno scheletro completo di *Balaenoptera rostrata*. *Bollettino della Società Zoologica Italiana* 1(2):18-29.
- Carruccio A. 1904. Il primo *Globicephalus melas* preso a Porto d'Anzio (Roma). *Bollettino della Società Zoologica Italiana* 3(1):113-126.
- Carruccio A. 1906. Sovra un raro delfino (*Grampus griseus* G. Cuv.) di recente catturato presso la spiaggia di S. Vincenzo. *Bollettino della Società Zoologica Italiana* 2(7):207-214.
- Carruccio A. 1913. Sulla *Balaenoptera acuto-rostrata* catturata per la prima volta nel mare laziale (Castel Fusano), e notizie su altri giganteschi cetacei arenati e catturati lungo le coste dello stesso mare nei tempi più remoti degli attuali. *Bollettino della Società Zoologica Italiana, Serie III* 2(5-6):157-169.
- Casale M. In press. Depredation by bottlenose dolphins on sole caught in trammel nets: report of an ongoing conflict in northern Adriatic Sea, Italy. *European Research on Cetaceans* 16.
- Catalano D., Tringali L.M., Petralia R., Caltavuturo G. In press. Mediterranean fin whales, *Balaenoptera physalus*, foraging off the Eastern coast of Sicily, Mar Ionio. *European Research on Cetaceans* 15.
- Cavalloni B. 1988. Aspetti dell'ecologia dei Cetacei del Mediterraneo centro-orientale. Tesi di laurea in Scienze Biologiche. Università degli Studi di Padova. 183 pp.
- Centro Studi Cetacei. 1987. Cetacei spiaggiati lungo le coste italiane. I. Rendiconto 1986. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 128(3-4):305-313.
- Centro Studi Cetacei. 1988. Cetacei spiaggiati lungo le coste italiane. II. Rendiconto 1987. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 129(4):411-5432.
- Centro Studi Cetacei. 1990. Cetacei spiaggiati lungo le coste italiane. III. Rendiconto 1988. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 130(21):269-287.
- Centro Studi Cetacei. 1991. Cetacei spiaggiati lungo le coste italiane. IV. Rendiconto 1989. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 131(27):413-432.
- Centro Studi Cetacei. 1992. Cetacei spiaggiati lungo le coste italiane. V. Rendiconto 1990. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 132(25):337-355.
- Centro Studi Cetacei. 1994. Cetacei spiaggiati lungo le coste italiane. VI. Rendiconto 1991. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 133(19):261-291.
- Centro Studi Cetacei. 1995. Cetacei spiaggiati lungo le coste italiane. VII. Rendiconto 1992. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 134(2):285-298.
- Centro Studi Cetacei. 1996a. Cetacei spiaggiati lungo le coste italiane. VIII. Rendiconto 1993. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 135(2):443-456.
- Centro Studi Cetacei. 1996b. Cetacei spiaggiati lungo le coste italiane. IX. Rendiconto 1994. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 135(2):457-468.

- Centro Studi Cetacei. 1997a. Cetacei spiaggiati lungo le coste italiane. X. Rendiconto 1995. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 136(2):205-216.
- Centro Studi Cetacei. 1997b. Cetacei spiaggiati lungo le coste italiane. XI. Rendiconto 1996. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 137(1-2):135-147.
- Centro Studi Cetacei. 1998. Cetacei spiaggiati lungo le coste italiane. XII. Rendiconto 1997. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 139(2):213-226.
- Centro Studi Cetacei. 2000. Cetacei spiaggiati lungo le coste italiane. XIII. Rendiconto 1998. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 141(1):129-143.
- Centro Studi Cetacei. 2001. Cetacei spiaggiati lungo le coste italiane. XIV. Rendiconto 1999. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 141(2):351-363.
- Centro Studi Cetacei. 2002. Cetacei spiaggiati lungo le coste italiane. XV. Rendiconto 2000. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 142(2):251-264.
- Centro Studi Cetacei. 2003. Cetacei spiaggiati lungo le coste italiane. XVI. Rendiconto 2001. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 144(1):151-166.
- Centro Studi Cetacei. In press a. Cetacei spiaggiati lungo le coste italiane. XVII. Rendiconto 2002. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 145(1).
- Centro Studi Cetacei. In press b. Cetacei spiaggiati lungo le coste italiane. XVIII. Rendiconto 2003. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 145(1).
- Clark C.W., Borsani J.F., Notarbartolo di Sciara G. 2002. Vocal activity of fin whales, *Balaenoptera physalus*, in the Ligurian Sea. Marine Mammal Science 18(1):286-295.
- Consiglio C., Marini L., Arcangeli A., Cristo B., Mariani L., Torchio A. 1992. Interactions between *Tursiops truncatus* and fisheries along north-eastern coast of Sardinia (Italy). European Research on Cetaceans 6:35-36.
- Cornalia E. 1872. Fauna d'Italia. Parte 1^a. Catalogo descrittivo dei mammiferi osservati fino ad ora in Italia. Vallardi, Milano.
- D'Amico A., Bergamasco A., Zanasca P., Carniel S., Nacini E., Portunato N., Teloni V., Mori C., Barbanti R., 2003. Qualitative correlation of marine mammals with physical and biological parameters in the Ligurian Sea. IEEE Journal of Oceanic Engineering, 28 (1): 29-43.
- Damiani G. 1903. Di un *Prodelphinus euphrosyne* True all'Isola d'Elba e della distribuzione dei denticeti minori nei mari d'Italia. Atti della Società Ligustica di Scienze naturali e geografiche 14:165-175.
- Damiani G. 1911. Sovra una *Balaenoptera* del novembre 1910 a Marciana Marina (Elba). Bollettino della Società Zoologica Italiana 12:50-57.
- De Sanctis L. 1879. Monografia zootomico-zoologica sul capidoglio arenato a Porto S. Giorgio. Atti dell'Accademia Nazionale dei Lincei, Rendiconti Classe di Scienze Fisiche Matematiche e Naturali 9(3):160-241.
- Di Guardo G., Frati R., Agrimi U., Terracciano G., Pellegrino A., Poli A., Kennedy S. 2001. Riscontri morfopatologici in cetacei spiaggiati sulle coste italiane. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 90(2):21-28.
- Di Natale A. 1979. Progress of research relating to Mediterranean Cetacea. Memorie di Biologia Marina e di Oceanografia, Special Issue 9(1-2). 50 pp.
- Di Natale A. 1987. Mammifères: baleines, dauphins, marsouins et phoques. Pp. 439-1472 in W. Fischer, M.L. Bauchot and M. Schneider, eds. Fishes FAO d'identification des espèces pour les besoins de la pêche. Méditerranée et Mer Noire. Zone de pêche 37, Vertébrés. Rome, FAO, Vol. 2:761-1530.
- Di Natale A., Giuffré G. 1976. Su un esemplare di *Balaenoptera physalus* L. (Cetacea, Mysticeti) arenato lungo il litorale tirrenico della Sicilia. Memorie di Biologia Marina e Oceanografia 6(2):37-43.
- Di Natale A., Mangano A. 1981. Report on the progress of Project Cetacea. VI) July 1978 - October 1981. Memorie di Biologia Marina e di Oceanografia, Special Issue 11. 49 pp.
- Di Natale A., Mangano A. 1985. Mating and calving of sperm whale in the central Mediterranean Sea. Aquatic Mammals 1:7-9
- Diaz Lopez B., Marini L., Polo F. In press. Evolution of a bottlenose dolphins population in the north-eastern waters of the Sardinia (Italy). European Research on Cetaceans 15.
- Diorio V. 1866. Il cetaceo di S. Marinella. Atti dell'Accademia Pontificia de' Nuovi Lincei 19:189-199.
- Doderlein P. 1871. Alcune generalità intorno la fauna sicula de' vertebrati. Annuario della Società dei Naturalisti, Modena 1:1-9.
- Ficalbi E. 1907. Una balenottera arenata sul litorale toscano. Monitore Zoologico Italiano 18:192.
- Ficalbi E. 1919. Tre grandi cetacei dati in secco sul litorale toscano. Monitore Zoologico Italiano 30:199-200.
- Focardi S., Notarbartolo di Sciara G., Venturino C., Zanardelli M., Marsili L. 1991. Subcutaneous organochlorine levels in fin whales (*Balaenoptera physalus*) from the Ligurian Sea. European Research on Cetaceans 5:93-96.
- Forcada J., Notarbartolo di Sciara G., Fabbri F. 1995. Abundance of fin whales and striped dolphins summering in the Corso-Ligurian Basin. Mammalia 59(1):127-140.

- Fortuna C.M., Bearzi G., Delfino, G. 1997. Surfacing pattern of bottlenose dolphins following bottom trawlers in the Kvarneric (northern Adriatic Sea). *European Research on Cetaceans* 10:244.
- Fortuna C.M., Bearzi G., Notarbartolo di Sciara G. 1999. Analysis of respiration patterns of bottlenose dolphins observed in the Kvarneric (northern Adriatic Sea, Croatia). *European Research on Cetaceans* 12:151-155.
- Fortuna C.M., Wilson B., Wiemann A., Riva L., Gaspari S., Matesic M., Oehen S., Pribanic S. 2000. How many dolphins are we studying and is our study area big enough? *European Research on Cetaceans* 14:370-373.
- Fossati C., D'Amico A., Portunato N., Pavan G., Podestà M. 1999. Application of graphical digital tools to stranding information: an open information system for marine mammal studies in the Mediterranean Sea. *European Research on Cetaceans*, 13: 465-466.
- Fossati C., Manghi M., Pavan G., Priano M. 2003. Stima acustica della crescita di un capodoglio (*Physeter macrocephalus* Linnaeus, 1758) ricatturato in Mar Ligure. *Atti Soc. it. Sci. nat. Museo civ. Stor. nat. Milano*, 144 (1): 75-81.
- Fossati C., Manghi M., Pavan G., Priano M. in press. Dual use technology on cetacean research in the Mediterranean Sea: wide area aerial surveys with audio recordings from air-launched sonobuoys. *European Research on Cetaceans*, 17.
- Fossi M.C., Marsili L., Leonzio C., Notarbartolo di Sciara G., Zanardelli M., Focardi S. 1992. The use of non-destructive biomarker in Mediterranean cetaceans: preliminary data on MFO activity in skin biopsy. *Marine Pollution Bulletin* 24(9):459-461.
- Fozzi A., Tobbia V., Aplington G., Castiglioni D., Galante I., Bacchetta M., Cecchetti A., Magnone F., Di Marco S., Plastina G. In press. Bottlenose dolphin conservation problems in the La Maddalena Archipelago National Park. *European Research on Cetaceans* 17.
- Francesco M., Zucca P., Picciulin M., Zuppa F., Spoto M. 1999. Cetaceans living in the North Adriatic Sea (Gulf of Trieste - Grado lagoon): intervention protocol for healthy and distressed animals. *European Research on Cetaceans* 13:410-415.
- Frantzis A. 1998. Does acoustic testing strand whales? *Nature* 392: 29.
- Gasco F. 1878. Intorno alla balena presa in Taranto nel febbraio 1877. *Tipografia dell'Accademia Reale delle Scienze, Napoli* 48 p.
- Gaspari S., Airoidi S., Hoelzel A.R. In press. Molecular ecology of striped dolphins in the Mediterranean Sea (*Stenella coeruleoalba*). *European Research on Cetaceans* 15.
- Gaspari S., Azzellino, A., Airoidi S., Hoelzel A.R. 2000. Association patterns of Risso's dolphins (*Grampus griseus*) in the north-west Mediterranean. *European Research on Cetaceans* 14:138.
- Giglioli E.H. 1880. Elenco dei mammiferi, degli uccelli e dei rettili ittiofagi appartenenti alla fauna italiana. *Stamperia Reale, Firenze*.
- Giglioli E.H. 1882. Note intorno un nuovo cetaceo nel Mediterraneo da riferirsi probabilmente al genere *Pseudorca*. *Zoologischer Anzeiger* 112:288-290.
- Giordano A., Arena R., Cane A., Gurrieri G., Petralia R., Tringali L.M., Vazzana L. 1995. Risultati della ricerca sulla cetofauna siciliana. *Museo del Mare di Cefalù. Gruppo Ricerca Cetacei* 41 pp.
- Giordano A., Tringali M. 1992. Presence and individual recognition of *Globicephala melas* in the Liguro Provençal Basin. *European Research on Cetaceans* 6:103-104.
- Gnone G., G. Caltavuturo, P. Ferrando, F. Fossa. In press. Inshore cetaceans and anthropized environment: "Delfini Metropolitan". 18 months of data. *European Research on Cetaceans* 17.
- Jahoda M., Lafortuna C.L., Biassoni N., Almirante C., Azzellino A., Panigada S., Zanardelli M., Notarbartolo di Sciara G. 2003. Mediterranean fin whale's (*Balaenoptera physalus*) response to small vessels and biopsy sampling assessed through passive tracking and timing of respiration. *Marine Mammal Science* 19(1):96-110.
- Jepson P.D., Arbelo M., Deaville R., Patterson I.A.P., Castro P., Baker J.R., Degollada E., Ross H.M., Herráez P., Pocknell A.M., Rodríguez F., Howie F.E., Espinosa A., Reid R.J., Jaber J.R., Martin V., Cunningham A.A., Fernández, A. 2003. Gas-bubble lesions in stranded cetaceans. *Nature* 425:575-576.
- Lafortuna C.L., Jahoda M., Azzellino A., Saibene F., Colombina A. 2003. Locomotor behaviours and respiratory pattern of the Mediterranean fin whale (*Balaenoptera physalus*). *European Journal of Applied Physiology* 90:387-395.
- Lauriano G., Mackelworth P., Fortuna C.M., Moltedo G., Notarbartolo di Sciara G. In press a. Densità e abbondanza del tursiope (*Tursiops truncatus*) nel Parco Nazionale dell'Asinara, Sardegna. *Biologia Marina Mediterranea*.
- Lauriano G., Notarbartolo di Sciara G., Di Muccio S. In press b. The interaction between bottlenose dolphin and small scale fisheries in the Asinara Island National Park (North-Western Sardinia). *European Research on Cetaceans* 15.
- Lauriano G., Tunesi L., Notarbartolo di Sciara G., Salvati E., Cardinali A. 1999. The role of cetaceans in the zoning proposal of marine protected areas: the case of the Asinara Island MPA. *European Research on Cetaceans* 13:114-117.
- Lepri G. 1914. Su di una balenottera arenatasi presso Ostia. *Bollettino della Società Zoologica Italiana* 3(3):32-38.

- Magnaghi L., Podestà M. 1987 - An accidental catch of 8 striped dolphins, *Stenella coeruleoalba* (Meyen, 1983) in the Ligurian sea. (Cetacea Delphinidae). Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 128 (3-4): 235-239.
- Maio N., Finelli F., Di Sarno A., Caligiuri V. 2001a. Metalli pesanti e rilievi necroscopici nei cetacei spiaggiati in Campania. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 90(2):57-70.
- Maio N., Picariello O., Cagnolaro L. 2001b. I cetacei del museo zoologico dell'Università di Napoli "Federico II" (Mammalia Cetacea): Catalogo della collezione con note osteometriche. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 90(2):71-83.
- Manghi M., Pavan G., Fossati C., Priano M. in press. Mapping and analyzing acoustic surveys' results: a GIS approach. European Research on Cetaceans, 16.
- Manni P. 1827. Memoria del Dott. Pasquale Manni di S. Cesario sul genere e sulla specie di cetaceo approdato sul litorale dell'Adriatico, luogo detto Botte. Società Tipografica, Napoli.
- Manoukian S., Azzali M., Giovagnoli L. In press. Features of cetacean herds, observed in the Adriatic Sea from 1998 to 2000. European Research on Cetaceans 15.
- Marini L., Carpentieri P., Consiglio C. 1996 a. Presence and distribution of the cetological fauna of the Aegean Sea: preliminary results. European Research on Cetaceans 9:99-101.
- Marini L., Consiglio C., Angradi A.M., Sanna A. 1992. Sightings of Ziphiidae (Cetacea, Odontoceti) in the Central Tyrrhenian Sea. Hystrix (N.S.), 4(1): 89-92.
- Marini L., Consiglio C., Arcangeli A., Torchio A., Casale M., Cristo B., Nannarelli S. 1996 b. Socio-ecology of bottlenose dolphins, *Tursiops truncatus*, along the north-eastern coast of Sardinia (Italy): preliminary results. European Research on Cetaceans 9:139-141.
- Marini L., Consiglio C., Angradi A.M., Catalano B., Sanna A., Valentini T., Finoia M.G., Villetti G. 1997. Distribution, abundance and seasonality of cetaceans sighted during scheduled ferry crossings in the central Tyrrhenian Sea: 1989-1992. Italian Journal of Zoology 63:381-388.
- Marini L., Consiglio C., Catalano B., Villetti G., Valentini T. 1996 c. Aerial behavior in fin whale (*Balaenoptera physalus*) in the Mediterranean Sea. Marine Mammal Science, 12(3): 489-495.
- Marsili L., Focardi S. 1997. Chlorinated hydrocarbon (HCB, DDTs and PCBs) levels in cetaceans stranded along the Italian coasts: an overview. Environmental Monitoring and Assessment 45:129-180.
- Mezzana N. 1900. Sulla cattura di un *Hyperoodon bidens* Flem. nel Mare Ligustico. Bollettino del Naturalista 20(11):121-122.
- Minà Palumbo F. 1868. Catalogo dei mammiferi della Sicilia. Ordine VIII. Cetacei. Biblioteca del Naturalista Siciliano 12(2):111-123.
- Miragliuolo, A., Mussi B., Bearzi G. In press a. Observations of driftnetting off the island of Ischia, Italy, with indirect evidence of dolphin bycatch. European Research on Cetaceans 16.
- Miragliuolo, A., Mussi B., Bearzi G. In press b. Risso's dolphin harassment by pleasure boaters off the island of Ischia, Central Mediterranean Sea. European Research on Cetaceans 15.
- Mongitore A. 1743. Della Sicilia ricercata nelle cose più memorabili. Francesco Valenza, Palermo, vol. 2. 504 p.
- Monticelli F.S. 1906. Per la storia di un cetaceo arenato sulle coste d'Ischia nel 1770. Annuario del Museo Zoologico della Regia Università di Napoli (Nuova Serie) 2(13):1-4.
- Monticelli F.S. 1926. Sulla *Balaenoptera acuto-rostrata* Lacépède, (1804) presa a Lacco Ameno (Ischia). Bollettino della Società dei Naturalisti, Napoli 37:8-9.
- Mussi B., Gabriele R., Miragliuolo A., Battaglia M. 1999 a. Cetacean sighting and interactions with fisheries in the arcipelago Pontino Campano, South Tyrrhenian Sea, 1991-1995. European Research on Cetaceans 12:63-65.
- Mussi B., Miragliuolo A., Diaz Lopez B. 2000. Social structure and male parental care in a long finned pilot whale (*Globicephala melas*) pod off Ventotene Island (Southern Tyrrhenian Sea, Italy). European Research on Cetaceans 14:141-145.
- Mussi B., Miragliuolo A., Monzini E., Diaz Lopez B., Battaglia M. 1999 b. Fin whale (*Balaenoptera physalus*) feeding ground in the coastal waters of Ischia (Archipelago Campano). European Research on Cetaceans 13:330-335.
- Mussi B., Miragliuolo, A., Bearzi G. In press. Short-beaked common dolphins around the island of Ischia, Italy (southern Tyrrhenian Sea). European Research on Cetaceans 16.
- Mussi B., Miragliuolo A., Battaglia M. 2001. Osservazioni sul comportamento di *Stenella coeruleoalba* (Meyen, 1833) nell'arcipelago Pontino-Campano, Tirreno centro meridionale. Pp. 121-126 in M. Borri, L. Cagnolaro, M. Podestà and T. Renieri, eds. Atti del Convegno Nazionale sui Cetacei. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 90(2).
- Nardo G.D. 1855. Notizie sui mammali viventi nel mare adriatico, specialmente sui fisetteri presi in esso nel secolo scorso e nel presente. Atti delle Adunanze dell'I.R. Istituto Veneto di Scienze, Lettere e Arti, Venezia 4(2):203-208.

- Nascetti D., Notarbartolo di Sciarra G. 1997. A fin whale and sperm whale sighting programme undertaken by the Italian Navy in the Central Mediterranean Sea. *European Research on Cetaceans*, 10: 150-153.
- Nascetti P., Perazzi A., Hastrup O. 1997. An investigation of the interaction between active sonar operations and marine mammals. *European Research on Cetaceans*, 10: 61-67.
- Natoli A., Hoelzel A.R. 2000. Genetic diversity in a Mediterranean population of the bottlenose dolphin in the context of world-wide phylogeography. *European Research on Cetaceans* 14:343.
- Natoli A., Aguilar A., Lopez-Fernández A., Birkun A., Hoelzel A.R. In press a. Phylogeography of the Mediterranean, Black Sea and East North Atlantic bottlenose dolphin populations. *European Research on Cetaceans* 17.
- Natoli A., Cañadas A., Vaquero C., Politi E., Fernandez-Piqueras J., Hoelzel A.R. In press b. Phylogeography of Mediterranean and North Atlantic common dolphin populations. *European Research on Cetaceans* 15.
- Ninni A.P. 1890. *Grampus griseus* a Venezia. *Bollettino del Naturalista* 10(6):74.
- Ninni E. 1901. Sulle catture di alcuni cetacei nel Mare Adriatico, e in particolare sul *Delphinus tursio* (Fabr.). *Neptunia*, Venezia 8:67-78.
- Ninni E. 1904. L'origine e l'intelligenza dei delfini secondo i nostri pescatori. *Neptunia*, Venezia 8.
- Notarbartolo di Sciarra G. 1990. A note on the cetacean incidental catch in the Italian driftnet swordfish fishery, 1986-1988. *Reports of the International Whaling Commission* 40:459-460.
- Notarbartolo di Sciarra G. 1997. Dalle prime ricerche alla Dichiarazione del Santuario: nascita di un'idea. Pp. 19-30 in: G. Venturino, Rotary Club Milano Porta Vercellina, Monaco, Saint Tropez (ed.), *Operazione Pelagos*. Associazione Europea Rotary per l'Ambiente, Milano, 153 p.
- Notarbartolo di Sciarra G., Ausenda F., Relini G., Orsi Relini L. 1991. Project Pelagos: proposal of a Biosphere Reserve in the Corsican-Ligurian-Provençal Basin. *Proceedings of the Bastia Colloquy, Council of Europe*:21-23.
- Notarbartolo di Sciarra G., Ausenda F., Relini G., Orsi Relini L. 1992. Project Pelagos: proposal of a pelagic Biosphere Reserve in the Corsican-Ligurian-Provençal Basin (Mediterranean Sea). *International Conference on Ocean Management in Global Change. Large Marine Ecosystems: a new approach to ocean management*. Genova, 24 June 1992.
- Notarbartolo di Sciarra G., Berubé M., Zanardelli M., Panigada S. 1996. The role of the Mediterranean in fin whale ecology: insight through genetics. *European Research on Cetaceans* 9:218-219.
- Notarbartolo di Sciarra G., Cagnolaro L., Magnaghi L., Podestà M., J.F. Borsani J.F. 1986. Proposta organizzativa sul recupero dei cetacei spiaggiati. pp. 24-30 in: S. Corazza (Ed.), *Gli spiaggiamenti dei cetacei sulle coste italiane: atti del primo Convegno Nazionale sui cetacei organizzato dall'Adriatic Sea World di Riccione*, 18, 19, 20 Ottobre 1985. Maggioli Editore, Rimini 144 pp.
- Notarbartolo di Sciarra G., Demma M. 1997. Guida dei mammiferi marini del Mediterraneo. Nuova edizione aggiornata). Franco Muzzio Editore, Padova 264 p.
- Notarbartolo di Sciarra G., Jahoda M., Biassoni N., Lafortuna C. 1997. Reactions of fin whales to approaching vessels assessed by means of a laser rangefinder. *European Research on Cetaceans* 10:38-42.
- Notarbartolo di Sciarra G., Venturino M.C., Zanardelli M., Bearzi G., Borsani J.F., Cavalloni B. 1993. Cetaceans in the Central Mediterranean Sea: distribution and sighting frequencies. *Italian Journal of Zoology* 60:131-138.
- Notarbartolo di Sciarra G., Zanardelli M., Panigada S., Jahoda M., Airolidi S. 2003. Fin whale, *Balaenoptera physalus* (L., 1758), in the Mediterranean Sea. *Mammal Review* 33(2):105-150.
- Nuti S., Chiericoni V. In press. Distribution, site fidelity and feeding behaviour of bottlenose dolphins (*Tursiops truncatus*) in the International Sanctuary for the protection of cetaceans. *European Research on Cetaceans* 15.
- Orsi Relini L., Cagnolaro L. 1996. Does the long-finned pilot whale feed on tuna? A mistake in the Mediterranean literature. *European Research on Cetaceans* 9:183-184.
- Orsi Relini L., Cappello M., Poggi R. 1994b. The stomach content of some bottlenose dolphins (*Tursiops truncatus*) from the Ligurian Sea. *European Research on Cetaceans* 8:192-195.
- Orsi Relini L., Garibaldi F. 1992. Feeding of the pilot whale (*Globicephala melas*) in the Ligurian Sea: a preliminary note. *European Research on Cetaceans* 6:142-145.
- Orsi Relini L., Giordano A. 1992. Summer feeding of the fin whale *Balaenoptera physalus* in the Liguro-Provençal basin. *European Research on Cetaceans* 6:138-141.
- Orsi Relini L., Relini M. 1993. The stomach content of some common dolphins (*Delphinus delphis* L.) from the Ligurian Sea. *European Research on Cetaceans* 7:99-102.
- Orsi Relini L., Relini G., Cima C., Fiorentino F., Palandri G., Relini M., Torchia G. 1992. Una zona di tutela biologica ed un parco pelagico per i cetacei del Mar Ligure. *Bollettino dei Musei e degli Istituti Biologici dell'Università di Genova* 56-57:247-281.
- Orsi Relini L., Relini G., Cima C., Palandri G., Relini M., Torchia G. 1994a. *Meganyctiphanes norvegica* and fin whales in the Ligurian Sea: new seasonal patterns. *European Research on Cetaceans* 8:179-182.
- Pace D. S., Pulcini M., Triossi F. 1999. *Tursiops truncatus* population at Lampedusa Island (Italy): preliminary results. *European Research on Cetaceans* 12:165-169.

- Pace D.S., Pulcini M., Triossi F. In press. Interactions with fisheries: modalities of opportunistic feeding for bottlenose dolphins at Lampedusa Island (Italy). *European Research on Cetaceans* 17.
- Paggi L., Orecchia P., Genchi C. 1986. Reperti parassitari in cetacei dei mari italiani. Pp. 61-62 in S. Corazza, ed. *Gli spiaggiamenti dei cetacei sulle coste italiane. Atti del 1° Convegno Nazionale sui Cetacei organizzato dall'Adriatic Sea World, Riccione, 18-20 ottobre 1985*. Maggioli Editore, Rimini.
- Panigada S., Zanardelli M., Canese S., Jahoda M. 1999. How deep can baleen whales dive? *Marine Ecology Progress Series* 187:309-311.
- Parenzan P. 1958. A proposito di una balenottera arenata nel gennaio 1957 nell'isola di Ponza. *Thalassia Jonica* 1:127-134.
- Parenzan P. 1961. Catture eccezionali. *Thalassia Jonica* 4:220-221.
- Parona C. 1896. Notizie storiche sopra i grandi cetacei nei mari italiani, ed in particolare sulle quattro balenottere catturate in Liguria nell'autunno 1896. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* 36:297-373.
- Parona C. 1908. Catture recenti di grandi cetacei nei mari italiani. *Atti della Società Ligustica di Scienze Naturali e Geografiche* 19:173-205.
- Pavan G. 1992. A portable DSP workstation for real-time analysis of cetacean sounds in the field. *European Research on Cetaceans, Cambridge (UK)*, 6: 165-169.
- Pavan G. 1995. Bioacustica marina. Voci sotto la superficie del mare. - *Marine Bioacoustics. Voices beneath the surface*. pp. 175-187 in "Il mare è vita - Sea is Life". Presidenza del Consiglio dei Ministri, Dipartimento per l'informazione e l'editoria, Roma: 1-367.
- Pavan G. 1996. Cetacei nel Mediterraneo. Nuove strategie per lo studio dei mammiferi marini con la collaborazione della Marina Militare. *Rivista Marittima, Roma, Anno CXXIX n. 5*: 117-122.
- Pavan G. 2002. Effects of underwater noise on marine mammals. *Bulletin ACCOBAMS*, 4 (February 2002):11-14.
- Pavan G., Borsani J.F. 1997. Bioacoustic research on cetaceans in the Mediterranean Sea. *Mar. Fresh. Behav. Physiol.* 30: 99-123.
- Pavan G., Fossati C., Manghi M., Priano M. 1999. Acoustic measure of body growth in a photo-identified sperm whale. *European Research on Cetaceans*, 12: 254-258.
- Pavan G., Fossati C., Manghi M., Priano M. 2004. Passive acoustic tools for the implementation of acoustic risk mitigation policies. *European Research on Cetaceans, Sonar Workshop Proceedings*.
- Pavan G., Hayward T., Borsani J.F., Priano M., Manghi M., Fossati C., Gordon J. 2000. Time pattern of sperm whale codas recorded in the Mediterranean Sea, 1985–1996. *J.Acoust.Soc.Am*, 107 (6): 3487-3495.
- Pavan G., Manghi M., Fossati C. 2001. Software and hardware sound analysis tools for field work. *Proc. 2nd Symposium on Underwater Bio-sonar and Bioacoustic Systems. Proc. I.O.A., Vol. 23 (part 4)*: 175-183.
- Pavan G., Nascetti D., Manghi M., Priano M., Fossati C., Borsani J.F. 1997a. Bioacoustic research on sperm whales in cooperation with the Italian Navy. *European Research on Cetaceans*, 10: 82-86.
- Pavan G., Priano M., Manghi M., Fossati C. 1997b. Software tools for real-time IPI measurements on sperm whale sounds. *Proc. Underwater Bio-Sonar and Bioacoustics Symposium. Proc. I.O.A., 19 (part 9), Loughborough, UK*: 157-164.
- Pezzo F., Cancelli F., Baccetti N. 1995. Catalogo della collezione teriologica (Museo zoologico, Accademia dei Fisiocritici). *Atti dell'Accademia dei Fisiocritici di Siena*, 15 (Suppl. 14):1-72.
- Picciulin M., Francese M., Fortuna C.M., Zucca P., Spoto M. In press. Monitoring the presence of Cetacea in the North Adriatic Sea: hypotheses of a resident population of bottlenose dolphin in the Gulf of Trieste/Grado Lagoon and a multidisciplinary approach to test it. *European Research on Cetaceans* 15.
- Podenzana G. 1888. *Globicephalus melas*. *Bollettino del Naturalista* 8(5):72.
- Podestà M., Magnaghi L. 1988. Avvistamento di tursiopi, *Tursiops truncatus* (Montagu, 1821), in prossimità della costa Ligure. *Atti Soc. ital. Sci. nat. Museo civ. Stor. nat. Milano* 129(4):393-395.
- Podestà M. 1986. Aspetti della biologia di *Stenella coeruleoalba* (Meyen, 1833) e *Grampus griseus* (G. Cuvier, 1812) nel mar Ligure occidentale con valutazione dei caratteri di riconoscimento in mare (Cetacea, Delphinidae). Tesi di laurea in Scienze Naturali. Università degli Studi di Milano. 135 pp.
- Poggi R. 1982. Recenti incrementi alla collezione cetologica del Museo Civico di Storia Naturale di Genova (Mammalia, Cetacea). *Annali del Museo Civico di Storia Naturale di Genova*, 84:1-8.
- Police G. 1909. Il *Globicephalus melas* Traill del Museo Zoologico della R. Università di Napoli. *Annuario del Museo Zoologico della R. Università di Napoli (Nuova Serie)* 3(8):1-8.
- Politi E., Airoidi S., Notarbartolo di Sciara G. 1994. A preliminary study of the ecology of cetaceans in the waters adjacent to Greek Ionian Islands. *European Research on Cetaceans* 8:111-115.
- Priano M., Pavan G., Manghi M., Fossati C. 1997. The Cetacean Sound Library of the Interdisciplinary Centre for Bioacoustics and Environmental Research of the University of Pavia. *Proc. Underwater Bio-Sonar and Bioacoustics Symposium. Proc. I.O.A., 19 (part 9), Loughborough, UK*: 245-249.

- Priano M., Pavan G., Manghi M., Fossati C. 2001. Rilievi acustici sul capodoglio (*Physeter macrocephalus*) nel Mar Mediterraneo Centrale. In "Atti 3° Convegno Nazionale sui Cetacei (Napoli 5-6 dicembre 1997)", Natura 90 (2): 181-188.
- Pulcini M., Pace D.S. 1999. Behavior and ecology of *Delphinus delphis* in the Ionian Islands of Greece. European Research on Cetaceans 12:170-174.
- Pulcini M., Pace D.S., Triossi F., Cerioni S. 1997. Preliminary results on the occurrence of bottlenose dolphin *Tursiops truncatus* along Lampedusa Island coasts. European Research on Cetaceans 11:150-152.
- Pulcini M., Triossi F., Pace D.S. 2001. Presenza di *Tursiops truncatus* lungo le coste dell'isola di Lampedusa (Arcipelago delle Pelagie). Natura - Soc. it. Sci. nat. Museo civ. Stor. nat. Milano 90(2):189-193.
- Pulcini M., Triossi F., Pace D.S. In press. Distribution, habitat use and behavior of bottlenose dolphins at Lampedusa Island (Italy): results of five-years of survey. European Research on Cetaceans 15.
- Puzzolo V., Tringali L.M. In press a. Monitoring the seasonal Mediterranean fin whales, *Balaenoptera physalus*, passage through the Strait of Messina (Ionian Sea) using GIS techniques. European Research on Cetaceans 15.
- Puzzolo V., Tringali L.M. In press b. Spatial distribution analysis of the bottlenose dolphin and its relations with the European anchovy fishing in the Gulf of Catania, Ionian Sea. European Research on Cetaceans 16.
- Rafinesque-Schmaltz C.S. 1814. Précis des découvertes et travaux somiologiques de Mr. C.S. Rafinesque-Schmaltz entre 1800 et 1814, ou choix raisonné de ses principales découvertes en zoologie et en botanique, pour servir d'introduction à ses ouvrages futurs. Royale Typographie Militaire, Palermo.
- Rallo G. 1976. Avvistamento di un *Tursiops truncatus* (Montagu) nella Laguna di Venezia. Lavori della Società Veneziana di Scienze Naturali 1:50-51.
- Rallo G. 1979. I cetacei dell'Adriatico. WWF Veneto 4(12):3-4.
- Razzauti A. 1910. *Grampus griseus* (G. Cuv.). Monitore Zoologico Italiano 21(4):85-95.
- Relini G., Orsi Relini L., Siccardi A., Fiorentino F., Palandri G., Torchia G., Relini M., Cima C., Cappello M. 1994. Distribuzione di *Meganyctiphanes norvegica* e *Balaenoptera physalus* in Mar Ligure all'inizio della primavera. Biol. Mar. Medit. 1(1):89-94.
- Repetti U. 1924. Catalogo dei cetacei del Museo di anatomia comparata della R. Università di Pisa. Atti della Società Italiana di Scienze Naturali, Processi verbali 33:46-5.
- Repetti U. 1925. Determinazione specifica di quattro scheletri cefalici di balenottere del Museo di zoologia della R. Università di Pisa. Atti della Società Toscana di Scienze Naturali, Memorie 36:1-16.
- Richiardi S. 1874. Sulle variazioni individuali della *Balaenoptera musculus*. Atti della Società Toscana di Scienze Naturali 1(3):246-259.
- Richiardi S. 1881. Sul *Grampus griseus*. Processo Verbale della Società Italiana di Scienze Naturali 3:22-24.
- Riggio G. 1883. Su di un teschio anomalo di *Delphinus delphis*, Linn. Il Naturalista Siciliano 2:157-163.
- Riggio G. 1893. Arenamento di sette capidogli (*Physeter (Catodon) macrocephalus*, Lin.) nel mare di Marsala. Il Naturalista Siciliano 12:103-108.
- Salle E., Becherucci G. 1902. Cenni intorno alla balenottera arenata nelle vicinanze del Marzocco, Livorno, 7 settembre 1901. Officina tipografica di P. Ortalli, Livorno.
- Salle E. 1904. Della "*Balaenoptera musculus*" arenata nelle vicinanze di Livorno (7 settembre 1901). Tipografia Successori Fratelli Nistri, Livorno.
- Scordia C. 1939. Intorno alle incursioni del *Globicephalus melas* (Trail) nello Stretto di Messina, e ai danni che ne vengono apportati alla pesca del tonno. Memorie di Biologia Marina e di Oceanografia 6(2):1-7.
- Stanzani A. L., Piermarocchi C. 1992 - Cattura di alcuni individui di *Pseudorca*, *Pseudorca crassidens* (Owen, 1846) in Adriatico. Atti Soc. Sci. Nat. Mus. Civ. Stor. Nat. Milano, 133 (7): 89-95.
- Tamino G. 1953a. Rinvenimento di una *Globicephala* sul lido di Castelporziano (Roma). Bollettino di Zoologia 20:13-16.
- Tamino G. 1953b. Notizie sui cetacei italiani. V. Rinvenimento di due esemplari di capodoglio (*Physeter macrocephalus* L.) nella primavera dell'anno 1953. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 44:61-71.
- Tamino G. 1953c. Note sui cetacei. VIII. Rinvenimento di una giovane balenottera arenata sulla spiaggia di Maroniti (Isola d'Ischia), il 16 novembre 1953. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 92:123-126.
- Tamino G. 1953d. Ricupero di un *Grampus liseus* [sic] (Cuv.) arenato sul lido di Ladispoli (Roma) il 5 aprile del 1953. Bollettino di Zoologia 20:45-48.
- Tamino G. 1953e. Ricupero di una balenottera arenata sul lido di Salerno il 10 febbraio 1953. Bollettino di Zoologia 20:51-54.
- Tamino G. 1953f. Note anatomo-funzionali sui cetacei. I. Osservazioni sul nuoto di *Grampus griseus* (Cuv.). Bollettino di Zoologia 20:107-113.
- Tamino G. 1954. Note sui cetacei. VI. Sullo scheletro di una *Globicephala* del Museo di Roma, con particolari considerazioni di questa e di altre specie di cetacei e di diversi mammiferi. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 93:489-537.

- Tamino G. 1956. Note sui cetacei italiani. Rinvenimento di una balenottera nel Golfo di La Spezia (9 giugno 1955). Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 95:45-51.
- Tamino G. 1957. Note sui cetacei italiani. Rinvenimento di uno *Ziphius cavirostris* Cuv. presso il Lido di Fregene (Roma) il giorno 9-III-1957. Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano 96:203-210.
- Teloni V. 1998. Il capodoglio (*Physeter macrocephalus* L.) in Mediterraneo: metodi e risultati delle ricerche di bioacustica. Tesi di Laurea in Scienze Biologiche. Univ. di Pavia.
- Teloni V., D'Amico A., Mori M.C., Portunato N., Quero M. In press a. Comparison of two years of cetacean monitoring in the Ligurian Sea during the sound, oceanography and living marine resources project, Sirena cruises. European Research on Cetaceans 15.
- Teloni V., Zimmer W.M.X., Johnson M.P., Tyack P.L. In press b. Inter click interval variation of deep-diving sperm whales in the Mediterranean Sea. European Research on Cetaceans 17.
- Tortonese E. 1957. Il cetaceo odontocete *Ziphius cavirostris* G. Cuv. nel Golfo di Genova. Doriana, Suppl. Annali del Museo Civico di Storia Naturale "G. Doria", Genova 2(71):1-7.
- Tortonese E. 1963a. Nuovo impulso allo studio dei cetacei mediterranei. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 54:32-34.
- Tortonese E. 1963b. Insolita comparsa di cetacei (*Ziphius cavirostris* G. Cuv.) nel Golfo di Genova. Natura, Società Italiana di Scienze Naturali, Museo Civico di Storia Naturale e Acquario Civico, Milano 54:120-122.
- Tortonese E. 1963c. Matériaux pour l'étude des cétacés méditerranéens d'après les collections des musées de Genes et de Turin. Rapports et Proces-Verbaux des Reunions, CIESM 17(1):383-386.
- Tortonese E. 1965. Pesci e cetacei del Mar Ligure. Libreria Editrice Mario Bozzi, Genova 217 p.
- Toschi A. 1965. Fauna d'Italia. Mammalia: Lagomorpha, Rodentia, Carnivora, Ungulata, Cetacea. Edizioni Calderini, Bologna 647 p.
- Tringali M., Caltavuturo G., Guerrieri G., Di Martino V. 1999. Osservazioni preliminari sulla presenza estiva di balenottera comune (*Balaenoptera physalus*) e tursiope (*Tursiops truncatus*) nelle acque dello Stretto di Messina. Biologia Marina Mediterranea 6(1):619-622.
- Tringali L.M., Puzzolo V. In press. Cetacean spatial distribution analysis within the Gulf of Catania (Ionian Sea) using GIS techniques of spatial analysis and spatial modelling. European Research on Cetaceans 17.
- Tringali M., Puzzolo V., Caltavuturo G. In press. A case of opportunistic feeding: the bottlenose dolphin, *Tursiops truncatus*, interference to the European anchovy, *Engraulis encrasicolus*, fishing in the Gulf of Catania (Ionian Sea). European Research on Cetaceans 15.
- Triossi F., Tizzi R. In press. A cetacean survey in North Adriatic Sea: preliminary results. European Research on Cetaceans 17.
- Trois E.F. 1874. Sulla comparsa nelle nostre acque di un cetaceo raro non ancora osservato nell'Adriatico. Atti del R. Istituto Veneto di Scienze, Lettere ed Arti 3(4):1-4.
- Trois E.F. 1882-1883. Annotazione sul *Grampus rissoanus* preso nell'ottobre 1882 in vicinanza dei nostri lidi. Atti del R. Istituto Veneto di Scienze, Lettere ed Arti 1(6):735-740.
- Trois E.F. 1893-94. Elenco dei cetacei dell'Adriatico. Atti del R. Istituto Veneto di Scienze, Lettere ed Arti 7(5):1315-1320 [note: this paper was reprinted in 1894 in the Rivista Italiana di Scienze Naturali 14(10):113-115].
- Trucchi R., Dell'Acqua A., De Novellis F., Massajoli M., Ottonello C., Fossa F., Gallo M., Virzi D., Zoratti A. 1999. A comparison between the fourth and the fifth WWF's research campaign in the Ligurian Sea. European Research on Cetaceans 13:271-273.
- Trucchi R., Bonsignori B., Corrigan D., Fossa F. In press. A comparison between the 2001-2002 WWF's research campaigns in the Ligurian Sea. European Research on Cetaceans 17.
- Valle A. 1900. Sulla comparsa di un *Grampus griseus* nelle acque istriane. Bollettino della Società Adriatica di Scienze Naturali, Trieste 20:81-87.
- Vatova A. 1932. Elenco degli animali marini che più spesso s'incontrano nel mare Adriatico presso Rovigno. Note dell'Istituto Italo-Germanico di Biologia Marina di Rovigno d'Istria 4:11-12.
- Vinciguerra D. 1926. Due rari cetacei di Liguria: *Ziphius cavirostris* Cuv. e *Pseudorca crassidens* Owen. Annali del Museo di Storia Naturale di Genova 52:232-235.
- Wurtz M., Marrale D. 1993. Food of striped dolphin *Stenella coeruleoalba* in the Ligurian Sea. J. Mar. Biol. Ass. U.K. 73 (3): 571-578.
- Wurtz M., Poggi R., Clarke M.R. 1992a. Cephalopods from the stomach of a Risso's dolphin (*Grampus griseus*) from the Mediterranean. J. Mar. Biol. Ass. UK, 72: 861-867.
- Wurtz M., Pulcini M., Marrale D. 1992b. Mediterranean cetaceans and fisheries: do they exploit the same resources? European Research on Cetaceans 6:37-40.
- Zanardelli M. 1988. RegISTRAZIONI e analisi delle emissioni acustiche di due specie di cetacei odontoceti: la stenella striata, *Stenella coeruleoalba* (Meyen, 1833) e il grampo, *Grampus griseus* (G. Cuvier, 1812). Tesi di Laurea,

Università degli Studi di Milano, Facoltà di Scienze, Corso di Laurea in scienze naturali, Anno Accademico 1987-1988.

Zannetti A., Di Marco S. In press. Interactions between a resident population of bottlenose dolphin (*Tursiops truncatus*) and fishing activity around the island of Lampedusa, archipelago of the Pelagian Islands (Sicily, Italy). European Research on Cetaceans 16.

Zannetti A., Fozzi A., Di Marco S. In press. "Bottlenose dolphin project": a review of 8 years of activity. European Research on Cetaceans 17.

Giovanni Cappellini



Guache, Balena di Taranto



Scheletro montato, balena di Taranto



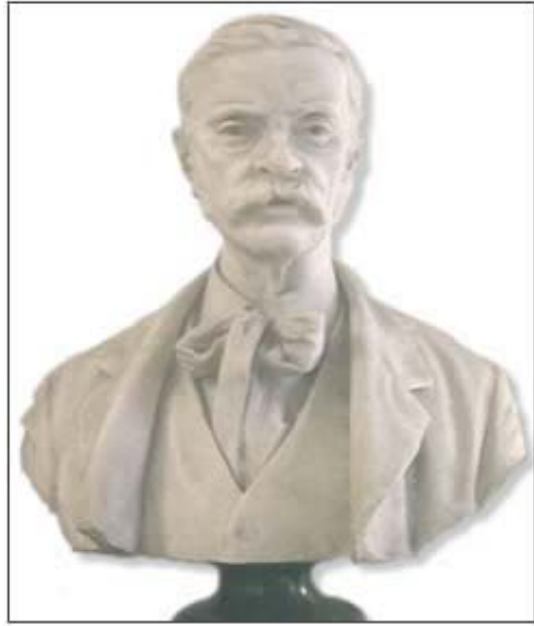
Corrado Parona



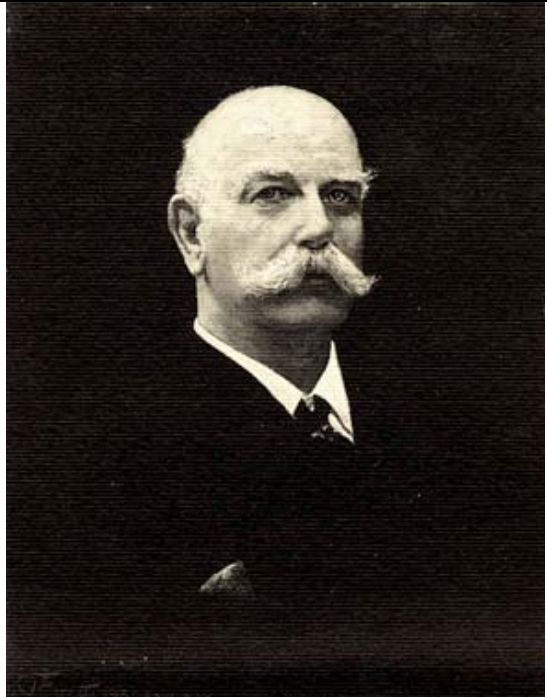
Luigi Cagnolaro



Pietro Doderlein



Enrico Hillyer Giglioli



Il pesce mostruoso di Antonino Mongitore, 1743

