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Nota científica

NEW EVIDENCE OF THE PRESENCE OF THE SOUTH AMERICAN SEA LION *Otaria flavescens* (Carnivora, Pinnipedia) IN ECUADOREAN WATERS

NUEVA EVIDENCIA DE LA PRESENCIA DEL LEÓN MARINO SUDAMERICANO *Otaria flavescens* (Carnivora, Pinnipedia) EN AGUAS ECUATORIANAS

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ABSTRACT

Thirteen confirmed records of the South American sea lion ***Otaria flavescens*** in Ecuador are presented. All specimens examined are adult or subadult males. Nine of them occurred between October and March, suggesting a seasonal pattern of occurrence probably related to annual fluctuations in distribution and availability of the prey. Among other causes could be the wandering behaviour of males, or the expansion of the northern Peruvian population. These records show that their actual range of distribution in the Pacific includes the Ecuadorean coast, at least up to latitude 0°.

KEY WORDS: ***Otaria flavescens***, sea lion, Ecuador

The South American sea lion (***Otaria flavescens***) is distributed along both sides of the South American coast. On the Atlantic side, it is found from southern Brazil to Tierra del Fuego and continues north through the Pacific up to 4°S in Peru (REEVES **et al.**, 1992 Sierra Club Handbook of seals and sirenians. San Francisco 359 pp). The species has even been registered once in Tumaco, Colombia (1°46'N, 78°36'W) (VON PRAHL 1987 CPPS Bol. ERFEN 20:9-11).

The first confirmed record of this species in Ecuador was made in 1973 by WELLINGTON & DE VRIES (1976 Jour. Mammal. 57(1): 166-167) in the Galapagos Islands, some 1000 km west of the continent. Recently, FELIX **et al***. reported the first records for the Ecuadorean continental coast. However, new records of the South American sea lion, both from the continent and Galápagos Islands, indicate that this species apparently is more common in this part of South America than originally was known.

The studied material consists of four carcasses, three skulls of animals found washed ashore in the continent, photographs taken of two live animals near the beach and some previously published records (Table I, Fig. 1). Live animals were recognized as males by their big heads, short and blunt snouts and a thick manes. Dead animals were identified by skull features: size, shape and dental formula. From the skulls we derived the sex of the animals; the males have a much more developed occipital and interparietal crest than the females (SIELFELD, 1983 Mamíferos Marinos de Chile. Ed Universitaria). Measurements of seven skulls found on continental beaches are given in Table II. These specimens form part of the collection of the Fundación Ecuatoriana para el Estudio de Mamíferos Marinos (F.E.M.M.) in Guayaquil, Ecuador.

The animals found in Ecuador must have come from Peru, where this species is abundant and has a continuous and uniform distribution all along the coast (MAJLUF & TRILLMICH, 1981 Z. Saugetierkunde 46:384-393). The nine continental specimens examined by the authors (# 2, 4, 5, 7, 9, 10, 11, 12, 13) and the two published records from Galápagos (# 1,6) have in common that they are all adult or subadult males. This is not very surprising, considering the fact that males of this species wander and they frequently can be found far from their reproduction areas, also on the Atlantic side (PINEDO **et al.**, 1992 Cetáceos del Brasil UNEP/FUA; REEVES **et al.**, 1992 op. cit.). The other two specimens (# 3, 8) were not examined by the authors, but at least in the last case it turned out to be a big male too (Mario Hurtado[1], personal communication).

Table I shows that ten of the thirteen records were made between October and March. Most correspond to

*1992 Resúmenes 5ta Reunión de Especialistas en Mamíferos Marinos Acuáticos de América del Sur. 28 Septiembre/02 Octubre 1992. Buenos Aires Argentina.

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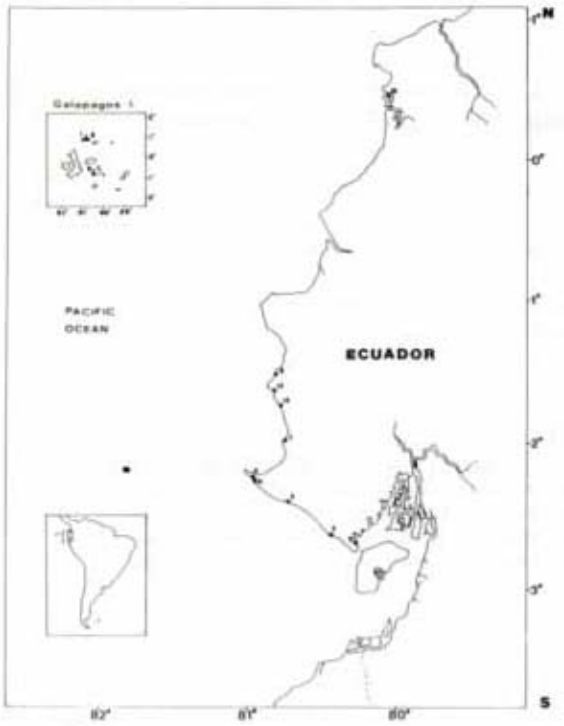

FIG. 1. Records of the South American sea lion on the Ecuadorean coast.

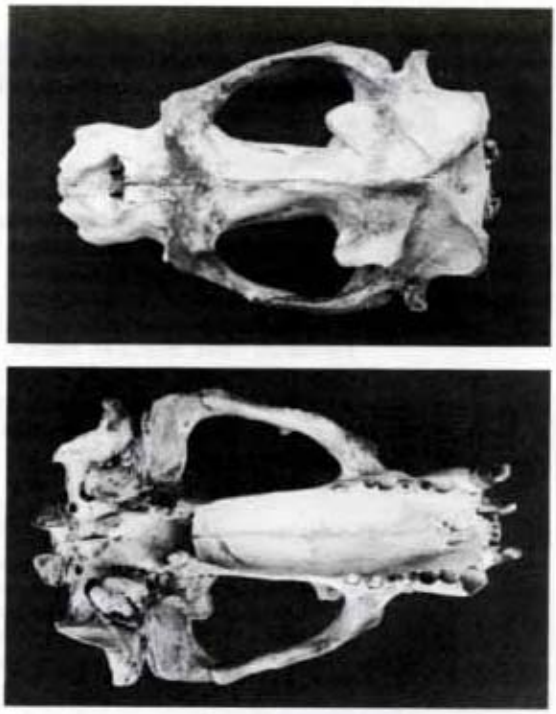

FIG. 2. Skull of a South American sea lion found in Ecuador (Cat. No. POf-003-93), a) dorsal view, b) ventral view.

both live and decomposed or partially decomposed specimens and probably had beached little time before they were found. The other three specimens (# 9,12,13) were found in August. The remains of the last two indicated that they probably had been there for several months. This suggests that the presence of this species in Ecuador has a seasonal pattern, since most of them were registered at the end of spring or during austral summer, when the Humboldt current weakens and warm water masses from the north reach the Peruvian coast. These changes in oceanic conditions vary from year to year, and occur with more intensity during so-called "El Niño" years, causing changes in the composition and distribution of the marine fauna, particularly in small pelagic fish like anchovies, horse mackerel and sardines, the main components of the sea lion's diet (MAJLUF & REYES, 1989 ICLARM Conference Proceeding 18: 344-363). Apparently some of the sea lions travel north in search of the highly productive waters of the Gulf of Guayaquil or the Galápagos Islands during this season.

The time in which most of the sea lions were registered in Ecuadorean waters (October-March) coincides with their reproduction period (SIELFELD, 1983 op. cit; REEVES **et al**., 1992 op. cit.). In Peru, reproduction occurs mostly in January and February (MAJLUF & REYES, 1989 op. cit.), but so far no rookeries, female sea lions nor any other evidence of reproduction have been found in Ecuador. On the Pacific side the northernmost known reproduction site is Foca Island, in Peru (5°13'S) (MAJLUF & REYES, 1989 op. cit.), 550 km south from our northernmost record.

Although the presence of this species in Ecuadorean waters may respond to a cyclic pattern caused by changes in the distribution of food, the recovery of the Peruvian sea lion's population over the last few years due to good environmental conditions and a conservationist's governmental policy (MAJLUF & REYES, 1989 op. cit.) could also explain the recent increase of records. Its presence in Ecuador may be the result of a growing and expanding population, with increasing competition for food, so that the least colony-bound animals start to wander. If this is so, this species is simply recovering an ecological niche that was lost due to its persecution by man. On the other hand, it must be kept in mind that the South American sea lion possibly has been present in Ecuador long before, but was not registered. Generally, records of pinnipeds on the Ecuadorean coast are scarce and are limited to casual observations of the Galapagos sea lion ***Zalophus californianus*** (ORTIZ, 1980 Mus. Ecuatoriano Cs. Nat. 2(2):51-56; NOWAK, 1986 Noticias de Galápagos 48:17).

Whatever the factors are that cause the presence of this species in Ecuador, the records mentioned above

TABLE I
Confirmed records of the South American sea lion in Ecuador

Record Number	Date	Site	Position	Remarks	Source
1	10-Oct.-1973	Pinta I. Galápagos	(00 35'N, 90 50'W)	Partially decomposed carcass	Wellington and de Vries, 1976 op. cit.
2	Feb.-1989	Playas	(02 38'S, 80 23'W)	Live animal photographed	Diary "Extra", Guayaquil. Feb. 9, 1989
3	03-Feb.-1991	Mambrita	(02 22'S, 80 49'W)	Whole carcass	Mario Hurtado, personal comm.
4	Jan.-1992	Salinas	(02 15'S, 80 40'W)	Carcasses of 2 animals stranded one skull collected	Félix *et al.*, 1992. FEEM Collection, Cat. Nº POf-001-92
5	Mar.-1992	Posorja	(02 42'S, 80 14'W)	Live animal photographed	Félix *et al.*, 1992
6	24-Nov.-1972	Santa Cruz I. Galápagos	(00 40'S, 90 20'W)	Partially decomposed carcass	Merlen, 1993 noticias de Galápagos 52: 4-5
7	Jan.-1993	Punta Blanca	(02 10'S, 80 48'W)	Skull	FEEM Collection, Cat. Nº POf-002-93
8	03-Mar.-1993	Pinta I. Galápagos	(00 35'N, 90 50'W)	Skull	Charles Darwin Station Collection, Galápagos, Cat. Nº V-1166
9	28-Aug.-1993	Los Frailes	(01 28'S, 80 47'W)	Whole carcass	FEEM Collection, Cat. Nº POf-003-93
10	04-Oct.-1993	Muisne	(00 35'N, 80 02'W)	Decomposed carcass	FEEM Collection, Cat. Nº POf-004-93
11	23-Nov.-1993	Salinas	(02 15'S, 80 40'W)	Whole carcass	FEEM Collection, Cat. Nº POf-005-93
12	04-Aug.-1994	Montañita	(01 50'S, 80 45'W)	Broken skull and some vertebrae	FEEM Collection, Cat. Nº POf-006-93
13	05-Aug.-1994	Simón Bolívar	(01 41'S, 80 50'W)	Broken skull	FEEM Collection, Cat. Nº POf-007-93

TABLE II
Skull measurements of seven males South American sea lions collected by F.E.M.M. in Ecuador.
All measurements are in mm. (*) Specimens with broken maxillary

Measurements	*POf 001-92	POf 002-93	POf 003-93	*POf 004-93	POf 005-94	*POf 006-94	*POf 007-94	% of the condylobasal length
1. Condylobasal length		345.0	332.0		310.0			100.0
2. Zygomatic width	221.3	221.8	206.8	215.3	176.0	184.1	192.2	56.8-64.1
3. Greatest width of rostrum		102.3	93.3		83.4			26.9-29.9
4. Greatest width of nasals			39.6					11.9
5. Length of nasals		46.0	34.5					10.4-13.3
6. Least interorbital width	37.8	33.5	34.4	33.7	30.8	42	33.3	9.7-10.4
7. Length of the left tooth row (external between the incisive and m6)		121.9	119.4		120.9			35.3-39.0
8. Width of palate (between m1 and m1)		50.6	52.9		41.8			13.5-15.9

indicate that the Ecuadorean coast forms part of its actual distribution range. Therefore, since on four occasions (including the Colombian record) an animal was recorded even north of the equator, the authors suggest that the normal northern distribution limit for the South American sea lion in the Pacific Ocean is at least latitude 0°.

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