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Abundance of the long-beaked common dolphin (*Delphinus capensis*) in California and western Baja California waters estimated from a 2009 ship-based line-transect survey

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Abstract.—The abundance of the long-beaked common dolphin (*Delphinus capensis*) is estimated from data collected during a 2009 ship-based line-transect survey. The survey was designed to provide fine-scale coverage of the known range of *D. capensis* along the California and west Baja California coasts. Estimates of *D. capensis* abundance presented are the highest to date for California waters and may reflect a combination of improved survey design for this species and increasing numbers of *D. capensis* in state waters. Estimates of *D. capensis* abundance within California waters are 183,396 (CV=0.41, 95% CI 78,149 − 379,325) animals. An additional 95,786 (CV=0.47, 95% CI 36,881 − 209,507) *D. capensis* were estimated in Baja California waters from the U.S./Mexico border south to the tip of Baja California. Total estimated abundance of *D. capensis* in California and Baja California west coast waters is 279,182 (CV=0.31, 95% CI 148,753 − 487,323) animals.

Introduction

In 2009, the Southwest Fisheries Science Center (SWFSC), a branch of the National Oceanic and Atmospheric Administration (NOAA), conducted a ship-based line-transect survey to estimate the abundance of long-beaked common dolphin (*Delphinus capensis*) in California waters and along the west coast of Baja California (Chivers *et al.* 2010). This was part of a larger mandate under the U.S. Marine Mammal Protection Act to collect data on marine mammal populations used to prepare marine mammal stock assessments published annually (Carretta et al. 2011). Surveys are conducted periodically to provide updates on marine mammal abundance and trends. Between 1991 and 2008, six coarse-scale vessel line-transect surveys were conducted along the U.S. west coast out to 300 nmi (Barlow 1995, Barlow 2003, Forney 2007, Barlow and Forney 2007, Barlow 2010). These surveys provided comprehensive estimates of abundance for short-beaked common dolphin (*Delphinus delphis*) in the California Current. However, transect coverage was not optimal for coastal species, such as *D. capensis*. Abundance estimates of *D. capensis* from previous coarse-scale surveys have been highly variable and characterized by small numbers of sightings and low statistical precision (Table 1). Part of this variability is because California waters represent the northern extent of the range of a *D. capensis* population which extends into Mexico. Gillnet bycatch of the California population of *D. capensis* has sometimes exceeded sustainable levels (“potential biological removal” or PBR) as defined under the Marine Mammal Protection Act (Wade and Angliss 1997). A lack of precise abundance estimates, in combination with human-caused mortality levels of this stock, prompted a more intensive, fine-scale survey of *D. capensis* coastal habitat in 2009 to provide improved estimates of abundance. Although this species also occurs in the Gulf of California, it was not practical to survey their entire range in 2009. Since