

Stenella longirostris ssp. orientalis, Eastern Spinner Dolphin

Assessment by: Hammond, P.S., Bearzi, G., Bjørge, A., Forney, K.A., Karkzmarski, L., Kasuya, T., Perrin, W.F., Scott, M.D., Wang, J.Y., Wells, R.S. & Wilson, B.



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Citation: Hammond, P.S., Bearzi, G., Bjørge, A., Forney, K.A., Karkzmarski, L., Kasuya, T., Perrin, W.F., Scott, M.D., Wang, J.Y., Wells, R.S. & Wilson, B. 2012. *Stenella longirostris ssp. orientalis*. The IUCN Red List of Threatened Species 2012: e.T133712A17838296.

<http://dx.doi.org/10.2305/IUCN.UK.2012.RLTS.T133712A17838296.en>

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Cetartiodactyla	Delphinidae

Taxon Name: *Stenella longirostris ssp. orientalis* Perrin 1990

Parent Species: See [Stenella longirostris](#)

Common Name(s):

- English: Eastern Spinner Dolphin

Taxonomic Notes:

The eastern Spinner Dolphin is one of two subspecies described from the eastern tropical Pacific (Perrin 1990); the other is the Central American spinner dolphin, *S. l. centroamericana*.

Assessment Information

Red List Category & Criteria: Vulnerable A2d [ver 3.1](#)

Year Published: 2012

Date Assessed: July 1, 2008

Justification:

The Eastern Spinner Dolphin has declined 54.5–84.5% from historical levels (Wade *et al.* 2007). In the last three generations (41 years; Taylor *et al.* 2007), the population declined approximately 50% (from 1966 to 2007) (data from Wade *et al.* 2007, Gerrodette *et al.* 2005). Because this decline exceeds the 30% threshold for Vulnerable status (under A2d), the subspecies is categorized as Vulnerable.

Previously Published Red List Assessments

2008 – Vulnerable (VU)

Geographic Range

Range Description:

The subspecies occupies a range of roughly 10 million km² in the eastern tropical Pacific, extending from about the equator to about 20° North latitude and from the coast of Mexico and Central America west to about 135° West longitude. The core of the range (highest densities of dolphins) is north of 5° N and east of 130° W (Perrin *et al.* 1991). Subpopulations likely exist within the subspecies; spinners off northern Mexico (the "Tres Marias spinners") are longer on average than those farther to the south and offshore (Perryman and Westlake 1998), and peak timing of reproductive seasonality varies spatially within the range (Barlow 1984).

The map shows where the species may occur based on oceanography. The species has not been recorded for all the states within the hypothetical range as shown on the map. States for which

confirmed records of the species exist are included in the list of native range states.

Country Occurrence:

Native: Colombia (Malpelo I.); Costa Rica; Ecuador; El Salvador; France (Clipperton I.); Guatemala; Honduras; Mexico; Nicaragua; Panama

FAO Marine Fishing Areas:

Native: Pacific - eastern central

Population

The most recent estimate of abundance is about 613,000 animals (CV = 22%) based on sighting effort of roughly 300,000 km in 13 multi-vessel line-transect surveys conducted 1979–2003 (Gerrodette *et al.* 2005). Annual estimates ranged from 271,000 to 734,000. The population is estimated to have declined 54.5–84.5% (median 71.2%) from its original size of 1.3 million, beginning in the late 1950s and continuing into the mid- to late 1970s (Wade *et al.* 2007). Due to greatly reduced levels of directly observed bycatch in the fishery in the 1970s and 1980s to below sustainable levels, the decline stopped. The rate of increase between 1979 and 2003 has been estimated at 1.1%, an estimate not significantly different from zero (Gerrodette and Forcada 2005).

Current Population Trend: Increasing

Habitat and Ecology (see Appendix for additional information)

Eastern Spinner Dolphins occur typically in the Eastern Pacific Warm Pool, a water mass characterized by high surface temperature and chlorophyll, low surface density and a shoal thermocline underlying a shallow mixed layer (Ballance *et al.* 2006). Pelagic dolphins are capable of moving 50 km or more in a single day (Perrin *et al.* 1979).

The eastern spinner dolphin commonly occurs together with Pantropical Spotted Dolphins (*Stenella attenuata*) in large aggregations and often accompanied by schools of Yellowfin Tuna (*Thunnus albacares*). Tuna fishermen take advantage of the tuna-dolphin bond, using the dolphins as surface indicators of tuna and herding and capturing them to catch the tuna associated with them.

The diet is composed almost entirely of small deep-scattering-layer organisms that migrate toward the surface nocturnally: fishes such as myctophids, small squids and krill-sized crustaceans (Perrin *et al.* 1973, Galván Magaña 1999)

Systems: Marine

Threats (see Appendix for additional information)

The major threat to the subspecies has been bycatch in the tuna purse seine fishery, which has caused a decline of 65% in abundance since 1959 (Reilly *et al.* 2005). Since the Inter-American Tropical Tuna Commission (IATTC) implemented per-vessel mortality limits on the international fleet, the annual mortality for the Eastern Spinner Dolphins has decreased, to 274 in 2005 (IATTC 2006). Although current mortality is greatly reduced, the subspecies has not shown clear signs of recovery. Potential factors such as fishery-related stress, unobserved mortality due to calf separation and orphaning during fishing operations (Archer *et al.* 2001), possible mortality imposed by small vessels that do not carry observers, ecosystem changes, and under-reporting of mortality have been suggested as possible reasons for the eastern spinner's slow recovery (Gerrodette and Forcada 2005). These hypotheses are not mutually exclusive; two or more be operating in combination to prevent rapid recovery of the population. However, in any case the cause is not understood. If indirect effects of chase-and-capture are the root of the problem, the impact could have been increasing in recent years, because the number of net sets on dolphins in the ETP has been steadily increasing since the early 1990s to an all-time high in 2003 of 14,000 sets (U.S. Marine Mammal Commission 2006), similar to levels in the 1980s and nearly twice as high as in the 1980s.

An additional threat is bycatch in artisanal gillnet fisheries in several nations (Vidal *et al.* 1994, Palacios and Gerrodette 1996).

Conservation Actions (see Appendix for additional information)

The species is listed in Appendix II of CITES.

Eastern Spinner Dolphins, as with other species impacted by the ETP tuna purse-seine fishery are managed both nationally by the coastal countries and internationally by the IATTC under a full observer scheme. The IATTC has imposed annual mortality limits by population on each purse seine and promulgated regulations regarding the safe release of dolphins (Bayliff 2001).

Credits

Assessor(s): Hammond, P.S., Bearzi, G., Bjørge, A., Forney, K.A., Karkzmarski, L., Kasuya, T., Perrin, W.F., Scott, M.D., Wang, J.Y., Wells, R.S. & Wilson, B.

Reviewer(s): Rojas-Bracho, L. & Smith, B.D.

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External Resources

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Appendix

Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	-	Suitable	Yes
10. Marine Oceanic -> 10.1. Marine Oceanic - Epipelagic (0-200m)	-	Suitable	Yes

Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity	Impact Score
4. Transportation & service corridors -> 4.3. Shipping lanes	Ongoing	Unknown	Unknown	Unknown
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale)	Ongoing	Minority (50%)	No decline	Low impact: 4
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale)	Past, unlikely to return	Majority (50-90%)	Rapid declines	Past impact
7. Natural system modifications -> 7.3. Other ecosystem modifications	Ongoing	Unknown	Unknown	Unknown

Conservation Actions in Place

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Conservation Actions in Place
In-Place Education
Included in international legislation: Yes
Subject to any international management/trade controls: Yes

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