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## SMM BIENNIAL CONFERENCE AND SEVENTH INTERNATIONAL SIRENIAN SYMPOSIUM

The Society for Marine Mammalogy will host the 21<sup>st</sup> Biennial Conference on the Biology of Marine Mammals: Bringing the Past Toward the Future in San Francisco, CA, USA from December 13-18, 2015. Information regarding the conference schedule, registration, travel and logistics, important dates, etc. can be found at <https://www.marinemammalscience.org/conference/>.

The Seventh International Sirenian Symposium will be held in conjunction with the Biennial in San Francisco on Sunday, December 13 from 8:30am to 5:30pm. The purpose of this symposium is to foster communication between researchers, managers, and policy makers on all aspects of Sirenian Conservation. Individuals are invited to present new information on Sirenian conservation and management, stranding response and medical assessment, monitoring applications, and general biology and research. The symposium will include presentations, with time for questions and a poster session. Sirenian items will be available for purchase to raise funds for future travel grants. After September 15 registration fees will be \$30 USD, and seating is limited. To sign up for the symposium, visit the conference registration site (see above).

Small grants will be available for those individuals traveling from outside the United States who are not already receiving financial assistance from the Society for attendance at the Biennial. Interested individuals should contact Nicole Adimey ([adimey22@gmail.com](mailto:adimey22@gmail.com)) for more information.

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UNION INTERNATIONALE POUR LA CONSERVATION DE LA NATURE ET DE SES RESSOURCES  
INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES  
Commission de la sauvegarde des especes - Species Survival Commission

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Sirenews is available online at <http://sea2shore.org/publications/sirenews/> and [www.sirenian.org/sirenews.html](http://www.sirenian.org/sirenews.html)

## **BELIZEAN MANATEE RESEARCHER WINS PRESTIGIOUS AWARD FOR CONSERVATION WORK**

It was a cloudless, gorgeous day in Belize when I first met Jamal Galves nearly two decades ago as I readied our boat to embark on a manatee research study. Diminutive in stature but not personality, Jamal pleaded to help with our research. At just 11 years old, Jamal was simply too young.

I asked him to return when he was a bit older – which he did – each and every time I was at the dock. Eventually, I relented and he began accompanying us on our field trips. Jamal proved himself an invaluable and irreplaceable member of our team, eventually becoming our program assistant. He now manages Sea to Shore Alliance’s conservation work in Belize, leading educational, research, and community activities for the benefit of Antillean manatees.

Jamal’s life-long commitment to conservation was recognized this September as he became the youngest recipient of Belize’s prestigious Meritorious Service Award. This honor is given to Belize nationals who have contributed significantly to the betterment of the country, and is awarded by the Governor General of Belize. Jamal’s award recognizes his efforts to conserve manatees through public education, research, direct rescue and rehabilitation of injured calves and adults, and enforcement of boat speed zones in conflict areas. We are extremely proud of Jamal for receiving this remarkable award.

As threats to manatee survival increase in Belize, the country needs a conservation hero whose passion and persistence are unshakeable. Thankfully, the tenacity that Jamal showed as a child on that dock remains, making him the ideal advocate for manatees in Belize.

**-Buddy Powell (editor)**



## **REVISED WEBSITE FOR SIRENIA SPECIALIST GROUP**

The IUCN Sirenia Specialist Group has an updated website. Please visit <http://locus39.net/iucnssg> to find information about the SSG, including regional subgroups, challenges and goals, and recent news.

**-Helene Marsh and Benjamin Morales-Vela (SSG Co-Chairs)**

## **AFRICAN MANATEE RED LIST ASSESSMENT**

A new IUCN Red List assessment for the African manatee (*Trichechus senegalensis*) was published online this past June 2015 (<http://www.iucnredlist.org/details/22104/0>). Prior to this assessment, which took three years to complete, the species listing had not been updated since 2008. New information for African manatee distribution was included for many countries, the range map was updated to more accurately reflect distribution, and the bibliography was updated from 38 references to 113. Additional information was submitted in July, and should be updated on the website in the next few months.

**-Lucy Keith Diagne (lucywkeith@hotmail.com)**

## DUGONG AERIAL SURVEY DATABASE

The James Cook University dugong research team is proud to announce the release of a dugong aerial survey database, which has been compiled as part of a project funded by the Australian Marine Mammal Centre (AMMC). The database is MySQL based and currently contains data from 54 aerial surveys for dugongs in nine regions along the Australian coast since 1984 including: Shark Bay (WA), Exmouth (WA), Pilbara (WA), Gulf of Carpentaria (NT/QLD), Torres Strait, northern Great Barrier Reef (QLD), southern Great Barrier Reef (QLD), Hervey Bay (QLD), and Moreton Bay (QLD).

Data were collected during strip transects surveys, following the survey technique detailed in Marsh and Sinclair (1989) and later refined by Pollock *et al.* (2006). Surveys were usually conducted at a height of 450 or 500 feet (134 or 152 m, respectively) above sea level. Individual parameters for each survey are noted in the database. Transects on the water surface on each side of the aircraft were demarcated using fiberglass rods attached to artificial wing struts on the aircraft. Usually, two tandem teams of observers on each side of the aircraft scanned their respective transect and recorded sightings onto separate tracks of an audio recorder. The two members of each tandem team operated independently and could neither see nor hear each other when on transect. Dugongs were the main focus of these surveys, followed by dolphins, marine turtles and other marine megafauna, such as sharks, rays and seasnakes. The database currently holds dugong data only.

The data from each survey area were analyzed to determine estimates of relative dugong abundance, following the methodologies of Marsh and Sinclair (1989) and Pollock *et al.* (2006). The database can be accessed on <https://dugongs.tropicaldatahub.org/> (DOI: 10.4225/28/557F7B61ED8E1). While the database is available for anyone, users are required to contact the data custodian (Susan.Sobtzick@jcu.edu.au or Helene.Marsh@jcu.edu.au) to obtain access details.

We urge potential users to familiarize themselves with the methodology and the limitations of the database before using the data for their projects (documentation is available on the abovementioned webpage). Given that the data span more than 30 years, and data collection and analyses have been continuously refined over that period, inevitable differences between individual surveys exist which need to be considered when working with the dataset. We highly recommend reading the corresponding publications (web links to reports and papers are provided), and comments in the database, and examining the provided shapefiles to fully understand each survey.

We hope this valuable resource will assist other researcher with their work and we are looking forward to new and exciting collaborations!

**-Helene Marsh and Susan Sobtzick**

## NEW IPAD APP FOR DATA COLLECTION DURING AERIAL SURVEYS FOR MARINE MEGAFUNA

We would like to announce the release of a new iPad app that facilitates data collection during aerial surveys of marine megafauna. The app has been developed as part of various research programs funded by different organizations. In particular, we would like to acknowledge the support from the Australian Government and James Cook University.

The app allows entering sighting details for dugongs, dolphins, whales, sharks, and other animals in real time and automatically captures the GPS location for each sighting (note: iPads must have GPS capabilities or will require an external GPS device). The workflow of the app is following data collection procedures for dugong aerial surveys using the strip transect methodology developed by

Marsh and Sinclair (1989), and later refined by Pollock *et al.* (2006). Data are stored on the iPad as a csv file and can easily be transferred to a computer using iTunes.

To download this app, search for *Aerial survey of Marine Megafauna* in the AppStore. Please note that the app is currently only available for iPads, free of charge.

**Features:**

- Flight setup (e.g. airport name, weather conditions, observer names, take-off time)
- Transect setup (e.g. transect number and direction)
- Conditions entry (e.g. sea state, visibility and glare) with automated reminder to enter conditions every 2 minutes
- Animal sighting entry (e.g. dugongs, dolphins, turtles, sharks, whales, rays and sea snakes) with specific information for each sighting, such as number of animals, position in transect and which observer is making the observation.
- Separate entry option for herds
- End of flight entry (e.g. airport name, height and altimeter reading).

**-Helene Marsh and Susan Soltzick (susan.soltzick@jcu.edu.au)**

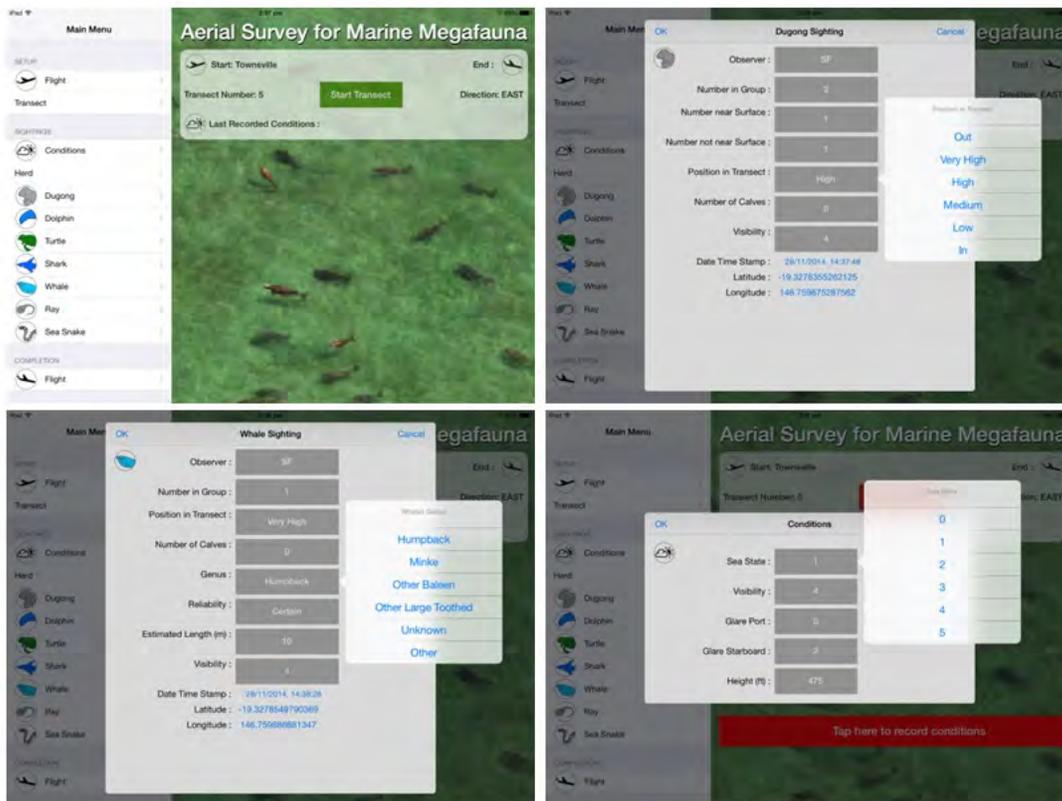


Figure 1. Screenshots of the Marine Megafauna ipod app.

## LOCAL NEWS

### BRAZIL

***What brought a small island in the Caribbean and Brazilian manatees to the focus of a great international dilemma?*** A plan for re-establishing manatees in the waters of the Grand Cul-de-Sac Marin natural reserve, coordinated by the National Park of Guadeloupe and other entities of this Caribbean island, has been launched and widely advertised. Media coverage and several published documents have discussed all aspects of the planned reintroduction of manatees in Guadeloupe, including: (a) likelihood of survival, (b) likelihood of dispersal from Guadeloupe, (c) likelihood of reproduction, (d) need for health monitoring and possible intervention, (e) need for pre-release training on seagrass as forage, (f) harbouring disease, (g) genetic background, (h) susceptibility to predation and (i) interaction with humans (O’Shea and Reynolds 2012; Lerebours and Magnin 2013).

One of the issues considered for this re-introduction plan is the recommendation “that animals sought for translocation come from a large population of Antillean manatees as possible, to minimize the effects on the remaining population” (Reynolds and Wetzel, 2008, p. 4). Brazil has been assigned as one of these candidate countries (for providing manatees for re-introduction in Guadeloupe) as its estimated population size of 500 individuals was considered a large population. In this regard, a recent aerial survey of manatees along *ca.* 1,500 km of coastline in north-eastern Brazil provided an estimated manatee population of 1,104 individuals and a 95% posterior probability interval ranging from 485 to 2221 individuals, which indicates high uncertainty (Alves *et al.* 2015). The survey excluded the North Brazilian coast states, as no reliable abundance estimates exist so far. In the southern portion of the northeast states, Sergipe and Bahia, manatees are extinct, as well as along Espírito Santo, its historical southern limit of distribution in Brazil.

Considering the numerous constraints of using wild manatees in the re-introduction program in Guadeloupe, attention has been directed to captive specimens. In this sense, Reynolds and Wetzel (2008, p. 4) argued that “for example, in northeastern Brazil, there used to be (and may still be) a number of captive Antillean manatees (mostly orphaned calves, as we recall)”. These authors propose that “these animals might be good candidates for the reintroduction because: a) it would eliminate or reduce the need for removals of manatee from wild populations; b) the captive animals would be easy to assess in terms of their health and genetic make-up; and c) costs would be significantly reduced”. It is reasonable to believe that this has been the first step towards the use of Brazilian manatees in the re-introduction program in Guadeloupe.

As years passed, a national plan for manatee conservation in Brazil was under discussion and was finally published in 2011 (PAN Sirênios – ICMBio, 2011). The word “re-introduction” [reintrodução, in Portuguese] appears many times in the official document but none is related to the Island of Guadeloupe. It is no surprise that Brazilian scientists and conservationists have not been fond of the idea of translocating manatees to Guadeloupe (see *Sirenews* 63, pp. 2-3). Indeed, Siciliano and Bonvicino (2015) have raised their concern over this initiative, pointing out the obvious distinctiveness of genetic stocks from Brazilian and Caribbean manatees. These authors recommended that manatees should instead be re-introduced in the states of Bahia and Espírito Santo, in Brazil. Such huge coastlines would be a natural destination for rehabilitated manatees.

The dilemma of translocating or not translocating Brazilian manatees to Guadeloupe persists today. There has been no public and scientifically sound discussion on the issue of translocating Brazilian manatees to Guadeloupe, even though the Ministry of Environment of Brazil publicized it as an achievement (ICMBio, 2015). What went wrong in the meantime? This is an appeal for an

international consensus on this important issue. The nationals of Guadeloupe should know that the re-introduction plan hasn't been presented for careful discussion in Brazil. We want to have these points clarified and to facilitate and participate in an open discussion, following the best practices of a democratic nation. -**Salvatore Siciliano**<sup>1,2</sup> (gemmlagos@gmail.com) and **Renata Emin-Lima**<sup>2</sup> (<sup>1</sup>Instituto Oswaldo Cruz/FIOCRUZ, Rio de Janeiro, RJ, Brazil and <sup>2</sup>Museu Paraense Emílio Goeldi, Coordenação de Zoologia, Setor de Mastozoologia, Grupo de Estudos de Mamíferos Aquáticos da Amazônia (GEMAM), Belém, PA, Brazil)

#### References

Alves, M.D., Kinas, P.G., Marmontel, M., Borges, J.C.G., Costa, A.F., Schiel, N. and Araújo, M.E. 2015. First abundance estimate of the Antillean manatee (*Trichechus manatus manatus*) in Brazil by aerial survey. Journal of the Marine Biological Association of the United Kingdom. DOI:10.1017/S0025315415000855

ICMBio, 2011. Plano de ação nacional para a conservação dos sirênios: peixe-boi-da- Amazônia: *Trichechus inunguis* e peixe-boi-marinho: *Trichechus manatus*. Available at: <http://www.icmbio.gov.br/portal/biodiversidade/fauna-brasileira/plano-de-acao/840-plano-de-acao-nacional-para-a-conservacao-dos-sirenios.html>

ICMBio, 2015. Esforço internacional busca recuperar o peixe-boi marinho. Available at: <http://www.icmbio.gov.br/portal/comunicacao/noticias/20-geral/6748-esforco-internacional-busca-recuperar-o-peixe-boi-marinho.html>

Lerebours, B. and H. Magnin, H. 2013. The Proposed Reintroduction of the Antillean Manatee (*Trichechus manatus manatus*) in the Grand Cul de Sac Marin Bay, Guadeloupe (FWI): An Innovative Challenge of Collaboration with the Fishing Community. Proceedings of the 65th Gulf and Caribbean Fisheries Institute. November 5 – 9, 2012. Santa Marta, Colombia. Available at: <http://nsgl.gso.uri.edu/flsgp/flsgpw12004/data/papers/65-34.pdf>

O'Shea, T.J. and Reynolds, J.E. III. 2012. An Investigation of Factors Promoting Success or Failure of Releases of Sirenians after Being Held in Captivity, as Pertinent to the Proposed Reintroduction of Antillean Manatees (*Trichechus manatus manatus*) to Guadeloupe. Submitted to Parc National de la Guadeloupe Cité Guillard 97100 Basse-Terre. Available at: [http://www.guadeloupe-arcnational.fr/IMG/pdf/captif\\_ versus \\_sauvage\\_vol.2.pdf](http://www.guadeloupe-arcnational.fr/IMG/pdf/captif_ versus _sauvage_vol.2.pdf)

Reynolds, J. and Wetzel, D. 2008. Reintroduction of Manatees *Trichechus manatus* into Guadeloupe, Lesser Antilles: Issues, Questions and Possible Answers. 12 pp. Available at: [http://www.guadeloupe-parcnational.fr/IMG/pdf/2008\\_reintroduction\\_of\\_manatees\\_trichechus\\_manatus\\_into\\_guadeloupe\\_lesser\\_antilles\\_issues--questions\\_and\\_possible\\_answers.pdf](http://www.guadeloupe-parcnational.fr/IMG/pdf/2008_reintroduction_of_manatees_trichechus_manatus_into_guadeloupe_lesser_antilles_issues--questions_and_possible_answers.pdf)

Siciliano, S. and Bonvicino, C.R. 2015. Por que os peixes-bois não devem voar. Ciência Hoje online. Notícias. Available at: <http://cienciahoje.uol.com.br/noticias/2015/06/por-que-os-peixes-bois-nao-devem-voar>

***An unexpected record for the Amazonian manatee, *Trichechus inunguis*, in Brazil.*** Distributed throughout the Amazon basin, the Amazonian manatee (*Trichechus inunguis*) is considered rare in the upper parts of the Tocantins River. In fact, information on their distribution in eastern Pará state is scanty, limited to a few historical and recent anecdotal records. A *T. inunguis* calf was found in a tributary of the Capim River (03°57'55.33" S, 048°54'3.56" W) in Goianésia do Pará, 364 km south of Belém, Pará state, on August 26, 2015 (Figure 1). The manatee calf was subsequently rescued by environmental officers of Goianésia do Pará Prefecture and sent for veterinary care in the same city on August 29, 2015. Following the rescue and initial treatment, the environmental officers of Goianésia do Pará contacted the Museu Paraense Emílio Goeldi, in Belém, who informed the members of the Aquatic Mammals Study Group of the Amazon (GEMAM) and veterinarians of the Brazilian Aquatic Mammal Stranding Network (IBAMA).

Clinical evaluation of the calf was requested by the officers in Goianésia do Pará and was received. Our team assessed the overall condition of the calf, acknowledging the success of the rescue conducted by local officers. Vitória, as the young female was nicknamed, measures 80 cm and weighs 15 kg (Figures 1 and 2). The task team, coordinated by IBAMA, decided to keep the calf in quarantine under the supervision of the Goianésia do Pará officers. During quarantine, Vitória will receive a total of four baby bottles daily filled with a recipe of soy-based milk. Future plans will include transportation of the calf to a new facility, in anticipation of her reintroduction into the wild and post-release monitoring using a satellite radio tag with a built-in VHF. The present record is remarkable as the calf was found in a tributary located in the upper parts of Capim River watershed, drained by the Amazonian and the Tocantins-Araguaia basins. As such, Vitória represents an admirable contribution to our present knowledge on the distribution range of *T. inunguis* in the eastern Amazon region. In fact, the present record remodels the distribution map of the Amazon manatee in Brazil, extending eastwards the remaining known populations. Furthermore, the post-release monitoring data of her home range and habitat use will give us a more structured idea on the distribution of Amazonian manatees in eastern Pará. We thank the IBAMA office in Pará for logistical support.

**Renata Emin-Lima<sup>1</sup>, Leonardo A. Pretelt Quintero<sup>1</sup>, Márcio Alan Oliveira Moura<sup>1</sup>, José de Sousa e Silva Júnior<sup>1</sup>, Salvatore Siciliano<sup>2</sup>, André Batista<sup>3</sup>, Maria dos Anjos<sup>3</sup>, Allan Garcia<sup>3</sup>**

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Figure 1. Amazonian manatee (*Trichechus inunguis*) calf found in a tributary of the Capim River in Goianésia do Pará, Pará state, on August 26, 2015. Picture by Goianésia do Pará Prefecture.



Figure 2. Vitória, the Amazonian manatee calf, in quarantine in Goianésia do Pará. Picture by MPEG/GEMAM.

## RECENT LITERATURE

Amson, E., C. de Muizon, D.P. Domning, C. Argot, and V. de Buffrénil. 2015. Bone histology as a clue for resolving the puzzle of a dugong rib in the Pisco Formation, Peru. *Journal of Vertebrate Paleontology* 35(3): e922981 (4 pp.). DOI: 10.1080/02724634.2014.922981, <http://www.tandfonline.com/loi/ujvp20>

Aven, A.M., R.H. Carmichael, M.J. Ajemian and S.P. Powers. 2015. Addition of passive acoustic telemetry mitigates lost data from satellite-tracked manatees. *Marine and Freshwater Research* 66(4):371-374.

Frankovich, T.A., M.J. Sullivan and N.I. Stacy. 2015. Three new species of *Tursiocola* (Bacillariophyta) from the skin of the West Indian manatee (*Trichechus manatus*). *Phytotaxa* 204(1):33-48.

Holguin-Medina, V.E., J. Fontenele-Araujo, V.M.A. Romero, J.F. Cortes and J. Munoz-Delgado. 2015. Circadian and ultradian activity rhythms in manatee (*Trichechus manatus manatus*) in captivity. *Biological Rhythm Research* 46(5):631-645.

Mayaka, T.B., A.T. KAMLA and C. Self-Sullivan. 2015. Using Pooled Local Expert Opinions (PLEO) to discern patterns in sightings of live and dead manatees (*Trichechus senegalensis*, Link 1785) in lower Sanaga Basin, Cameroon. *PLOS ONE* 10(7) e0128579. 23pp.

Rocher, P., L. Charles, and N. Mémoire. 2015. Redécouverte du crane de *Rytiodus capgrandi* Lartet, 1866 (Mammalia: Dugongidae) du Plantat (Saint-Morillon, Gironde). *Bull. Soc. Linn. Bordeaux* 150, n.s. no. 43(1): 13-18.

Springer M.S, A.V. Signore, J.L.A. Paijmans, J. Velez-Juarbe, D.P. Domning, C.E. Bauer, K. He, L. Crerar, P.F. Campos, W.J. Murphy, R.W. Meredith, J. Gatesy, E. Willerslev, R.D.E. MacPhee, M. Hofreiter, K.L. Campbell. 2015. Interordinal gene capture, the phylogenetic position of Steller's sea cow based on molecular and morphological data, and the macroevolutionary history of Sirenia. *Molecular Phylogenetics and Evolution* 91: 178-193.

Vélez-Juarbe, J., and D.P. Domning. 2015. Fossil Sirenia of the West Atlantic and Caribbean region. XI. *Callistosiren boriquensis*, gen. et sp. nov. *Journal of Vertebrate Paleontology* 35(1): e885034 (16 pp.) DOI: 10.1080/02724634.2014.885034, <http://www.tandfonline.com/loi/ujvp20>



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