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REPORT OF THE WORKING GROUP ON DISTRIBUTION, HABITAT CHARACTERISTICS AND PREFERENCES, AND GROUP SIZE

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Introduction

The genus *Sotalia* includes two species: *Sotalia guianensis* distributed along the coast of Brazil, northern South America, and throughout the Caribbean Sea up to Honduras in Central America (Flores and da Silva, 2009), and *Sotalia fluviatilis*, confined to the rivers of the Amazon River basin. Although widely distributed in the Amazon basin and familiar wherever it occurs, *S. fluviatilis* (known as *tucuxi* in the Brazilian Amazon) is poorly studied. Due to its speed and small size as well as the turbidity or opacity of most Amazonian rivers, studies of the *tucuxi* are rare and few attempts have been made to quantify its habitat preference and ecology (da Silva and Best, 1994; Martin *et al.*, 2004). On the other hand, due to its coastal distribution, occurrence in bays and estuaries, larger body size and behaviour, and a high level of fisheries interaction, *S. guianensis* is better known than its fluvial congener. However, the available information on the distribution, habitat characteristics and habitat use, as well as group size and group structure of these dolphins is not well known and most of studies are concentrated where the species is more abundant and of easy access.

Distribution

The known northernmost limit of the distribution of *S. guianensis* is in central Honduras (Central America) at La Mosquitia (14°00'N; 83°20'W) (Edwards and Schnell, 2001). The species also occurs in northern Nicaragua (Carr and Bonde, 2000); in the Gandoca-Manzanillo Wildlife Refuge in Costa Rica (Rodríguez-Fonseca and Cubero-Pardo, 2001;

Acevedo-Gutiérrez *et al.*, 2005; May-Collado and Gamboa-Poveda, 2006¹⁰) and along the Caribbean coast from Panama to Venezuela (Bossenecker, 1978). In Venezuela *S. guianensis* is found in the Gulf of Venezuela and Maracaibo Lake System, a mixed environment with both fresh and salt water (Boher *et al.*, 1995) (Figure 1). This dolphin is also found well inside the Orinoco River as far as Estado Bolívar and Apure near the mouth of Suapure River, 800km upstream from the mouth of the Orinoco River (Boher *et al.*, 1995; Bolaños-Jiménez, 1998¹¹), but the taxonomic status of these dolphins remains uncertain as to whether they are *S. guianensis* or *S. fluviatilis*. In the Caribbean Sea *S. guianensis* is found at the Gulf of Morrosquillo in Colombia (García and Trujillo, 2004; Dussán-Duque *et al.*, 2006¹²); Venezuela (Bolaños-Jiménez, 1998¹¹; Ramírez-Carroz, 2005); Guyana (William, 1928; Herald, 1967); Suriname (van Bénédén, 1864; Husson, 1978) and French Guiana (van Waerebeek, 1990). A single record is known from Trinidad and Tobago (van Bree, 1975).

In Brazil, *S. guianensis* occurs from the Oiapoque in northern Amapá State (4°12'N; 51°34'W) (Beltrán-Pedrerros, 1998; S. Siciliano, pers. comm; V.M.F. da Silva, unpublished data) to Baía Norte in Florianópolis, Santa Catarina State (27°35'S; 48°34'W) (Simões-Lopes, 1988). *S. guianensis* is commonly found inside the Baía de Marajó as far as Camará (00°47'17"S; 48°32'21"W; S. Siciliano and N.R. Emin-Lima, pers. comm.). *Sotalia* is common in the Amazon estuary, however the species has not yet been determined. In this particular area, the boundaries between fresh and saltwater influence, as well as the limits of the co-occurrence of the two species is unknown.

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¹⁰ MAY-COLLADO, L. AND GAMBOA-POVEDA, M. (2006) *Insights on the biology of Sotalia guianensis at Mandoca-Manzanillo. Costa Rica: Residence, habitat use, acoustics and reactions to anthropogenic noise.* Page 36 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a026>

¹¹ BOLAÑOS-JIMÉNEZ, J. (1998) *Registro de avistamientos de delfines de agua dulce de Venezuela, Subproyecto Región Zulía, 1995-1998.* Informe Técnico MINAMB-ONDB-DGF-DF IT/411, MINAMB, Caracas.

¹² DUSSÁN-DUQUE, S., WELLS, R.S. AND BASSOS-HULL, K. (2006) *Distribución, uso de habitat y abundancia de Sotalia guianensis en el Golfo de Morrosquillo, Colombia.* Page 15 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a005>

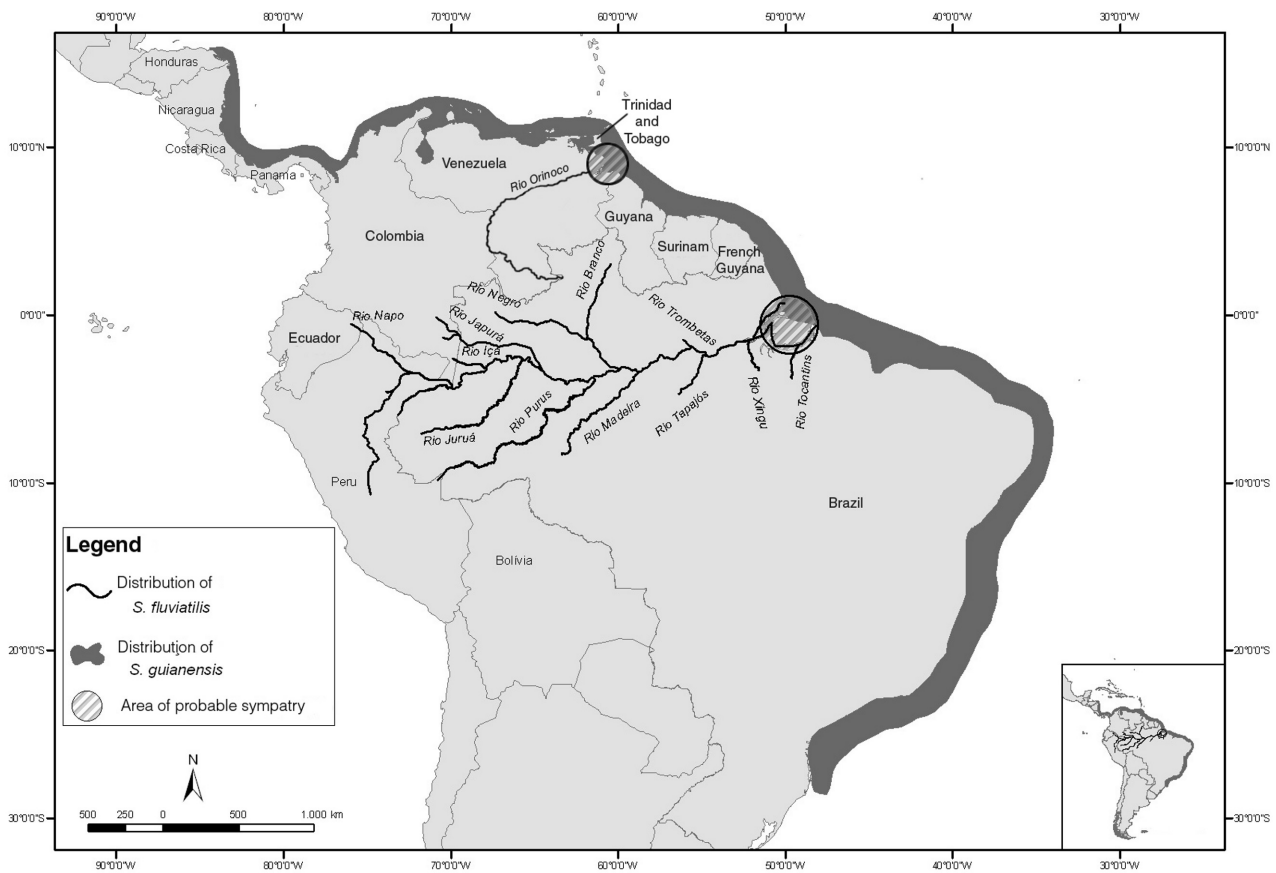


Figure 1. Map depicting the geographic distribution of *Sotalia guianensis* along the coast of South and Central America (dark gray shading) and *Sotalia fluviatilis* throughout the Amazon River Basin (black line). The area of potential overlap between the two species in the Amazon and Orinoco estuaries is also shown (crosshatching).

The distribution of *S. guianensis* is mostly continuous throughout its range (Figure 1). There is no evidence of large discontinuity, although in some areas it is rarely seen or absent. Furthermore, many parts of its range have never been surveyed.

S. fluviatilis has been recorded in the main rivers of the Amazon basin and their tributaries, lakes and channels (da Silva and Best, 1994; Vidal *et al.*, 1997; Leatherwood *et al.*, 2000; Zapata-Ríos and Utreras, 2004; Zapata-Ríos *et al.*, 2006¹³). It occurs in all the rivers of the north and south margin of the Amazon/Solimões River, including Japurá-Caquetá, Iça-Putumayo, Napo and Marañón basins (Figure 1).

The westernmost distribution of the species is in Ecuador, near the base of the Andean mountains, ca. 200m above sea level, in the Morona River (2°S45'32''S, 77°34'49''W; Zapata-Ríos and Utreras, 2004).

In Brazil, the freshwater species of *Sotalia* occurs in all of the Amazon tributaries, associated lakes and larger channels (paranãs) along the main channel of the Amazon River from its mouth to the border area with Peru and Colombia. It has also been recorded on the following rivers and its tributaries: Pará, Lower Tocantins, Lower Xingú, Lower Tapajós, Lower Madeira, Purús, Juruá, Javari, Içá, Tocantins, Japurá, Negro, Branco, Nhamundá, Lower Trombetas, Lower Uatumã, Maicuru, Paru, and Jari (da Silva, 1994; da Silva and Best, 1994).

In Colombia, records of *S. fluviatilis* exist for the following rivers: main course of the Amazon-Marañón, as well as the Putumayo, Caquetá, Tigre, Loreto Yacu, Atacuarí, and Amacayacu Rivers, including the lakes Tarapoto, El Correo, and Caballo Cocha situated at the border of Peru with Colombia (da Silva and Best, 1996;

¹³ ZAPATA-RÍOS, G., UTRERAS, V. AND SUÁREZ, E.R. (2006) Preliminary assessment of *tucuxi* (*Sotalia fluviatilis*) distribution along a disturbance gradient in Ecuadorian Amazonia. Page 16 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, Workshop on Research and Conservation of the genus *Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a006>

Trujillo, 1992; Trujillo, 1994; Trujillo and Beltrán, 1995; Vidal *et al.*, 1997; Dussán-Duque *et al.*, 2006¹²), as well as the Napo, Mazon, Nanay, Momon, Tamshiyacu and Tahuayo (Kasuya and Kajihara, 1974).

In Ecuador, the species was recorded in the Putumayo River and in the Napo River basin, in the following rivers: Gueppi, Cuyabeno, Aguarico, Pañayacu, Lagartococha, Tiputini, Yasuní and Lake Jatuncocha. It is also found in the Pastaza River and in the rivers of the Morona Basin as Mangosiza, Cushuimi, Cangaiame, Makuma, Wichimi and Morona (Zapata-Rios and Utreras, 2004).

In Peru the distribution includes the following rivers: Amazonas, Marañon, Yanayaquillo, Atun Caño, Yanayacu, Pucate, Pacaya, Samiria, Tanshiyaco, Tahuayo, Huaysi, Yapara, Nauta Caño, Tapiche and Ucayali; and for the lakes San Pablo de Tipishca, Atun Cocha and Tipishca del Samiria, as well as Napo, Tigre, Mazon, Nanay, and Momon rivers, among others (da Silva and Best, 1996; Leatherwood *et al.*, 2000; McGuire, 2006¹⁴).

Falls and rapids in several tributaries of the Amazon River basin represent barriers for this species (da Silva and Best, 1996; Herrando-Pérez *et al.*, 2006¹⁵). The main barriers within the Amazon are: (1) Madeira River, the Santo Antonio and Teotônio falls just above Porto Velho; (2) Tapajós River, approximately 200km from its mouth; (3) Xingú River, the Belo Monte rapids below Altamira; (4) on the Tocantins River, the Tucuruí Dam, has cut the river off from its estuary since 1988, although the rapids that were flooded by the reservoir had probably served as a barrier for *S. fluviatilis* before the dam's construction; (5) on the Rio Negro, there is a series of rapids beginning at Tapuruquara, about 900m upstream, while the first major barrier is located 1200km upstream; (6) the Trombetas River has rocky riverbeds and several falls, the first major one being Cachoeira Porteira, which is located about 260km from its mouth. A previous record of the species in Formoso River, a tributary of the Araguaia River (Tocantins State) (Borobia *et al.*, 1991; Record N° 254) it has actually been confirmed as a specimen originally captured in the Tapajós River (V.M.F. da Silva, INPA, unpublished data). Caballero *et al.* (2007) also present a report of genetic material extracted from bones attributed to an animal from the Formoso River. However, recent surveys performed at different times of the year along a 700km stretch between Aragarças (15°53'31.9"S;

52°14'41.3"W) and the south end of Bananal Island (12°50'27.7"S; 50°33'39.2"W) did not succeed in locating this species (Carneiro, 2002; Amaral, 2002; Araújo, 2010; C.C. Araújo and V.M.F. da Silva, unpublished data). A study of *Inia geoffrensis* in the Lago dos Tigres, about 50km from Aruanã (15°14'28"S, 51°09'38"W) also did not record the presence of *Sotalia* (Araújo, 2007). No *Sotalia* were sighted on surveys between the north end of Bananal Island, down 120km to Caviara River, during February, March, April and November 2001 or along a 530km stretch of the middle course of Araguaia River, in May and September 2010 (C.C. Araújo and V.M.F. da Silva, unpublished data). Additionally, several reports from expeditions to different parts of the Araguaia and Tocantins Rivers over the past decade did not result in a single encounter (V.M.F. da Silva, unpublished data; N.A.S Carmo, pers. comm.), strongly indicating that *Sotalia* does not occur in the Araguaia or the Tocantins Rivers basins above Tucuruí Dam.

S. fluviatilis does not occur in the rivers of Bolivia or above the falls of the Madeira River. It also does not occur above the stretch of rapids and falls on the upper Rio Negro in Brazil, thus creating a seemingly impassable barrier to the upper parts of the Orinoco River (Mead and Koehnken, 1991; da Silva and Best, 1994). Therefore, the status of *Sotalia* in the Orinoco Basin is still to be ascertained, whether they likely isolated from the Amazon populations and therefore with important implications for conservation or whether the mouth of Orinoco River may constitute an area of possible sympatry. In the Caquetá River *S. fluviatilis* is limited by the rapids of Córdoba (1°8'10"S, 69°39'52"W).

Habitat Characteristics

S. guianensis is found in coastal habitats such as bays, estuaries and open coasts (Borobia *et al.*, 1991). Apparently the species is limited to depths of 50m (Fernandes, 2005). However, most sightings were recorded in water less than 25m deep (Bossenecker, 1978; Cremer, 2000; Di Benedetto *et al.*, 2001; Edwards and Schnell, 2001; Flores, 2003; Lodi, 2003a; Azevedo *et al.*, 2007; Santos and Rosso, 2007). *S. guianensis* is found as far as 36km offshore in Abrolhos Bank, an extension of the continental shelf with warm and shallow waters (Borobia *et al.*, 1991; Rossi-Santos *et al.*, 2006). Most sightings, however, are coastal (Borobia *et al.*, 1991;

¹⁴McGUIRE, T.L. (2006) *Ecology and conservation status of Riverine Tucuxi (Sotalia fluviatilis) in the Pacaya-Samiria Reserve, Peru*. Page 17 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a007>

¹⁵HERRANDO-PÉREZ, S., GÓMEZ, C., TRUJILLO, F., DIAZGRANADOS, M.C. AND PORTOCARRERO, M. (2006) *Distribución y uso de habitat del delfin de rio Sotalia fluviatilis en la Amazonia colombiana: un análisis de 15 años*. Page 13 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a003>

Carr and Bonde, 2000; Edwards and Schnell, 2001; Di Benedetto *et al.*, 2001; Santos, 2004; Fernandes, 2005; Rossi-Santos *et al.*, 2006¹⁶; Bazzalo *et al.*, 2008).

The occurrence of the species is strongly associated with the presence of mangroves and estuarine regions (Borobia *et al.*, 1991; Zanelatto, 2001; Santos, 2010). The different types of coastal habitats where *S. guianensis* is found include mangrove, dunes, sandy beaches, rocky shores, or a combination of these features, and areas with irregular sea floor relief, and steep and flat bottoms (Cremer, 2000; Bonin, 2001; Lodi, 2003a; Wedekin, 2007; Rossi-Santos *et al.*, 2006¹⁶).

The marine coastal and estuarine waters that *S. guianensis* normally inhabits are turbid (*e.g.* Flores, 2003). Water temperatures vary from 13° to 32°C (Edwards and Schnell, 2001; Flores, 2003) respectively at the southern and northern ends of their range. The coastal habitat where the species occurs is subject to intense human activities such as fishing, boat traffic, oil exploration and urban development. *S. guianensis* can be found from salty coastal waters to inner estuarine and freshwater (Cremer, 2000; Bonin, 2001; Lodi, 2003a; Wedekin, 2007; Santos and Rosso, 2007).

S. fluviatilis occurs in all types of freshwater types: white, black and clear water. The water temperatures in the Amazon vary little throughout the year. In Ecuador, during seasonal river water fluctuations, the water temperature ranges from 24° to 32°C (Utreras, 1996). The same variation was recorded in the Purus River, Brazil (Silva *et al.*, 2008). The temperature of white waters along the year is 29±1°C, while in black waters the average is of the order of 30° to 31°C (Sioli, 1985). This species occurs well inside the Amazon tributaries and associated lakes, in large streams, around islands, and in small channels (Vidal *et al.*, 1997; Martin *et al.*, 2004). Habitats in which *S. fluviatilis* is found include margins of the rivers with river banks, muddy and sand beaches, flooded forest or *igapó*, floating vegetation, bays, inlets, confluences and meeting of waters (Martin *et al.*, 2004; McGuire, 2006¹⁴; Faustino and da Silva, 2006). The extension of the occurrence of *S. fluviatilis* in the Amazon River estuary is not well known.

Habitat Preference

Habitat preference of *S. guianensis* has been determined analysing parameters that included primarily temperature, water depth, salinity, distance from the coast, sea floor relief, and sea floor substrate. The species commonly aggregates in the mouths of estuaries and bays (Edwards and Schnell, 2001; Filla, 2004; Dussán-Duque *et al.*, 2006¹²; Silva and Firmino, 2006¹⁷; Flach *et al.*, 2008; Rossi-Santos *et al.*, 2006¹⁶). The results indicate that *S. guianensis* prefers areas less than 5km from the shore (Cremer, 2000; Bonin, 2001; Edwards and Schell, 2001; Lodi, 2003a; Fernandes, 2005; Rossi-Santos *et al.*, 2006; Souza *et al.*, 2006¹⁸; Wedekin, 2007; Bazzalo *et al.*, 2008) and water depths from 2 to 10m, steeply sloping areas, areas with high sea floor relief (Cremer, 2000; Bonin, 2001; Wedekin, 2007), and areas with muddy bottoms (Lodi, 2003a; Santos, 2010). In the case of *S. fluviatilis*, strong seasonal variation of water levels in the Amazon River basin provides a broad diversity of habitats. This diversity provides *S. fluviatilis* with a choice among different habitat types based on abundance of prey and physical features of the area (da Silva and Best, 1994; Junk and da Silva, 1997; Martin and da Silva, 2004). Tucuxi are associated with areas of deeper water and open channels. In the Pacaya-Samiria Reserve in Peru, they were not found in rivers less than 3m deep or, 1.8m in lakes (Leatherwood *et al.*, 2000; McGuire, 2006¹⁴). In the floodplains of the central Amazon, *S. fluviatilis* does not occur in areas with dense floating vegetation. This species shows preference to areas with diminished current and where two channels join, but do not favor the most common type of habitat: mud banks and flooded forest margins. The most preferred habitat type was the least common: the confluence of waters (Magnusson *et al.*, 1980; da Silva, 1994; Martin *et al.*, 2004; Faustino and da Silva, 2006). In the Colombian Amazon, during the low-water season, *S. fluviatilis* prefers the main river channels around islands and confluences; during high-water season, the animals also occupy lakes and smaller tributaries, but do not enter the flooded forest (Herrando-Pérez *et al.*, 2006¹⁵). Most research has found that *S. fluviatilis* aggregates in areas of confluences and meeting of waters (Magnusson *et al.*, 1980; Martin *et al.*, 2004; Zapata-Rios and Utreras, 2004; Herrando-Pérez *et al.*, 2006¹⁵).

¹⁶ ROSSI-SANTOS, M., WEDEKIN, L. AND MONTERO-FILHO, E.L.A. (2006) *Influência de padrões do uso de habitat e variáveis ambientais na ecologia de Sotalia guianensis no Estuário do Rio Caravelas, estado da Bahia, Brasil*. Page 49 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a039>

¹⁷ SILVA, F.J.L. AND FIRMINO, A.S.L. (2006) *Habitat use, annual and daily circarhythm activity of the boto Sotalia guianensis in Rio Grande do Norte, Northeast Brasil*. Page 57 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a047>

¹⁸ SOUZA, S.P., WINK, M. AND SILES, S. (2006) *Ocorrência de Sotalia fluviatilis (Gervais, 1853) no litoral norte do Estado de São Paulo, Brasil*. Page 53 in Siciliano, S., Borobia, M., Barros, N.B., Marques, F., Trujillo, F. and Flores, P.A.C. (Eds), Book of Abstracts, *Workshop on Research and Conservation of the genus Sotalia*, 19-23 June 2006, Armação dos Búzios, Rio de Janeiro, Brazil. *Latin American Journal of Aquatic Mammals* 8(1-2) (supplement). <http://dx.doi.org/10.5597/lajam00147.a043>

Group Size

S. guianensis. Group size is generally small, ranging from 1 to 15 individuals (Araújo *et al.*, 2001; Edwards and Schnell, 2001; Azevedo *et al.*, 2005; Daura Jorge *et al.*, 2005; Rossi-Santos *et al.*, 2006¹⁶; Pansard *et al.*, 2006¹⁹; Santos and Rosso, 2007). However, larger aggregations up to 450 dolphins have recorded inside bays in Rio de Janeiro State: Ilha Grande (23°05' and 23°14'S; 44°05'W and 44°23'W) with 450 individuals (Lodi and Hetzel, 1998); in Baía de Paraty (23°18'S; 44°30'W) ca.100 individuals (Lodi, 2003b), and in Baía de Sepetiba (22°35'S; 44°03'W) with 200 individuals (Simão *et al.*, 2000). In Bahia State, a group of 140 individuals was observed in Baía de Todos os Santos (Reis *et al.*, 2006²⁰); in Santa Catarina State, at Baía Norte (27°23'S-27°35'S, 48°33'W-48°30'W), groups larger than 50 individuals were frequently recorded (Flores, 1999; Daura-Jorge *et al.*, 2005). In the Paranaguá estuarine complex group sizes varied from 2 to 90 individuals (Santos *et al.*, 2010), while in a nearby estuary groups were recorded with 2 to 60 individuals (Santos and Rosso, 2007). In Baía de Marapanim (0°41'S, 47°36'W), Pará State, groups of 1 to 60 individuals were sighted (Emin-Lima *et al.*, 2006²¹). There is no information on the habitat preferences, group size and other population parameter for *S. guianensis* on the coastal areas of north of South America and Caribbean.

The group size of *S. fluviatilis* varies throughout its distribution, ranging from 1 to 6 individuals (Vidal *et al.*, 1997; Martin and da Silva, 2004; Faustino and da Silva, 2006). In Colombia, larger aggregations, ca. 60 tucuxis, were recorded in confluences of rivers and around islands (Vidal *et al.*, 1997; Herrando-Pérez *et al.*, 2006¹⁵). In the central Amazon, group size ranges from 1 to 6 individuals, with a mean of 2.24 (n = 504, da Silva and Best, 1996; Martin *et al.*, 2004). In confluences and meeting of waters larger aggregations up to 20 individuals are common (V.M.F. da Silva, unpublished data). In Ecuador the average group size is 3 (n = 28) with a range of 1 to 10 (Zapata-Rios and Utreras, 2004; V. Utreras, unpublished data). In the Pacaya-Samiria Reserve in Peru, group size was most often singles individuals or pairs, although groups as large as 13 were observed (Leatherwood *et al.*, 2000; McGuire, 2006¹⁴).

Future research recommendations

As a result of the Workshop, several general research recommendations are put forward herewith:

Sotalia guianensis

1) Confirm the northern limit of the occurrence of *S. guianensis*. Conduct research to obtain more information on the distribution and occurrence of the species in the northern part of its range in other countries of Central America and Mexico. It is possible that the range of *S.*

guianensis may extend to the Gulf of Mexico, including the Yucatan Peninsula. It also may occur in Belize although yet there are no records.

2) Collect biological data from carcasses, compile photos, and direct observations inside Baía de Guajará and Baía de Marajó, located at the Amazon estuary to help determine which *Sotalia* species occur in the area and their potential respective boundaries.

3) Identify the limits of the distribution of *Sotalia* upstream in rivers of the Orinoco Basin and determine which *Sotalia* species occur in the area and their potential respective boundaries.

4) Expand the scale of research conducted to date to include larger areas with different coastal habitats.

5) Identify populations or stocks along *S. guianensis* distribution range using different techniques and methodologies.

Sotalia fluviatilis.

1) Identify the occurrence boundaries of *S. fluviatilis* along the Amazon estuary.

2) Standardize surveys methods to monitor population trends in a variety of areas within different river basins and countries.

3) Assess daily, seasonal and long-term movements.

4) Further assess home range and habitat preferences.

5) Monitor population dynamics and trends.

6) Identify populations and assess the level of genetic differences between populations from different river basins.

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