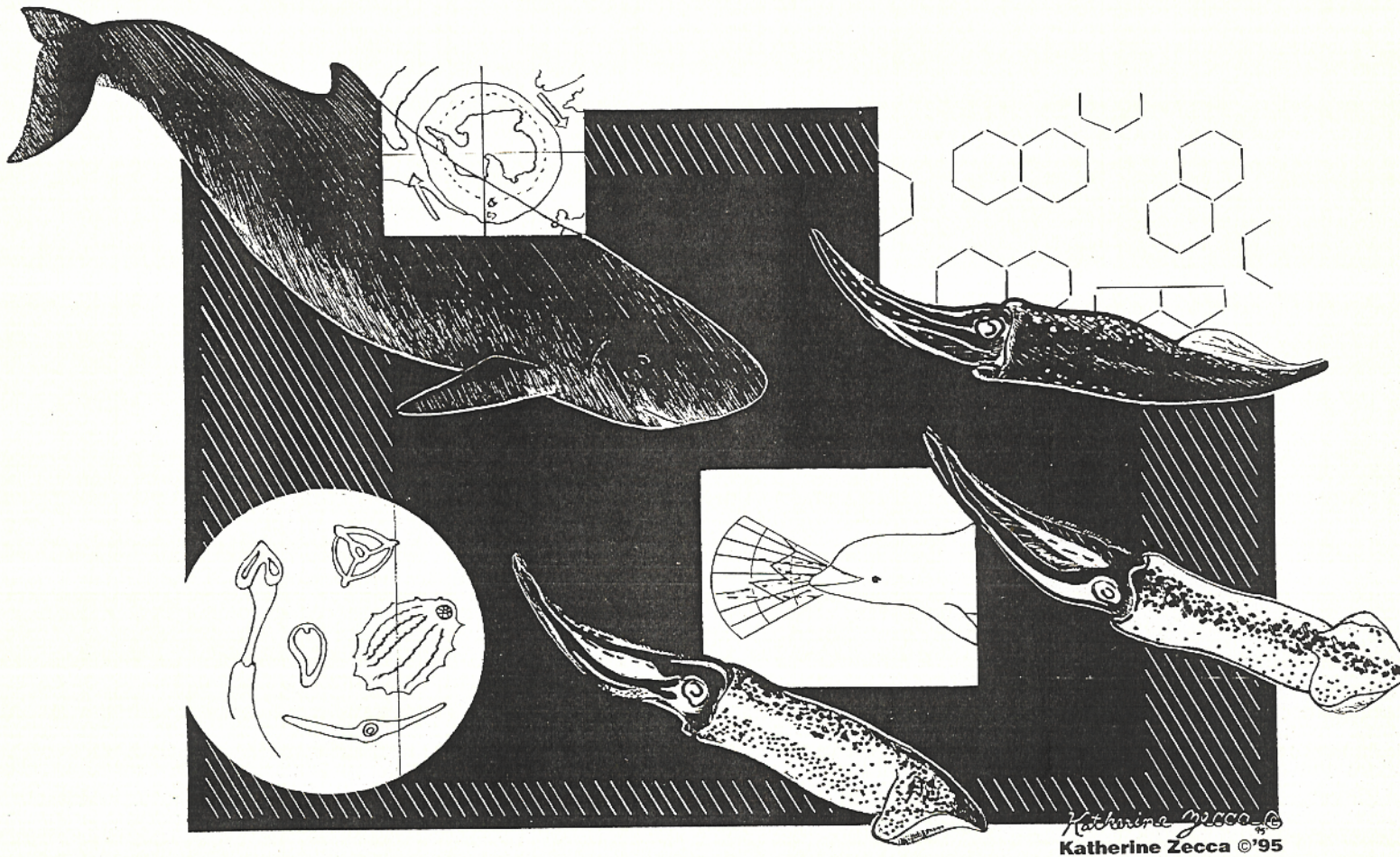


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ABSTRACTS

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FEEDING EXPERIMENTS IN CAPTIVE SOUTHERN FUR SEALS AND SEA LIONS

Rodriguez, D. (1,2,3), R. Bastida (1,2,3), J. Loureiro (3) and L. Rivero (2,3).
(1) CONICET, (2) UNMDP, (3) Fundación Mundo Marino C.C. 6, San Clemente (7105) Argentina.

Feeding experiments were conducted in Southern sea lions (*Otaria flavescens*), South American fur seals (*Arctocephalus australis*) and Subantarctic fur seals (*Arctocephalus tropicalis*) kept at the Rehabilitation Center of Fundación Mundo Marino (Argentina). The experiments were performed to evaluate the retrieval percentage and the permanence of fish otoliths and eye lenses in scat samples as well as the defecation rate in the three species. The animals (n=6) were not fed within the two days previous to the experiment, that lasted 10 to 12 days. The different fish species were given from 1 to 4 days and included *Micropogonias furnieri*, *Brevoortia aurea*, *Macrodon ancylodon* and *Engraulis anchoita*. During the experiment, an average of approximately 1500 fishes were given to each seal.

Eye lenses retrieval was relatively high (38.8% +/-10.1%), being smaller in sea lions (21.8-29.4%) than in fur seals (35.6-48.0%). A remarkable heterogeneity was recorded in otolith retrieval (41.1-3.2%), with maximum values for *M. furnieri* and minimal for *E. anchoita* in accordance with the otoliths size and hardness; sea lions showed retrieve percentages lower than fur seals (21.58 vs 34.23 %).

The presence of fish otoliths in scats was homogeneous in the three otariids (3.21 +/-1.13 SD) and the appearance of the first otoliths was approximately two days after feeding. The analysis of scats, (47 for fur seals and 31 for sea lions), showed a defecation rate ranging from 0.8 to 1.9 scats per day, whereas the frequency of otoliths and eye lenses presence was higher in fur seal scats (84.2-100%) than in sea lion scats (54.8-58.1%).

Captive feeding experiments are important to assess the potential error of feeding quantification through fecal sampling in natural colonies, and this study in particular may help in the understanding of South American otariids feeding ecology.

HERD STRANDING OF ATLANTIC SPOTTED DOLPHINS (*STENELLA FRONTALIS*) IN ST. JOHN, UNITED STATES VIRGIN ISLANDS

Rodríguez-López, M. A.¹, Mignucci-Giannoni, A. A.¹, Boulon, R. H.² and Williams, E. H.³
¹Red Caribbeña de Varamientos - Caribbean Stranding Network, PO Box 38030 San Juan, PR 00937, ²Division of Fish and Wildlife, Department of Planning and Natural Resources, St. Thomas, VI 00802 and ³Department of Marine Sciences, University of Puerto Rico, PO Box 908 Lajas, PR 00667

On 22 October 1994, six Atlantic spotted dolphins (*Stenella frontalis*) stranded in Caneel Bay on St. John, U.S. Virgin Islands. Two juveniles which were in good condition were released by local rescuers. Upon arrival of government officials, 2 were found dead at the beach and 2 were undergoing attempted resuscitation, but died soon after. The carcasses of 3 males were flown to the Caribbean Stranding Network in Puerto Rico for post-mortem examination. The necropsies revealed sub-adult animals, but could not suggest a cause of death as all appeared to have been in good health. Although *S. frontalis* are one of the three most common marine mammal species found stranded in the area, herd strandings of cetaceans are rare, being only reported for *Globicephala macrorhynchus* and *Ziphius cavirostris*. This is the second record of multiple-animal stranding for this species in the northeastern Caribbean, the first being of 4 animals which stranded alive in Sandy Bay on the island of St. Thomas, U.S. Virgin Islands on 2 September 1970.

EXPLOITATION OF CETACEANS IN VENEZUELA

Romero, A.*; A.I. Agudo** and S.M. Green*
*Department of Biology, University of Miami, Coral Gables, P.O. Box 249118, FL 33124; **Fundacetácea, Apartado 3201, Carmelitas, Caracas 1010-A, Venezuela

Cetacean exploitation in the Caribbean is poorly documented but appears to be more widespread than previously recognized. We surveyed the literature, examined historical records, and conducted field studies to ascertain the nature and extent of exploitation in Venezuelan waters and from Venezuelan ports. We found records indicating the practice dates to pre-Columbian times. There is evidence that at least 10 of the 20 cetacean species found in the area have been taken; the number of reports shows no association with the species named therein. The species most frequently mentioned are *Delphinus delphis* (20%), *Inia geoffrensis* (14%), and *Tursiops truncatus* (13%). Harpooning (58%) and netting (29%) are the most frequently noted capture methods. Reports of harpooning are most prevalent since 1961. We examined two of the most likely determinants of use of a species, its typical size and its appearance in coastal waters (costal as opposed to pelagic ranging). Use of a species is independent of whether it is considered small or large (4m length criterion). Use of a species is associated with its ranging patterns, with costal species much more likely to be taken than pelagic ones. We found no information relating the extent of use by fisheries to any effect on local cetacean populations.

OBSERVATIONS OF BRYDE'S WHALES (*BALAENOPTERA EDENI*) OFF THE GALÁPAGOS ISLANDS, ECUADOR 1993-94

Rodriguez, P. and B.J. Brennan
Whale Conservation Institute, 191 Weston Rd. Lincoln MA 01773

Between March 1993 and April 1994, the R/V *Odyssey* made 17 cetacean dedicated cruises (198 days search effort) around the Galápagos Islands, Ecuador (1°40'N to 1°25'S, 89°15' to 91°40'W). Here we report Bryde's whale (*Balaenoptera edeni*) sightings.

The majority of rorqual sightings (126 of 193) were recorded as unidentified *Balaenoptera*. Bryde's whales accounted for 91% of the rorquals approached close enough to identify species (61 sightings, 137 animals). Blue (*B. musculus*) and minke (*B. acutorostrata*) whales were the only other rorquals seen. This supports the idea that past surveys of this area erroneously reported Bryde's whales as either fin (*B. physalus*) or sei (*B. borealis*) whales. Therefore we treated 91% of the animals not approached close enough to identify species as though they were Bryde's whales.

Bryde's whales were observed singly (64.9%), in pairs (19.2%), or in loose aggregations of up to eight animals. Pairs of mother and calves were seen on 8 occasions. Fifteen individuals were identified from dorsal fin photographs, two of which were resighted within a five day period.

The majority (85%) of Bryde's whale sightings were made between August and January, closely paralleling the highly productive, cold/dry season (July-December). It appears that Bryde's whales feed in the waters around the Galápagos, converging when more food is available. It remains unclear whether Bryde's whales simply disperse over a larger area, or follow a limited north-south or inshore-offshore migration during the less productive season in the Galápagos.

THE ACOUSTIC BEHAVIOUR OF THE LEOPARD SEAL, *HYDRURGA LEPTONYX*

Rogers, T.L.
Department of Veterinary Anatomy, University of Sydney, Australia

Underwater sounds were recorded from leopard seals along the fast ice edge in Prydz Bay, Antarctica, and in Taronga Zoo, Sydney. Sounds produced by the two captive seals (one male and one female), recorded monthly over a three-year period, were related to behavioural observations and serum hormone concentrations. Twelve underwater call types were recorded, six during agonistic interactions throughout the year (agonistic calls), and six produced only by the female when sexually receptive during the summer months (advertising calls). In the field studies, carried out over two consecutive summers, agonistic calls were heard only occasionally, whereas advertising calls were heard for long periods each day. Agonistic and advertising calls had significantly different acoustic features: advertising calls having lower maximum frequencies, longer durations, and higher source levels and repetition rates, which make them more effective than agonistic calls for long-range communication. It is proposed that acoustic behaviour is important in the mating system of the leopard seal; advertising sounds being used as 'solicitation calls' by sexually mature females to advertise sexual receptivity, and by males to advertise their presence and identity when in search of mates and/or to hold territories.

TEMPERATURE REGULATION OF SEAL REPRODUCTIVE SYSTEMS

Rommel, S. (1), G. Early, and B. Wyman (2).
(1) Eckerd College, St. Petersburg, FL 33711; (2) Animal Care Center, New England Aquarium, Boston, MA 02934

Seals have venous plexuses that could function as heat exchangers to prevent hyperthermic insult to their reproductive systems. Each testis is juxtaposed between the subcutaneous blubber and an inguinal plexus. The inguinal plexus cups the medial aspect of the testis, filled with relatively cool blood it could thermally isolate the gonad from the muscles of the pelvis and hindlimb. An abdominal wall plexus is juxtaposed between the abdominal wall and the uterus. Filled with relatively cool blood it could thermally isolate a developing fetus from the abdominal wall muscles and function as a sink for fetal metabolic heat. The colon is surrounded by veins confluent with the inguinal and abdominal wall plexuses; temperatures measured along the colon will reflect blood temperatures in these venous plexuses. Rectal probes housing a linear array of copper-constantan thermocouples were used to continuously measure colonic temperatures in the harbor seal (*Phoca vitulina*). Typical differences of 1-2°C were measured along 25-30 cm of colon; occasional differences of 10°C or more were observed. These measurements support anatomical evidence that cooled venous blood can regulate temperatures of abdominal and pelvic organs in the seal.