

INTERNATIONAL DOLPHIN CONSERVATION PROGRAM

SCIENTIFIC ADVISORY BOARD

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NEW ESTIMATES OF DOLPHIN ABUNDANCE FROM NMFS SURVEYS

The U.S. National Marine Fisheries Service (NMFS) has recently published new abundance estimates for dolphin populations in the eastern Pacific Oceanⁱ. This series of estimates is based on surveys conducted in 2003 and 2006, and revisions of estimates from 1986-1990 and 1998-2000. All three of the stocks considered “depleted” under the U.S. Marine Mammal Protection Act were found to be increasing, and the NMFS report concluded that these populations may be beginning to recover.

In Table 1 the 2006 population estimates for some of the stocks published by NMFS are compared with the IATTC 2007 mortality estimates and the previous pooled 1986-1990 estimates upon which current Stock Mortality Limits (SMLs) are basedⁱⁱ. Updated abundance estimates for the three stocks of common dolphins are not yet available; for these estimates, the combined short-beaked and long-beaked common dolphin population estimate (Table 1) will have to be subdivided by area into the northern, central, and southern stock areas, and any estimates for the long-beaked common dolphin added in to the northern stock.

TABLE 1. Estimates of mortalities of dolphins in 2007, 1986-1990 and 2006 population abundances from NMFS surveys, and relative mortality, by stock.

Species and stock	Incidental mortality	Previous abundance	Population abundance	Relative mortality
Especie y población	Mortalidad incidental	Abundancia previa	Abundancia de la población	Mortalidad relativa
	2007	1986-1990	2006	%
Offshore spotted dolphin—Delfín manchado de altamar				
Northeastern—Nororiental	187	730,900	857,884	0.02
Western/southern—Occidental y sureño	116	1,298,400	439,208	0.03
Spinner dolphin—Delfín tornillo				
Eastern—Oriental	175	631,800	1,062,879	0.02
Whitebelly—Panza blanca	113	1,019,300	734,837	0.02
Common dolphin—Delfín común				
Northern—Norteño	55			
Central	69			
Southern—Sureño	95			
Total common dolphin ¹	219	3,093,300	3,127,203	

Figure 1 shows the newly revised series of estimates for four stocks of dolphins from NMFS surveys conducted between 1986 and 2006¹.

Because results from the most recent NMFS abundance survey are now available, a workshop could be convened to update the estimates of N_{min} , which was last done by the Technical Workshop for Calculating N_{min} in 2006 ([IATTC Special Report 14](#)), and to consider updating the current SMLs, which are based on

¹ Includes only short-beaked common dolphins

abundance estimates that are 20 years old. Updating N_{min} would involve obtaining new common dolphin stock estimates from the NMFS (currently estimates are only available by species, and not by stock), including the 2006 data with the 1986-2003 data and applying a logistic model to obtain projections of the abundance estimates for future years. Updating the SMLs would involve consideration of questions such as: Should projections based on the observed population growth rates be calculated beyond the latest survey year? If projections are to be used, for how long should they be considered valid without being updated with new survey data? Is it better for the fishery to have stable SMLs, or variable SMLs that would likely increase if the population continues to increase?

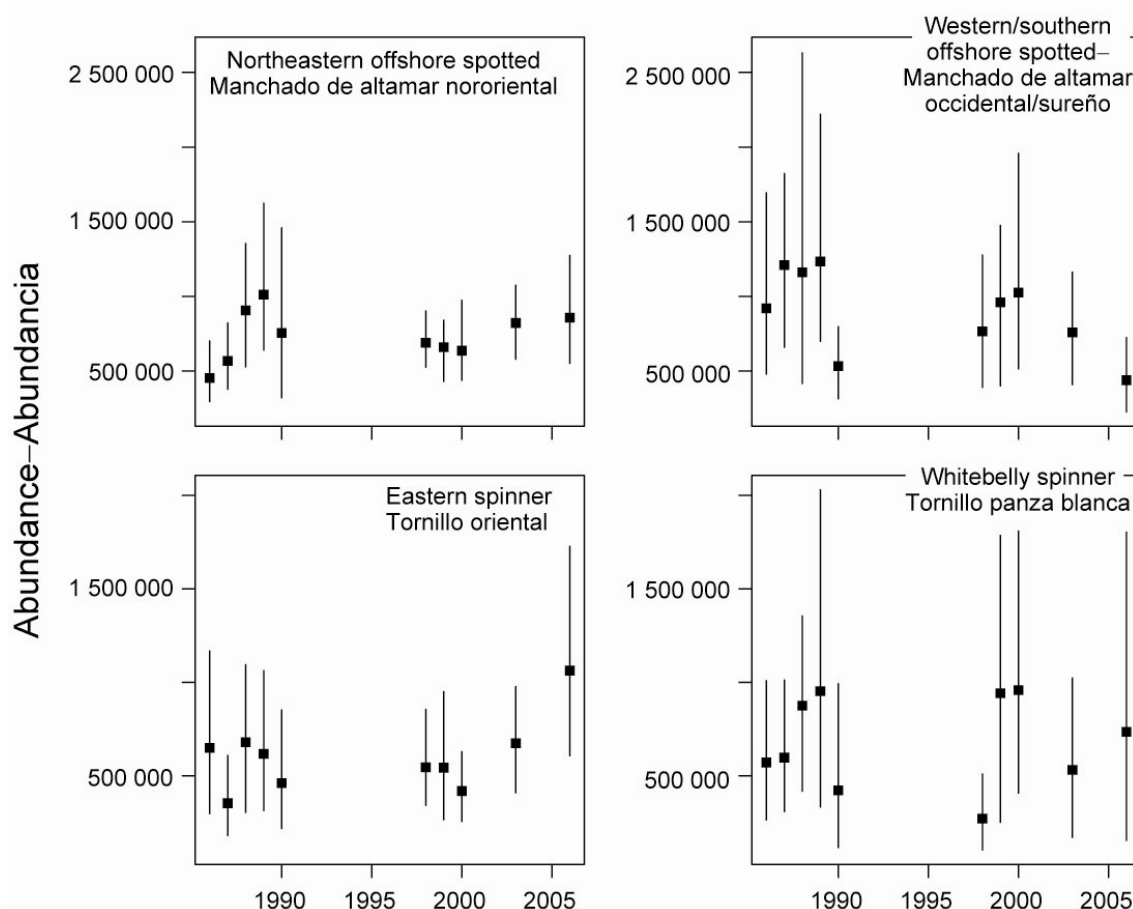


FIGURE 1. Series of abundance estimates and 95% confidence intervals from NMFS surveys conducted between 1986 and 2006 for northeastern and western/southern spotted and eastern and whitebelly spinner dolphins.

ⁱGerrodette, T., G. Watters, W. Perryman, and L. Ballance. 2008. Estimates of 2006 dolphin abundance in the eastern tropical Pacific, with revised estimates from 1986-2003. NOAA Tech. Memo. NMFS NOAA-TM-NMFS-SWFSC-422. 39 pp.

<http://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-422.pdf>

See also: <http://swfsc.noaa.gov/textblock.aspx?Division=PRD&ParentMenuId=228&id=12816>

ⁱⁱWade, P. R., and T. Gerrodette. 1993. Estimates of cetacean abundance and distribution in the eastern tropical Pacific. Rep. Int. Whal. Commn. 43:477-493.