

2022-12-27

Minutes of the Webinar about small cetaceans and marine protection in Brazil and Sweden, held online on 17 November 2022.

### Participants

Name	Country	Organisation
Alexandra Colbing	Sweden	County administrative board of Gotland
Alexandre Machado	Brazil	Federal University of Santa Catarina
Anna Falkenlad	Sweden	Jonsered Manor, University of Gothenburg
Camila Domit	Brazil	Federal University of Paraná
Catarina Hedar	Sweden	Swedish Agency for Marine and Water Management
Cinthia Tiberi Ljungqvist	Sweden	County administrative board of Stockholm
Claes Vernerback	Sweden	Aquabiota
Daiane S. Marcondes	Brazil	Federal University of Paraná
Daniel Simonsson	Sweden	County administrative board of Halland
David Arborelius	Sweden	The Kullaberg Guides
Elin Lygård	Sweden	County administrative board of Skåne
Elizangela	Brazil	Federal University of Santa Catarina
Erland Lettevall	Sweden	Swedish Agency for Marine and Water Management
Fábio Daura-Jorge	Brazil	Federal University of Santa Catarina
Gabriel Fraga da Fonseca	Brazil	Federal University of Paraná
Gabrieli Rodrigues	Brazil	Aqualie
Giovanna Kirchner Motta	Brazil	Federal University of Santa Catarina
Giuliani Manfredini Battaiello	Brazil	Federal University of Paraná
Gonçalo Carneiro	Sweden	Swedish Agency for Marine and Water Management
Ida Carlén	Sweden	Swedish Society for Nature Conservation
Ingela Isaksson	Sweden	Swedish Agency for Marine and Water Management
Jenny Hertzman	Sweden	Swedish Agency for Marine and Water Management
João Carlos Gomes Borges	Brazil	Fundação Mamíferos Aquáticos
João Miguel Neri Camilo Moreira	Brazil	Projecto Toninhas do Brasil
Johanna Stedt	Sweden	Lund University
Karl Norling	Sweden	Swedish Agency for Marine and Water Management
Kylie Owen	Sweden	The Swedish Museum of Natural History
Lara Gama Vidal	Brazil	Federal University of Paraná

<b>Name</b>	<b>Country</b>	<b>Organisation</b>
Lena Tingström	Sweden	Swedish Agency for Marine and Water Management
Lena Ulrika Rudeke	Sweden	Jonsered Manor, University of Gothenburg
Leonardo Flach	Brazil	Instituto Boto Cinza
Louise Bergqvist	Sweden	County administrative board of Västernorrland
Luiz Gustavo Ramos Arrial	Brazil	Federal University of Santa Catarina
Magnus Danbolt	Sweden	County administrative board of Kalmar
Mariana Lacerda	Brazil	Federal University of Paraná
Maris Gillette	Sweden	University of Gothenburg
Marta Cremer	Brazil	Univille
Mats Amundin	Sweden	Kolmården Wildlife Park
Pedro Fruet	Brazil	Federal University of Rio Grande
Renan Lopes Paitach	Brazil	Univille
Rodrigo de Souza Amaral	Brazil	IFAM - Instituto Federal do Amazonas
Sara Saltin Dahlén	Sweden	County administrative board of Västernorrland
Stephane Moura	Brazil	Federal University of Paraná
Susanne Viker	Sweden	Swedish Agency for Marine and Water Management
Tara van Belleghem	Brazil	Federal University of Paraná
Thaís Cristina da Rocha	Brazil	Univille
Therezinha Novais de Oliveira	Brazil	Univille

## Programme

<b>Time:</b> <b>Sweden</b> <b>Brazil</b>	<b>Topic</b>
12.30 8.30	Check-in opens
13.00-13.30 9.00 -9.30	Welcome and introduction
13.30 - 14.30 9.30 - 10.30	<p><b>Theme 1: Monitoring and management of marine mammals in Sweden and Brazil</b></p> <p>Monitoring and management of marine mammals in Swedish waters, Susanne Viker and Karl Norling, Swedish Agency for Marine and Water Management, Sweden</p> <p>Effects of an unusual foraging specialisation in a dolphin population, Alexandre Machado, Federal University of Santa Catarina, Brazil</p> <p>Population monitoring and implementation of bycatch mitigation strategies for the endangered franciscana dolphins, Renan Paitach, Univille, Brazil</p>
14.30 - 14.45 10.30 - 10.45	Break
14.45 - 15.45	<b>Theme 2: Marine protected areas in Brazil and Sweden</b>

Time: Sweden Brazil	Topic
10.45 -11.45	<p>Small dolphin long term research and marine protected area: A case study of Sepetiba Bay-Rio de Janeiro, Brazil, Leonardo Flach, Institute Boto Cinza, Brazil</p> <p>Small cetaceans as sentinels of a World Heritage Site in Paraná, southern Brazil, Camila Domit, Federal University of Paraná, Brazil</p> <p>Marine protected areas in Sweden – an introduction, Jenny Hertzman, Swedish Agency for Marine and Water Management, Sweden</p> <p>The management of a 1 million hectare protected area – a case study, Alexandra Colbing, County Administrative Board of Gotland, Sweden</p> <p>Fisheries conservation measures with the aim to protect the harbour porpoise in Swedish marine waters, Lena Tingström, Swedish Agency for Marine and Water Management, Sweden</p>
15.45 - 16.00 11.45 - 12.00	Break
16.00 - 16.45 12.00 - 12.45	<p><b>Theme 3: Ocean literacy, stakeholder engagement and outreach</b></p> <p>The NGO role in the conservation of the Baltic harbour porpoise, Ida Carlén, Swedish Society for Nature Conservation, Sweden</p> <p>The role of long-term studies for conservation: a case with bottlenose dolphins in southern Brazil., Pedro Fruet, Federal University of Rio Grande, Brazil</p> <p>Challenges for stakeholder engagement and the importance of strategic communication for franciscana dolphin conservation, Marta Cremer, Univille, Brazil</p>
16.45 - 17.00 12.45 - 13.00	<p>Summary and next steps</p> <p>Closing</p>

### Summary:

- Opening and welcome by Lena Ulrika
- Opening address by Catarina Hedar, head of unit for international affairs of SwAM
  - o overview of SwAM's international work related to SDGs and other international commitments, including Sida funded programmes
  - o mention of work withing international coventions – CBD, CCAMLR
  - o bilateral collaborations, among which Brazil, mentioning current seminar with aim of finding new domains for collaboration
- Opening address by Therezinha Oliveira, vice-rector of Univille
  - o Overview of work of Univille related to environmental conservation, in particular in the marine environment
  - o Collaboration important for Univille in general and thematic area of marine environmental research and conservation in particular
- Greeting from University of Gothenburg, Lena Ulrika Rudeke
  - o Tradition of research and eduction in environmental sciences, incl contribution to environmental managementt work
  - o Gothenburg University hosts Sweden's largest department of marine sciences

- Other departments and institutes working with environmental issues, incl in the marine environment
- Research vessels and research stations focusing on marine sciences
- Interest in playing larger role in the collaboration with Brazil
- Introduction by Erland Lettevall
  - History of collaboration involving Kolmården and Univille, with the support of SwAM
    - deployment of click-detectors for mapping of toninha i Babitonga Bay, used in doctoral research by Renan Paitach, concluded and shared with swedish partners in 2021
- Instructions shared with group regarding interactions during the seminar

### **Theme 1 – Monitoring and management of small cetaceans**

- *Sweden, Karl Norling and Susanne Viker, presentation*
  - Overview of marine mammal populations in Sweden, focus harbour porpoise
  - Monitoring system; principles, organisations involved
  - Most knowledge from stranded porpoises from the Swedish West Coast, but greatest knowledge gaps in Baltic population, which is also the most threatened
  - Management of harbour porpoise
    - National conservation plan
    - Conservation measures all very expensive – prioritization is necessary
    - Cooperation with countries sharing the same populations
  - Points for discussion
    - what challenges are similar between Sweden and Brazil?
    - what are the greatest challenges...bycatch, monitoring, underwater noise?
- *Brazil, Renan Paitach, Univille and Alexandre Machado, Fed University Santa Catarina*
  - Cooperation between dolphins and fishers in catching mullet – beneficial for both parts
    - at the same time dolphins suffering from human pressures
  - Dolphins who cooperate with fishers tend to have shorter ranges and to live longer – frequency of cooperation was the dominant factor
  - But the system has been changing – availability of mullet is declining at regional scale, but no visible effect for dolphin population yet
    - but drop in cooperative behaviour and social structure
  - Management strategy – zero bycatch management strategy
    - restriction and management of local fisheries
    - enforcing actions against illegal fishing activities
    - trying to reduce boat traffic
    - monitoring skin diseases and chemical and biological pollution
  - Bycatch main concern for franciscana dolphin
    - very high mortality, 5% of strandings
    - population monitoring is challenging – hard to see, but easy to hear
      - underwater click detection was the focus of the Sweden-Brazil collaboration
    - next step – applying pingers to detract franciscana from fishing nets
  - Passive accoustics shown to be very effective for monitoring, and pingers useful to minimise bycatch

- Better management only with deeper knowledge of abundance, for which the deployment of an array of detectors would be useful
- *Discussion*
  - *Opening reflection* – There is a wide spectrum of situations that are different in the two countries, but also a number of commonalities
  - Recalling questions from presentation from Sweden:
    - What are the similar challenges and what is most challenging in each country?
    - How to make research financially viable?
    - Are we dealing with management of animals or human activities?
  - Priorities
    - Brazil: mitigating bycatch is a priority, which in turn requires fisheries monitoring
      - Monitoring of bycatch itself is a problem, difficult to have information on real mortality. How is this done in Sweden?
        - In part being done with cameras on board fishing vessels – currently assessing effectiveness against logbooks. Cameras is a doable option, providing valuable information with reasonable investments
      - Bycatch is indeed a big challenge in Sweden, by some accounts the most important.
        - Measuring bycatch accurately is a challenge. Linking to population-level effects is not being done. Instead Sweden is mostly just counting animals caught. It is important to complement with other studies in order to determine population-wide effects – e.g. genetic sampling.
        - There are challenges from passive acoustic detection to density estimations. **A possible area for cooperation could be a joint training/course in statistics and mathematical modelling enabling the move from passive acoustics to density mapping. Such expertise is lacking in Sweden.**
        - SAMBAH II needed for improving knowledge about the full distribution of the Baltic Sea porpoise population, but the project has not yet been contracted
      - There is also a regulation in Sweden about how many porpoises can be killed, and how mortality should be monitored. Sweden must abide by EU regulation on maximum level of bycatch, but so far Sweden does not have all monitoring in place.
        - Are there similar obligations in Brazil, concerning bycatch and monitoring?
        - There is a sense that we cannot wait until all monitoring information is available before taking action. In the Baltic Sea, low population levels makes the bycatch monitoring strategy in Sweden insufficient.
    - Cumulative and synergetic effects of all other stressors – noise, pollution, especially in view of intense coastal development
      - Underwater noise from construction in Sweden, in particular linked to planned large scale offshore wind energy developments. Is this also relevant in Brazil?
        - Yes, something to have in mind, but very little is known in Brazil, mostly restricted to some studies in and around harbours, but otherwise little information about cumulative effects.

- Difficult to isolate noise sources in harbour area – there is data from 18 years of measurements, but difficult to isolate effects from single stressors in areas with many different stressors.
  - There are thermoelectric plants on the coast being planned, generating noise and warming of coastal waters from cooling waters. It is a new stressor, which moreover is bad for climate. Effects for marine life are poorly known.
  - **There is also an agenda in Brazil for offshore wind farms, and development is expected to happen fast. This could be an area for cooperation with Europe, where offshore wind farms have been established for many years.**
  - **More broadly, there is also interest in a broader collaboration on the measurement of underwater noise. There is expertise on this topic in Sweden, at the same time there is need for exchange of experiences from other countries.**
  - Effects of declining prey availability
    - What are the reasons behind the diminishing availability of mullet in Sta Catarina?
      - Mullet stock has become the target for industrial and artisanal fisheries, resulting in the stock being increasingly at risk
      - Climate-induced changes in migration routes can be an additional reason
    - Also in the Baltic Sea, harbour porpoise is a potential victim of declining ecosystem quality, namely in what concerns the availability of prey fish species.
    - It is difficult to take effective measures to improve ecosystem status – measures directed at bycatch of harbour porpoises are comparatively simple.
    - Fishing quotas need to take account of other species – risk that harbour porpoises will not have enough to eat. This is not the case today, though, where stock management only considers each species or population individually
  - Climate-related stressors – the question was raised about whether any of the participants is working on how climate affects or is predicted to affect stressors that small cetaceans are sensitive to.
  - Social dimension
    - The question was raised about how problems related to artisanal fisheries and their interactions with the conservation of small cetaceans is dealt with in Sweden.
    - Because conservation efforts involved the management of socio-ecological systems, are users involved in the monitoring and management?
- *Closing reflection*
- Small-scale monitoring is interesting, at it enables monitoring of human-animal interactions
  - It is important with knowledge about the extent and impacts of human activities – understanding the connections between different anthropogenic factors is particularly important.

## Theme 2 – Marine protected areas

- *Brazil, Leonardo Flach, Instituto Boto Cinza and Camila Domit, Fed Univ Paraná*
  - Cetaceans used as sentinels to detect environmental threats
- *Sweden, Jenny Hertzman and Lena Tingström, SwAM, Alexandra Colbing, County Administrative Board of Gotland*
  - Overview MPAs, different types and their location, around 350 in total
    - Eight MPAs have the aim of protecting harbour porpoise, even if not exclusive
  - Sufficient protection means that conservation status is stable and species has favourable conservation status
  - Jurisdiction over MPA management measures is shared between different levels and organisations
  - Fisheries regulations in MPAs for the conservation of harbour porpoise: bans for net fishing, use of pingers, no-take zones, trap fishing-only zones
- *Discussion*
  - Fishing and marine conservation
    - There is no compensation for reduced fishing because of marine conservation measures in place in Sweden today. Instead the state tries to achieve consensus with fishers.
    - MPAs and fisheries management in Brazil – how to move from the creation of MPAs to actual fisheries management – working with fisheries within MPAs is very difficult in particular at times when scientific findings are being attacked by politicians and influential groups in society
      - MPAs can be a useful tool, but currently the situation in Brazil is not very promising – science needs to be brought back into the decision-making
      - Fisheries management has yet to show results in terms of recovery of ecosystems.
    - Encouraging fishers to engage in dolphin tourism – how big is the interest in Brazil?
      - Similar situation in Brazil as in Sweden with declining number of fishers, who are also looking for new income generating activities, preferably at sea. Currently working on granting the necessary permits for tourism operations. Such opportunities are being taken up by younger fishers, not the older ones
  - Monitoring conservation effectiveness
    - Harbour porpoises forage everywhere, hence protected areas need expansion in order to protect a larger share of important habitats.
    - How to monitor pollution and other threats affecting MPAs?
      - There is a need for integrated ecosystem assessment methods in order to identify the different stressors and define appropriate measures at all relevant levels. Not only focusing on one species, but considering the ecosystem more broadly.
      - Many of the pressures come from land – these threats also need addressing, since measures addressing the threats at sea may not be enough
    - Emphasis should be put on deploying different tools for conservation to deal with the diversity of threats.

- Main underwater acoustic monitoring method for porpoises and pingers are banned by the Swedish navy in the Baltic – despite recommendation from EU and ICES to use these methods. How to get around this problem is now yet resolved.
- Suggestions for cooperation Sweden-Brazil:
  - **Collaboration to support monitoring and health assessments of small cetaceans in the context of the ocean decade. Exchanges to share knowledge and analytical processes and discuss results of management measures.**
  - **Collaboration on strategic approach to adaptive management of MPAs on different geographical levels, involving exchanges of knowledge and experiences between the two countries.**

### Theme 3 – Ocean literacy, outreach and stakeholder engagement

- *Sweden, Ida Carlén, Swedish Society for Nature Conservation*
  - The role of an NGO – policy advocacy based on science
  - Goal of increasing public knowledge
  - Engagement in public consultations
- *Brazil, Pedro Fruet, Federal University Rio Grande and Marta Cremer, Univille*
  - Attempt to implement MPA for protecting marine mammals – had the best possible science, but failed to engage with the populations affected
    - A new, more holistic approach was subsequently introduced, with outreach and education for the population
  - How to communicate and engage with diverse actors?
    - reach out to different audiences, using different channels and communicate outside scientific circles
  - Develop strategies to work with people
  - Place dolphin management into a broader ecosystem management
- *Discussion*
  - Description of the challenges with deploying pingers in Sweden because of opposition from the Swedish navy and the associated challenges with engaging the navy
  - Fisheries - dolphin interaction programme in Sweden and Denmark – the use of underwater acoustics can be used in dolphin tourism to enhance the visitors´ experience, by including the underwater acoustic dimension, and not only the visual dimension above the se asurface
  - Should dialogue move from conservation of species to ecosystem health? Important to emphasize dialogue and not just 'communicating to'
    - It is difficult for scientist to communicate their knowledge to non-scientists; at the same time many scientists are not concerned about outreach, even if that is essential for pursuing conservation goals. Public outreach is not valued as high for progressing in a scientific career as communicating within academia.
  - **It is necessary to develop good methods for conservation-oriented dialogue. This is a candidate area for cooperation between Sweden and Brazil.**
    - **Involving art and culture in communication and outreach is important and is being done in Sweden. It may be necessary to expand to include marine environment-related themes**



- **Even if culture may feel too fuzzy, it is essential for how we communicate and understand each other**
  - **Gothenburg University has collaboration with South Africa on sustainability teaching/dialogue for small children. This experience could be valuable for a collaboration with Brazil on marine environment-related topics.**
- *Closing reflection*
  - Communication element is very important – from protecting small cetaceans to protecting the oceans
    - There are many different stakeholders that need to be engaged – it is important to understand who these are and put in place a good dialogue with each of them
  - It is important to lift our heads and consider all other pressures affecting the marine environment
- Summary of potential areas for future cooperation between Sweden and Brazil by Goncalo Carneiro
- Closing by Lena Ulrika

