

APPENDIX VI

Overview of cetacean by-catches, fishing gears and area (reproduced from CETASEL report, De Haan *et al.* 1997)

Species	Number of by-catches	Area	Fishing Method	Period	Reference	Comment
Killer whale	1	Mediterranean, Sicily	Tuna trap	1989	Di Natale, 1989 <i>in</i> Northridge, 1991	
	8	NE Pacific	Trawl	1973 - 1993	Teshima & Ohsumi, 1983; Perez & Loughlin, 1991; NMFS, 1995; Matkin & Saulitis, 1994; <i>in</i> Fertl & Leatherwood, 1995	
	Small numbers	Alaska	Trawl	1990	Barlow <i>et al.</i> , 1990, <i>in</i> Northridge 1991	
	1	SW Pacific	Trawl	1979	Anonymous 1981, <i>in</i> Fertl & Leatherwood, 1995	
Pilot whale	297	East US	Squid and mackerel trawls	1977 - 1988	Waring <i>et al.</i> , 1990	55% of total by-catch ¹
	405	NE Atlantic	Trawl	1977 - 1988	Fertl & Leatherwood, 1995	²
	1	NE Atlantic	Demersal trawl	1988	Northridge, 1988	³
	9+	NE Atlantic	Trawl	1971 - 1994	Duguy, 1977; Duguy & Hussenot, 1982; Northridge 1988; Reijnders & Lankester, 1990; Lowry, pers. com., 1994; Couperus, 1994; Nores <i>et al.</i> , 1992 <i>in</i> Fertl & Leatherwood, 1995	
	3	French Atlantic coast	Bottom or mid-water trawls	1971 - 1981	Duguy & Hussenot, 1982	
	2	French Atlantic coast	Other fisheries	1971 - 1981	Duguy & Hussenot, 1982	
	1000+	Faeroes			Northridge, 1984	⁴
	Unknown	W Central Atlantic			NMFS, 1995 <i>in</i> Fertl & Leatherwood, 1995	
	1	SW Atlantic			By Goodall <i>et al.</i> , 1988, <i>in</i> Fertl & Leatherwood, 1995	
	1	SW Pacific	trawl		Mattlin pers. comm., 1995, <i>in</i> Fertl & Leatherwood 1995	
White-beaked dolphin	A few	North Sea	trawl	Each year	Leatherwood & Reeves, 1983, <i>in</i> Northridge, 1984	
	1	North Sea	trawl	1958	Van Bree & Nijssen, 1964, <i>in</i> Fertl & Leatherwood, 1995	
	unknown	NE England/North Sea	Midwater herring trawls	Every Summer	Northridge, 1988, <i>in</i> Northridge, 1991	
White-sided dolphin	25	NW Atlantic	Mackerel and	1978 - 1991	O'Hara <i>et al.</i> , 1986; Young <i>et al.</i> , 1993; NMFS, 1995, <i>in</i> Fertl &	

¹ From the fleets of 8 nations fishing *in* the EEZ off the north-east United States coast.

² 142 animals *in* 1988, and 107 individuals *in* 1990 (according to Waring *et al.*, 1990; NMFS, 1995; Young *et al.*, 1993, Northridge, 1988).

³ Such an isolated account, as other ones related to other gears, are possibly indicative of sporadic accidental mortalities, but further information on the scale of these mortalities or their impact on populations is lacking (Northridge, 1991).

⁴ There has been a certain amount of exploitation of pilot whales, notably *in* the Faeroe Islands, where over 1000 are taken a year (Northridge, 1984).

			squid trawls		Leatherwood, 1995	
	1	NE England	Trawl or seine net	1985	IWC, 1987, <i>in</i> Northridge, 1991	⁵
	No number	NE Atlantic			Couperus, 1994, <i>in</i> Fertl & Leatherwood, 1995	
Dusky dolphin	3 a few	SW Atlantic	Surface trawl	1989 each year	Scialabba, 1989, <i>in</i> Northridge, 1991 and <i>in</i> Fertl & Leatherwood, 1995	
	unknown	Chubut	trawl	Each year	Crespo & Corcuera, 1990, <i>in</i> Northridge, 1991	
	1	Chubut		1989	Crespo <i>et al.</i> , 1994, <i>in</i> Fertl & Leatherwood, 1995	
	Small numbers	SE Atlantic	trawl		Northridge, 1984	
	11	SE Atlantic		1989 - 1990	Best pers. comm., 1992, <i>in</i> Fertl & Leatherwood, 1995	
	occasional	SW Pacific			Slouten & Dawson, 1988, <i>in</i> Fertl & Leatherwood, 1995	
	3	SW Pacific		1986 - 1988	Anonymous 1988, <i>in</i> Fertl & Leatherwood, 1995	
Peale's dolphin	No number	SW Atlantic			Crespo & Corcuera, 1990; Goodall <i>et al.</i> , 1990, <i>in</i> Fertl & Leatherwood, 1995	
Pacific White-sided dolphin	3	NE Pacific			Barlow <i>et al.</i> , 1994, <i>in</i> Fertl & Leatherwood, 1995	
	11	E Central Pacific		1973 - 1990	Perez & Loughlin, 1991; NMFS, 1995, <i>in</i> Fertl & Leatherwood, 1995	
Bottlenose dolphin	3	Mid Atlantic	Mackerel and squid fisheries	In eight years	Northridge, 1991	
	30 of which 17 <i>in</i> year	NW Atlantic		1977 - 1993 1993	Waring <i>et al.</i> , 1990; NMFS, 1995, <i>in</i> Fertl & Leatherwood, 1995	
	9+	NE Atlantic		1971 - late 1980's	Mitchell, 1975; Duguy, 1977; Duguy & Hussenot, 1982; Anonymous, 1988; Currey <i>et al.</i> , 1990; Northridge, 1991, <i>in</i> Fertl & Leatherwood, 1995	
	6+	W Central Atlantic		1976 - 1988	Gunter, 1942; Prescott <i>et al.</i> , 1980; Burn & Sott, 1988; Reynolds, 1985; Gruber, 1981; Leatherwood & Reeves, 1982; Pharr, pers. com., 1991; Fertl, 1994; Wang <i>et al.</i> , 1994, <i>in</i> Fertl & Leatherwood, 1995	
	Small numbers	Gulf of Mexico	Shrimp trawls, Gill nets and shot		Northridge, 1991	
Bottlenose dolphin Cont.d.	unknown	E Central Atlantic	Trawl, explosives	Pre 1957	Cadanet, 1957, <i>in</i> Northridge, 1984	⁶
	unknown	Mauritanian coast	Pelagic trawl		Northridge, 1991; Scialabba, 1989, <i>in</i> Fertl & Leatherwood, 1995	
	4+	Mediterranean			Duguy & Hussenot, 1982; Di Natale, 1989; Silvani <i>et al.</i> , 1992, <i>in</i> Fertl & Leatherwood, 1995	⁷
	Frequently	Adriatic part of			Mitchell, 1975, <i>in</i> Northridge, 1984	⁸

⁵ Catches are reported *in* the north-west Atlantic *in* foreign mackerel and squid trawl fisheries, but infrequently.

⁶ Cadanet (1957) refers to a troupe of bottlenose dolphins attacking a trawl net, which had to be frightened off with explosive charges (in Northridge, 1984).

⁷ According to Currey *et al.*, 1990, *in* Fertl and Leatherwood, 1995. incidental catches may be high *in* this area, although some dolphins are reported to be freed.

	caught unknown	Mediterranean SW Atlantic Argentinian coast	Midwater trawl		Northridge, 1984	
	1				Goodall <i>et al.</i> , 1988, <i>in Fertl</i> ad Leatherwood, 1995	
	Small numbers	SE Atlantic	trawl	mid 1980 onwards	Northridge, 1984	
	3	W Indian Ocean (Gulf of Mannar, India)		1980 - 1982	Pillai & Kasinathan, 1987, <i>in Fertl</i> & Leatherwood, 1995	
	3 including 1 <i>in</i> 1989	E Indian Ocean (Australia)		Pre 1990	Corkeron <i>et al.</i> , 1990, Anonymous, 1991, <i>in Fertl</i> & Leatherwood, 1995	
	Hundreds suggested	SW Pacific	Midwater trawls	Each year	Mitchell, 1975, <i>in Northridge</i> , 1984 and <i>in Fertl</i> & Leatherwood, 1995	
Risso's dolphin	A few	NW Atlantic	Trawl (mackerel and squid)		O'Hara <i>et al.</i> , 1986, <i>in Northridge</i> , 1991	Such incidents seem to be rare
	4	NW Atlantic		1985 - 1992	Waring <i>et al.</i> , 1990 and NMFS, 1995, both <i>in Fertl</i> & Leatherwood, 1995	
	A few	NW Atlantic			O'Hara <i>et al.</i> , 1986, <i>in Fertl</i> & Leatherwood, 1995	
	Occasional	NE Atlantic			Northridge, 1984; Reijnders & Lankester, 1990, <i>in Fertl</i> & Leatherwood, 1995	
	unnumbered	W Central Atlantic			NMFS, 1995, <i>in Fertl</i> & Leatherwood, 1995	
Risso's dolphin cont.d.	1	SE Atlantic			Best pers. comm., 1992, <i>in Fertl</i> & Leatherwood, 1995	
	1	NE Pacific		1973 - 1988	Perez & Loughlin, 1991, <i>in Fertl</i> & Leatherwood, 1995	
Spinner dolphin	Unknown, probably few	SW Atlantic (Argentina)			Northridge, 1984	
Dwarf spinner dolphin	10	W Central Pacific (Gulf of Thailand)		1970/71	Perrin <i>et al.</i> , 1989, <i>in Northridge</i> , 1991 and <i>in Fertl</i> & Leatherwood, 1995	⁹
Striped dolphin	2	NW Atlantic		1991	NMFS 1995, <i>in Fertl</i> & Leatherwood, 1995	
	1	NE Atlantic		1971 - 1976	Duguay, 1977, <i>in Fertl</i> & Leatherwood, 1995	
	unnumbered	NE Atlantic			Northridge, 1984, <i>in Fertl</i> & Leatherwood, 1995	Occasionally captured
	A large	Mediterranean	Trawl, tangle and		Di Natale, 1989 <i>in Northridge</i> , 1991	¹⁰

⁸ One of the more frequently caught species *in* fishing nets, there has also been a live capture fishery *in* the Adriatic part of Mediterranean Sea (Mitchell 1975, *in Northridge* 1984) and a directed fishery *in* the Black Sea which was stopped *in* 1983. The Black Sea population of bottlenose dolphins may have been dramatically affected by the fishery (Smith 1976, *in Northridge*, 1984); there are no estimates of the current population size, but catches *in* recent years were probably *in* the tens of thousands, as since 1967 between 56,000 and 222,000 animals of 3 species (bottlenose dolphin, common dolphin and harbour porpoise) were being taken per annum (IWC 1983: Rep. of the Sub-Committee on small cetaceans)

⁹ A newly described dwarf form of this species from the Gulf of Thailand was identified on the basis of 10 specimens taken *in* shrimp trawls *in* the Gulf of Thailand *in* 1970/71.

	number up to 5000 cetaceans		longline			
	Unknown, probably few	SW Atlantic Argentina	Midwater trawl		Northridge, 1984	
Striped and common dolphin	500 - 1000	E Central Atlantic		Per year	Maigret, 1994, <i>in</i> Fertl & Leatherwood, 1995	
Common dolphin	226 66, 76	NW Atlantic	trawl	1977 – 1992 1985, 1986	O' Hara <i>et al.</i> , 1986; Waring <i>et al.</i> , 1990; NMFS, 1995, <i>in</i> Fertl & Leatherwood, 1995	¹¹
	40	NE Atlantic		1971 - 1982	Duguay, 1977; Duguay & Hussenot, 1982; Pascoe, 1986; Nores <i>et al.</i> , 1992; Sequiera & Ferreira, 1994, <i>in</i> Fertl & Leatherwood, 1995	
	Unknown	NE Atlantic			Reijnders & Lankester, 1990; Couperus, 1994, both <i>in</i> Fertl & Leatherwood, 1995	
	16	French Atlantic coast		1981	Collet, 1983, <i>in</i> Northridge, 1984	
	Maybe hundreds	NE Atlantic			Northridge, 1988, <i>in</i> Northridge, 1991 Based on a very few number of interviews with fishermen	
	unknown	NE Atlantic	Midwater trawl and unidentified		Northridge, 1988 and Mac Brearty, pers. comm., <i>in</i> Northridge, 1991	
	unknown	Mauritania	Pelagic trawls		Northridge, 1991	
	Up to 6 – 22 per haul at night	E Central Atlantic, Mauritania	Surface sardine and mackerel trawls		The Report of the Small Cetacean Sub-Committee, IWC 1982 pp113 – 126; <i>in</i> fishing Northridge, 1984; Maigret, 1994, <i>in</i> Fertl & Leatherwood, 1995	¹²
	1	Mediterranean			Di Natale, 1983, <i>in</i> Fertl & Leatherwood, 1995	
	unknown	Mediterranean		1989	Di Natale, 1983, <i>in</i> Fertl & Leatherwood, 1995	
	Extra statistics	Mediterranean	Sardine fishermen		Tomilin, 1967, <i>in</i> Northridge, 1984	¹³
	Unknown	SW Atlantic			Crespo & Corcuera, 1990, <i>in</i> Northridge, 1991 and Fertl & Leatherwood, 1995	
	Small numbers	SE Atlantic	trawl		Northridge, 1984	

¹⁰ On the basis of interviews with several hundred fishermen involved *in* this fishery, he estimated (pers. comm.) that total cetacean catches may have exceeded 5000 cetaceans *in* some years, suggesting a very large number of striped dolphins were taken. The impact on the population is unknown (Northridge, 1991)

¹¹ About 60% of the total were taken *in* the foreign squid trawl fishery which has now been terminated. Catches of perhaps 20 per year continue *in* the mackerel fishery (Cranmore, 1988, *in* Northridge, 1991).

¹² Common dolphins are killed *in* surface trawling for sardines and mackerel *in* this region. One trawler was said to have caught 6 – 22 dolphins per haul at night, *in* an area where 12 trawlers were fishing.

¹³ Tomilin, 1967 *in* Northridge relates that common dolphin is also known to help Mediterranean sardine fishermen, who follow the dolphins which are responsible for frightening the fish to the surface. He continues that on the coast of Anatolia where “the population of dolphins totals about one million” they consume one million tonnes of fish *in* 100 days (Northridge, 1984)

	5	SE Atlantic			Best, pers. comm., 1992, <i>in</i> Fertl & Leatherwood, 1995
	2				Cockcroft, per. Com., 1992, <i>in</i> Fertl & Leatherwood, 1995
	9	SW Pacific New Zealand	Pair trawl	1978	Reports to the IWC <i>in</i> Northridge, 1984
	2		Trawl		
	11		Pair trawl		
	12		Trawl	1979	
	1		Bottom trawl	1980	
Common dolphin cont.d.	165+	SW Pacific		1978 - 1995	Fertl & Leatherwood, 1995; Mitchell 1975; Anonymous, 1981, 1982, 1988, 1989, 1990, 1991; Slooten & Dawson, 1988; Baird, 1995; Matlin, per. Com., 1995
Atlantic Spotted dolphin	2	W Central Atlantic		1985	Ford, pers. com., 1991, <i>in</i> Fertl & Leatherwood, 1995
	2			1988	
Heaviside's dolphin	2	SE Atlantic	Stern trawler (Portuguese)		IWC, 1979, <i>in</i> Northridge, 1984
	Small numbers			1977 - 1979	Fertl & Leatherwood, 1995; Anonymous, 1979; Northridge, 1984, Best, pers com., 1992
	1			1990	
Hectors dolphin	unknown	SW Atlantic	Midwater trawl		Northridge, 1984
	10's	SW Atlantic Chubut, Tierra del Fuego, Peninsula Valdez	trawl	Per year	Scialabba, 1989, <i>in</i> Northridge, 1991; Crespo & Corcuera, 1990, <i>in</i> Northridge, 1991.
	unknown	SW Atlantic, Chubut, Santa Cruz	Bottom & midwater trawls		Northridge, 1991
	2+	SW Atlantic			Goodall <i>et al.</i> , 1988, 1990, <i>in</i> Fertl & Leatherwood, 1995.
Harbour porpoise	1	NW Atlantic		1977	Testaverde, 1978; O'Hara <i>et al.</i> , 1986, <i>in</i> Fertl & Leatherwood, 1995
	1			1982	
	Considerable nrs poss. hundreds	NE Atlantic	Danish trawls	annually	Anderson & Clausen, 1983, <i>in</i> Northridge, 1984
	149	Swedish waters	86% <i>in</i> gillnets, rest <i>in</i> trawls	1973 - 1987	Lindstedt & Lindstedt, 1989, <i>in</i> Northridge, 1991
	23			1988	
	>20	Shetland	Bottom trawls	1988/89	Northridge, 1991
	unknown	British waters	trawl		Northridge, 1991
	1	Baltic Sea		1950's	Fertl & Leatherwood, 1995; Anderson & Clausen, 1983; Anonymous, 1988, 1989, 1990; Lindstedt & Lindstedt, 1989; Kinze, 1994; Skora <i>et al.</i> , 1988;
	244	NE Atlantic		1973 - 1992	Benke <i>et al.</i> , 1991; Currey <i>et al.</i> , 1990; Gaskin, 1984; Mitchell, 1975;

					Moreno, 1993; Reijnders & Lankester, 1990; Northridge, 1988, 1991.	
unknown	unknown	Black Sea	unknown		Celikkale, 1990, <i>in</i> Northridge, 1991	¹⁴
Harbour porpoise	infrequent	NE Pacific, Alaska	trawl		Barlow <i>et al.</i> , 1990	¹⁵
	1 8	NE Pacific	Dredged by trawler	1941 1973 - 1988	Fertl & Leatherwood, 1995; Scheffer & Slipp, 1948; Perez & Loughlin, 1991; Barlow <i>et al.</i> , 1994	
	unnumbered	E Central Pacific			Leatherwood & Reeves, 1986, <i>in</i> Fertl & Leatherwood, 1995	
Vaquita	6 unnumbered	E Central Pacific		1961 – 1990 1984	Norris & Prescott, 1961; Vidal, 1990; Silber, pers. com., 1993, <i>in</i> Fertl & Leatherwood, 1995;	
Spectacled porpoise	Unknown, probably few	SW Atlantic Argentina	Midwater trawls		Northridge, 1984	
	unknown	Chubut and Santa Cruz, Argentina			Crespo & Corcuera, 1990, <i>in</i> Northridge, 1991	
Dall's porpoise	unknown	NE Pacific			Barlow, <i>et al.</i> , 1990, <i>in</i> Northridge, 1991	
	55	NE Pacific		1973 - 1993	Perez & Loughlin, 1991; NMFS, 1995; Baird <i>et al.</i> , 1991; Barlow <i>et al.</i> , 1994.	
	14	E Central Pacific		1973 - 1992	Perez & Loughlin, 1991; NMFS, 1995, <i>in</i> Fertl & Leatherwood, 1995	
Finless porpoise	2	E Indian Ocean (Pakistan)	Shrimp trawl		Niazi, 1990, <i>in</i> Northridge, 1991 and <i>in</i> Fertl & Leatherwood, 1995	

¹⁴ Trawls and purse seines are the major gear types *in* Turkish water

¹⁵ As elsewhere *in* its range, this species appears to be widely affected by interactions with fisheries (Northridge, 1991).