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LONG-BEAKED COMMON DOLPHIN (*Delphinus capensis capensis*): California Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Long-beaked common dolphins have only recently been recognized as a distinct species (Heyning and Perrin 1994; Rosel et al. 1994). Along the U.S. west coast, their distribution overlaps with that of the short-beaked common dolphin, and much historical information has not distinguished between these two species. Long-beaked common dolphins are commonly found within about 50 nmi of the coast, from Baja California (including the Gulf of California) northward to about central California (Figure 1). Stranding data and sighting records indicate that the relative abundance of this species off California changes both seasonally and inter-annually. Although long-beaked common dolphins are not restricted to U.S. waters, cooperative management agreements with Mexico exist only for the tuna purse seine fishery and not for other fisheries which may take this species (e.g. gillnet fisheries). Under the Marine Mammal Protection Act (MMPA), long-beaked ("Baja neritic") common dolphins involved in eastern tropical Pacific tuna fisheries are managed separately as part of the 'northern common dolphin' stock (Perrin et al. 1985), and these animals are not included in the assessment reports. For the MMPA stock assessment reports, there is a single Pacific management stock including only animals found within the U.S. Exclusive Economic Zone of California.

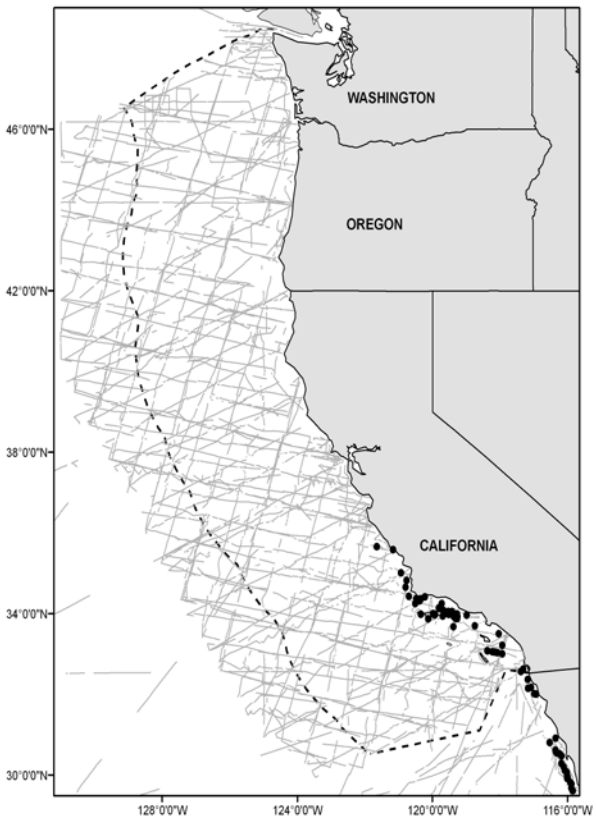

Figure 1. Long-beaked common dolphin sightings based on shipboard surveys off California, Oregon, and Washington, 1991- 2008 (see Appendix 2 for information on timing and location of survey effort). No Delphinus sightings have been made off Washington. Dashed line represents the U.S. EEZ, thin lines indicate completed transect effort of all surveys combined.

POPULATION SIZE

The most recent abundance estimates are 11,714 (CV=0.99) and 62,447 (CV=0.80) long-beaked common dolphins, based on 2005 and 2008 ship line transect surveys, respectively, of California, Oregon, and Washington waters (Forney 2007; Barlow 2010). The distribution and abundance of long-beaked common dolphins off California appears to be variable on interannual and seasonal time scales (Heyning and Perrin 1994). As oceanographic conditions change, long-beaked common dolphins may move between Mexican and U.S. waters, and therefore a multi-year average abundance estimate is the most appropriate for management within the U.S. waters. The geometric mean abundance estimate for California, Oregon and Washington waters based on two ship surveys conducted in 2005 and 2008 is 27,046 (CV=0.59) long-beaked common dolphins (Forney 2007; Barlow 2010).

Minimum Population Estimate

The log-normal 20th percentile of the weighted average abundance estimate is 17,127 long-beaked common dolphins.

Current Population Trend

California waters represent the northern limit for this stock and animals likely move between U.S. and Mexican waters. No information on trends in abundance are available for this stock because of high interannual variability in line-transect abundance estimates. Heyning and Perrin (1994) detected changes in the proportion of short-beaked to long-beaked common dolphins stranding along the California coast, with the short-beaked common dolphin stranding more frequently prior to the 1982-83 El Niño (which increased water temperatures off California), and the long-beaked common dolphin more commonly observed for several years afterwards. Thus, it appears that both relative and absolute abundance of these species off California may change with varying oceanographic conditions.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

There are no estimates of current or maximum net productivity rates for long-beaked common dolphins.

POTENTIAL BIOLOGICAL REMOVAL

The potential biological removal (PBR) level for this stock is calculated as the minimum population size (17,127) times one half the default maximum net growth rate for cetaceans (½ of 4%) times a recovery factor of 0.48 (for a species of unknown status with a mortality rate CV >0.30 and <0.60; Wade and Angliss 1997), resulting in a PBR of 164 long-beaked common dolphins per year.

HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Fishery Information

A summary of recent fishery mortality and injury for long-beaked common dolphins is shown in Table 1. More detailed information on these fisheries is provided in Appendix 1. Mortality estimates for the California drift gillnet fishery are included for the five most recent years of monitoring, 2004-2008 (Carretta et al. 2005, Carretta and Enriquez 2006, 2007, 2009a, 2009b). After the 1997 implementation of a Take Reduction Plan, which included skipper education workshops and required the use of pingers and minimum 6-fathom extenders, common dolphin entanglement rates in the drift gillnet fishery dropped considerably (Barlow and Cameron 2003). However, because of interannual variability in entanglement rates additional years of data will be required to fully evaluate the effectiveness of pingers for reducing mortality of this species in the long term.

Common dolphin mortality has also been reported in halibut set gillnets in California (Julian and Beeson 1998). This fishery has only been observed twice since 2004 (Table 1). Although no common dolphins were observed taken, fisherman self-reports in 2004 indicate that at least one common dolphin (type not specified) were killed (Marine Mammal Authorization Permit Program data). Although these reports are considered unreliable (see Appendix 4 of Hill and DeMaster 1998) they represent a minimum mortality for this fishery.

Twenty-four common dolphins (two unidentified common dolphin and 22 long-beaked common dolphins) stranded with evidence of fishery interaction (NMFS, Southwest Region, unpublished data) between 2004-2008. All but six of these strandings showed evidence of an interaction with an unknown entangling net fishery (severed flukes, knife cuts, net marks, or net fragments wrapped around the animal). One animal showed evidence of an interaction with an unknown hook and line fishery and five animals had either bullets removed from the carcass (3) or evidence of gunshot wounds (2). Mean annual takes in Table 1 are based on 2004-2008 data.

Drift gillnet fisheries for swordfish and sharks exist along the entire Pacific coast of Baja California, Mexico and may take animals from this population. Quantitative data are available only for the Mexican swordfish drift gillnet fishery, which uses vessels, gear, and operational procedures similar to those in the U.S. drift gillnet fishery, although nets may be up to 4.5 km long (Holts and Sosa-Nishizaki 1998). The fleet increased from two vessels in 1986 to 31 vessels in 1993 (Holts and Sosa-Nishizaki 1998). The total number of sets in this fishery in 1992 can be estimated from data provided by these authors to be approximately 2700, with an observed rate of marine mammal bycatch of 0.13 animals per set (10 marine mammals in 77 observed sets; Sosa-Nishizaki et al. 1993). This overall mortality rate is similar to that

observed in California driftnet fisheries during 1990-95 (0.14 marine mammals per set; Julian and Beeson, 1998), but species-specific information is not available for the Mexican fisheries. Previous efforts to convert the Mexican swordfish driftnet fishery to a longline fishery have resulted in a mixed-fishery, with 20 vessels alternately using longlines or driftnets, 23 using driftnets only, 22 using longlines only, and seven with unknown gear type (Berdegué 2002).

Table 1. Summary of available information on the incidental mortality and injury of long-beaked common dolphins (California Stock) and prorated unidentified common dolphins in commercial fisheries that might take this species. All observed entanglements resulted in the death of the animal. Coefficients of variation for mortality estimates are provided in parentheses, when available. Mean annual takes are based on 2004-2008 data unless noted otherwise. n/a = information not available.

Fishery Name	Data Type	Year(s)	Percent Observer Coverage	Observed (or self-reported)	Estimated Annual Mortality	Mean Annual Takes (CV in parentheses)
CA/OR thresher shark/swordfish drift gillnet fishery	observer	2004 2005 2006 2007 2008	20.6% 20.9% 18.5% 16.4% 13.5%	0 3 1 0 1	0 14 (0.57) 5 (1.04) 0 7 (1.08)	5.2 (0.78)
CA small mesh drift gillnet fishery for white seabass, yellowtail, barracuda, and tuna[1]	observer	2004 2005 2006 2007 2008	17.6% not observed not observed not observed not observed	1 n/a n/a n/a n/a	5 (1.18) n/a n/a n/a n/a	5 (1.18)
CA halibut /white seabass and other species set gillnet fishery	Self report & observer	2004 2005 2006 2007 2008	not observed not observed ~1% 17% not observed	(1) 0 0 0 0	≥1 0 0 0 0	≥1 (n/a)
Undetermined	strandings	2004-2008	24 common dolphins (two unidentified and 22 longbeaked common dolphins) stranded with evidence of fishery interactions. Evidence of fishery interactions included severed flukes, net fragments, net marks, positive metal detector scans, and knife marks or cuts. Some strandings may have come from observed fisheries that already have bycatch estimates and these are not included in the annual average to prevent double-counting of fishery mortality. Mean annual takes are therefore based on stranded animals only if the stranding can be attributed to a fishery lacking an observer program or cases where stranded animals represent the only documented fishery-related deaths in a given year. This results in a minimum of 9 long-beaked common dolphin strandings over the 5 year period, or 1.8 animals annually.			1.8 (n/a)
Minimum total annual takes						13.0 (0.51)

[1] Observer coverage in the small mesh drift gillnet fishery was estimated from logbook records. Logbook effort totaled 192, 134, 191, 201, and 125 sets for 2000 through 2004, respectively. The fishery was not observed after 2004.

Other Mortality

In the eastern tropical Pacific, 'northern common dolphins' have been incidentally killed in international tuna purse seine fisheries since the late 1950's. Cooperative international management programs have dramatically reduced overall dolphin mortality in these fisheries during the last decade (Joseph 1994). Between 2000-2004, annual fishing mortality of northern common dolphins (potentially including both short-beaked and long-beaked common dolphins) ranged between 54 and 159 animals, with an average of 102 (IATTC, 2006). Although it is unclear whether these animals are part of the same population as long-beaked common dolphins found off California, they are managed separately under a

section of the MMPA written specifically for the management of dolphins involved in eastern tropical Pacific tuna fisheries.

'Unusual mortality events' of long-beaked common dolphins due to domoic acid toxicity have been documented by NMFS as recently as 2007 along the California coast.

STATUS OF STOCK

The status of long-beaked common dolphins in California waters relative to OSP is not known, and there are insufficient data to evaluate potential trends in abundance of this species of common dolphin. No habitat issues are known to be of concern for this species. They are not listed as "threatened" or "endangered" under the Endangered Species Act nor as "depleted" under the MMPA. The average annual human-caused mortality from 2004-2008 (13.0 animals) does not exceed the PBR (164), and therefore they are not classified as a "strategic" stock under the MMPA. The average total fishery mortality and injury for long-beaked common dolphins (13.0) is less than 10% of the PBR and therefore, is considered to be insignificant and approaching zero mortality and serious injury rate.

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