

REPORT ON THE STATUS OF *PHOCAENA SINUS*, NORRIS
AND MCFARLAND 1958, IN THE GULF OF CALIFORNIA

In 1974 Kenneth S. Norris, *in litter*, suggested the need for obtaining more information concerning the "vaquita" (little cow), a local name for the Pygmy Harbor Porpoise, *Phocaena sinus*. One of his students (Brendan P. Kelly, unpublished report, who made a field survey in December 1974) was interested in the study of this animal, as it is only known by the type specimen which consists of one skull and two other skulls only as paratypes. The type specimen was collected in the northeastern shore of Punta San Felipe, Baja California Norte, Gulf of California, the 18 of March 1950 (Norris and McFarland, 1958).

Interested in the marine mammals of Mexico, I decided to personally conduct the inquiry, initiating my survey with the fishermen of Puerto Vallarta, Jalisco, in November 1974. Here nobody knew of any marine animal called "vaquita", and as a result of the verbal description I gave them, they assured me they knew of no such animal. I found similar results in San Blas, Nayarit.

On May 7, 1975, Mr. Adalberto Cornejo and I started a search for the "vaquita" along the coastline of Bahía Kino, Sonora. Mr. Cornejo, at my request, had been previously (1971, 1972, 1973) on Rasa Island, Gulf of California, Baja California Norte, to look out for the marine birds — Heerman's Sea Gulls and Royal and Elegant Terns— during their breeding seasons. During our search, we found skulls of other marine mammals, but none of the "vaquita." Not one of the fishermen interviewed was able to give us satisfactory information.

Tiburcio Saucedo Gallardo, who has lived for many years in what today is his place of business "Island-Marine Trailer Park", as well as his father, Tiburcio Saucedo Mason, a long resident of Kino Viejo, do not know of any of their friends —fishermen of this area— who have ever seen *Phocaena sinus*. Our description of the animal was not familiar to them, and Tiburcio Saucedo Gallardo assured us of having seen dolphins, other porpoises, sea lions and whales. Concerning the whales, they know them all as "gray whales" (*Eschrichtius robustus*). Even if it is true that a certain number of these cetaceans penetrate into the Gulf of California, they start disappearing in March; later the fin whale (*Balaenoptera physalus*), which seems to be a resident during most of the year, becomes rather common. We saw over 150 specimens in the area studied, notably in the vicinity of Guaymas.

I arrived at Puerto Peñasco in a small plane, rented in Hermosillo, and resorted to the family, next of kin and friends of my late friend Mr. Jose Espinosa, who in his last years lived at Estero Murúa. At Puerto Peñasco, the results were not any better. People had no clear idea of the "vaquita." The "vaquita" might have been seen during the decade of the 1940's and one oldster tried to explain under what circumstances they were seen. They were not observed in large groups as usually happens with dolphins which always point out the presence of tunny-fish-schools. He also remembers having seen a good number of these "vaquitas", but that was a long time ago, not recently.

The third week of July of the same year (1975), I stayed with Mr. Cornejo a fortnight on Isla Rasa. During the cruise between Bahía de los Angeles and the island, I inquired among the crew of the ship Agustin II if anyone could give me any account of the "vaquita." Andres Fuertes, mechanic of the vessel, was born in San Francisquito, in Bahía San Francisquito, Baja California Norte. The bay is situated at Latitude 28° 26' North, Longitude 112° 53' West, and its wide mouth opens to the northeast between Punta Gabriel on the South and Punta San Francisquito on the North. Andres Fuertes has spent his whole life as a fisherman in Bahía de los Angeles, and has also formed part of a group of turtle hunters who sell their catch to Mr.

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Antero Diaz. Mr. Diaz is the owner of Casa Diaz in Bahia de los Angeles and of the ship Agustin II and creator of what is now a pleasant tourist resort on the Peninsula.

Based on the aforementioned facts, I consider Mr. Fuentes a trustworthy authority. He explained to me that around 1940, before the introduction of the big fishing vessels and outboard motors, groups of *Phocaena sinus* could be seen frequently near Bahia de los Angeles and around the Midriff Islands. After that time, they were seen less frequently, he assured me. Agreeing with Fuentes' statement, another member of the crew, Jose Villa, told me that, in fact, this animal was known as "cochinita" (local name given to the common pig, *Sus scrofa*). He told me that one of the animals had been captured recently by some fishermen of the village, and that it lay at the northern end of the landing strip as it had no local use of any sort. After our stay on Isla Rasa came to an end, we found it at the described spot, but it was a specimen of *Tursiops sp.* This event baffled me. I was inclined to believe that *Phocaena sinus* was scarcely known and that even Fuentes' information should be considered with caution. To clarify this doubt, I again decided to resort to Fuentes and to a confrontation with him, Antero Diaz, and Jose Villa. Fuentes and Antero Diaz did not hesitate to confirm that the "vaquita" was a different animal and that Jose Villa had made a mistake, since the rostral portion of the skull of *Tursiops* is elongated, while in *Phocaena sinus* it is short. Both were convinced of knowing the difference between the "vaquita" and the "cochinita", being able to tell them easily apart, even while in movement, swimming in shallow water, or at times near the boats.

During the months of April, May, and June of this year (1976), I have tried more insistently to find further data on the Pigmy Harbor Porpoise in the northern part of the Gulf of California. My efforts are due in part to my own interest in this matter, but also in answer to a request from Mr. John R. Twiss, Jr., Executive Director of the Marine Mammal Commission, who is interested in having information that could contribute to clarifying the present status of this species.

With the financial support of the National Council of Science and Technology (CONACYT) and the facilities of the Research Vessel Dolphin from the Scripps Institution of Oceanography, the group left Guaymas Harbor on the 9th of April, 1976. The Dolphin stopped at Puerto Refugio (Northern end of Isla Angel de la Guarda) for two days and anchored finally off Isla Rasa. On this island a team of researchers from the University of Michigan, State University of New York, Indiana State University, and University of California, jointly conducted a program to study the bio-physiology of the embryonic development of *Larus heermanni* and *L. occidentalis*. Among them, Dr. George A. Bartholomew is thoroughly familiar with the field characteristics of the genus *Phocaena* and is able to recognize *P. sinus* on sight.

Neither during the above-mentioned cruise nor during our stays near Isla Rasa and Isla Cardonosa were we able to detect any specimen of this small marine mammal. We returned to Guaymas Harbor on April 30th, passing between the islands of San Esteban, San Pedro Martir, and others. During this period of 20 days, only negative results can be reported.

Dr. Bartholomew told me one fact which should be pointed out: he vaguely remembers seeing some *Phocaena* while in the company of K. S. Norris at or near Topolobampo. He did not quite recall the circumstances under which the animal or animals were seen, but offered to look for the report among his field data records.

The records of the Pigmy Harbor Porpoise consigned in the literature are causal. Nelson (1899) mentions that "they were always seen in the belt of shallow discolored water within a short distance of the shore". According to what I can infer from the scarce data at my disposition, they have been seen only around some islands or near the coast of the Northwestern Mexico Mainland and Eastern side of the Peninsula of Baja California, in shallow waters as the following account shows:

Invited by the technical staff of the Sonora-Arizona Desert Museum, I started a new trip the 22nd of May, 1976. We left Bahia Kino, Sonora, on board the Agustin II, commanded by its owner Antero Diaz, which had been anchored since the 20th, waiting for us. The members of the crew were the same men whom I had already

met and traveled with on former occasions, among them Jose Villa and Andres Fuertes.

On this voyage we stopped at least for 24 hours at the following places:

Isla San Pedro Martir; on to Bahía de las Palomas (a few kilometers north of San Francisquito); Bahía Blanca (North of Punta Ballenas), and Bahía de San Rafael. All of these places are situated on the East Coast of the Peninsula of Baja California. After that we stopped at Isla San Lorenzo, Isla Partida or Cardonosa; Isla Rasa (second visit during the same season); Bahía de los Angeles and Puerto Refugio (passing through Canal de Ballenas). In Puerto Refugio, in the north end of Isla Angel de la Guarda, we stayed 72 hours to visit Isla Alcatraz and later El Pulpito Bay, Las Palmas Canyon and Viboras Bay (all on Angel de la Guarda Island). From there we headed toward Isla Patos, North of Isla Tiburon and near the West Coast of Sonora. The Agustín II cast anchor in Agua Dulce Bay on the north end of Isla Tiburon. On the way from Angel de la Guarda Island to Patos Island, we saw 20 fin whales, one killer whale, many sharks and a big school of sardine accompanied by a great number of dolphins and sea lions. Afterward, coasting along the western portion of Tiburon Island, we set course toward Isla San Lorenzo. There we stayed long enough to investigate some canyons which had been virtually unexplored. We passed through Bahía de los Perros, south end of Isla Tiburon, crossing the waters close to Isla El Cholludo and Isla Datil (Turner Island on some maps). We returned to Kino, our starting point, on June 5, 1976, finishing a trip of more than 400 statute miles.

During our 15 day cruise, we only saw five specimens of *Phocaena sinus*, the first one discovered by Andres Fuertes near El Carrizo Cove in San Rafael Bay. This is a large, open bay situated between Punta de San Francisquito and a point about 16 miles northwest; the shores of the bay area comprised chiefly of sand beaches. The bay affords good protection against southerly winds. In the southern part there are depths of 40 fathoms at a mile from the shore, while in the northern and western portions, at the same distance off-shore, the depths range from 10 to 20 fathoms. In this portion of the bay, the single specimen of Pygmy Harbor Porpoise was seen. The coast is comprised of bluffs closely backed by mountains from San Rafael Bay to Punta de las Animas, 14 miles northwestward.

Two more Pygmy Harbor Porpoises were seen in Los Angeles Bay located about 50 miles northwestward of Bahía de San Francisquito (San Francisquito Bay) and about 65 miles southeastward of Bahía San Luis Gonzaga (Saint Louis Gonzaga Bay) in a position on the western shore of Canal de Ballenas, approximately opposite the southeastern end of Angel de la Guarda Island. The shores of the bay area were for the most part sandy, with beaches interrupted by several rocky bluffs. Shallow water extends some distance offshore in the southern part of the bay. There are three deep, safe passages leading into the bay. When approaching from the southeast, Isla Cabeza de Caballo (Horse Head Island), of dark-reddish color and 75 m high, and its two small satellites lying close southward, Islas de los Gemelos o los Hermanitos (Twin Islands or Brothers' Islands) 16 to 20 m high, define the southernmost passage into Bahía de los Angeles. The channel, which is clear of dangers and which has a depth of 20 to 30 fathoms, lies between Punta Roja, a reddish rocky bluff, and the two small islets, Los Gemelos, about 66 m northward. It is not necessary to describe the other two passages. The Pygmy Harbor Porpoise were seen southward of Isla Cabeza de Caballo, when we were heading to the place where the Agustín II was anchored. (For further information on the bay, see Lewis and Ebeling, 1971.)

The last two Pygmy Harbor Porpoise specimens were seen on the south side of Isla Rasa (Rasa Island), in shallow waters near the south beaches, just in the same place where we spent 12 days in the vessel Dolphin. Isla Rasa, a small island barely 30 m high, is situated between Isla Sal Si Puedes (Get Out Of It If You Can Island) and Isla Partida (Broken Island) or Cardonal Island. Fishermen used to call this island just Partida. Isla Rasa is whitened birdlime—the deposit of countless thousands of seabirds that breed during springtime in its rocky terrain—but the island is, nevertheless, difficult to make out until closely approached. The shores consist chiefly of moderately high bluffs with detached rocks close by. Anchorage can be

obtained about 600 yards offshore on the south side of the island, in depths of 5 to 8 fathoms over a gravel and rocky bottom. The Pygmy Harbor Porpoise were seen just on the south side, swimming not far from the Agustin II, and apparently hovering about the island. We saw them twice passing in front of the vessel, permitting me to verify the small size of the animals, the very dark dorsal surface with a small triangular dorsal fin, and blowing with the characteristic loud puff.

On our long travels which covered almost all the islands of the California Gulf Midriff, we expected to meet a greater number of Pygmy Harbor Porpoise. It is logistically very difficult to capture specimens, as they are seen when one least expects them, and they tend to disappear suddenly.

I would like to point out that a few days before, the Agustin II, with the same crew and a group of members of the Board of Directors of the Sonora-Arizona Desert Museum on board, covered a similar itinerary. The crew had the assignment of recording the presence of the "vaquita" wherever it should be observed, and made no recordings.

CONCLUSIONS

1. In reports previous to this one, sighting records of specimens of *Phocaena sinus* have been given, permitting us to assign them a distribution in the subtropical waters of the upper part of the Gulf of California or Sea of Cortez, "and probably extending into truly tropical seas around the Tres Marias Islands and Banderas Bay, Jalisco, Mexico" (Norris and McFarland, *op. cit.*). It is believed to have been seen by Scammon in the last century as far south as Banderas Bay and the Pingito River, Jalisco, Mexico (Scammon, 1974). Summing up the area of distribution, the southern part of the Gulf of California formerly included: Topolobampo Harbor, Conception Bay, Puerto San Carlos and Punta San Felipe (Norris and McFarland). Orr (1969) recorded an additional specimen found on a beach approximately 47 m north of Puertocitos, as recently as August 18, 1968. See Map. 1.

2. The reports obtained from old fishermen indicate that these animals were very abundant in the area described above. It is, nevertheless, necessary to state that most scientists agree that little about the biology of *P. sinus* is known. It is also evident that the populations of these animals are scientifically poorly known. There are few records of live animals, and these are visual recordings. When a real interest in their study arose during the last few years, the only point well indicated was that, through the action of man, this species was seriously endangered.

This view is corroborated by the results of the field survey done by Kelly (1975) in his unpublished report as well as by results obtained by myself in 1974, 1975, and 1976, and included in this report.

The five specimens were observed in spring and at the beginning of the summer of 1976 after an intense search. Three (one of them solitary) were observed near the shores of the Peninsula of Baja California, the other two near small Isla Rasa, reconfirming previous observation of the animals swimming in shallow waters.

3. If the population of these animals was once "abundant", then surely it has suffered from the impact of the intensified fishing activities which began around 1940 when motor boats and ships gave fishermen more speed and mobility. For 20 years, big fishing fleets, including domestic and foreign units (Japanese, Russian, English, and American) practically eliminated the shrimp and many species of fish of great commercial value, among which were the "totoaba" (*Cynoscion macdonaldi*), sardines, tuna, and marine turtles.

To this must be added the loss of nutrients formerly brought into the Gulf in great quantities by the Colorado River and those 25 rivers of the Mexican mainland. The waters of these rivers were withheld by big dams, to be used for agricultural purposes in the Imperial Valley of the United States and in Sonora and Sinaloa, Mexico.

4. This explains why the younger fishermen, from whom we tried to exact data on *Phocaena sinus*, had nothing to tell us. Either they have simply not seen it, they do not care about it if they do see it because of its greatly reduced populations. It is the older fishermen who remember it, and of these, very few are available to a scientist.

5. It is therefore necessary to declare *Phocaena sinus* a species seriously threatened and to look for adequate means of saving it from complete extinction. I am sure there still is an adequate population to make a comeback. Let us have in mind the case of *Mirounga angustirostris*, the elephant seal, and of *Eschrichtius robustus*, the gray whale, which were considered extinct at the end of the last century, and that now have made a good comeback. If the adequate means are not taken to save *Phocaena sinus*, the case of Steller's sea cow (*Hydrodamalis stelleri*, whose end was inexorably defined only 27 years after man discovered its existence), will repeat itself.

Phocaena sinus was discovered as a new species in 1958 at a time when its populations were most surely already declining. Now in only 17 years, it is on the border of extinction.

ACKNOWLEDGEMENTS

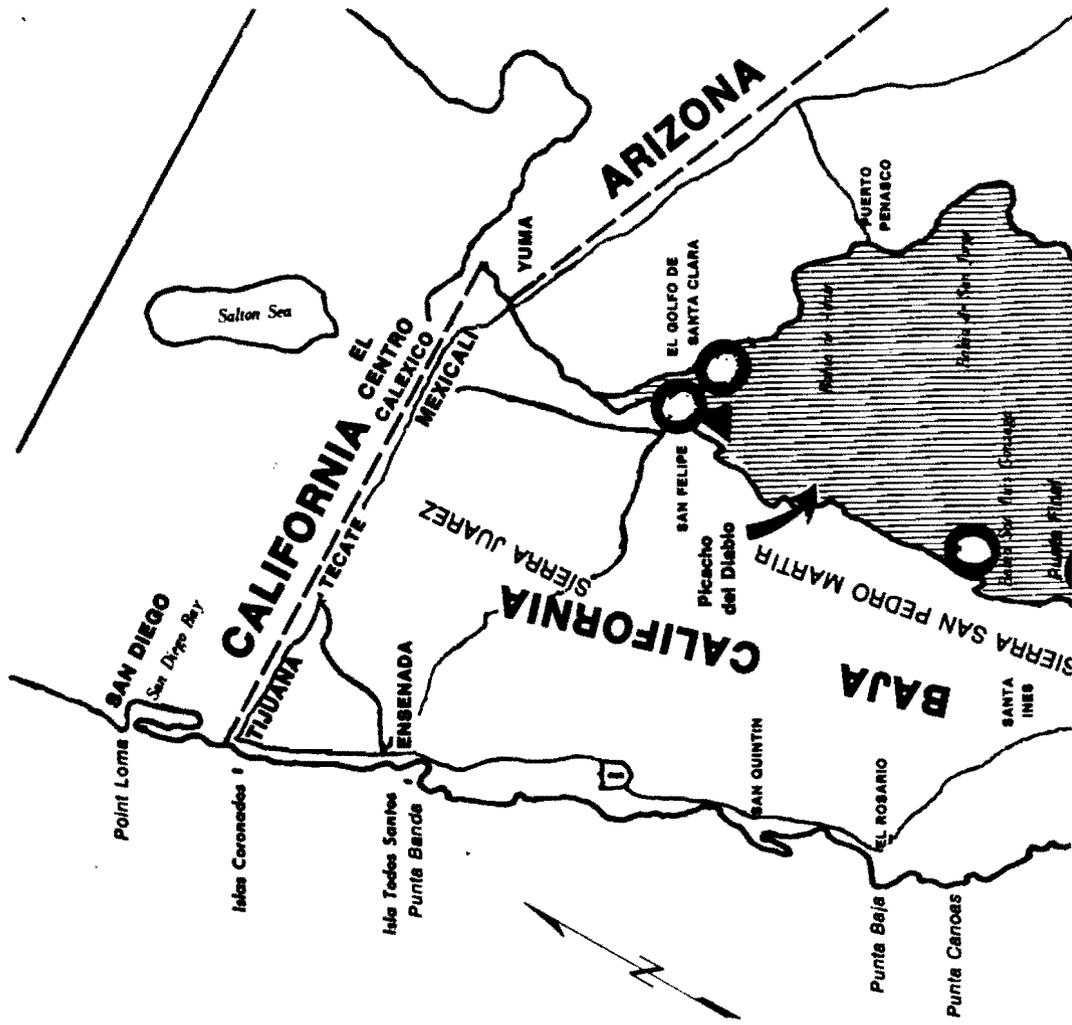
The author wishes to thank the collaboration of Capt. Robert C. Newbegin, Master Mariner, Scripps Institution of Oceanography; Mr. Antero Díaz, Captain of the Ship Agustin II; the scientific personnel headed by Dr. William Dowson; and the group of the Arizona-Sonora Desert Museum, of Tucson, Arizona.

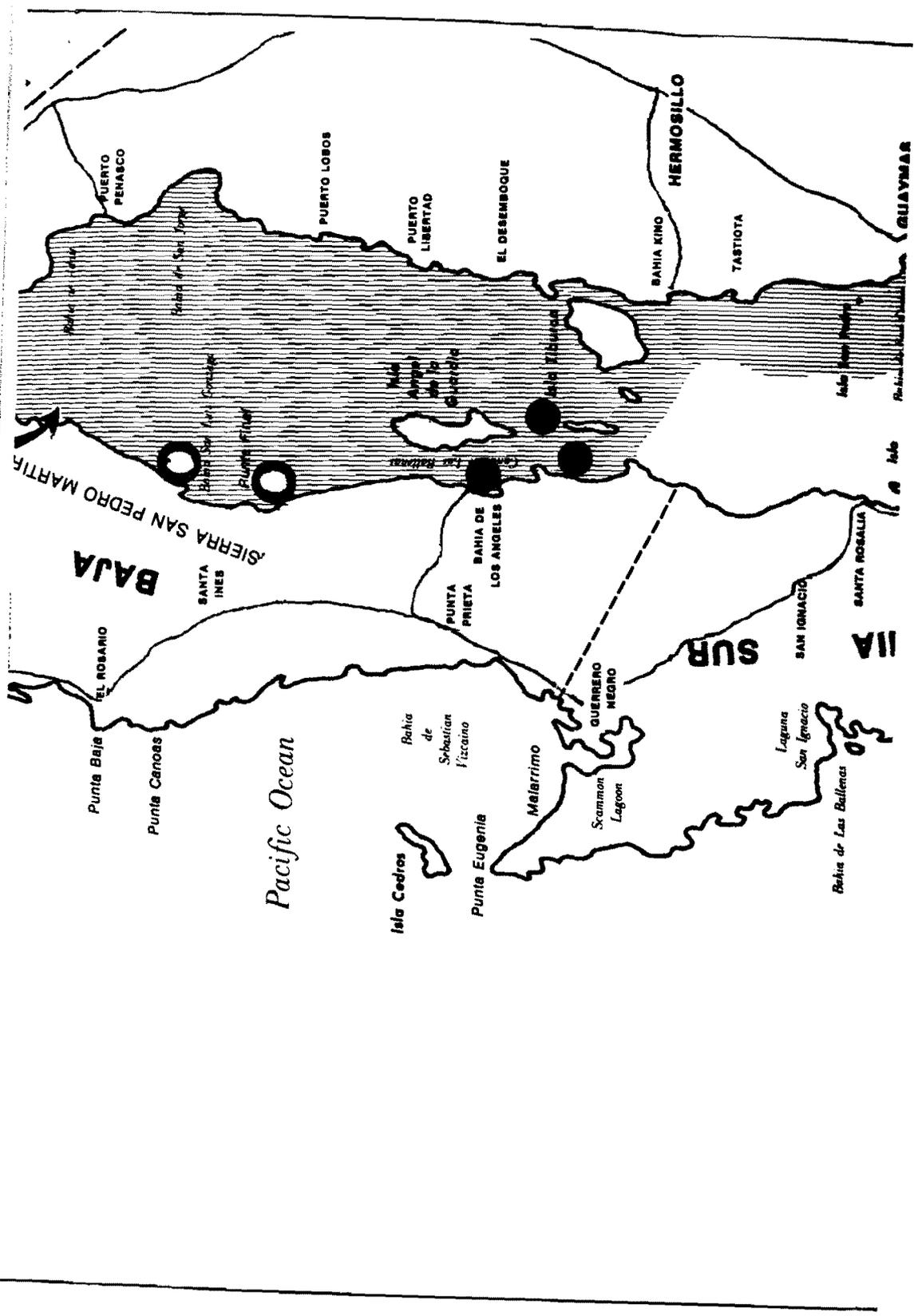
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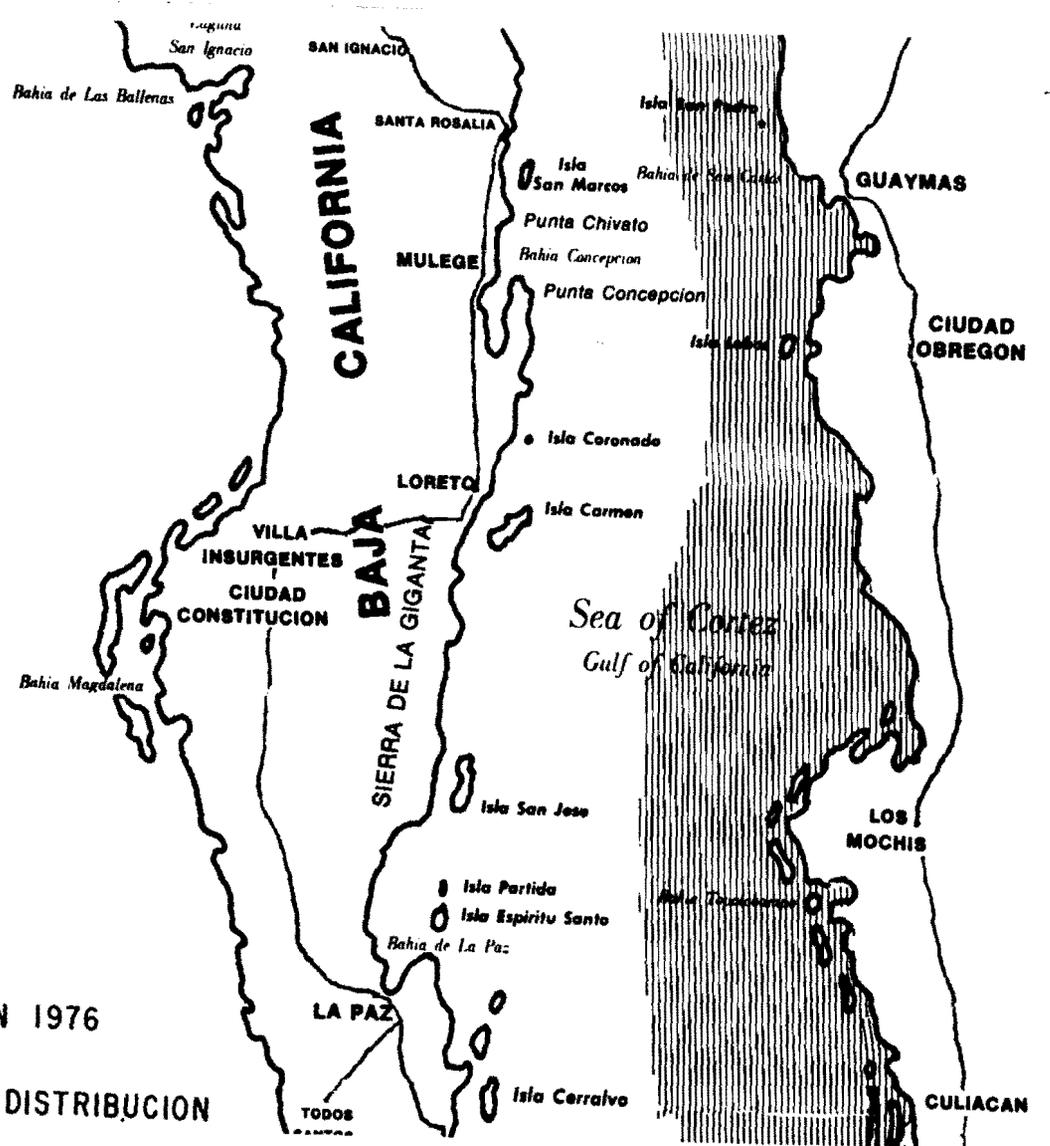
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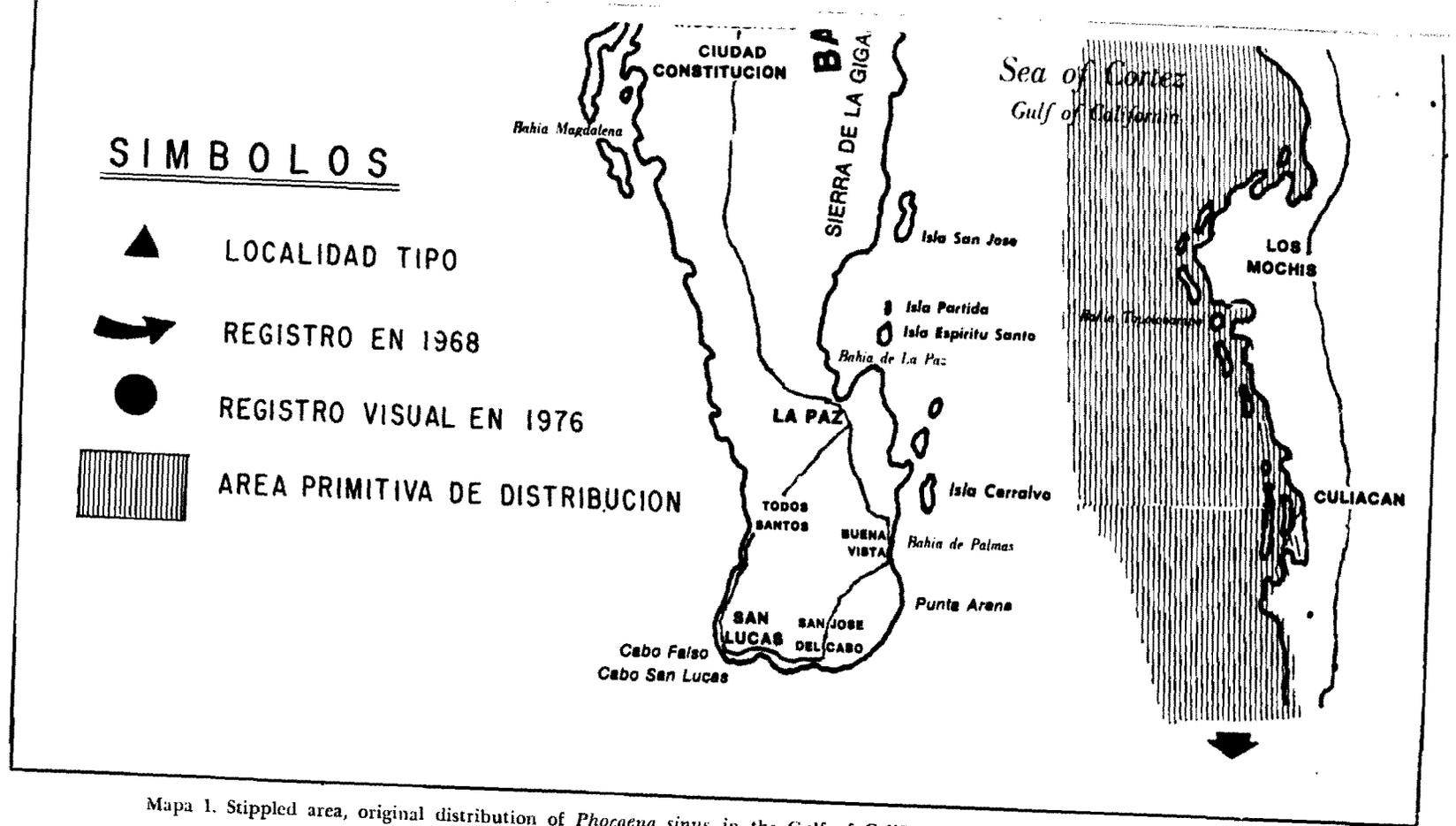




SIMBOLOS

- ▲ LOCALIDAD TIPO
- ➔ REGISTRO EN 1968
- REGISTRO VISUAL EN 1976
- ▨ AREA PRIMITIVA DE DISTRIBUCION





Mapa 1. Stippled area, original distribution of *Phocaena sinus* in the Gulf of California. Circles denote the localities where specimens had been recorded (after Brownell, R. L., 1976) in the upper part of the Gulf.