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RECENT SIGHTINGS OF THE GULF OF CALIFORNIA HARBOR PORPOISE, *PHOCOENA SINUS*

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The Gulf of California harbor porpoise, or vaquita, *Phocoena sinus*, Norris and McFarland (1958) was described originally from skulls collected in the northern Gulf of California, and since then has been seen or reported infrequently. Several authors have provided reviews of recovered specimens (Brownell, 1983, 1986; Magatagan et al., 1984), and a total of about 20 sightings of free-ranging *P. sinus* are known to scientists (Norris and McFarland, 1958; Norris and Prescott, 1961; Villa, 1976; Wells et al., 1981). However, Brownell (1986) argued that many of these observations lacked sufficient detail to be substantiated. The porpoise is believed to be endemic to the Gulf of California (Norris and McFarland, 1958; Norris and Prescott, 1961), and its range may be limited to the upper Gulf (Brownell, 1986). Little is known about the behavior, biology, and natural history of the vaquita. The size of the porpoise, its characteristically small group size, and its elusive nature have undoubtedly contributed to the paucity of sightings.

Surveys for *P. sinus* were conducted in the northern Gulf of California between 2–27 February and 15–30 March 1986. Although the surveys were not designed to yield a population estimate, the data presented here may be of value in planning future census work. This paper provides the single largest collection of sightings since the initial description of the species and provides some insight into its habitat utilization.

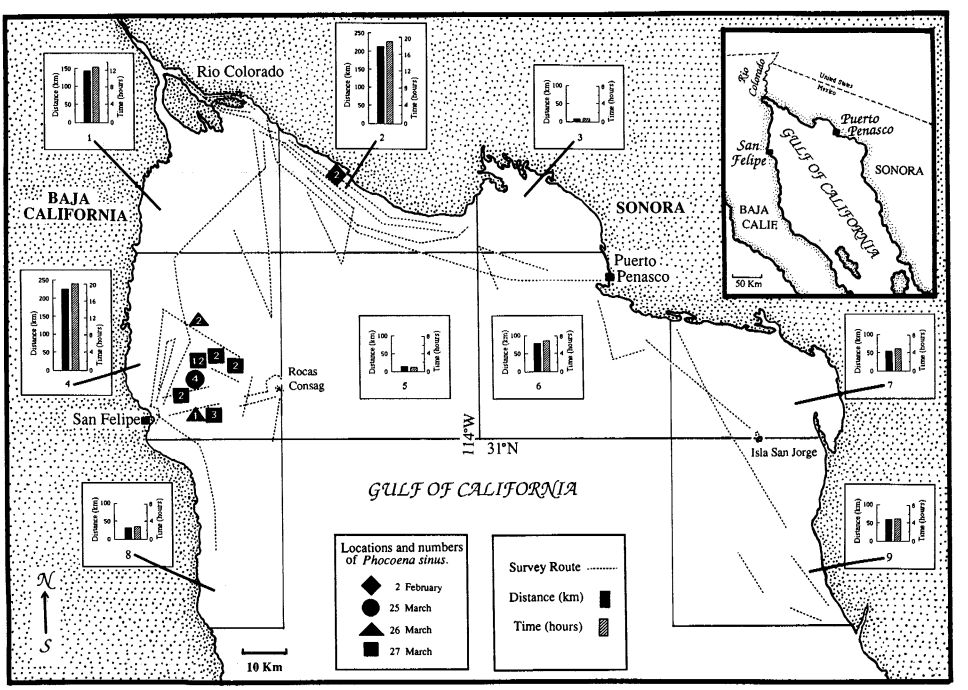

FIG. 1.—Survey track lines, and locations and numbers of *Phocoena sinus* sighted in the Gulf of California in 1986.

TABLE 1.—Phocoena sinus *sightings in the northern Gulf of California during February and March 1986.*

Date	Time	Location	No. seen	Distance to shore (km)	Depth (m)	Water temp. (C)	Clarity (m)	Tide	Sea state
2 Feb	1139	31°34′N, 114°20′W	2	2.4	19.0	17.0	4.0	Fall	1
25 Mar	0831	31°07′N, 114°42′W	4 (2A + C*)	12.0	15.0	21.0	1.8	Fall	0–1
26 Mar	0945	31°15′N, 114°44′W	1 (+?)	12.8	13.5	19.0	0.9	Rise	0–1
26 Mar	1657	31°04′N, 114°41′W	1	12.0	25.0			Fall	0–1
26 Mar	1747	31°04′N, 114°40′W	1	12.8	22.0			Fall	0–1
27 Mar	0752	31°04′N, 114°40′W	3 (A + C + 1)	12.8	15.0		1.5	Fall	0–1
27 Mar	1122	31°07′N, 114°44′W	2 (A + C)	10.2	15.0		1.5	Rise	0–1
27 Mar	1240	31°10′N, 114°42′W	8–10	15.2	26.0	21.0	2.5	Rise	0–1
27 Mar	1355	31°10′N, 114°41′W	4 (2A + C)	16.8	28.0		2.5	Rise	1
27 Mar	1435	31°10′N, 114°40′W	1	16.8	28.0	23.0	2.5	Rise	0–1
27 Mar	1442	31°10′N, 114°39′W	1	17.6	22.0**	23.0	2.5	Rise	0–1
27 Mar	1459	31°09′N, 114°36′W	2	20.0	22.0**	23.0	2.5	Rise	0–1

* A + C = adult and calf.
** Indicated depths were extrapolated from a nautical chart.

More than 815 km of survey transects for *P. sinus* were conducted from an 8-m Boston whaler (Fig. 1). Two to four observers stationed at 3.5 m above the water surface used the unaided eye and 7 × 35 and 10 × 40 power binoculars to search the area in front of the vessel and about 200–300 m on either side of the ship's track, although they also regularly scanned to greater distances. During all surveys the vessel traveled consistently at 10–11 km/h. Data on the number of individuals, tidal phase, sea state, and water depth, temperature, and clarity were collected for each sighting. The same information was collected for several porpoise sightings that occurred when we were not conducting systematic transects. The location of each sighting was determined by triangulating on landmarks then plotted on a nautical chart. Distances from shore also were derived from a chart. Most water depths were obtained at the time of the sighting using a JRC color depth sounder; the remainder were obtained from a nautical chart. The latter may be subject to a small degree of error caused by substantial tidal fluctuations and inaccuracies in the chart itself. Sea states were obtained by visual assessment according to the Beaufort scale. No surveys were conducted when sea states exceeded Beaufort 2. Water clarity was measured using a Secchi disc. Information on tidal phases was obtained from the University of Arizona tide chart for the northern Gulf of California (Thomson, 1986).

Phocoena sinus was observed on 12 occasions representing an estimated total of 30 individuals (Fig. 1). Of these observations six were adult/calf pairs and six were single individuals. The sightings occurred in two locations and in two separate time blocks (Table 1, Fig. 1). One sighting of two individuals occurred in early February, 33.6 km SE El Golfo de Santa Clara, Sonora, Mexico. The second series of sightings occurred between 25 and 27 March in an area about 15 km E San Felipe, Baja California Norte, Mexico (Table 1, Fig. 1). On two occasions we observed aggregations of porpoises in which the animals were dispersed as single individuals and small subgroups (two–four members) throughout several hundred square meters. One such aggregation was encountered on 27 March when the greatest number of porpoises was observed (eight–10 individuals; Table 1). However, we made only one pass through the group and did not stop to determine actual abundance. We believe that the number of porpoises in that area was substantially higher than the figure reported here. Thirteen additional porpoises were observed elsewhere on the same day (Table 1).

The biology and habitat utilization of *P. sinus* has not been quantified, although some information on group size and water depths accompanies previous porpoise sightings (Norris and McFarland, 1958; Norris and Prescott, 1961; Wells et al., 1981). The data presented here for *P. sinus* group sizes, distance from shore, and water depths are similar to those reported for *P. phocoena* (Amundin and Amundin, 1974; Gaskin, 1977; Gaskin et al., 1974; Neave and Wright, 1968; Prescott and Fiorelli, 1980; Scheffer and Slipp, 1948; Taylor and Dawson, 1984) and for *P. spinipinnis* (Würsig et al., 1977). Except for recent data on ventilation patterns (Silber et al., 1988), nothing is known about the behavior of *P. sinus* (Brownell, 1983).

The low number of *P. sinus* sightings reported here relative to the search effort involved suggests that the porpoise is exceedingly rare. Alternatively, there may be a seasonal component to porpoise density in the northern Gulf of California, and the main body of the population may have been elsewhere during our surveys in those areas. Additional work is needed to assess the relative abundance and distribution of *P. sinus*. This depleted population continues to be impacted through incidental kills in various local gillnet fisheries (Brownell, 1983).

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Literature Cited

Amundin, M., and B. Amundin. 1974. On the behaviour and study of the harbour porpoise, *Phocoen phocoena* in the wild. Investigations on Cetacea, 5:317–328.

Brownell, R. L., Jr. 1983. Phocoena sinus. Mamm. Species, 198:1–3.

———. 1986. Distribution of the vaquita, *Phocoena sinus*, in Mexican waters. Marine Mamm. Sci., 2:299–305.

Gaskin, D. E. 1977. Harbour porpoise, *Phocoena phocoena* (L.) in the western approaches of the Bay of Fundy, 1969–75. Rept. Internat. Whaling Commn., 29:487–492.

Gaskin, D. E., P. W. Arnold, and B. A. Blair. 1974. Phocoena phocoena. Mamm. Species, 42:1–8.

Magatagan, M. D., E. H. Boyer, and B. Villa-R. 1984. Revisión del estado que guarda *Phocoena snius* Norris and McFarland y descripción de tres

nuevos ejemplares. An. Inst. Biol. Univ. Nal. Autón. México, Ser. Zool., 55:271–293.

NEAVE, D. J., AND B. S. WRIGHT. 1968. Seasonal migrations of the harbor porpoise (*Phocoena phocoena*) and other Cetacea in the Bay of Fundy. J. Mamm., 49:259–264.

NORRIS, K. S., AND W. N. MCFARLAND. 1958. A new harbor porpoise of the genus *Phocoena* from the Gulf of California. J. Mamm., 39:22–39.

NORRIS, K. S., AND J. H. PRESCOTT. 1961. Observations on Pacific cetaceans of California and Mexican waters. Univ. California Publ. Zool., 63:291–402.

PRESCOTT, J. H., AND P. M. FIORELLI. 1980. Review of the harbor porpoise (*Phocoena phocoena*) in the U.S. Northwest Atlantic. Natl. Tech.. Inf. Serv. Rept., PB80-176928:1–64.

SCHEFFER, V. B., AND J. W. SLIPP. 1948. The whales and dolphins of Washington state with a key to the cetaceans of the west coast of North America. Amer. Midland Nat., 39:257–337.

SILBER, G. K., M. W. NEWCOMER, AND G. J. BARROS. 1988. Observations on the behavior and ventilation cycles of the vaquita, *Phocoena sinus*. Marine Mamm. Sci., 4:62–67.

TAYLOR, B. L., AND P. K. DAWSON. 1984. Seasonal changes in density and behavior of harbor porpoise (*Phocoena phocoena*) affecting census methodology in Glacier Bay National Park, Alaska. Rept. Internat. Whaling Commn., 34:479–483.

THOMSON, D. A. 1986. Tide calendar for the northern Gulf of California. Univ. Arizona Press, Tucson, unpaginated.

VILLA-R., B. 1976. Report on the status of *Phocoena sinus*, Norris and McFarland 1958, in the Gulf of California. An. Inst. Biol. Univ. Nal. Auton. México, Ser. Zool., 47:203–208.

WELLS, R. S., B. G. WÜRSIG, AND K. S. NORRIS. 1981. A survey of the marine mammals of the upper Gulf of California, Mexico, with an assessment of the status of *Phocoena sinus*. Natl. Tech. Inf. Serv. Rept., PB 81-168791:1–51.

WÜRSIG, M., B. WÜRSIG, AND J. F. MERMOZ. 1977. Desplazamientos, comportamiento general y un varamiento de la marsopa espinosa, *Phocoena spinipinnis*, en el Golfo San José (Chubut, Argentina). Physis, 36:71–79.

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FIRST RECORD OF *DINOMYS BRANICKII* FOR VENEZUELA

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An adult female pacarana (*Dinomys brannickii* Peters) was captured alive in an empty concrete tank in El Caimito, District of Capacho, State of Táchira, northwestern Venezuela (7°49'N, 72°21'W) at 1,400 m elev., in February 1986. The specimen was taken to a local zoo in Capacho, where it was observed and positively identified as *Dinomys branickii* by the authors in June 1986. The habitats around the site of capture are pastures and cultivated fields of onions, cabbage, beans, and other vegetables. There is an isolated area of forest at a distance of about 500 m. The species is locally known as lapa rabuda or lapo and is considered to be uncommon. The species, described from Colonia Amable María, Montaña de Vitoc, Departamento de Junín, Perú, is known from a few localities in Bolivia, Brazil, Colombia, Ecuador, and Perú (Alho, 1982, Grimwood, 1969; Honacki et al., 1982) and is reported here for the first time in Venezuela.

LITERATURE CITED

ALHO, C. J. R. 1982. Brazilian rodents: their habitats and habits. Pp. 143–166, *in* Mammalian biology in South America (M.A. Mares and H. H. Genoways, eds.). Spec. Publ. Ser., Pymatuning Lab. Ecol., Univ. Pittsburgh, 6:1–539.

GRIMWOOD, I. R. 1968. Notes on the distribution and status of some Peruvian mammals. 1969 Amer. Comm. Internat. Wildl. Protection and New York Zool. Soc., Spec. Publ., 21:86.

HONACKI, J. H., K. E. KINMAN, AND J. W. KOEPPL. 1982. Mammal species of the world: a taxonomic and geographic reference. Allen Press, Inc. and The Assoc. Syst. Coll., Lawrence, Kansas, 694 pp.

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