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Report of the Workshop to Finalize the Review of the Franciscana, 4-5 June 2022, Curitiba, Brazil

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Report of the Workshop to finalize the review of the franciscana

4-5 June 2022

Curitiba, Brazil

Executive Summary

On June 4th-5th June 2022, a workshop to finalize the review of the franciscana was hosted by the Laboratório de Ecologia e Conservação, Centro de Estudos do Mar, Universidade Federal do Paraná, Brazil and the International Whaling Commission. The aim of the workshop was to finalize the review of the franciscana (*Pontoporia blainvillei*) which will be used to update the CMP.

Thirty-eight in-person and online participants from 5 countries and representing government agencies from Argentina, Brazil and Uruguay, Academia and Non-Governmental Organizations attended the workshop.

During the workshop, the results of the discussions of the intersessional correspondence group (ICG) on Franciscana Stock Structure were presented and among the most outstanding results was the proposal that 11 management units should be recognised.

The results of the intersessional correspondence group on the review of Franciscana Abundance Estimates were also presented and updated. Among the main results, the need for an aerial survey off Uruguay was highlighted, as well as the abundance estimates for 2019 and 2021 aerial surveys of FMA IV should be revised using corrections factors for perception and group size biases. Additional aerial surveys in all FMAs were recommended to continue assessing population status and trends in the longer term.

New information on life history and ecology was presented and discussed. Regarding incidental takes and mitigation measures, information on the status in the range states was updated. Recommendations included that the incidental capture of franciscana should be reviewed for all FMAs. Given the effectiveness of acoustic deterrent devices (ADD or "pingers") in reducing incidental captures of franciscana, it was recommended that "pingers" continue to be tested in all FMAs, in addition to the continuation of the testing of using plastic bottles attached to fishing nets as a further method to reduce franciscana bycatch. It was also recommended that fishing exclusion zone within the FMAs be evaluated and the results presented at SC69A and SC69B, particularly in the Albardão region.

Other threats to franciscana were presented, including sewage, chemical, marine debris, noise pollution, maritime and coastal infrastructure. The workshop recommended that more data on biological parameters should be collected.

One of the most prominent issues at the workshop was the potential effect of wind farms in Brazil and Uruguay. In this regard, and after discussing the information presented in the workshop, it was recommended to the governments of Brazil and Uruguay to adopt the urgent measure to mitigate the impact on franciscana in 2023.

The importance of protected areas (PAs) for franciscana was also presented and it was recommended to establish new PAs in mouths of Rio Doce (Brazil), Baia de Babitonga (Brazil), Albardão (Brazil) and Estuario Río Negro (Argentina) and strengthen those existing ones that include the species.

On Education and Public Awareness, various campaigns and activities were presented in the different countries. One of them was the one developed by the IWC, called "*Our neighbour the franciscana*" which is available on the IWC website in English, Portuguese and Spanish. Another suggestion was broadening the Brazilian national franciscana day (1st October) to an international franciscana day.

During workshop it was presented the "*Franciscana dolphin book*", Eds Paulo Simões-Lopes & Marta Cremer by Elsevier and Academic Press.

Finally, the actions of the CMP that are expected to be adopted during 2023 were updated.

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1. **Introduction**

1.1. Chair's welcome and opening remarks

The workshop was opened by Miguel Iñíguez Bessega who welcomed everyone. A list of participants is given in Annex A. He noted that the workshop was originally conceived as an in-person meeting some two years ago but due to the Covid-19 pandemic it was postponed until now. The aim of the workshop is to finalize the review of the franciscana (*Pontoporia blainvillei*) which will be used to update the CMP.

He thanked Camila Domit, Juan Pablo Torres-Florez and Alexandre Zerbini for co-organizing this workshop. He also thanked Fundo Nacional do Meio Ambiente (FUNBIO), Centro de Mamíferos Aquáticos (CMA, Brasil) and the IWC for sponsoring this workshop.

1.2. Appointment of rapporteurs

Daiane Santana Marcondes and Gabriel Fraga da Fonseca were appointed as rapporteurs

1.3. Adoption of agenda

The adopted agenda is given in Annex B.

2. **Stock structure**

2.1. Summary from the IWC Scientific Committee Intersessional Correspondence Group on Franciscana Stock Structure

Aimée Lang (Convener of the SDDNA Working Group) summarised the results of the discussions of the intersessional correspondence group (ICG) on Franciscana Stock Structure. The first comprehensive review of franciscana stock structure by the IWC SC took place in 2004 (IWC 2005). After considering the available genetic and other evidence (Lázaro *et al.* 2004, Valsecchi & Zanelatto 2003, Mendez *et al.* 2004, Ott 2002, Secchi *et al.* 2003, Secchi *et al.* 1998), the SC supported the recognition of four Franciscana Management Areas (FMAs I, II, III, and IV, as proposed in Secchi et al. 2003) for assessment purposes. Subsequently, the SC reviewed the results of genetic analyses of mtDNA control region data presented in Cunha *et al.* (2014) and agreed that FMA I should be split into two management areas (FMA Ia and Ib) (IWC 2015, IWC 2017, Consortium 2016).

In 2020, three new papers with implications for franciscana stock structure were submitted to the SC for review (see 10.4.2, IWC 2021b). Two of these papers presented new evidence for stock structure within FMAII (Cunha *et al.* 2020a, Cunha *et al.* 2020b). The third paper (Cunha *et al.* 2020c) reviewed the available evidence relating to stock structure across the range of the franciscana and proposed that 11 management units should be recognized (including subdivisions within FMA I, II, and IV; see Figure 1). Given limited time to discuss these papers during the SC meeting, an intersessional correspondence group (ICG) was put together to take on this task (IWC 2021b). The objectives of this group were to (1) summarise the data available from genetic and other (i.e., non-genetic) lines of evidence that could be used to infer stock structure; (2) evaluate the level of support for each of the proposed subdivisions based on this combined data; and (3) provide advice on future work to address remaining questions. During the 2021 Workshop on the Review of the Status of the Franciscana (IWC 2021c), genetic evidence that had been compiled by the ICG was reviewed. While noting the value of the existing genetic data in informing stock structure, the Workshop participants agreed that a review of other (non-genetic) lines of evidence was needed before drawing any conclusions about the newly proposed management units.

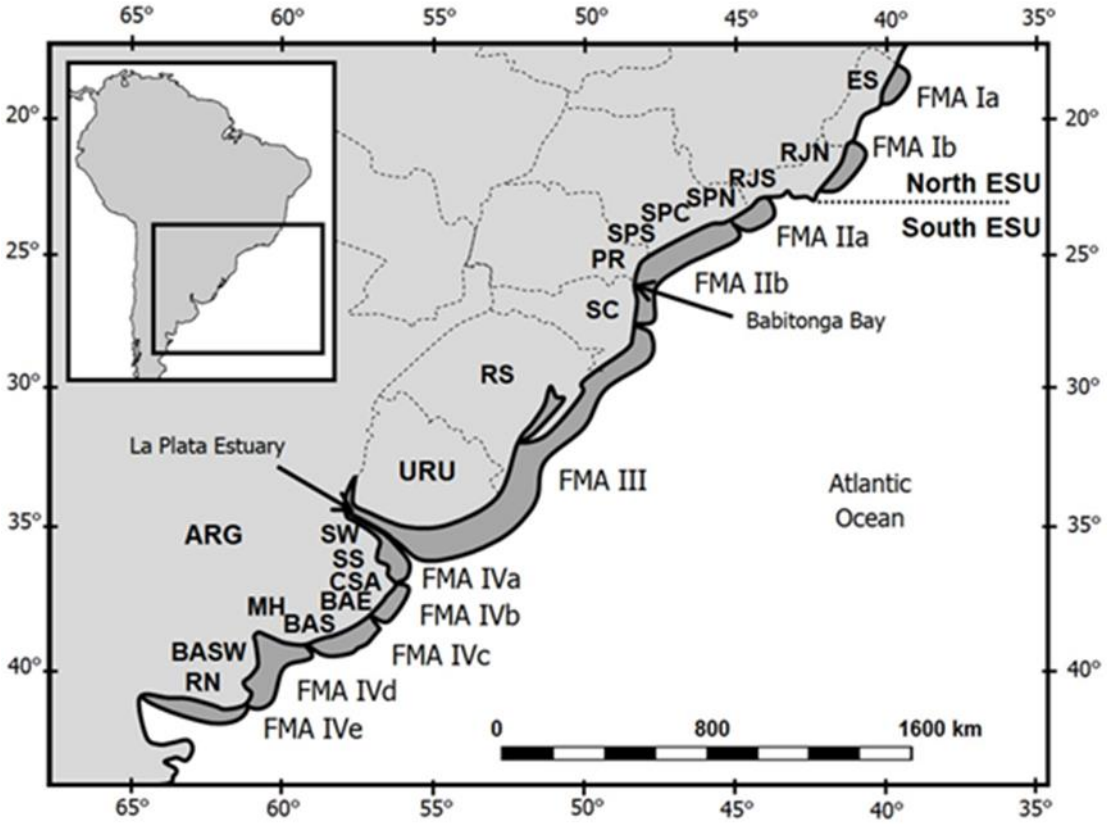


Figure 1 –Map showing the 11 proposed management units for franciscana, including the ten labelled FMA subdivisions and Babitonga Bay also as a distinct management unit (Cunha et al., 2020b; Cunha et al., 2020c).

The ICG members drafted text summarizing the data available from the non-genetic lines of evidence and its relevance to evaluating the 11 management areas proposed in Cunha et al. (2020c). Although an in-depth review of this evidence was not possible during the Workshop due to time constraints, Lang provided a summary of this document. It was noted that data from photo-identification and satellite tagging studies within FMAs II-Babitonga Bay, FMA IVa, and FMA IVd indicated that franciscana demonstrated residency within these areas during the monitoring period (Sartori *et al.* 2017, Wells *et al.* 2013, Wells *et al.* 2021). These patterns are consistent with the results of genetic studies showing significant mitochondrial and nuclear (microsatellite) differentiation between franciscanas sampled in these areas and those in neighbouring regions (Cunha et al. 2020b, Mendez *et al.* 2010, Gariboldi *et al.* 2016).

Additional genetic and other studies (e.g., stable isotopes) are in progress that are expected to provide further insight into the stock structure of franciscana. While noting the value of integrating both genetic and non-genetic lines of evidence when evaluating franciscana stock structure, the Workshop participants highlighted that additional factors may need to be considered when interpreting the results of some non-genetic studies in the context of stock delineation. For example, while comparison of stable isotope signatures between proposed subdivisions may provide evidence of geographic differences in diet, such differences may represent flexible behavioural responses to short-term variation in prey availability between areas rather than ecological adaptations. Thus, Workshop participants considered genetic analyses to be the most informative tool in identifying franciscana stocks.

The Workshop participants **agreed** that, based on the evidence considered thus far, the 11 Franciscana Management Areas proposed by Cunha et al. (2020c) represent appropriate units for assessment.

Attention: SC, R

*(1) The Workshop **recommended** that the 11 proposed FMAs be considered to represent separate management units for the assessment of the franciscana dolphin by the IWC.*

*(2) The Workshop **recommended** an integrated range-wide analysis implementing a genome-wide approach be conducted to continue refining understanding of franciscana stock structure.*

Attention: SC, CMP

*In recognizing Babitonga Bay as a distinct FMA, the Workshop Participants **recommended** the adoption of the nomenclature "FMA II Babitonga" in all future SC reports and assessments.*

3. **Abundance and distribution**

3.1. Summary from the IWC Scientific Committee Intersessional Correspondence Group on the review of Franciscana Abundance Estimates

The IWC Scientific Committee (SC) held a workshop in March 2021 to review population structure and abundance estimates (IWC, in press) following a procedure developed by the SC Standing Working Group (SWG) on Abundance Estimates, Status of Stocks and International Cruises (ASI). This sub-group was created in 2017 to ensure consistency in how the Committee reviews and categorises estimates of abundance considered by the SC. ASI is also tasked to: (a) compile an agreed set of abundance estimates for use by the Committee; (b) a broader biennial document of abundance estimates for the Commission and the public by species and usually by ocean basin, and by specific areas if appropriate; and (c) a biennial overview of the status of whale stocks, largely based upon completed assessments. The definition of categories developed by ASI to categorise abundance estimates following has changed slightly overtime. The categories defined by the Committee at the time the franciscana abundance reviews were performed (IWC, 2018, p. 389-390) are presented in Table 1.

Table 1 – Categories used by ASI to review abundance estimates

Category	Description
1	acceptable for use in in-depth assessments or for providing management advice
2	underestimate - suitable for AWMP usage or other 'conservative' management but not reflective of total abundance
3	while not acceptable for use in (1) or (2), adequate to provide a general indication of abundance
P	Provisional or Preliminary estimates (will be omitted from published tables)
X1	Category (1) estimates that have been superseded by newer estimates (will be omitted from published tables)

ND	Not discussed. Used to show other estimates which have not been discussed by the Scientific Committee, but which may be discussed in future.

Since the franciscana estimates were reviewed last, the categories have been revised (2022 report of the IWC SC) and a recategorization of some of the estimates will be needed. The new categories are included in Table 2. New categorization will be performed by ASI in the near future.

Table 2 – Categories used by ASI to review abundance estimates

Category	Description
1A	An estimate which is acceptable for use in in-depth assessments or for providing management advice using the RMP, AWMP or other modelling or analysis. This (and category 1B) may include estimates with minor or possibly competing small biases (e.g. assuming $g(0)=1$ when it may be slightly less), provided that these biases are recognised.
1B	An estimate which pertains to a 'very small' population, and is acceptable for providing management advice in that context, which includes situations where no sophisticated modelling or analysis is required.
2	An estimate which may be acceptable for 'conservative' management (e.g., in the AWMP where the user objective is expressed as an absolute number of catches/strikes with no need to eventually maximise catches/strikes, or in an assessment of whether a given level of bycatch will lead to recovery or further depletion of a population). The estimate may be subject to considerable negative bias for reasons such as limited spatial coverage (compared to the range of the population for the season in question) or lack of correction factor(s) (e.g. related to g(0)).
3	An estimate which is informative, but not acceptable for inclusion in (1A), (1B) or (2). This category includes estimates with an unquantified bias which is likely to be too severe to allow inclusion in Category 2, as well as relatively unbiased estimates that are adequate to provide some general indication of abundance while still not qualifying for (1A) or (1B). Such estimates may be used when fitting population models, but not for use as estimates in actual implementations of IWC management procedures (i.e., the RMP CLA or AWMP SLAs).
P	A preliminary estimate, not suitable for use at the time of review, but which may provide an acceptable estimate once finalised. It will be omitted from published tables until finalised and assigned a category from (1) to (3).
X1	Category 1A or 1B estimates that have since been superseded by revised estimates for the same area and time period. They will be omitted from published tables.
ND	An estimate which has not yet been discussed by ASI, but which may be discussed in future. These will be omitted from published tables.
NS	An estimate reviewed by the Scientific Committee, but agreed not to be suitable for acceptance due to factors such as: insufficient data (including inadequate coverage achieved of the area planned to be surveyed); insufficient methodological information presented; concerns about survey design; concerns about conduct or interpretation of analyses; lack of an appropriate measure of uncertainty; failure to account for large potential biases; or assumptions that are unreasonable or clearly violated. These will be omitted from published tables.

3.1.1 Franciscana abundance estimate reviews

During the franciscana March 2021 workshop, 15 estimates of abundance were reviewed and categorized (Table 3). These were subsequently endorsed by the IWC Scientific Committee (IWC, 2021a).

Table 3 – Estimates of franciscana abundance reviewed by the Scientific Committee in 2021.

Stock	Region	Cat.	Date stamp	Range of years	Method	Corr.	Estimate	CV	Approx. 95% CI	Reference	Comments
FMA Ia	Range wide	P	2017	2017-2018	LT	A, P, GS	595	0.44		Sucunza et al. (2020b), SC/68b/ASI/5	Can be elevated to Cat. 1 when CV of correction factor is updated
FMA Ib	Range wide	P	2010		LT	A, P, GS	1,692	0.47		Danilewicz et al. (2020), SC/68b/ASI/07_rev1	Can be elevated to Cat. 1 when CV of correction factor is updated
FMA Ib	Range wide	P	2017		LT	A, P, GS	1,280	0.43		Danilewicz et al. (2020), SC/68b/ASI/07_rev1	Can be elevated to Cat. 1 when CV of correction factor is updated
FMA II	Range wide	2	2009	2008-2009	LT, MR	A, P	6,827	0.26		Sucunza et al. (2020c), SC/68b/ASI/05	Can be elevated to Cat. 1 when corrected for group size bias
FMA II	Paranaguá Bay			2012-2013	LT		198	0.31		Weyn (2016)	unclear whether population in the bay corresponds to a fraction of dolphins in FMA II
FMA III	Range wide	P	1996		LT	A	42,078	0.34		Secchi et al. (2001)	survey covered ~2% of the range of FMA III
FMA III	Rio Grande do Sul, Brazil	3	2004		LT	A	6,839	0.32		Danilewicz et al. (2010)	survey covered 20% of the range of FMA III
FMA III	Rio Grande do Sul, Brazil	2	2010		LT	A, P, GS	9,651	0.24		Sucunza et al. (2020d), SC/68b/ASI/06	survey covered 35% of the area of FMA III
FMA IV	Buenos Aires Province	P		1996-1998, 2003-2004	LT		31,350		15,262-47,850	Bordino et al. 2004, SC/56/SM13	survey covered a portion of FMA IV
FMA IV	Northern area (0-30m)	P		2003-2004	LT	A	8,279		4,904-13,960	Crespo et al. 2010	survey covered a portion of FMA IV
FMA IV	Southern area	P		2003-2004	LT	A	5,896		5,896-17,999	Crespo et al. 2010	survey covered a portion of FMA IV
FMA IV	North offhsore stratum (30-50m)	P		2003-2004	LT	A	470			Crespo et al. 2010	survey covered a portion of FMA IV
FMA IV	Buenos Aires Province	P	2019		LT	A	13,356	0.28		Crespo et al. 2020, SC/68b/ASI/03	survey covered a portion of FMA IV
Babitonga Bay		2		2001-2003	LT		47	0.3		Cremer and Simões-Lopes, 2008	part of FMA II, but treating as a separate management unit as suggested by SD/DNA group
Babitonga Bay		2	2011		LT		49	0.23		Sucunza et al. (2020a), SC/68b/ASI/04_rev1	part of FMA II, but treating as a separate management unit as suggested by SD/DNA group

LT – Line transect, MR – mark-recapture, A – availability, T – perception, GS – Group size.

3.1.1.1 Progress since the 2021 review

After the March 2021 workshop, the SC agreed to address four tasks before completion of the review of the status of the franciscana (IWC, 2021). These tasks and progress toward their completion are described below.

(1) The coefficient of variation (CV) of the correction factor for visibility and group size bias presented in Sucunza et al. (SC/68B/ASI/04 rev1) will be revised and the estimates computed with this correction factor will be updated.

The correction factor for visibility bias and group size bias for franciscana aerial surveys was reviewed and a CV was recomputed using the delta method. The new estimate is 4.76 (CV=0.25) (Sucunza et al, 2022). The updated estimates for FMA Ia and FMA Ib computed using this correction factor will be presented to the ASG for review by the end of 2022.

(2) An estimate of uncertainty for group size bias correction computed by Sucunza et al. (2022) was applied to the estimate of abundance in FMA II (Sucunza et al. 2020a).

The revised estimate of abundance for FMA II incorporating the group size bias correct factor was computed as 9,284 individuals (CV = 0.28).

(3) The estimate of abundance for the 2014 FMA III survey (SC/68B/ASI/06) will be revised following the discussion provided in item 3.5 of IWC, in press (the report of the 2021 Franciscana workshop) (Sucunza and Danilewicz).

The estimate of abundance for FMA III in 2014 is currently being revised and will be presented to the ASG for review before the 2023 meeting of the IWC SC.

(4) If the situation with the coronavirus pandemic improves, surveys in FMA IV will be completed and new estimates of abundance will be computed (Crespo and Coscarella).

New estimates of abundance for FMA IV were provided by Crespo et al. (2022, SC/68D/CMP/17) and will be reviewed by the ASG during the intersessional period.

The workshop noted that estimates of abundances were provided for FMA II and FMA IV as a whole. Because these areas are now sub-divided into new management areas (see item 2 above), consideration should be given to re-compute estimates specific to the new areas, notably FMA IIa and IIb, and, if feasible, FMA IVa, IVb, IVc, IVd and IVe.

The Workshop participants **agreed** that a request be made to the Abundance Steering Group (ASG)/ASI to review the estimates of abundance provided in this report (Table 3) and any new estimates that made be made available prior to SC 69A (2023).

Attention: SC-ASI, R

Considering that abundance estimates are necessary to assess the status of franciscana populations by the SC, the workshop ***recommended*** *that:*

(a) the proposed aerial survey off Uruguay be completed prior to SC69A, if possible to compute an estimate of abundance for FMA III;

(b) the estimates of abundance from the 2019 and 2021 aerial surveys of FMA IV should be revised using correction factors for perception and group size biases;

(c)estimates of abundance for the new management areas, notably FMA IIa and IIb and FMA IVa-IVe, are re-computed whenever feasible.

Attention: SC-ASI, R

Additional aerial surveys in all FMAs are ***recommended*** *to continue assessing population status and trends in the longer term.*

(a) aerial survey off Argentina will be repeated in 2023/ 2024 and, if possible, it should include Bahía Samborombón, south of Buenos Aires province and the Río Negro province.

4. **Life history**

Although there is considerable information on the species, only one on this topic was presented in Iñíguez et al. (2022) extracted from Panebianco et al. (2015) for the Buenos Aires Province. The ovaries of 31 franciscana (19 immature and 12 mature) by-caught in coastal waters of Argentina were examined by members of LECyMM laboratory (MACN-CONICET) to describe reproductive biology. No ovarian polarity was found; both ovaries were functional and showed similar amounts of corpora. A positive trend was observed between the number of corpora and age (3–8 years old), indicating that ovulation scars are detectable for at least 4 years, and an ovulation rate of 0.39 was found for the sampled population. Age, length and weight at sexual maturity for females were estimated at 3.92+0.09 years, 133.47+ 11.11 cm and 32.68 +2.72 kg, respectively. The annual pregnancy rate was 0.36+0.02 (95% CI ¼ 0.10–0.65). The proportion of lactating and resting females found were 0.25 and 0.33 respectively. These results constitute the first reproductive and life history information on franciscana from the

FMA IV and are important in relation to appropriate conservation management plans for this small cetacean (Panebianco et al. 2015).

Cremer also summarised new information on a paper in production that is related to the investigation of calf mortality and birth size. Differently from what was previously observed, recently, franciscana calves with a total length of 65 and 66 cm have been observed, a size smaller than previously indicated in the literature of a 70 cm minimum. There are still multiple hypotheses to be investigated, encompassing a bias of small sample size for previous research, a variation in the development of calves, or the existence of pressuring franciscanas into earlier births. It was also possible to determine a 0.60 franciscana pregnancy rate from stranded individuals for FMA IIa, IIb, and FMA III.
During the discussion it was mentioned that for several of the FMAs new information on life history is being analysed and therefore the workshop **agreed** that these would be presented to the 69 IWC SC.

It was also discussed the need to collect information on acoustics and in this sense, Artur Andriolo will make a compilation which will also be presented to the 69 IWC SC. Additionally, it also summarised the results of an acoustics analysis of clicks, comparing Babitonga Bay with other marine areas. There was a difference in band size for clicks, as they are higher in Babitonga bay. The two hypotheses in the article suggest that this difference results from variations in cranial morphology in Babitonga bay franciscana stocks or the relationship between the presence of calves during the sampling period, as the research was conducted in franciscana birth months, which use larger bands for clicks. Acoustic analysis using C-PODS that stayed recording overnight identified an increased number of click signals at night and inside the Babitonga bay. There is still a possible turbidity bias inside Babitonga bay, in which the reduced visibility in water could lead to increased use of acoustic signals for movements and foraging. Further studies must be done to understand how turbidity affects click emission and could be related to bycatch.

Attention: SC, R

To better understand the life history of franciscana, the Workshop Participants ***recommended*** *that:*

(a) all new information on franciscana life history, including acoustic parameters, be compiled and reviewed at SC69A.

5. **Ecology**
5.1. Update from Argentina, Brazil and Uruguay

A summary regarding stable isotope analysis (C and N) to compare the diet between franciscanas from stocks in FMA II and III, excluding animals found in Florianópolis, Santa Catarina/Brazil, was done. It was observed a significant difference between C stable isotopes between both regions, but not for N.

Recent samples analysis from franciscana diet indicated mainly whitemouth croaker (*Micropogonias furnieri*) and king weakfish (*Macrodon ancylodon*) as prey. However, new tropical fishes are being observed in diet analysis, suggesting vague niches or the

tropicalization of the southern region of Rio Grande do Sul, southern Brazil (FMA III) as has been observed of commercial demersal catches in the area (Perez and Sant'Ana, 2022).

Trophic habits of franciscana were studied in Uruguay using prey hard parts found in stomach contents (n = 38), which consisted of a total 1112 otoliths (1104 otoliths identified at species level) and 38 cephalopod beaks. The most abundant identified prey was the King weakfish (N% = 23%), followed by the whitemouth croaker and the Marini's anchovy (*Anchoa marinii*) (16% and 19% respectively). During summer, the most abundant species in franciscana diet was King weakfish and Brazilian codling (*Urophysis brasiliensis*) (see Franco-Trecu et al. 2017). Also, stable isotopes analysis was used in bone samples obtained from skulls of franciscana of the scientific collection of the Museo Nacional de Historia Natural (MNHN) and the Facultad de Ciencias of the Universidad de la República (UdelaR) at Montevideo (Uruguay). One hundred and twenty-nine bone samples of franciscana were analyzed (males n =57, females n=45, and individuals of unknown sex n =27), which had been found stranded dead or incidentally caught by fishermen along the Uruguayan coast between 1953 and 2015 (Drago et al. 2018). Historical changes in the stable isotope ratios of franciscana were compared with information for sea lions and fur seals in the Río de la Plata estuary and adjacent Atlantic Ocean (Drago et al. 2017). The estimated Bayesian ellipse area (calculated after correcting for isotopic baseline shifts) of franciscana was larger than that of South American fur seals (*Arctocephalus australis*) in all the considered periods (1953-1969, 1971-1983 and 1992-2015). On the other hand, it was larger than that of South American sea lions (*Otaria byronia*) in the 1953–1969 period, but similar in the 1971–1983 period and smaller in the 1992–2015 period. Moreover, although the Bayesian ellipses of the two otariid species did not overlap at all in any period, a large overlap of the isotopic niches of franciscana and fur seals existed in the 1953–1969 period (See Drago et al. 2018).

Denuncio et al. (2017) applied a recently developed extension of niche theory based on the right-angled mixture triangle models (RMT) to help understand the dietary strategies of franciscana. In an intensive study of the FMA IV area, it was found that dolphins' sub-populations have diets with different protein energy and water mass compositions, but similar protein-to-lipid energy ratios. These results suggest that the different habitats (estuarine, north marine area and south marine) might be associated with different prey composition niches, but similar realized nutritional niches. Future priorities are to better comprehend possible geographical and long-term seasonal effects on prey consumption and dietary breadth of the different franciscana populations to identify potential impacts and enhance the current management strategies to protect this endangered marine predator.

The workshop participants also discussed the advantages of using passive acoustics as a tool to detect franciscana. A study conducted by the UNMdP-IIMyC in Southern Buenos Aires Province, Argentina, was mentioned and the main objective was to detect the acoustic presence of franciscana in an area free of fishing pressure and then compare it with the detections made in areas with active bycatch. To meet that objective, two acoustic detectors (F-PODS) were first placed in Chapadmalal (free fishing zone) and then in two artisanal fishing gillnets in Claromecó. It was found high frequency and narrow band (HFNB) click positive detection in both sites. These preliminary results confirm that passive acoustic is a good tool to assess' franciscana presence in both

scenarios. Moreover, understanding the echolocation behaviour around the gillnets would lead to better mitigation tools designed to reduce bycatch. The maximum C-PODs reported detection range for another NBHF (narrow band high frequency) specie was 400 m, therefore, the dolphin recorded are not necessarily foraging when they encounter the gillnets.

Attention: SC, CMP, R

To augment understanding of franciscana ecology throughout its known range, the Workshop Participants recommended that:

a) franciscana diet be evaluated to better assess diet tropicalization and habitat;

b) acoustic studies of franciscana in all FMAs be continued and expanded.

6. **Incidental takes**

6.1 Update from Argentina, Brazil and Uruguay

It perceived varying annual bycatch magnitudes between FMAs. FMA I present dozens of bycatch reports, while FMA II and FMA IV present hundreds and FMA III thousands. However, it is important to note that all rates are above the threshold of biological removal for their areas (Secchi et al., 2021; 2022).

For Uruguay, bycatch data is being collected since 2019 in the industrial coastal pair trawl fishery by the government through the Dirección Nacional de Recursos Acuáticos (DINARA). In 2020, roughly 13% of the fleet fishing effort was covered but it was recognized that they still have inadequate data to provide estimates. Unfortunately, Covid affected the surveys in 2021 reducing the coverage of the fishing effort. In addition, DINARA started monitoring bycatch in some artisanal gillnet fisheries located along Rio de la Plata (since 2018) and the Atlantic Ocean (since 2014); though current data is not enough to produce updated mortality estimates.

Information on incidental takes of franciscana dolphins in the area between Necochea and Bahía Blanca (FMA IV) needs to be updated. The last analysis conducted for the area, based on data collected between 2006-2009, estimated a mean annual franciscana dolphin incidental mortality of 107 individuals, 92 bycaught in gillnets and 15 in shrimpers (Negri et al., 2012). For the Río Negro Estuary (FMA IVe), six individuals were bycaught in 2020.

The lack of a fisheries management plan guided by clearly defined management objectives, both for the target and bycatch species, represents a barrier to advance in the conservation of franciscana and its ecosystem in Brazil, Uruguay, and Argentina. Therefore, workshop participants **agree** that it is the responsibility of national governments to treat this issue as strategic for biodiversity conservation and food security in the three countries. However, it is important to emphasize that there is a clear management goal proposed to reduce the risk of the franciscana population's collapse in southern Brazil, based on the combination of no-fishing zones and a reduction of gillnet fishery effort (Prado et al., 2021)

6.2 Mitigation measures

Through the implementation of different methodologies, it was intended to reduce the bycatch of franciscanas. AquaMarina carried out studies in Bahía Samborombón (FMA IVa) and San Antonio (FMA IVb), comparing different fisheries on franciscana bycatch rates. Two different implementation strategies were used, the first by cooperating with artisanal fisheries for the implementation of pingers in gillnets. The second is by experimenting with longline fisheries as a substitution of gillnets, investigating commercial results and the number of fishes captured. As a result, it was found that the fishing effort in longline fisheries would have to be increased by 2.5 times to have an equivalent catch rate of gillnets, as 400 m of gillnets are equivalent to 800 hooks of longline. Even when considering the reduced cost of longline operations, the necessity of greater fishing effort and personnel reduces the attractiveness of longline as an alternative to gillnets. It was also identified that fish quality was greater in longline fisheries, and franciscana bycatch was severely reduced, but fishermen tend to prioritize fish quantities over quality.
Pingers were also tested as a way of reducing franciscana bycatch and were found to be effective, have low maintenance costs, and be easy to use by fishermen. Also, pingers were found to not affect fish capture rates, but they remain an expensive alternative due to importation costs and the number of pingers needed for extended gillnets. They were tested with artisanal fishermen, mostly in coastal tracking and it was noted that there was a variation in effectiveness between each fisherman.
Franciscana individuals that were tagged were used for behavioural response analysis in relation to the presence of pingers. Although variation in the movement was observed, the individuals displayed site fidelity and remained in capture areas, being influenced by tide movements. During the discussion and following a question on fishing effort, it was mentioned that 71 franciscanas were bycaught using a mean net size of 400 m, with a mean time in water of 24 hs and the data was relative to two years of fishing effort from six fishermen with varying active net time in Bahía Samborombón and San Antonio.

It was highlighted that future research should consider franciscanas in coastal “open sea” areas, where fishing effort is different and tide patterns might have a different influence on their behaviour. All this should be accompanied by resources for education, public and community awareness.

Following the discussion on pingers, Projeto Toninhas do Brasil presented on the effectiveness of pingers to drive off franciscana. The research was performed in Babitonga Bay (FMA II Babitonga), with banana pingers active and inactive for 22-hour cycles, and C-PODS. The pingers were efficient to keep franciscanas away without compromising their habitat usability, as it was confirmed their return to the study areas after pingers' deactivation. The results were promising. Future steps are to test pingers in real fishing situations. It is understood that pingers might be an efficient alternative to reduce franciscana bycatch, but financial, logistical and fishermen acceptance issues still need to be evaluated. There is also the understanding that this measure is effective for some situations, but it is not a unique solution to the problem.

An update on the project being conducted in Uruguay (FMA III) by DINARA in collaboration with gillnet artisanal fishers to test the banana pingers' effectiveness in Montevideo and La Paloma was presented. As presented in a previous report

(SC/68C/HIM/10), the protocol considered nets with pingers (experimental treatment) and without (control treatment) using two strategies: 1) one boat deployed the experimental strings with pingers and the other boat deployed the strings with the control treatment; and 2) a single boat deployed both the strings with the experimental treatment and the control treatment. For analyses, the string with the control treatment and that with the experimental treatment were considered as individual fishing sets, even when the two treatments occurred in a single fishing event. From a fishing effort of 425 fishing sets, being 200 nets with pingers and 228 without, 25 franciscana were bycaught (7 on nets with pingers and 18 on nets without). A GAMM analysis incorporating environmental data indicated a significant reduction in the bycatch of franciscana dolphins in the experimental treatment, in comparison to control nets (SC/68C/HIM/10). Now, the update presented incorporated new fishing events: from a fishing effort of 698 fishing sets, being 314 gillnets with pingers and 382 without, 55 franciscanas were bycaught (8 on nets with pingers and 47 on nets without). Therefore, there is a robust indication that pingers effectively reduced franciscana bycatch rates from gillnets. Another project to assess the effectiveness of dolphin antipredation pingers to reduce bycatch of franciscana in demersal pair trawling industrial fisheries in Uruguay was presented in a previous report (SC/68C/HIM/11). The antipredation pingers emits signals of 175 dB and 40kHz. The protocol considers a control treatment (trawl net without pingers) and an experimental treatment with pingers. The latter included three pingers displayed along the aperture of the trawl net which were attached at the headline (floatline), two at the extremes and one at the middle, with a spacing between pingers of about 20 m. As an update, it was mentioned that they observed 20 bycaught franciscanas, 5 on nets with pingers and 15 on nets without pingers. However, it is important to note that for some cases when franciscanas were bycaught in nets with pingers, at least one of the pingers had no battery left when the net was hauled. During discussion it was suggested to change the design of the pinger location to the center of the open area of the trawl net, something that may be considered. Following a question if pingers affect the catch of fishing boats, it was said that in artisanal fisheries it is difficult to evaluate because it requires an observer onboard. In industrial fisheries it is easier to evaluate, and preliminary it has not affected fishing rate. For both the projects described above, the government of Uruguay bought the pingers and gave them to volunteer fishermen, with whom DINARA engages closely to get the data collected by fishers. Although the potential of pingers to reduce bycatch is known and perceived for the artisanal gillnet and industrial trawl fisheries, respectively, currently there are no regulations in place regarding the use of pingers in Uruguay. There is a need to conduct research on larger scales to confirm its effectiveness before regulating any implementation.

GEMARS and Aqualie reported on a project trial, conducted in collaboration with Dr. Per Berggen (Newcastle University), to evaluate upcycled drink bottles as potential low-cost methods to reduce franciscana bycatch and their potential effects on target catch in bottom set trammel nets. Observed fisheries trials were conducted with plastic bottles acoustic reflectors (i.e., regular drink plastic bottles filled with air) in the fishing community of Torres/Passo de Torres (Larre et al. 2021), southern Brazil (FMA III). Sets are either with plastic 250ml bottles every 150-170m on the headline (treatment) or no bottles (control). A total of 89 sets (37 treatment *versus* 52 control) was recorded, and 2 franciscana dolphins were by-caught in control nets.

Instituto CAIPORA and FURG are conducting research on spatial areas with higher rates of incidental capture, aiming to define fishing exclusion zones. The region of Albardão,

southern Brazil (FMA III) during the whitemouth croaker and striped weakfish (*Cynoscion guatucupa*) fishing seasons, is an identified hotspot and should be evaluated as a permanent fishing exclusion zone (Prado et al., 2021). It was highlighted the need to evaluate fishing exclusion zones using an ecosystem approach; it already indicates Albardão as a priority area.

Additionally, it was mentioned that time in water is a crucial factor for bycatch rates and should be further investigated in future research.

Attention: SC, CMP, CG-Brazil
Given the known and perceived threat to the survival of franciscana throughout its known range, the Workshop Participants ***recommended that*** *current research on this topic be continued and expanded.*

The Workshop Participants ***recommended*** *that the incidental capture of franciscana should be reviewed for all FMAs.*

The Workshop Participants also ***encouraged*** *the Brazilian Government to develop and implement franciscana bycatch monitoring.*

Given the effectiveness of acoustic deterrent devices (ADD or "pingers") in reducing incidental captures of franciscana, the Workshop Participants ***recommended*** *that "pingers" continue to be tested in all FMAs, in addition to the continuation of the testing of using plastic bottles attached to fishing nets as a further method to reduce franciscana bycatch.*

Due to now confirmed importance of the Albardão region to franciscana, it was ***recommended*** *that the area be designated a fishing exclusion zone.*
The Workshop Participants ***recommended that*** *fishing exclusion zone within the FMAs be evaluated and the results presented at SC69A and SC69B.*

7. **Other threats (e.g., habitat degradation, pollution, vessel traffic)**
7.1 Update from Argentina, Brazil and Uruguay.

Studies considering temporal trends are scarce. Recently, the temporal trends assessed for organic pollutants in FMA Ia show stability of PCBs (Oliveira-Ferreira et al., 2022), whereas some OCPs increased after an environmental disaster in FMA Ia when the collapse of a mining dam in Mariana (Minas Gerais state) caused their remobilization and re-availability. The increase in OCPs is particularly critical since these were already

declining given their banning in the 1980s' (Oliveira-Ferreira et al., 2022). On the other hand, the brominated flame retardants PBDEs that presented an increasing trend until the 2000s', started to decline between 2004 and 2019, which could be reflecting their substitution by other flame retardants/other formulations of BFRs (Oliveira-Ferreira et al., 2022).

Considering the naturally-produced organobromine compounds, a decreasing trend was observed for 2'-MeO-BDE 68 in franciscanas from FMA Ia, which is mainly synthesized by sponges and associated organisms (Oliveira-Ferreira et al., 2022). This decline in concentration could be related to environmental alterations in the Abrolhos bank due to diseases and changes in the community associated with climate change, and/or the decrease in biodiversity after the dam collapse.

Manhães et al. (2022) showed differences in trace element concentrations in franciscanas from FMA Ia. Hg, Mn, and Zn concentrations increased after the collapse of the mining dam and reached the coast of Espírito Santo state. This result highlights the potential of an unusual event to allow these contaminants to become available again for franciscana dolphins' trophic webs (Manhães et al., 2022).

Laboratório de Mamíferos Aquáticos e Bioindicadores da Universidade do Estado do Rio de Janeiro (MAQUA/UERJ) presented a study that has filled knowledge gaps concerning contaminant impacts in franciscana for FMA Ia, highlighting the need for tissue sampling to understand and map the contaminant distribution and their impacts on mammals. They were able to relate contaminants with the growth of these populations, threatening their maintenance. It highlighted the necessity of tissue banks, which allow to analyze the contaminants from disasters like the breakdown of Fundão barrage, in Mariana. Franciscana fishery's bycatch relevance is obvious, but contaminants are also a way to map their environment and analyse their maintenance. Ecotoxicology research is necessary for this discussion and is one of the multiple factors that may lead franciscana to extinction. During the discussion, it was also cited that studies on immunosuppressor markers are also carried out.

It was also mentioned that studies on plastic (including macro, meso and microplastic) in franciscana's stomach content are being carried out in Argentina and Uruguay.
The IWC requested some effect studies using individual-based models. In order to conduct such studies, population parameters such as maturation, and population size among others are needed. MAQUA/UERJ are working on inverted models to predict contaminant concentrations instead of using those concentrations to predict the models. It was suggested a proceeding for environmental concerns in which consider as priority information the individual-based models in priority areas (FMA Ia and FMA Ib), recommending testing in areas with basal information.

Universidade Federal do Paraná compiled the state of the art of published data and developed a table of critical threats to franciscana (fisheries, sewage, chemical, marine debris, noise pollution, maritime and coastal infrastructure), their impacts, location in FMA and references. They observed a greater number of occurrences and strandings in areas with more cumulative impacts and suggested 8 actions to improve coastal management, conservation, impact mitigation, effect comprehension and scientific development (Prado et al., 2022)

For Uruguay, it was mentioned that the planned areas to install wind farms overlap with franciscana habitats, and it was indicated that coastal areas have a greater probability for construction in a period of 5 years. A similar situation exists in Brazil, and it is not excluded that the need for energy resources will generate a similar situation in Argentina in the short term, although so far there are no known development plans in areas inhabited by franciscanas. It was proposed to keep working on this overlap of threats and franciscana, working on discovering at-sea mortality points for the species using hydrodynamic models with drift experiment data. It was suggested to perform collaborative work with Argentina and Uruguay to discover where the carcasses come from.

7.2 Mitigation measures.

Extensive overfishing and the inactivity of the federal fisheries agency toward proper management impelled local fishers in Rio Grande do Sul State, southern Brazil, to lead a movement that ended in the sanction of the Sustainable Fisheries State Policy Act in 2018 (RS State Law 15,223/2018). This Law banned all bottom trawling up to 12 miles from the State's ca. 570 km of marine coast. Scientific evidence indicated that the ban would have ecosystem benefits, by reducing the impact on endangered species and facilitating the recovery of fish stocks, which in turn may promote continued revenues for small-scale and industrial fisheries. The establishment of the trawl exclusion zones would promote habitat restoration and a rapid increase in the biomass of important sciaenid species for gillnet fisheries including whitemouth croaker, striped weakfish, king fish (*Macrodon atricauda*) and Argentine croaker (*Umbrina canosai*). Although trawl fisheries do not represent a direct threat to franciscana, in southern Brazil, they are responsible for a high bycatch of juvenile sciaenids that are both important prey of franciscana and potential recruits for the gillnet fishery. If biomass of sciaenid fish increases, it is expected that gillnet fishery can have higher yield with lower fishing effort. Therefore, the workshop participants acknowledge the relevance of this ban for the conservation of franciscana and its habitat.

Recognizing that trawling within 12 nautical miles of the shoreline is a major threat to franciscana prey biomass and consequently, increases bycatch risk, the Workshop Participants **recommended** that the fishing exclusion areas in the FMA III (RS, Brazil) be extended up to 12 miles for industrial fishing and between 7 and 10 miles for artisanal fishing, with the establishment of characteristics and clear size ranges for vessels of both fishing categories.

Attention: SC, CMP

*Given that biological tissue banks can be used to derive and map the effect of human pressures on franciscana, it was **agreed** that such repository institutions should be better supported, as should studies related to contamination and toxicology.*

*The Workshop Participants **recommended** that more data on biological parameters should be collected to:*
a) advance marine and conservation planning;
b) improve technologies for understanding distribution and impact overlap areas;
c) implement Individual Based Models (IBM) and Pcod analyses;
d)enhance genomic analyses;
e) to develop and test metabolic markers;

f) conduct stranding and integrative impacts analyses.

8. **Conservation**

8.1. Update from Argentina, Brazil and Uruguay

The paper SC/68B/CMP/02 presented in a previous online CMP workshop informs on the conservation and management of franciscana in Uruguay, including the legal framework (international conventions/agreements and national legislation), mitigation measures being tested to diminish franciscana bycatch and other area-based protection measures in place in Uruguay. It was mentioned that since then, there had not been any major updates on the legal framework or area-based measures. The testing of bycatch measures is still ongoing in both the artisanal gillnet and industrial trawl fisheries.

It presented an update of the document Management and Conservation Actions by the franciscana (*Pontoporia blainvillei*) in Brazil (SC/68B/CMP/05). The document has a review of the legal framework concerning franciscana, including CITES and CMS conventions. Franciscana is classified as C*ritically Endangered* on the National Red List of Threatened species.

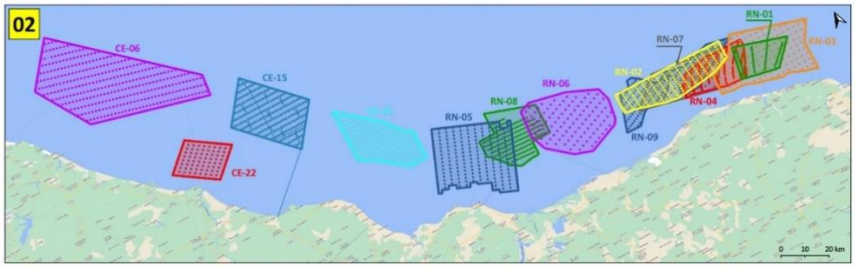
Brazil has specific actions to protect franciscana in the Brazilian National Action Plan – Toninha. It was also mentioned that the franciscana-related fisheries management laws aimed at reducing bycatch have low awareness and compliance (IBAMA 166/2007; MPA/MMA 12/2012). Additionally, there is specific legislation defining permanent restrictions for seismic survey activities along the Brazilian coast that, among other species, consider the distribution of franciscana (Joint Normative Instruction IBAMA/ICMBio No. 2 – from 21.11.2011). This law prohibits seismic surveys in shallower waters than 15 m in several areas from Espírito Santo to Rio Grande do Sul, covering partially all FMAs. The franciscana is also benefited by temporary restrictions of seismic survey activities in more offshore waters of the states of Espírito Santo and Santa Catarina established due to the concentration of humpback (*Megaptera novaeangliae*) and southern right whales (*Eubalaena australis*) during their breeding/calving season.

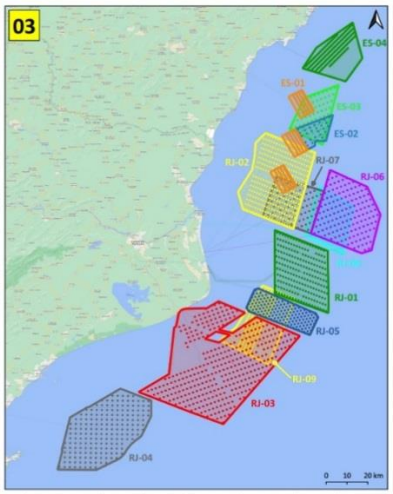
Thirty-four Units of Conservation (UC) across franciscana distribution in Brazil have been identified, although an updated of their effective overlapping distribution resulted in only 25 marine protected areas (Ott et al., 2022), most of them in FMA II. This updated analysis also revealed the existence of 44 marine protected areas across the three countries where the species is distributed, with the highest number in Brazil. However, only seven UCs in Brazil have specific actions to conserve franciscanas. The document (SC/68B/CMP/05) also displays a map with several high-priority areas for franciscana management and highlights public awareness campaigns such as the indication of October 1st as Franciscana National Day (for further details see item 9).

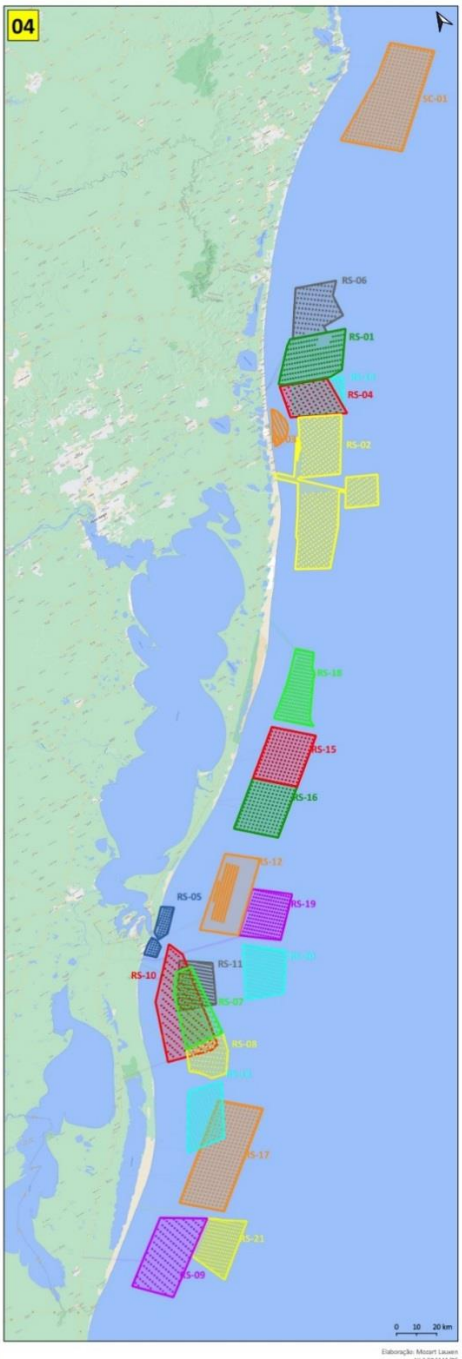
As final considerations, it was determined in the document that many of the franciscana habitats there are already established protected areas, therefore their management plans must recognize its presence and design franciscana conservation actions. Also, the document concludes that priority areas for franciscana conservation should be incorporated into all environmental licensing processes (oil and gas, ports and offshore wind farms).

At this point of the agenda, the issue of wind farms was discussed again in more depth. The workshop participants expressed **concerns** about the planned development and potential areas for implementing of offshore wind farm in Brazil and Uruguay. For

Uruguay, the areas for wind farms projects have not been officially defined yet; however, the different polygons that have been presented to investors as potential areas for wind farm development were within the 20 to 50 m isobaths (e.g., https://www.ancap.com.uy/innovaportal/file/11737/1/h2u-offshore-introduction---june-2022-v2.pdf , accessed in March 2022), which overlap with franciscana distribution. For Brazil, figure 2 produced by IBAMA shows the areas where wind farms are already established or are planned to be established, and their overlap, with franciscana habitats. There are lots of areas for offshore wind farms, but the licensing lacks effective methods to monitor and mitigate impacts for franciscana and other cetaceans other than aerial surveys and acoustic analyses. There are overlapping areas in northeast Brazil, Espírito Santo and Rio de Janeiro states along FMA I; although the farms are offshore, they are planned within the 30 m isobaths. There are also wind farms in Rio Grande do Sul state (FMA III) as well, inside the 25 m isobaths. Near Albardão, all planned wind farms are within 15 to 25 m isobaths, high usage areas of franciscana.







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#	Código	Empreendimento	Empreendedor	Processo	Sobreposição	Data PCA	Aerogerador	Pot. unitária (MW)	Quantidade	Pot. total (MW)
01	CE-01	Caucaia - Bi Energia	Bi Energia Ltda	02001.003915/2016-68		10/08/2016	Haliade-X	12	48	576
02	CE-03	Jangada	Neoenergia Renováveis	02001.035371/2019-46		27/01/2020	WTG-15.0-246	15	200	3.000
03	CE-04	Camocim	Camocim Eiwll	02001.015445/2020-61		06/07/2020	Haliade-X	12	100	1.200
04	CE-05	Dragão do Mar	Qair Marine Brasil	02001.015184/2021-61		22/07/2021	MHI Vestas 174	9,5	128	1.216
05	CE-06	Alpha	Alpha Wind Morro Branco Projeto	02001.018580/2021-40		01/09/2021	V236-15.0 MW	15	400	6.000
06	CE-07	Costa Nordeste Offshore	Geradora Eólica Brigadeiro I	02001.001545/2022-72	*	21/01/2022	V236-15.0 MW	15	256	3.840
07	CE-08	Asa Branca I	Eólica Brasil	02001.001606/2022-00		23/01/2022	VESTAS V236	15	72	1.080
08	CE-09	Sopros do Ceará	Totalenergies Petroleo & Gas Brasil	02001.004068/2022-05		17/02/2022	V236-15.0 MW	15	200	3.000
09	CE-10	Projeto Pecém	Shell Brasil Petróleo	02001.006219/2022-51	*	16/03/2022	SG-14-222-DD	14	215	3.010
10	CE-11	H2GPCEA	H2 Green Power Ltda	02001.007283/2022-50	*	28/03/2022	SG-14-236-DD	15	200	3.000
11	CE-12	Projeto Colibri	Equinor Brasil Energia	02001.008207/2022-61		05/04/2022	Não definido	15	134	2.010
12	CE-13	Projeto Ibitucatu	Equinor Brasil Energia	02001.008209/2022-51		05/04/2022	Não definido	15	134	2.010
13	CE-14	Asa Branca II	Eólica Brasil	02001.009548/2022-54	*	21/04/2022	VESTAS V236	15	72	1.080
14	CE-15	Ventos dos Bandeirantes	Kaanda R. M. Cunha	02001.009558/2022-90		22/04/2022	Haliade-X	12	229	2.748
15	CE-16	Asa Branca III	Eólica Brasil	02001.009662/2022-58	*	22/04/2022	VESTAS V236	15	288	4.320
16	CE-17	Asa Branca IV	Eólica Brasil	02001.009663/2022-01	*	23/04/2022	VESTAS V236	15	288	4.320
17	CE-18	Araras Geração Eólica Offshore	Shizen Energia do Brasil	02001.020087/2022-71		29/07/2022	V236-15.0 MW	15	200	3.000
18	CE-19	Tatajuba Geração Eólica Offshore	Shizen Energia do Brasil	02001.020093/2022-28		29/07/2022	V236-15.0 MW	15	200	3.000
19	CE-20	Ventos de São Francisco	Morex Geração de Energia SA	02001.024311/2022-48	*	06/09/2022	Não definido	15	197	2.955
20	CE-21	Itapipoca	Energia Itapipoca Ltda	02001.030511/2022-66		04/11/2022	GE Haliade-X	12	60	720
21	CE-22	Mar de Minas I	CEMIG Geração e Transmissão SA	02001.031986/2022-07		18/11/2022	Não definido	15	100	1.500
22	ES-01	Votu Winds	Votu Winds	02001.029661/2020-59	*	28/12/2020	SG-10-193-DD	10	144	1.440
23	ES-02	Vitória Offshore	Geradora Eólica Brigadeiro II	02001.001043/2022-41		14/01/2022	V236-15.0 MW	15	33	495
24	ES-03	Quesneila	Bluefloat Energy do Brasil	02001.001549/2022-51	*	21/01/2022	WEC 265 20MW	20	62	1.240
25	ES-04	Projeto Ubu	Shell Brasil Petróleo	02001.006228/2022-42		16/03/2022	SG-14-222-DD	14	180	2.520
26	MA-01	Ventos do Delta	Kaanda R. M. Cunha	02001.009556/2022-09		22/04/2022	Haliade-X	12	220	2.640
27	PI-01	Vento Tupi	Ventos do Atlântico	02001.000178/2021-17		05/01/2021	NG7296	13,5	74	999
28	PI-02	Palmas do Mar	Bosford Participações	02001.007423/2021-17		13/04/2021	V236-15.0 MW	15	93	1.395
29	PI-03	Projeto Piauí	Shell Brasil Petróleo	02001.006221/2022-21	*	16/03/2022	SG-14-222-DD	14	160	2.320
30	PI-04	Projeto Mangará	Equinor Brasil Energia	02001.008210/2022-85		05/04/2022	Não definido	15	134	2.010
31	RJ-01	Maravilha	Neoenergia Renováveis	02001.035364/2019-44	*	04/04/2022	V236-15.0 MW	15	200	3.000
32	RJ-02	Aracatu	Equinor Brasil Energia	02001.019115/2020-45		20/08/2020	Não definido	12	320	3.840
33	RJ-03	Ventos do Atlântico	Ventos do Atlântico	02001.000230/2021-27		06/01/2021	NG7296	13,5	371	5.008
34	RJ-04	Ventos Fluminenses	Bosford Participações	02001.007463/2021-51		13/04/2021	V236-15.0 MW	15	188	2.820
35	RJ-05	Ventos do Açu	Prumo Logística	02001.016348/2021-77		06/08/2021	IEA Wind 15-MW	15	144	2.160
36	RJ-06	Queensmeira	Bluefloat Energy do Brasil	02001.001542/2022-39		21/01/2022	WEC 265 20MW	20	148	2.960
37	RJ-07	Bromélia	Bluefloat Energy do Brasil	02001.002115/2022-78	*	28/01/2022	WEC 265 20MW	20	85	1.700
38	RJ-08	Sopros do Rio de Janeiro	Totalenergies Petroleo&Gas Brasil	02001.004044/2022-48	*	17/02/2022	V236-15.0 MW	15	200	3.000
39	RJ-09	Projeto Açu	Shell Brasil Petróleo	02001.006223/2022-10	*	16/03/2022	SG-14-222-DD	14	215	3.010
40	RN-01	Pedra Grande	Pedra Grande	02001.027228/2020-14		30/11/2020	Haliade-X	12	52	624
41	RN-02	Maral	Ventos do Atlântico	02001.000036/2021-41		04/01/2021	NG7296	13,5	149	2.011
42	RN-03	Alísios Potiguares	Bosford Participações	02001.007450/2021-81	*	13/04/2021	V236-15.0 MW	15	123	1.845
43	RN-04	Ventos Potiguar	Internacional Energias	02001.008883/2021-54	*	03/05/2021	Haliade-X	12	207	2.484
44	RN-05	Beta	Beta Wind Energias	02001.018349/2021-56		30/08/2021	V236-15.0 MW	15	200	3.000
45	RN-06	Água Marinha	Bluefloat Energy do Brasil	02001.001543/2022-83		21/01/2022	WEC 265 20MW	20	85	1.700
46	RN-07	Cattleya	Bluefloat Energy do Brasil	02001.001548/2022-14	*	21/01/2022	WEC 265 20MW	20	59	1.180
47	RN-08	Projeto Galinhos	Shell Brasil Petróleo	02001.006459/2022-56	*	17/03/2022	SG-14-222-DD	14	215	3.010
48	RN-09	Ventos do Caiçara	Morex Geração de Energia SA	02001.024315/2022-81	*	06/09/2022	Não definido	15	131	1.965
49	RS-01	Águas Claras	Neoenergia Renováveis	02001.035351/2019-75		10/12/2019	WTG-15.0-246	15	200	3.000
50	RS-02	Ventos do Sul	Ventos do Atlântico	02001.000176/2021-10		05/01/2021	NG7296	13,5	482	6.507
51	RS-03	Tramandaí Offshore	Ventos do Atlântico	02001.000177/2021-64		05/01/2021	NG7296	13,5	52	702
52	RS-04	Ventos Litorâneos	Bosford Participações	02001.007465/2021-40		13/04/2021	V236-15.0 MW	15	83	1.245
53	RS-05	Bravo Vento	SPE Bravo Vento	02001.018521/2021-71		01/09/2021	V236-15.0 MW	15	77	1.155
54	RS-06	Guarita Offshore	Geradora Eólica Brigadeiro III	02001.001399/2022-85		19/01/2022	V236-15.0 MW	15	112	1.680
55	RS-07	Cassino Offshore	Geradora Eólica Brigadeiro IV	02001.001427/2022-64		20/01/2022	V236-15.0 MW	15	128	1.920
56	RS-08	Rio Grande Offshore	Geradora Eólica Brigadeiro V	02001.001470/2022-20		20/01/2022	V236-15.0 MW	15	80	1.200
57	RS-09	Amazonita	Bluefloat Energy do Brasil	02001.001540/2022-40		21/01/2022	WEC 265 20MW	20	150	3.000
58	RS-10	Turmalina	Bluefloat Energy do Brasil	02001.001541/2022-94	*	21/01/2022	WEC 265 20MW	20	159	3.180
59	RS-11	Sopros do Rio Grande do Sul	Totalenergies Petroleo & Gas Brasil	02001.004065/2022-63	*	17/02/2022	V236-15.0 MW	15	200	3.000
60	RS-12	Projeto White Shark	Shell Brasil Petróleo	02001.006451/2022-90		17/03/2022	SG-14-222-DD	14	215	3.010
61	RS-13	Projeto Atobá	Equinor Brasil Energia	02001.008206/2022-17		05/04/2022	Não definido	15	166	2.490
62	RS-14	Projeto Biguaiso	Equinor Brasil Energia	02001.008208/2022-14	*	05/04/2022	Não definido	15	134	2.010
63	RS-15	Península Wind Offshore	SPE Bravo Vento	02001.008966/2022-24		14/04/2022	V236-15.0 MW	15	180	2.700
64	RS-16	Tecnokraft Wind Offshore	SPE Bravo Vento	02001.008975/2022-15		14/04/2022	V236-15.0 MW	15	180	2.700
65	RS-17	Marine Vórtice WOS	SPE Bravo Vento	02001.008977/2022-13	*	14/04/2022	V236-15.0 MW	15	348	5.220
66	RS-18	Farol de Mostardas Geração Eólica Offshore	Shizen Energia do Brasil	02001.020108/2022-58		29/07/2022	V236-15.0 MW	15	200	3.000
67	RS-19	Querência Geração Eólica Offshore	Shizen Energia do Brasil	02001.020112/2022-16		29/07/2022	V236-15.0 MW	15	200	3.000
68	RS-20	Tarm Geração Eólica Offshore	Shizen Energia do Brasil	02001.020116/2022-02		29/07/2022	V236-15.0 MW	15	200	3.000
69	RS-21	Barra do Chuí Geração Eólica Offshore	Shizen Energia do Brasil	02001.020121/2022-15		29/07/2022	V236-15.0 MW	15	200	3.000
70	SC-01	Farol Wind Power	SPE Bravo Vento	02001.009129/2022-12		18/04/2022	V236-15.0 MW	15	380	5.700
								TOTAIS	12.059	176.585

** Poligonal (conforme definida no Ficha de Caracterização da Atividade - FCA) parcial ou totalmente sobreposta à poligonal de empreendimento com FCA mais antiga.*

Elaboração: Mozart Lauxen
NLA/IBAMA/RS

Figure 2. Offshore windfarms complexes projected in Brazilian coast (source: Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, Diretoria de Licenciamento, CENEF / CGTEF. http://www.ibama.gov.br/phocadownload/licenciamento/2022-12-07_Usinas_eolicas_offshore_Ibama.pdf

In response to a question on whether Brazil has conservation regulations for monitoring and mitigating the impacts of wind farms, or other coastal enterprises, it was said that ICMBio could only refer to those enterprises which are within conservation units and the normative instruction 10946/25 January 2022 allow the use of physical spaces regarding offshore wind farms.

For Argentina, no wind farms are currently planned for the coastal sector.
The amount of projected wind farms is concerning because they represent a huge habitat loss by franciscana.

It was highlighted the necessity to develop a legal tool to protect franciscanas in these overlapping areas with coastal and nearshore development. Ports do not have effective legislation regarding franciscana conservation. There are a lot of ports licensed by IBAMA, in Brazil, with no effective franciscana conservation measures due to regional licensing processes. Also, due to the intense overlapping of franciscana and coastal enterprises areas, the populations are susceptible to multiple and cumulative impacts (e.g boat traffic, contamination, and environmental accidents).

There is also concern regarding an increase in bycatch caused by the restriction in fishing and franciscana distribution areas due to the development of coastal enterprises. In Brazil, there is already a high number of ports that will be even more numerous in FMAs as indicated by licensing processes. Licensing does have actions concerning the monitoring of aquatic animals and the impacts they may suffer, but those methods are aimed at allowing the construction and maintenance of coastal development, not properly analyzing their impacts.

In this regard, the workshop participants **express concern** for all multiple and cumulative impacts on franciscana.

Finally, it presented the legal framework and conservation actions for franciscana in Argentina. The legal protection of franciscana started with the legal framework to protect all marine species, and now franciscana is classified as *vulnerable* under the Red List of Argentina, demanding more actions to mitigate the impacts they suffer. It highlighted three specific actions concerning franciscana conservation in Argentina: the first is an Ordinance from 2013, in which gillnets are prohibited in the Río Negro estuary from January to March due to the areas used by franciscana; the second is the adoption of a National Plan to reduce interactions between marine mammals and fisheries in 2015, with special attention to franciscana, and the third one is the declaration of franciscana as a Natural Provincial Monument of Buenos Aires province in 2017, which is considered an equivalent of Category IV of MPAs under IUCN and leading the species to be considered in the maximum category for conservation. Argentina has 13 protected areas that include franciscana, of which 7 have management plans but only 2 incorporate franciscanas in their management plans.
There are also initiatives to reduce bycatch (e.g. use of pingers, establishing MPAs) as explained in the item 6.2.

Attention SC, CMP; R; CG-Brazil, Uruguay, Argentina

Recognizing that port activities (especially boat traffic) and wind farms' implementation/operation in coastal areas significantly overlap with franciscana critical habitat, the Workshop Participants **agreed** that these activities are potential threats to the franciscana. Considering that this species is listed for the assessment of cumulative impacts, the Workshop Participants **recommended** that the governments, particularly of Brazil and Uruguay, to adopt the urgent creation and strengthening of strategic conservation actions related to environmental licensing and mitigation measures of these activities, such as the avoidance of wind farm implementation in franciscana overlap and priority areas.

The Workshop Participants also **requested** the Secretariat a letter summarizing these concerns to be compiled and send to the governments in 2023.

Attention: SC, CMP, CG-Argentina, Brazil

*The Workshop Participants **recommended** that protected areas be established in mouths of Rio Doce (Brazil), Baia de Babitonga (Brazil), Albardão (Brazil) and Estuario Río Negro (Argentina).*

*The Workshop Participants **recommended** creating and implementing the Management Plan for all existing MPAs across the distribution of franciscana, including actions to enhance franciscana conservation.*

9. **Education/ Dissemination campaign**

In this item of the agenda, the activities carried out in relation to education and to species dissemination campaigns were presented.

9.1 Update from Argentina, Brazil and Uruguay.

9.1.1. *Argentina*

It was mentioned that Fundación Mundo Marino developed a manual with activities for kids and teens and videos with characteristics of franciscanas and their threats and impacts.

A second educational program developed by AquaMarina called "*Escuela del Mar*" ("The School of the Sea") cuts across the research, management and conservation projects carried out by the organization. The program consists of activities developed in the field of formal, non-formal and informal education. Within the non-formal activities, each season a proposal is developed on the beach as an educational tool for the community to take part in different activities that invite research and art through dynamic activities proposed, with an interaction with specialists of the team. It is their goal to continue providing the community with this educational proposal on the conservation of franciscana dolphin through the program.

Fundación Cethus is carrying out an educational programme "*Delfines del Río Negro*" in the Río Negro Estuary area, which includes talks in schools, training in general and on specific topics (e.g. responsible whale watching). It has also produced dissemination material (book and interpretative posters) on the franciscana and its conservation.

9.1.2. *Brazil*

Museu das Toninhas (www.museudastoninhas.com.br) is an online museum, developed by the MAQUA-UERJ team in Franciscana Conservation Project. This project is an environmental offset measure established through a Consent Decree/ Conduct Adjustment Agreement between PetroRio and the Brazilian Ministry for the Environment. The aim is to increase the knowledge on franciscana. Visitation is available in 3 languages in order to allow their use in large scale by researchers and the public in general. The Museum provides several information regarding the species and it was accomplished in collaboration with experts in the species for many years. In addition, there is a virtual reality experience with a 3D franciscana model, where the visitor can see them and interact with their habitat.

The Universidade Federal do Paraná developed a communication campaign with #EuSouToninha at the FMA II, a one-week effort to increase social media engagement which increased the interactions and broke barriers between science and society. Several lives on Instagram and Youtube were made. It performed many expeditions from Ubatuba (São Paulo state) to Laguna (Santa Catarina state) to create documentaries with fishermen and their relationship with franciscana, resulting in 7 mini documentaries with a synergic view. A children 's book called "*Marulho da Toninha*" was created, involving franciscana families in the ocean. A franciscana mural was also painted in the University rehabilitation center and are developing a sticker album for Pontal do Paraná (Paraná state) schools to use next year. A Hackathon named Toninhathon was also developed, to increase fishermen and the young public into designing innovative solutions to reduce franciscana bycatch. Toninhathon had 257 participants and resulted in 20 projects, but unfortunately none of the winners decided to continue with their idea incubation process. A documentary called "*O Mar de Toninhas*" were released and is still active with social media work. Through the webpage "*Eu Sou Toninha Google Earth*" is possible to interact with layers from specific topics, with all campaigns and results to explore spatially and visualize videos. This content is only available in Portuguese.

In 2021, as a result of the Franciscana Project supported by Funbio, the children's book "Mar de Brincar" (Maus et al., 2021) (https://www.lilianmaus.art.br/wp-content/uploads/delightful-downloads/2021/12/E-book-Mar-de-Brincar.pdf) was published by Uergs/GEMARS and distributed in the schools of the municipalities in southern Brazil. The illustrated book unites science and art to teach literacy to children, using the franciscana as one of the main species. In addition to knowing about 23 species that inhabit the coastal ecosystems in southern Brazil, the book is an invitation to an adventure that mixes different animals and syllables, forming new species and words. The book also teaches how to create a 3D model of franciscana in paper (papertoy) and felt, intending to give more visibility to the species. The book was adopted, in 2022, as one of the tools for early childhood education by the Department of Education of a coastal municipality of southern Brazil (Osório, RS).

Another activity is the Projeto Toninhas do Brasil - UNIVILLE documentary on Franciscana from 2013 was on a sea movies themed festival in August, related to the "*Cátedra da UNESCO*" and the UN Ocean Decade. It was also mentioned the development of franciscana observation tourism in Babitonga Bay through the project "*Caminhos do Mar*", supported by Boticário Foundation. It may be an alternative to put value on the species in a region full of coastal enterprises. The aim of this project is to add economic value to the presence of franciscanas in the area and may financially help

native populations. The project also has a website, with information about the species and the region of Baia Babitonga, where the project is developed

In response to a query, if there is a chance to make fishermen change their profession to tourism guidance, it was the response that fishing boats cannot take tourists because of captaincy regulations, but it is expected that this factor can be changed as tourism grows. In some areas in Brazil, there is a possibility to use boats for both activities.

During the discussion it was expressed concerns with franciscana conservation, but it was also recognized that tourism would increase franciscana value within the community. In Argentina, a preliminary land-based whale watching is also developed at the Río Negro Estuary as part of nature trips and training courses for tourist guides and the community was given by Fundación Cethus in Viedma. It was said that it will be necessary to explore cooperation with fishermen to trade fishing for tourism guides, but not individually, it should be cooperative. It was also recognized that Babitonga has an advantage in that the boat traffic is already intense, so the animals are accustomed to boats. It was also highlighted that this area has a rich biodiversity with Guiana dolphins (*Sotalia guianensis*) and many marine bird species that may allow for an integrative approach for conservation tourism and pedagogic methods for schools. However, the workshop participants understand that Babitonga bay is now the smallest FMA, and the most threatened, as a result of the lack of care from coastal enterprises in the region.

9.2 Presentation of the IWC campaign "*Our neighbours the franciscana*"
One of the actions originally identified as a priority by the CMP is "design and implement a public awareness campaign about the franciscana and their conservation problems". In response IWC is developing the campaign "*Our neighbours the franciscana*" which will be available on the IWC website in English, Portuguese and Spanish. This campaign will generate information panels, posters, infographics, stickers and an informative video. It will be launched officially during the 68 IWC.

During the discussion, the workshops suggested broadening the Brazilian national franciscana day (1st October) to an international franciscana day.

Attention: CMP, CG- Argentina, Brazil and Uruguay
The Workshop Participants **recommended** continuing with the development of targeted public awareness campaigns and environmental education programmes.

10. **Other**
10.1 Presentation of the *Franciscana dolphin book*, Eds Paulo Simões-Lopes & Marta Cremer by Elsevier and Academic Press. Paulo Simões-Lopes made a presentation on the "The Franciscana Dolphin: On the Edge of Survival" book, which has an objective to review the state of the franciscana. The book was finished by 78 authors, from 8 countries, involved in 19 chapters. It will be launch by mid-july 2022. The workshop participants welcome this book and agreed that data from it can be used as support material to complete the review of the species.

11. **CMP actions (review and update)**

After all presentations were completed, participants reviewed and updated the actions identified for the CMP for the period 2022-2026 (table 4).

Actions	Region
RES-1. Continue to Investigate Population Structure	
RES-1.1. Refine population structure and boundaries.	FMA IIb
	FMA III, mainly in the La Plata river estuary
	FMA IV
RES-1.2. Refine population structure and stock boundaries.	All FMAs except FMAs Ia and Ib
RES-2. Cooperation	
RES 2.1. Generate memoranda of understanding among universities and research institutes of Argentina, Brazil and Uruguay within the framework of applicable agreements to establish common research programs.	All FMAs
MON-1. Monitor Abundance, Trends and Bycatch	
MON 1.1. To continue monitoring fishing villages where bycatch of franciscanas is likely, including fisheries characteristics (e.g. type of nets, season of operation, fishing areas), including fishing effort.	All FMAs
MON 1.2. Estimate bycatch in all fisheries using observer programs whenever feasible.	All FMAs
MON 1.3. Beach monitoring to quantify franciscana carcasses to estimate bycatch.	All FMAs
MON 1.4. Strengthen virtual monitoring (VM) of the industrial fishing fleet and develop technology and implement VM for the artisanal fleet to continue understanding fishing areas and effort.	All FMAs
MON 1.5. Facilitate access of the VM data to research and management organizations.	All FMAs
MON 1.6. Estimate abundance and trends	FMA Ia and Ib
	FMA IIa, IIb and FMA II Babitonga.
	FMA III
	FMA Iva, IVb, IVc, IVd and IVe.
MON 1.7. Evaluate use of alternate methods to estimate abundance and/or trends.	All FMAs
MON 1.8. Define the maximum allowable fishery related mortality (e.g. PBR, MALFIRM).	All FMAs
MON 1.9. Model population viability analysis (PVA).	All FMAs
MON-2. Other threats	
MON 2.1. Beach monitoring searching for stranded franciscanas to estimate biological parameters.	All FMAs
MON 2.2. Continue assessment of health and pollutant load.	All FMAs

MIT-1. Mitigate Bycatch	
MIT 1.1. Develop strategies to evaluate and/or implement bycatch reduction methods and organize meetings with stakeholders to evaluate the most practical ways to implement/adjust monitoring and mitigation actions.	FMA Ia and Ib
	FMA IIa, IIb and FMA II Babitonga.
	FMA III
	FMA Iva, IVb, IVc, IVd, IVe.
MIT 1.2. Increase enforcement of measures to reduce bycatch of franciscana in priority areas and no-take zones.	All FMAs
MIT-2. Develop or Implement Protected Areas	
MIT 2.1. Strengthen the need of creation of conservation areas in mouth of Rio Doce, Baia Babitonga, Albardão and Estuario Río Negro.	FMA Ia, FMA II Babitonga, FMA III and FMA IVe.
MIT 2.2. Create and implement the Management Plan for all existing MPAs across the distribution of franciscana, including actions to enhance franciscana conservation.	All FMAs
MIT 2.3. Explore and encourage the creation of new protection areas across the franciscana distribution.	All FMAs
MIT 2.4. Evaluate socio-economic impact on fishers by implementing, mitigating measures to reduce bycatch.	All FMAs
MIT-3. Implementation of mitigation measures.	
MIT 3.1. Evaluate and monitor the replacement of gillnets by alternative current fishing gears by those of lower impact.	All FMAs
MIT 3.2. Evaluate socio-economic impact of the implementation of mitigation measures.	All FMAs
PAC-1. Develop a Strategy to Increase Public Awareness of the Franciscana	
PAC 1.1. Continue development of public awareness campaign about the franciscana and their conservation problems.	All FMAs
PAC-2. Include the Franciscana in Bilateral and Multilateral Discussions	
PAC 2.1. Generate discussions within the framework of CMS and the Joint Technical Commission for the Maritime Front between Argentina and Uruguay.	All FMAs

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ANNEX A

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