

FOOD AND PARASITES FROM TWO HOURGLASS DOLPHINS,  
*LAGENORHYNCHUS CRUCIGER* (QUOY AND GAIMARD, 1824),  
FROM PATAGONIAN WATERS

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The hourglass dolphin, *Lagenorhynchus cruciger* (Quoy and Gaimard, 1824), is an oceanic species, with a pelagic circumpolar distribution in the higher latitudes of the southern oceans (antarctic and subantarctic waters). Few strandings have been

registered, mostly due to its pelagic Southern Ocean range (Goodall *et al.* 1997). In southwestern South Atlantic waters a few records of hourglass dolphin have been published (Bastida and Lichtschein 1984, Goodall 1997). In open oceanic waters Nichols (1908) observed hourglass dolphin at 36°S, and Bastida and Lichtschein (1984) recorded this cetacean species in cruises between 44°S and 45°S with one additional individual as far north as 40°N. Little is known about population structure, dynamics, and diet of the hourglass dolphin (Brownell and Donahue 1999). We provide information on parasites and diet of two hourglass dolphins stranded in northern Patagonian waters (Argentina).

In May 2001 and January 2002, two hourglass dolphins stranded at Playa Unión (43°20'S, 65°00'W), Rawson, and Playa Paraná (42°49'S, 64°53'W), Puerto Madryn, Chubut. Necropsy was carried out following standard procedures (Norris 1961). Only stomach, intestine, and blubber were examined in the first animal, since the rest of the organs were decayed. The second animal was in good condition and underwent complete examination. Age was determined after counting dentinal layers on longitudinal sections of teeth (Crespo *et al.* 1994). Sexual maturity was determined following Kasuya and Marsh (1984). Morphometric data, pictures, and the two skeletons (collection numbers LC1 and LC2) are available from the collection of the Laboratorio de Mamíferos Marinos (LAMAMA), (Centro Nacional Patagónico, Puerto Madryn, Argentina).

Food items were determined from contents of digestive tracts following Koen Alonso *et al.* (1998). Prey species were identified and quantified from otoliths, squid beaks, and exoskeletons of crustacea and jaws of polychaeta, using the reference collection of the LAMAMA and published catalogs (Wolf 1977, Clarke 1986, Hecht 1987, Boschi *et al.* 1992, Volpedo and Echeverría 2000). For the estimation of total length and weight of the prey, Koen Alonso *et al.* (1998) regressions were applied to the data.

Parasites were fixed in 70% ethanol and identified according to conventional methods. Nematodes were cleared in lactophenol and digeneans stained with boracic carmine for identification. The cestodes were found alive and relaxed in hot saline solution, and later were fixed in hot 70% ethanol.

The Playa Unión dolphin (LC 1) was a sexually mature male, with eight growth layer groups (GLGs), and 1.64 m in length. A total of 31 plerocercoids of the cestode *Phyllobothrium delphini* (Phyllobothriidae) were collected from the subcutaneous blubber around the abdominal surface. The animal had wounds around the abdominal area, where the cysticerci were located, possibly inflicted by sharks. Worms belonging to two genera of digeneans (Campulidae) were found in the intestine: *Hadwenius* sp. 1 (~199 specimens) and *Oschmarinella* sp. (11 specimens). A total of 1,189 *Anisakis simplex sensu lato* (Nematoda: Anisakidae) were collected from the stomach. These included third and fourth larval stages (125 and 138, respectively) and adults (at least 577 males and 349 females).

The Playa Paraná dolphin (LC 2) was a sexually mature male, with nine GLGs, and 1.78 m in length. Fifteen plerocercoid of the species *P. delphini* were found in the subcutaneous blubber of the abdominal surface. Two species of *Hadwenius* were collected, *Hadwenius* sp. 1 (one specimen) from the stomach, which belonged to

Table 1. Prey species of two specimens of *Lagenorhynchus cruciger*, with total number of individuals, range of total length (cm) and mass (g) when possible.

Species	No.	Range of length	Range of mass
LC 1 dolphin			
Fish			
<i>Merluccius hubbsi</i>	16	11.2–19.2	77.75–40.35
<i>Engraulis anchoita</i>	1	15.3	23.45
Cephalopods			
<i>Semirossia tenera</i>	98	1.5–2.5 <sup>a</sup>	–
<i>Loligo gabi</i>	27	5.7–13.3 <sup>a</sup>	2.29–20.26
<i>Illex argentinus</i>	1	16.53 <sup>a</sup>	86.60
<i>Eledone massyae</i>	7	–	15.17–65.82
Crustacean			
<i>Heterosquilla</i>	11		
Polychaete			
<i>Glycera</i> sp.	4		
<i>Eunice magellanica</i>	2		
LC 2 dolphin			
Fish			
<i>M. hubbsi</i>	1	17.53	30.53
<i>Protomyctophum</i> sp.	8		
Cephalopods			
<i>I. argentinus</i>	7	17.5–22.6 <sup>a</sup>	103.86–238.21
<i>Loligo gabi</i>	4	14.40 <sup>a</sup>	40.19

<sup>a</sup> Dorsal mantle length

the same species as that found in the Playa Unión dolphin, and *Hadwenius* sp. 2 (21 specimens) from the distal end of the hepatopancreatic duct. A total of 134 *A. simplex sensu lato* were collected from the stomach representing third and fourth larvae stages (121 and 4, respectively). No adults were collected. Five ulcers were detected in the main stomach, one of them with one larva *A. simplex* attached.

The lesser shining bobtail squid, *Semirossia tenera*, was the most abundant prey in the LC1 dolphin, followed by small Patagonian squid, *Loligo gabi*, and juvenile Argentine hake, *Merluccius hubbsi* (Table 1). *S. tenera* is a demersal-benthic species (Roper *et al.* 1984), the Patagonian squid is demersal-pelagic (FAO 1983, Nigmatullin 1989, Hatfield *et al.* 1990), whereas adults of the Argentinean hake are demersal (Angelescu and Prenski 1987). However, individuals of the latter species taken by this dolphin were from a younger pelagic life stage. The presence of these prey species might indicate that this dolphin fed in surface waters. Several crustaceans (probably from benthic habitat) and other benthic species such as the cephalopod *Eledone massyae*, and the demersal-pelagic squid *Illex argentinus* were also part of the diet. We also recorded the annelids *Glycera* sp. and *Eunice magellanica*, which might have come from digestive contents of some of the hourglass dolphin preys.

The most abundant prey species in the LC2 dolphin was the pelagic fish species *Protomyctophum* sp. (Myctophidae). Although specific determination was not possible, due to the lack of reference material, it is thought to be *P. normani*. Two species of this

genus, *P. normani* and *P. tenisoni*, are known from the southwestern South Atlantic Ocean (Menni *et al.* 1984). Based on the otoliths, eight individuals were identified as *Protomyctophum* sp. Fifty-seven individuals were identified as *Protomyctophum* sp. based on 113 cristallines. One Argentinian hake of pelagic life stage was found in the stomach contents, as well as the cephalopods *Illex argentinus* and *L. gahi*.

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