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Report of the VIII Workshop for the Research and Conservation of the Franciscana (Pontoporia blainvillei)

Franciscana Consortium

INTERNATIONAL WHALING COMMISSION

REPORT OF THE VIII WORKSHOP FOR THE RESEARCH AND CONSERVATION OF THE FRANCISCANA (*Pontoporia blainvillei*)

1. INTRODUCTORY ITEMS

The workshop was organized by the Franciscana Consortium (www.pontoporia.org) and Projeto Toninhas, Univille, and held in the Hotel Villa Real, in São Francisco do Sul, Santa Catarina, Brazil, from 6 to 8 October 2015.

1.1 Opening remarks

Cremer, chair of the workshop's organizing committee, opened the workshop, welcomed the participants and acknowledged the funding organizations: Yaqu Pacha, the Nuremberg Zoo, the Marine Mammal Commission, and the Cetacean Society International. Her remarks were followed by an individual introduction of each workshop participant. The list of participants is provided in Annex 1.

The goal of the workshop was to discuss priority research and conservation actions in the context of an International Whaling Commission (IWC) Conservation Management Plan (CMP). In 2015, the governments of Argentina, Brazil and Uruguay considered presenting a proposal to establish an IWC CMP for the franciscana (*Pontoporia blainvillei*) (IWC, 2015) and the recommendations resulting from the workshop would provide support to this proposal.

1.2 Election of a chair

Secchi was elected chair.

1.3 Appointment of rapporteaurs

Iñiguez, Marigo, Szephegyi, and Zerbini were appointed as rapporteurs.

1.4 Adoption of the agenda

The adopted agenda is provided in Annex 2

2. PRESENTATION OF SAMBAH PROJECT

Passive acoustic methods may be applicable to assess franciscana distribution, abundance, trends, behavior and habitat use. For this reason, the Franciscana Consortium invited Dr. Amundin to present results of a study with harbor porpoise (*Phocoena phocoena*) in European waters, the SAMBAH (Static Acoustic Monitoring of the Baltic Harbor porpoise, www.sambah.org) project. This international study aims at contributing to the conservation of the harbour porpoise population in the Baltic Sea. The project started in January 2010 and ends in September 2015. All EU member states around the Baltic Sea are involved in the project, which is funded by the EU LIFE+ program and various national sources; the German part was completely funded by the Federal Agency for Nature Conservation.

The harbour porpoise is one of the smallest toothed whales and it has a wide distribution in temperate waters in the northern hemisphere. In the Baltic region, there are three harbour porpoise sub-populations; (1) in the northern North Sea, Skagerrak and Kattegat, (2) in the southern Kattegat, Belt Seas and Western Baltic, and (3) in the Baltic Proper and north-northeast thereof. The latter is very small and has been drastically reduced during the last half of the 20th century, and is now classified as critically endangered by the IUCN. The species is listed in Annexes 2 and 4 of the EC Habitats Directive as well as in the national red lists of several EU

Member States.

Due to the very low population density in the Baltic, traditional survey methods have not yielded enough data for robust abundance estimates or distribution maps. Hence a new survey methodology was called for. SAMBAH built on previous Static Acoustic Monitoring (SAM) studies, and combined their methods with point transect methodology. SAM relies on logging the high frequency click trains produced by harbour porpoises for echolocation and communication. These echolocation click trains were recorded by acoustic data loggers called C-PODs. In total, C-PODs were deployed at 304 locations in waters 5-80 m deep, within the project area stretching from south and east of the Darss and Limhamn ridges in the southwest, to latitude 60°20'N in the north. The C-PODs were kept in operation for two years and then followed two years of statistical analyses. The SAMBAH project has so far reached a preliminary population abundance estimate for porpoises in the Baltic Sea Proper, which is approximately 500 porpoises. New auxiliary data are now being analyzed in order to confirm this number and to minimize the confidence interval.

Based on spatial modeling, preliminary maps showing the distribution of porpoises in time and space have also been produced. These show a clear spatial separation during May-October between a porpoise concentration on the offshore banks in the Baltic Proper and the relatively high population density in the southwestern Baltic. Porpoises give birth, mate and nurse their calves during this period, and thus these offshore banks seem to be an important breeding area for the critically endangered Baltic porpoise sub-population.

The SAMBAH results are expected to contribute to improved conservation status of the Baltic harbour porpoise, since a population estimate in combination with known distribution in space and time opens up for dedicated conservation actions that will make a difference. Being the largest ever SAM study of any animal, the developed methodologies offer new possibilities for assessing population densities, abundance and distribution using passive acoustics.

The workshop thanked the presentation by Dr. Amundin. The discussion focused on the application of acoustic methods to monitor distribution and abundance of the franciscana. It was noted that while this method of remote monitoring may be advantageous to improve understanding of the distribution, abundance and trends of the franciscana, the costs of this type of monitoring can be expensive. Also limitations associated with locations to deploy instruments (e.g. areas with intense trawling, which are common in the habitat of the franciscana) were identified. The workshop was informed that a pilot study to assess the feasibility of using C-Pods to estimate density and study habitat use of franciscanas would be implemented in Baia da Babitonga.

3. PRESENTATION OF THE FRAMEWORK OF AN IWC CMP PROPOSAL

Iñíguez provided a brief introduction to the IWC CMP as a practical tool for improving the conservation status of the most at risk populations of whales and other cetaceans. He mentioned that at the last joint meeting of the IWC Conservation and Scientific Committees (June 2015, San Diego, USA), Argentina and Brazil expressed their intention to nominate the franciscana as a potential candidate for an IWC CMP. Fig. 1 shows the steps required to develop such a CMP.

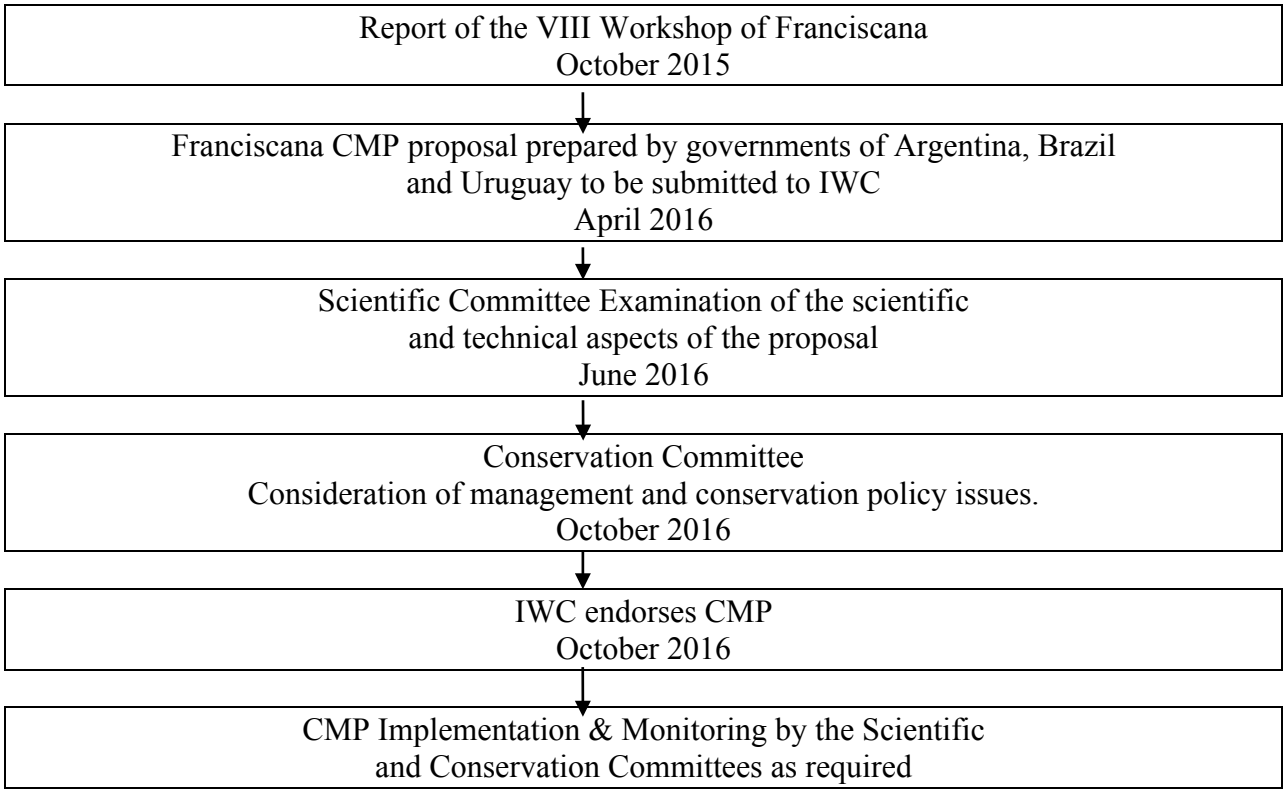

Fig 1. Steps required to develop a Conservation Management Plan for the Franciscana.

4. REVIEW OF INFORMATION ON THE FRANCISCANA

Presentations with an overview of the current knowledge on the franciscana were provided by Bordino (Argentina), Szephegyi (Uruguay), Danilewicz and Secchi (Brazil) with a focus *inter alia* on population structure, abundance, trends, anthropogenic threats, and conservation actions. A summary of the information presented is provided in item 4.1 to 4.5 below.

4.1 Distribution and Population Structure

The franciscana dolphin is a small odontocete inhabiting coastal waters of the Southwestern Atlantic Ocean from Itaúnas (18°25'S), Espírito Santo State, Brazil, to Golfo San Matias (42°10'S), Chubut, Argentina (Crespo et al. 1998; Siciliano et al. 2002) (Fig. 2). Two gaps in distribution are found near the northern range of the species, one between the states of Espírito Santo and Rio de Janeiro and another between Rio de Janeiro and São Paulo (Siciliano et al. 2002, 2015).

The species distribution range has been divided into four 'Franciscana Management Areas' (FMAs I to IV, Secchi et al. 2003), with FMA I and II located in Brazil, FMA III shared between Brazil and Uruguay and FMA IV located in Argentina. The population structure of the franciscana was discussed by the IWC in 2004 (IWC, 2005) and the Committee recommended further work to refine the boundaries of the FMAs and to assess substructure within the FMAs.

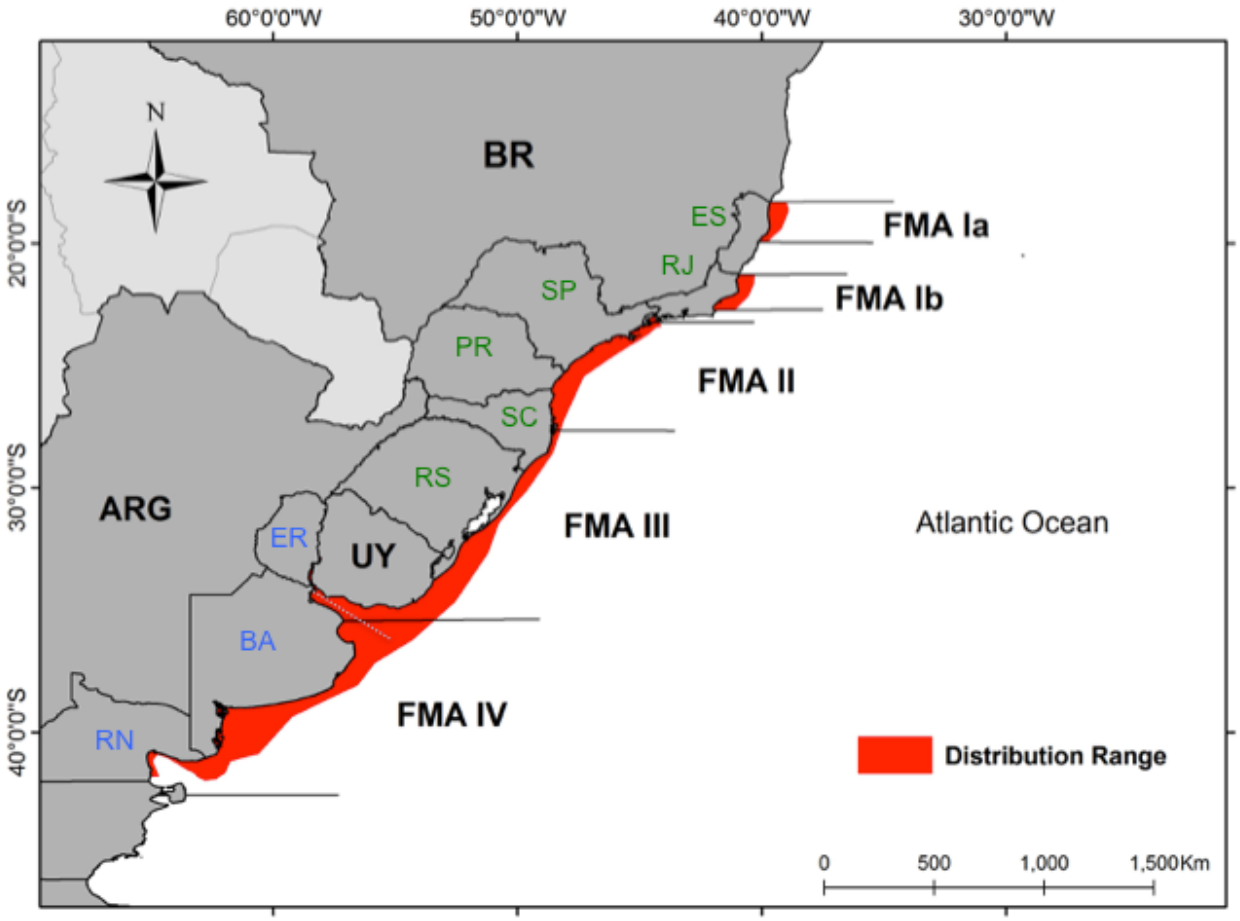

Fig. 2 – Map indicative of the franciscana distribution and the new boundaries of the Franciscana Management Areas along the coast of Brazil (BR), Uruguay (UY) and Argentina (ARG). Acronyms for states in Brazil and provinces in Argentina are indicated in green and blue, respectively (ES = Espírito Santo, RJ = Rio de Janeiro, SP = São Paulo, PR = Paraná, SC = Santa Catarina, RS = Rio Grande do Sul, ER = Entre Ríos, BA = Buenos Aires and RN = Río Negro).

Since then, morphological (Barbato et al., 2012) and molecular studies have been conducted along different areas of the species distribution (e.g. Lázaro et al., 2004; Mendez et al., 2008, 2010; Véras, 2011; Costa-Urrutia et al., 2012; Cunha et al., 2014; Negri et al., 2015a; Gariboldi et al., 2015; Ott et al., 2015). Most of these studies have pointed for a finer subdivision within the FMAs, although the degree of differentiation found is highly variable among the proposed units. Considering these variation, the fact of some studies are based only on mitochondrial data and, mostly, that there is no consensus of the threshold level of gene flow above which the status of management units should be adopted, and only the greatest genetic difference was considered here. In this sense, the FMA I was considered an Evolutionarily Significant Unit and was split into two distinct management units termed FMA Ia and FMA Ib (Cunha et al., 2014). This division was also supported by a well-known gap in the distribution of the species (Siciliano et al., 2002; Danilewicz et al., 2012). In addition, the boundary between the FMAII and FMAIII was moved about 250 Km north to the center coast of the state of Santa Catarina (Ott et al., 2002; Véras, 2011, Cunha et al., 2014). The new proposed population structure is illustrated in Fig. 2.

The workshop **agreed** that for the time being, the stock structure described above should be adopted by the workshop to discuss conservation actions. However, the Workshop recognized the need for and **recommended** that further studies be conducted to better understand population substructure within the existing FMAs and whether they should be treated as management units. The workshop considered such studies a priority action (RES-1 in Table 1, item 5)

4.2 Abundance and trends

Abundance has been estimated for all FMAs, mostly through aerial surveys. Danilewicz et al. (2012) reported that the franciscana population in FMA I in 2011 comprised less than 2000 dolphins (CV=0.46). This estimate applies only for FMA Ib because no on-effort sightings were recorded in FMA Ia. FMA Ib is the smallest and lowest density of all franciscana populations for which estimates are available. Abundance estimates for FMA Ia are required.

The abundance of franciscanas in FMA II population was estimated through aerial surveys in the summer 2008/9 and comprised 8,500 individuals (CV=0.34) (Zerbini et al., 2010). This estimate corresponds to the coastal range of FMA II, up to the 30m isobaths and may not cover the entire offshore range of the stock. Within FMA II, there are abundance estimates for Baia da Babitonga in Santa Catarina State, where a possibly isolated population of franciscanas occurs (Cremer et al., 2012; Dias et al., 2013). Boat-based surveys were conducted with line transect methods between 2003 and 2008 and estimated an abundance of 50 individuals (95% CI=28-89) (Cremer and Simões-Lopes, 2008). Another estimate of 55 individuals (CV=0.22) for this area was computed in 2011 (Zerbini et al., 2011), suggesting this population remained relatively stable over a period of 10 years. Seasonal abundance of franciscanas in Baia da Babitonga were estimated using mark-recapture methods in 2011 and 2013 and indicated abundances ranging from 52-82 individuals (Sartori, 2014).

The first abundance estimate for FMA III was computed at 42,000 individuals (CV=0.34) with an aerial survey conducted in 1996 (Secchi et al., 2001). While this estimate applies to the range of the species in Uruguay and Rio Grande do Sul, it must be carefully considered because the survey was conducted in a small area in Rio Grande do Sul and extrapolated to a much larger area, which could cause significantly bias in the overall estimate (IWC, 2005). A second survey conducted in Rio Grande do Sul estimated a population of 6,800 (CV=0.32) in 2004 (Danilewicz et al., 2010), but this estimate also did not cover the whole range of FMA III. A new estimate obtained in 2014 covered a similar area and comprised ~10,000 (CV=0.20) (Danilewicz et al., unpublished data). Trends in FMA III cannot be computed from this time series of abundance estimates because surveys are not comparable (e.g. due to use of different aircraft, differences in observer experience, and lack of appropriate correction factors for visibility bias) and because they were only conducted in the Brazilian portion of the stock. Surveys to estimate abundance have never occurred in Uruguay.

The only study to compute abundance of franciscana in Argentina was conducted in 2003-2004. An abundance of nearly 14,000 individuals (CV=0.42) was computed from aerial surveys carried out in coastal waters to depths of up to 30m (Crespo et al., 2010).

After reviewing information on abundance and trends for all FMAs, the workshop **recommended** that new estimates of abundance using comparable methods and appropriate correction factors be conducted in all FMAs in order to estimate trends. Because of high levels of bycatch in FMA III and because estimates of abundance in Uruguay have never been performed, surveys in this country should be considered a priority. In addition, the workshop **recommended**

that alternate, more economic methods (e.g. passive acoustic monitoring) be evaluated to obtain estimates of trends in abundance for the franciscana. These recommendations were identified as priority actions in Table 1, Item 5.

4.3 Anthropogenic threats

Incidental mortality is likely the greatest threat to the franciscana in FMAs Ia and Ib. There are no current estimates of bycatch for FMA Ia. Estimates of bycatch in FMA Ib have not been conducted since the early 2000s when Di Beneditto (2003) monitored one of the largest fishing ports in the region (Atafona) and estimated a fishery-related mortality of 110 individuals in 2001-2002. If bycatch levels are similar to those observed in 2002, fishing related mortality is unsustainable (Secchi, 2006; Danilewicz et al. 2012). More recently, recovery of animals found ashore showing evidence of fisheries interactions in northern Rio de Janeiro and Espírito Santo suggested that bycatch of franciscana is ongoing (Moura et al. 2009a,b; IWC, in press), but current levels and the full extent of the impact of the bycatch to FMA I franciscanas are unknown.

In FMA II, incidental mortality is also likely to represent the greatest threat to the franciscana, however there are few estimates of bycatch for this area. Small-scale gillnet fisheries (SSGF) is an extensive activity in this area, though their scattered and widespread nature hamper ideal approaches for monitoring and estimating bycatch. Except for São Paulo State, there is no effort data available for SSGF. In this area, bycatch in SSGF was estimated at 372 animals (Bertozzi, 2009) for the year 2004. It is likely that if the other areas in FMA II (States of Paraná and Santa Catarina) have a similar bycatch levels the fishing related mortality is substantially higher.

Incidental mortality in FMA III is the highest among the franciscana distribution: annual estimates vary from a several hundreds to a few thousands (Secchi et al., 1997, 2004; Ott et al., 2002; Franco-Trecu et al., 2009; Prado et al., 2013, Szephegyi, 2015). Nevertheless, those estimates did not include the mortality in the area between northern Rio Grande do Sul and central Santa Catarina States (new northern limit of FMA III). Long-term data on strandings suggest that mortality in this stretch of coasts is not negligible (Simoes-Lopes, pers. com).

Bycatch in the artisanal demersal gillnet fisheries for long has been considered the main threat to franciscana in FMA IV (Corcuera et al., 1994; Crespo et al., 1994; Bordino and Albareda, 2004; Cappozzo et al., 2007; Negri et al., 2012). Annual mortality in small artisanal gillnet fisheries in coastal Buenos Aires was estimated at about 500-800 individuals (Bordino and Albareda, 2004; Cappozzo et al., 2007; Negri et al., 2012).

Population viability analysis using data on abundance, bycatch and population growth suggest that levels of bycatch were not sustainable in all FMAs in the early 2000s (Secchi and Fletcher, 2004; Secchi, 2006). These analyses led to the classification of the franciscana as Vulnerable in the IUCN red list (Reeves et al., 2008). Abundance estimates obtained in the late 2000s showed a similar pattern, with bycatch levels ranging from 3-6% of the population size in all FMAs for which information is available (Crespo et al., 2010; Zerbini et al. 2010;Danilewicz et al., 2012).

Other potential threats to the species viability due to habitat degradation include depletion of franciscana preferred prey due to overfishing (Secchi et al., 2003b; Paso Viola et al., 2014); ingestion of synthetic debris (Rodriguez et al., 2002; Denuncio et al, 2011), chemical (e.g. Lailson-Brito et al., 2002, 2007, 2011; Gerpe et al., 2002; Seixas et al. 2007, 2008; Leonel et al., 2010; 2014; Yogui et al., 2010, 2011; Dorneles et al., 2013; De la Torre et al., 2012; Alonso et

al., 2012a,b; Gago et al., 2013, Panebianco et al., 2011; 2012; 2014; Polizzi et al., 2013), release of sewage (Gonzales-Vieira et al., 2013) and sound pollution (Di Beneditto and Ramos, 2014; Holz, 2014). Although cause-effect evidence of these threats have not been observed in franciscanas, their potential long-term synergetic effects on franciscana fitness, health and viability should not be overlooked. Some pathogens and chemicals can affect reproductive rates and cause large-scale mortality in cetaceans. The workshop **recommended** that health assessments of the franciscana be considered.

After reviewing information on anthropogenic threats, it was **agreed** that bycatch is the most important conservation problem faced by the franciscana. The workshop identified multiple actions to mitigate bycatch and **strongly recommended** they be implemented. These actions are presented in Table 1, Item 5.

4.4 Conservation Actions

4.4.1 Argentina

The Government of Argentina has been developing a National Action Plan to Reduce the Interaction of Marine Mammals with fisheries in Argentina (Marine Mammals PAN). The Plan has been prepared jointly by the Secretariat of Environment and Sustainable Development and the Secretariat of Fisheries and Aquaculture with the cooperation of national and provincial government agencies, scientific and academic institutions, and the civil society. The PAN is expected to be approved shortly.

The Marine Mammal PAN aims to contribute to ecosystem management of fisheries in waters under Argentine jurisdiction, assessing the interactions between them and marine mammals in order to reduce negative impacts on both. This PAN poses actions to mitigate bycatch.

The Workshop welcomed the Marine Mammal PAN and **encouraged** it to be adopted and implemented. The workshop also **recommended** that actions defined in the Marine Mammal PAN to mitigate franciscana mortality are incorporated in the CMP.

The Provinces of Buenos Aires and Río Negro have, respectively, a system of six and four protected areas which partially overlap with the habitat of the franciscana. In Buenos Aires, management plans for the Bahia Samborombón, Bahía Blanca, Bahía Falsa and Bahía Verde, and Bahia San Blas Protected Areas have already been developed, but not implemented. Legal action taken to allow artisanal fishery operations prevents implementation of these plans in Bahia Blanca, Bahia Falsa and Bahia Verde, and Bahia San Blas. On the other hand, management plans for the other areas (Arroyo Zabala, Pehuen Có-Monte Hermoso) are yet to be developed. Finally, management plans have also been developed for all areas in Río Negro, but these have not been fully implemented either.

The Workshop participants **urged** for the development of management plans for the protected areas in Buenos Aires and Rio Negro missing such plans. They also **strongly encouraged** the effective implementation of management plans, whenever applicable.

Balneário El Condor, municipality of Viedma (province of Río Negro) introduced since 2013 a ban on the use of gillnets in summer (ordenanza numero 7326 – Consejo Deliberante de Viedma). This regulation protects franciscanas from bycatch during the peak of reproduction in the Rio Negro Estuary. This region corresponds to the southern range of the species (Failla et al.,

2012). Information in Failla et al. (2012) has been used to make recommendations to the Government of the Río Negro Province for effective management of the franciscana, including a proposal to create the Río Negro Estuary Protected Area. The workshop **encouraged** the establishment of the proposed natural reserve by the Government of Río Negro.

Efforts to mitigate bycatch of franciscanas in FMA IV included (1) placing gillnets farther offshore in order to protect females and young individuals, (2) using gillnets as driftnets, (3) using acoustic deterrent devices (pingers), and (4) using reflective and stiff nets (Bordino et al., 2002, 2004, 2013). The pingers have shown to be effective in reducing the bycatch of the species in an experimental setting (Bordino et al., 2002, 2004). However, it is still unclear whether implementation of pingers in a real-scale fishery will have similar results and whether they will lead to habituation and habitat exclusion. Strategies need to be developed and evaluated for timely bycatch mitigation in gillnet fisheries (see item 4.3). An assessment of the effectiveness of switching gillnets by alternative fishing gear and the implementation of pingers in a real-scale fishery is ongoing.

4.4.2 Uruguay

The franciscana is included in the conservation priority species list of Uruguay due to the regional endemism and the impact of incidental capture in fisheries (Soutullo et al., 2013). In addition, a recently approved law N°19128 declared Uruguayan waters as a sanctuary for whales and dolphins. The National System of Protected Areas (SNAP) includes five Marine Protected Areas that partially overlaps with the range of the franciscana in Uruguay: Humedales del Santa Lucía (Montevideo), Laguna Garzón (Rocha), Laguna de Rocha (Rocha), Cabo Polonio (Rocha) y Cerro Verde e islas de La Coronilla (Rocha) (Soutullo et al., 2014). The need to promote the conservation of the franciscana is formally recognized in the latter three areas. In Cabo Polonio National Park, the species was evaluated as a potential focal conservation target during the elaboration of the Protected Area Action Plan, but finally not included because use of the area by the species is poorly understood. However, it was **recommended** to increase the research in order to rapidly reconsider its incorporation as a conservation target for the area (Nin et al., 2010).

At a local level, Canelones Department has recently developed a System of Protected Areas to conserve threatened ecosystems and species. The franciscana is included in the priority list (Article 12) as a species in need of research and conservation (Intendencial Departamental de Canelones, 2014). Two pilot areas have been proposed under this system, one terrestrial and one coastal. The latter, named Jaureguiberry, will partially overlap with the distribution of the franciscana.

4.4.3 Brazil

An Action Plan for the Conservation of the Franciscana was established by the Government of Brazil in 2010 (ICMBio, 2010) and the IWC Scientific Committee endorsed research and monitoring actions proposed by the plan (IWC, 2013). The plan was designed to be reviewed every 5 years and the next review is expected for 2016.

The Red List of threatened species of Brazil was recently updated according to the IUCN Red List categories and criteria with the publication by the Brazilian government of two legal instruments (Brazil 2014 a, b): (1) Decree MMA 444/2014, which provided a list of the threatened terrestrial and selected marine taxa (including the franciscana and other cetaceans) and (2) Decree MMA 445/2014, which listed exclusively the threatened fish and aquatic

invertebrates. This second decree banned the capture of several commercially valuable fish species, including the Brazilian guitarfish (*Rhinobatos horkelli*) and hammerhead sharks (e.g. *Sphyrna lewini*, *S. zigaena*). Because these fish species are targeted by the gillnet fisheries, the protection provided by Decree MMA 445/2015 could contribute to reduce bycatch of franciscanas in this type of fisheries. However, due to the pressure of the industrial fishing sector, this decree was first modified to be less restrictive (e.g. by allowing commercial exploitation of species listed as Vulnerable), and was eventually revoked by a judicial decision of the government of Brazil.

A similar situation was occurred with Red Lists at the regional level. For example, all marine fishes were officially excluded (Decree RS 52.310/2015) from the Red List of threatened fauna species of the state of Rio Grande do Sul (Decree RS 51.797/2014) (Rio Grande do Sul, 2014).

The workshop **recognized** that national and regional Red Lists of Threatened Fauna to be important steps towards improving the conservation of the franciscana and that revoking the decrees that created these lists represented a serious setback towards the sustainable management of fisheries in Brazil (see also, Di Dario et al., 2015, Lees, 2015, Ott et al., 2015).

In 2005, following a civil society request, the Brazilian Ministry of Environment proposed the establishment of the Babitonga Marine Protected Area in southern FMA II in order to protect the franciscana, the Guiana dolphin (*Sotalia guianensis*), other vulnerable species, and their mangrove-dominated habitat from potential threats (e.g. port and urban development, high fishing effort). The Ministry of Environment also proposed the creation of the Marine National Park of Albardão (adjacent to the border between Brazil and Uruguay) based on high bycatch rates of the franciscana (Ferreira et al., 2010) and other threatened species (e.g. marine turtles, Secchi pers. com.). Creation and implementation of both MPAs are currently on hold. The Workshop recognizes that these MPAs are relevant for protecting the franciscana, other vulnerable species, and their habitat and, therefore, **recommended** that these MPAs be created and implemented.

It was noted that other protected areas that could potentially improve the conservation of the franciscana along the coast of Brazil. One example is the Expansion of the Restinga de Jurubatiba National Park limits to incorporate the adjacent marine habitat, which was requested to the Brazilian Environmental Ministry in 2012 by the Secretary of the Environment of Rio de Janeiro. Because the evidence that this expansion would benefit the franciscana is limited, the workshop **recommended** that further research be conducted to better design the boundaries of this area.

A joint Interministerial Regulation of the Ministry of Environment and Ministry of Fisheries and Aquiculture (here after referred to as INI12/2012) was published on the 22 August 2012 aiming at regulating gillnet fisheries in southern and southeastern Brazil, between the States of Rio Grande do Sul to Espírito Santo. This fishery had been carried out unregulated for several decades. The number of boats, the dimension of the nets and the length of the fishing trips increased steadily and with no rules. Therefore, despite the frequent and significant mortality of several endangered species, such as cetaceans, sea turtles, birds and sharks, as well as the decline of some target species, no enforcement could take place. Lack of regulation markedly increased fishing effort and the catch of the already depleted stocks. One of the most affected species is the franciscana.

Although less conservative in several aspects than the recommendations in the Action Plan for

the Conservation of the Franciscana (ICMBio 2012), several norms of this INI 12/2012 that establish limits on the gillnet fishing effort include:

(a) Gillnet length was reduced and the maximum length depends on boat size. If the boat length is modified, the net length will follow the smaller previous category. Further reduction is scheduled for 2016.

(b) Halting gillnet fishing permits. New boats are not allowed to have gillnet fishing permits and boats operating with a different gear cannot change to gillnetting.

(c) No gillnet fishing is allowed between 15 May and 15 June, except for the artisanal fishery.

(d) Several levels of no-fishing areas were established along the entire region regulated by INI12/2012: (i) no powered boat can fish within the first nautical mile (ii) only rowing boats can operate within the first nautical mile but with nets no longer than 1000m; (iii) no powered boat can operate within the 5nm between the southern border of Brazil (with Uruguay) to Albardão lighthouse (located approximately 120km further to the north); (iv) to the north of Albardão, no gillnetting is allowed for commercial gillnetting within 4nm up to the northern limit of Rio Grande do Sul state and within 3nm from this point to the remaining area concerned in this Regulation; (v) no gillneting is allowed within the 15 nm off the Jurubatiba National Park.

(e) All boats longer than 15m are obligated to carry and turn on Virtual Monitoring System (VMS) when at sea so their fishing location can be monitored.

(f) Fishing license will be lost in case of infraction to the Regulation.

Although this Regulation is likely not sufficient to protect the franciscana to a level adequate to ensure sustainability of the species, it is considered an important step towards the conservation of several endangered species and for the recovery of some fish stocks and their habitats.

In discussion, the Workshop **agreed** that INI12/2012 was an important legal framework to stop the increase of effort of a fishery that causes high bycatch of the franciscana and other vulnerable marine vertebrates. However, it is not clear whether regulations within INI12/2012 are effective to protect all franciscana stocks within Brazil and whether compliance by fishermen or enforcement by government authorities have taken place. Therefore the workshop **strongly recommended** that actions towards assessing compliance and effectiveness of INI12/2012 to improve the conservation status of the franciscana be developed. The workshop **agreed** that the main actions to perform this assessment are those listed as MON 1.1-1.4, 1.6, 1.8, 1.11 and MIT 1.2 (Table 1, item 5).

4.5 Public Awareness

The workshop noted the need to increase public awareness about the franciscana and its conservation needs with the general public. During the last decade, different government and non government organizations developed public awarness activities, including educational campaings and capacity building activities.

The workshop **recommended** to increase awareness of the franciscana in partnership with organzations and/or experts in outreach, marketing, education. The workshop recognized this to be a priorty action to improve the conservation of the franciscana (Table 1, Item 5).

5. DEFINITION OF RESEARCH AND CONSERVATION ACTIONS

In light of the most recent information available for the franciscana, the workshop discussed priority actions to improve research, monitoring and conservation of the species (Table 1).

Table 1 – Priority Actions for Research and Conservation of the Franciscana (RES = research, MON = monitoring, MIT = mitigation and PAC = public awareness campaigns)

Actions	Region	Institution	Tentative Timeline
RES-1. Continue to Investigate Population Structure			
RES-1.1. Refine population structure and boundaries	FMA II	UFPR, Projeto Toninhas/Univille, UERJ	2017
	FMA III	FURG, UERGS, Unisinos, GEMARS, UDESC, UFSC, Aquamarina, UDELAR, UERJ, Vida Silvestre Uruguay	2017
	FMA IV	CENPAT, UNMdP, MACN, Aquamarina, others	2016
MON-1. Monitor Abundance, Trends and Bycatch			
MON 1.1. Conduct a survey to identify fishing villages where bycatch of franciscanas are likely, including fisheries characteristics (e.g. type of nets, season of operation, fishing areas).	FMA Ia and Ib	IOC/FIOCRUZ, Instituto Aqualie, Instituto Baleia-Jubarte, UENF, UFES, UFJF	2017
MON 1.2. Estimate bycatch in the artisanal fisheries with observer programs if possible	FMA Ia and Ib	IOC/FIOCRUZ, Instituto Aqualie, Instituto Baleia-Jubarte, UENF, UFES, UFJF	2019
	FMA II	Biopesca/UNESP, IO-USP	2019
	FMA III	FURG, GEMARS, UERGS, UDESC	2019
	FMA IV	CENPAT, UNMdP, MACN, Aquamarina, others	2019
MON 1.3. Estimate bycatch in the industrial fisheries with observer programs whenever possible	FMA Ia and Ib	IOC/FIOCRUZ, Instituto Aqualie, Instituto Baleia-Jubarte, UENF, UFES, UFJF	2018
	FMA II	Biopesca/UNESP, IO-USP	2018
	FMA III	FURG, GEMARS, UERGS, UDESC	2018
	FMA IV	CENPAT, UNMdP, MACN, Aquamarina, others	2018
MON 1.4. - Beach monitoring to estimate bycatch	FMA III	FURG, NEMA, GEMARS, UERGS, UFRGS, UFJF, Unisinos	2018
MON 1.5. Standardize and re-calculate previous information on CPUE and mortality estimates	FMA IV	CENPAT, UNMdP, MACN, Aquamarina, others	2017
MON 1.6. Facilitate access to the Virtual Monitoring System data and the official data of registered vessels held by the Government of Brazil to universities and other research organizations	FMA Ia, Ib, II and III	Government of Brazil	2017

MON 1.7. Quantitatively assess the effect of changes in fishing effort on bycatch and the fishermen socio-economics	All FMAs	Instituto Aqualie, Biopesca/ UNESP, CEM/UFPR, UFJF, Aquamarine, Fundación Vida Silvestre Argentina, FURG, IO-USP, UDELAR, Vida Silvestre Uruguay	2019
MON 1.8. Estimate abundance and trends	FMA Ia and Ib	Instituto Aqualie, Instituto Baleia-Jubarte	2022
	FMA II	Instituto Aqualie, CEM/UFPR, Projeto Toninhas/Univille	2022
	FMA III	Fundación Vida Silvestre, Udelar, Instituto Aqualie, Univille, FURG, UERGS, GEMARS, Vida Silvestre Uruguay	2022
	FMA IV	CENPAT, UNMdP, MACN, others	2017
MON 1.9. Evaluate use of alternate, more economic, methods to assess trends in abundance (e.g. passive acoustics monitoring).	All FMAs	Instituto Aqualie, UFJF, Projeto Toninhas/Univille, Fundación Cethus, Aquamarina, CENPAT, FVSA, UNMDP, MACN, Yaqu Pacha, AL Zoo Kolmarden	2017
MON 1.10. Define the maximum allowable fishery related mortality (e.g. PBR, MALFIRM)	All FMAs	FURG, GEMARS	2018
MON 1.11. Model population viability analysis	All FMAs	CENPAT, UNMdP, MACN, Aquamarina, FURG	2019
MIT-1. Mitigate Bycatch			
MIT 1.1. Evaluate methods to reduce bycatch (e.g. development of alternate fishing methods, reduce fishing effort) and organize meetings with stakeholders to evaluate the most practical ways to implement/adjust monitoring and mitigation actions.	FMA Ia and Ib	Instituto Aqualie, Instituto Baleia-Jubarte, UENF	2020
	FMA II	Biopesca/UNESP, CEM/UFPR, IO-USP	2020
	FMA III	FURG, GEMARS, UFJF, Instituto Aqualie, UERGS	2020
	FMA IV	Aquamarina, FVSA	2018
MIT 1.2. Increase enforcement in priority areas for the conservation of the franciscana and no-take zones	All FMAs	Government Organizations	2017
MIT 1.3. Reinstate the list of threatened species in regional and national levels in Brazil	FMA Ia and b, II, III	Government Organizations	2017
MIT 2. - Develop or Implement Protected Areas			
MIT 2.1. Create conservation areas in Baia de Babitonga and Albardão	FMA II and III	Government Organizations	2017
MIT 2.2. Develop a protection area in Estuário del Rio Negro	FMA IV	Government of Rio Negro, Fundación Cethus	2018
MIT 2.3. Create and implement the Management Plan for existing MPAs in	FMA III and IV	Governmental authorities	2020

Argentina (Bahía Samborombón; Arroyo Zabala; Pehuencó-Monte Hermoso; Bahía Blanca, Falsa y Verde; Bahía San Blas; Punta Bermeja – La Lobería; Caleta de los Loros; Bahía de San Antonio) and Uruguay (Humedales del Santa Lucía, Laguna Garzón, Laguna de Rocha, Cabo Polonio y Cerro Verde e islas de La Coronilla)			
MIT-3. Encourage the Adoption and Implementation of the National Action Plan to Reduce the Interactions of Marine Mammals with Fisheries in Argentina.			
MIT 3.1. - Evaluate and monitoring the implementation of the use of acoustic alarms (pingers) in gillnets	FMA IV	Aquamarina, Government Agencies	2020
MIT 3.2. - Evaluate and monitor the replacement of gillnets by alternative current fishing gears by those of lower impact	FMA IV	Aquamarina, Fundación Vida Silvestre Argentina, Government Agencies	2018
MIT 3.3. - Evaluate socio economic impact of the implementation of mitigation measures	FMA IV	Aquamarina, Universidad Nacional del Sur, Fundación Vida Silvestre Argentina, Government Agencies	2017
PAC-1. Develop a Strategy to Increase Public Awareness of the Franciscana			
PAC 1.1. Design and implement a public awareness campaign about the franciscana and their conservation problems	All FMAs	Government Organizations, Scientific Community, NGOs	2017
PAC 1.2. Design an educational program about the franciscana	All FMAs	Government Organizations, Scientific Community, NGOs	2017
PAC 1.3. Create a steering group to coordinate actions PAC 1.1 and PAC 1.2	All FMAs	Government Organizations, Scientific Community, NGOs	2017
PAC 1.4. Build capacity of specific sectors (e.g. fishermen, park rangers)	All FMAs	Government Organizations, Scientific Community, NGOs	2017
PAC-2. Include the Franciscana in Bilateral and Multilateral Discussions			
PAC 2.1. - Generate discussions within the framework of CMS	All FMAs	Ministry of Foreign Affairs of Argentina, Uruguay and Brazil, Yaqu Pacha, Fundación Cethus	2019
PAC 2.2. - Generate memoranda of understanding among universities and research institutes of Argentina, Uruguay and Brazil within the framework of applicable agreements to establish common research programs	All FMAs	Ministry of Foreign Affairs of Argentina, Uruguay and Brazil, Universities and NGOs	2018

The workshop also reviewed progress towards recommendations made by the IWC Scientific Committee since the Committee's last review of the franciscana status in 2004 (IWC, 2005). A table was produced identifying whether those recommendations were addressed (Annex 3). Information summarized in the table shows that significant progress in franciscana research has been made since the 2004 review. Therefore, the workshop **requested** that the IWC Scientific Committee considers holding a new review of the species. Such a review would be particularly

valuable to improve research and refine conservation actions under an IWC CMP.

The Representatives of Argentina, Brazil and Uruguay expressed their support for the conservation of the franciscana and their commitment with the development of a conservation management plan for the species within the framework of the IWC.

6. OTHER

The Franciscana Consortium welcomed its most new member organization, Instituto Baleia Jubarte.

7. ADOPTION OF THE REPORT

The report was adopted at 23:46 on 8 October 2015.

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Annex B - Agenda

1. Introductory Items
   1.1 Opening remarks
   1.2 Election of a chair
   1.3 Appointment of rapporteaurs
   1.4 Adoption of the agenda

2. Presentation of SAMBAH Project
3. Presentation of the framework of an IWC CMP Proposal
4. Review of Information on the Franciscana
5. Definition of Research and Conservation Priorities
6. Other
7. Adoption of the Report

Annex C – Progress towards recommendations from the IWC Scientific Committee towards franciscana research since the status of the species was reviewed in 2004 (IWC, 2005).

Column "Addressed" indicates whether each recommendation was fully or partially addressed or not addressed. If addressed, scientific literature describing the relevant research conducted is provided in the "References" column.

	Year	FMA	Addressed	References
Population structure				
Review exact location of boundary between FMA II and III	2004	II and III	Yes	Ott et al., 2008; Véras, 2011; Cunha et al., 2014.
Assess hiatus in the distribution of franciscana within FMA I	2004	I	Yes	Danilewicz et al., 2012; Siciliano et al., 2015.
Further examine population structure within FMA III and IV with methods other than pairwise comparisons	2004	III and IV	Partially	Mendez et al., 2008; 2010a; 2010b; Véras, 2011; Barbato et al., 2012; Gariboldi et al., 2015; Costa-Urrutia et al., 2015; Negri et al., 2015a; Ott et al., 2015.
Use phylogenetic tree to examine potential for sub-specification within *P. blainvillei*	2004	Range wide	Partially	Costa-Urrutia et al., 2011; Véras, 2011; Cunha et al., 2014; Ott et al., 2015.
Examine potential for population substructure within all FMAs	2010	Range wide	Partially	Mendez et al., 2008; 2010a; 2010b; Costa-Urritia et al., 2011; Véras, 2011; Cunha et al., 2014; Gariboldi et al., 2015; Ott et al., 2015.
Examine potential for population substructure within all FMAs in relation to environmental variables	2011	Range wide	Partially	Holz, 2014; Paitach, 2015.
Abundance				
Examine distribution with respect to distance from shore to determine offshore limits	2004	Range wide	Yes	FMA III: Danilewicz et al., 2009; Szephegyi, 2012. FMA IV: Crespo et al., 2010.
Assess potential biases in estimation of group size from aerial surveys	2004	Range wide	Yes	Zerbini et al., 2011.
Evaluate seasonal variation in group sizes	2004	Range wide	No	
Attempt to estimate g(0) by dual observer or other methods	2004	Range wide	Yes	FMA II: Zerbini et al., 2010; Sucunza 2015.
Conduct line transect abundance estimates in FMA I	2004	FMA I	Yes	Danilewicz et al., 2012.
Conduct line transect abundance estimates in FMA II	2004	FMA II	Yes	Cremer and Simões-Lopes, 2008; Zerbini et al., 2011.

Conduct further surveys in Rio Grande do Sul with improved sampling design and estimation of perception bias	2006	FMA III	Yes	
Improve estimates of visibility bias	2010	Range wide	Yes	Zerbini et al., 2011; Sucunza, 2015.
Evaluate biases in the estimation of group size	2010	Range wide	Yes	Zerbini et al., 2011.
Estimate dive parameters in areas where such information is not available	2010	Range wide	Yes	Sucunza et al., 2014.
Conduct additional surveys in FMA I to reduce CVs, further assess distribution and evaluate habitats that could be protected (e.g. by no-take zones, MPAs)	2012	FMA I	No	
Life History				
Explore alternate approaches to estimate survival rates and potential rates of increase (e.g. Udevitz and Ballachey, 1998)	2004	Range wide	Yes	Secchi, 2006.
Collect additional data for estimation of life history parameters particularly in FMA II and IV	2004	Range wide	Yes	Negri et al., 2014; Panebianco et al., 2012; 2015; Negri et al., 2015b; Silva et al., 2015.
Standardization of methods to estimate life history parameters among areas for more rigorous comparisons	2004	Range wide	No	
Anthropogenic threats, including bycatch				
Estimate of franciscana bycatch in areas where they do not exist, preferably using an observer program	2004	Range wide	Yes	Bertozzi, 2009; Negri et al., 2012.
Evaluate bias in bycatch estimates derived from interviews or log-book data using observer programs	2004	Range wide	No	
Evaluate age/sex composition of the bycatch	2004	Range wide	Yes	Danilewicz et al., 2009; Franco-Trecu et al., 2009; Negri et al., 2014; Denuncio et al., 2015; Negri et al., 2015b; 2015c; Santos et al., 2015; Silva et al., 2015.
Expansion of the fisheries monitoring throughout the range of the franciscana	2004	Range wide	Partially	FMA II: Bertozzi, 2009; Santos et al., 2015. FMA III: Szephegyi et al., 2015. FMA IV: Negri et al., 2012.

Monitoring of a new fishery using gillnets developing in the mouth of Rio Negro	2004	FMA IV	No	
Estimate bycatch for areas where this information is not available	2010	Range wide	Partially	FMA III: Szephegyi et al., 2015.
Resume long-term bycatch monitoring in the range of FMA I	2012	FMA I	No	
Assess other, non-fishery-related, threats to the conservation of the franciscana in FMA I	2012	FMA I	Partially	Alonso et al., 2012.
Adopt methods to reduce bycatch and the effect of other potential threats	2014	Range wide	Partially	FMA IV: Bordino et al., 2002; 2004; 2013. FMA I, II and III: ICMBIO/MMA, 2010; INI MMA/MPA 12/2012.
General				
Formally address the status of the Franciscana by IUCN	2004	Range wide	Yes	Reeves et al., 2008.
Strengthen regional collaboration between Argentina, Brazil and Uruguay to implement conservation actions toward reducing bycatch and minimize effects of other threats	2014	Range wide	Yes	Franciscana Workshop - Final reports 2005; 2008; 2010; Cremer et al., 2012; Danilewicz et al., 2015.